

# Nexus Mapping Study for South-East Europe: Report for Kosovo\*

## Background Study for the SEE2020 Region Nexus Policy Dialogue Process

\* This designation is without prejudice to positions on status, and is in line with UNSCR 1244 and the ICJ Opinion on the Kosovo declaration of independence

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## Background

The Study was prepared in the framework of the following projects:

- "Water-Food-Energy-Environment Nexus Policy Dialogue Process in South East Europe" funded through the Advisory Assistance Programme of the German Environment Agency in cooperation with the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety;
- ii. GEF IW:LEARN Activity 2.3: *Supporting Regional Cooperation on Shared Water Resources through Dialogue*, and
- iii. "Promoting the Sustainable Management of Natural Resources in Southeastern Europe, through the use of the Nexus approach" funded by the Austrian Development Agency.



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## Index

Index3
1. Introduction
1.1. Purpose of the study – Context
1.2. Methodology for the development of the study7
2. Nexus Assessment for Kosovo*
2.1. Key data and trends10
2.1.1. Economy
2.1.2. Water Sector
2.1.3. Energy Sector
2.1.4. Food Sector
2.1.5. Ecosystem and Biodiversity25
2.1.6. Institutional setting
2.1.6.1. Water Sector
2.1.6.2. Energy Sector
2.1.6.3. Food Sector
2.1.6.4. Ecosystem and Biodiversity35
2.1.7. Legislation
2.1.7.1. Water Sector
2.1.7.2. Energy Sector
2.1.7.3. Food Sector
2.1.7.4. Ecosystem and Biodiversity42
2.1.8. Policies and strategic documents42
2.1.8.1. Water Sector
2.1.8.2. Energy Sector
2.1.8.3. Agriculture
2.1.8.4. Environment & Biodiversity 44
2.1.9. Establishment of coordination bodies or instruments
2.1.10. Nexus-related initiatives
2.1.11. Climate change adaptation48
2.1.11.1. Investment for Climate Change51
2.1.12. Nexus-related overview of Trans boundary basins/ aquifers
2.1.13. Turning Nexus trade-offs to synergies
2.1.14. Integration of climate resilience aspects in sector policy, regulation and management

2.1.15. Integration of resource use efficiency aspects	54
2.1.16. Consideration of nature-based solutions	55
2.2. The role of international action	
2.2.1. Nexus approach in the transboundary water management	
3. Conclusions	
4. Annexes	
4.1. References	
4.1.1. Acronyms	
4.1.2. Glossary	
4.1.3. Literature references	

### List of Figures

Figure 1: Schema of work developed for the study.	8
Figure 2 Kosovo* Physical Map	9
Figure 3 Kosovo* Political Map	10
Figure 4: Nominal GDP per inhabitant/yr	11
Figure 5: Share of primary sector in economy: Agriculture	11
Figure 6: Share of secondary sector in economy: Industry	12
Figure 7: Share of tertiary sector in economy: Services	12
Figure 8: Employment rate in Kosovo*	13
Figure 9: Gini Index	13
Figure 10: Import share of Kosovo* in SEE region	14
Figure 11: Export share of Kosovo* in SEE region	14
Figure 12: Kosovo* Lakes and Rivers	15
Figure 13: Water availability and abstraction (in million m <sup>3</sup> /yr) and Water Exploitation Ir	ıdex
(in %), latest year available	16
Figure 14: WEI + (January 2012)	17
Figure 15: Changes in urban waste water treatment in the Western Balkans	18
Figure 16: Energy production and imports of Kosovo* in 2015	18
Figure 17: Hydropower plants in Kosovo*	20
Figure 18: Electricity production by hydropower (GWh/yr)	20
Figure 19: Electricity Demand and Its Coverage	21
Figure 20: Evolution of energy efficiency compared to economic growth in Kosovo*	21
Figure 21: Energy efficiency in Kosovo*: energy consumption per capita (tCO2)	22
Figure 22: Land Use Share	24
Figure 23: Food Production and Consumption	24
Figure 24: Graphical Representation of the Number of Plants Specifies that fall under	
various risk categories	26
Figure 25: Protected areas as a share of the territory	28
Figure 26: Organization Structure of Ministry of Economic Development	33
Figure 27: Organization Structure of Ministry of Agriculture, Forestry and Rural	
Development	34
Figure 28: Organization Structure of Ministry Environment and Spatial Planning	36

Table 1: Overview on key Nexus sectors in Kosovo*
Table 2 Water Supply of Urban Sector16
Table 3 Water Usage in Agriculture 16
Table 4 Water Usage in Industry
Table 5 Thermal Capacities of Generation Units in Kosovo*
Table 6 Hydro Capacities of Existing HPP
Table 7 Used Agricultural Land. Data on forest land, unused agricultural land and non-
agricultural land are not included23
Table 8 Protected Areas
Table 9: Overview on the administrative setup and coordination instruments for the Nexus
in Kosovo*
Table 10 Overview on the current Nexus-related initiatives addressing XK, indicating d
which Nexus elements are being addressed (W – Water; E- Energy, F – Food, E-
Ecosystems). The table includes also information on which Nexus-relevant key policies the
initiative has been active (CB: Capacity Building, RE: Resource efficiency: NBS: Nature-based
Solutions: CC – Climate resilience)
Table 11 GHG emission reduction measures by sectors and sub-sectors (NAMA)
Table 12 Investment in Climate Change Adaption
Table 13 Transboundary river basins and aquifers in the SEE region. Source: UNECE. 2011 52
Table 14: Integration of Nexus aspects in recent regulation, strategies or plans for the
Nexus in Kosovo*
Table 15: Overview on the integration of climate resilience in recent regulation, strategies
or plans in Kosovo*
Table 16: Overview on the resource efficiency considerations in recent regulation.
strategies or plans in Kosovo*
Table 17: Percentage change in water abstractions for Kosovo* as per the 'Sustainability
Eventually' scenario under the SCENES project
Table 18: Overview on the consideration of nature-based-solutions in recent regulation.
strategies or plans in Kosovo*
Table 19: International multi- or bilateral agreements/conventions undersigned by Kosovo*
in the different Nexus fields (indicating the year of ratification/adoption)
Table 20: Overview on the current Nexus-related initiatives
Table 21: Transboundary river basins and aquifers in Kosovo*
Table 22: Nexus-relevant challenges and corresponding transboundary actions in river
basins and aquifers in Kosovo*
Table 23: Main Nexus conflicts in Kosovo*, and past recommendations to overcome them
List of boxes
Box 1: Kosovo's* "Inter-Ministerial Water Council"
Box 2: Water efficiency, water savings and the Jevons paradox
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Table 4. Manatan Istatan	
Table 1: Version history	

Version	Date	Changes included	Goes to
Kosovo*	13 May 2018	Initial draft for comments (Alban Doko)	FT-GUS
Ed0b	14 May 2018	QA (content, English) by Guido Schmidt	GWP-Med
Ed1	15 Dec 2018	Second draft for comments (Alban Doko)	FT-GUS
Ed1a	16 dec 2018	Final QA	GWP-Med

## **1. Introduction**

This Economy Report focuses on Kosovo\* as a part of SEE2020 Region (including The Former Yugoslav Republic of Macedonia, Bosnia and Herzegovina, Albania, Montenegro and Serbia, within its wider geographic context). It is aimed as the conceptual and technical background to support and inform the Nexus Policy Dialogue process, ongoing since 2013 in SEE under the 'Petersberg Phase II / Athens Declaration Process' and Global Environment Facility's (GEF) programme "International Waters: Learning Exchange and Resources Network" (IW:LEARN) in cooperation with the Regional Cooperation Council (RCC).

	Albania
Size (km <sup>2</sup> )	28,748
Population (million inhabitants)	3.0
Economic growth (NomGDP EUR/capita)	3537
Water renewable resources (million m <sup>3</sup> /yr)	39,220
Water abstractions (million m <sup>3</sup> /yr)	15,100
Energy production (Mtoe/yr)	2.1
Energy imports (Mtoe/yr)	0.3
Energy efficiency (Mtoe/yr/capita)	1.32
Agricultural land (% of total)	28
Forest land (% of total)	60
Protected areas (% of total)	17.74

Table 1: Overview on key Nexus sectors in Kosovo\*1.

## **1.1.** Purpose of the study – Context

This Nexus Assessment is prepared in the framework of the following projects:

- "Water-Food-Energy-Environment Nexus Policy Dialogue Process in South East Europe" funded through the Advisory Assistance Programme of the German Environment Agency in cooperation with the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety.
- GEF IW:LEARN Activity 2.3: Supporting Regional Cooperation on Shared Water Resources through Dialogue
- "Promoting the Sustainable Management of Natural Resources in South-eastern Europe, through the use of the Nexus approach" funded by the Austrian Development Agency.

This Study will be used as the conceptual and technical background to support and inform the activities of the three Projects above as well as the Nexus Policy Dialogue process, who have the following objectives:

- Supporting the discussion for the preparation of a regional water, food, energy, environment Nexus Strategy/Roadmap under the SEE2020, describing steps and actions for the introduction of Nexus approach considerations in the basin/aquifer management frameworks at national and transboundary levels as means towards sustainable management of water, land, energy and environment.
- Facilitation of the discussions among the SEE2020 economies for the possibility of a Regional Integral Water Management Framework Agreement (RIWMFA) comprising among others of regional means and tools to assist in addressing challenges related to transboundary water resources management (TWRM).
- Fostering cross-fertilisation of institutions and practitioners at regional and national levels.

The specific objectives of the Study are the following:

- Identification of the level of integration of management of natural resources related to Nexus (i.e. water, energy, food and ecosystems).
- Identification of interlinkages and potential benefits, trade-offs and conflicts among Nexus sectors (water, energy, food and ecosystems).
- Brief assessment of the level and status of cooperation for the management of transboundary basins in the SEE2020 region.

## **1.2.** Methodology for the development of the study

The work is divided in four main tasks, which have been developed in a sequenced way, overlapping in time, between August 2017 and September 2018. They are indicated in the following schema:



#### Figure 1: Schema of work developed for the study.

Based on the objectives established, data and information were gathered, which was carried out both at the regional level and at the level of the economies. The study includes in the Annex a list of literature, information sources, datasets and interviews.

For the Study, experts used several tools: desk research (relevant strategic documents, plans, programs; regional transboundary documents; statistical data for the economy; updated legislation; signed agreements regarding relevant nexus sectors; ratified conventions); contacting relevant institutions regarding missing data for some issues; and own knowledge and past experience.

## 2. Nexus Assessment for Kosovo\*

Kosovo\* has an area of 10 905 km<sup>2</sup>. It is situated in South-Eastern Europe bordering Albania to the southwest, Montenegro to northwest, Serbia to northeast and The Former Yugoslavian Republic of Macedonia to the south.

The territory lies in geographic longitudes 41° 51' and 43° 16' and the latitudes 19° 59' and 21° 47'.

Currently there are 38 municipalities with 1.469 settlements organized under the laws of the country.

Kosovo\* state structure is characterized by a very young population, where the average age is 30.2 years. Population of Kosovo\* is 1.8 million inhabitants.

In the period after 1990, Kosovo\* struggled with the issue of migration which had an impact both in population structure and in its growing rate. Free and uncontrolled movement of population changed the ratio between urban and rural population. According to population census that was conducted in April 2011, 61% of the population lives in rural areas.

The territory of Kosovo<sup>\*</sup> is characterized with various altitudes. The lowest point of Kosovo<sup>\*</sup> is in the valley of river Drini i Bardhë, in the border with Albania which is only 270 m above the sea level, and the highest point is in the west of Kosovo<sup>\*</sup>, Gjeravica with an altitude of 2.565 m.

In the hydrological aspect, Kosovo\* is divided into river basins of Drini i Bardhë, Ibri, Morava e Binçës and Lepenci. The rivers of Kosovo\* flow into three seas: Black Sea, Adriatic and Aegean Sea.



Figure 2 Kosovo\* Physical Map



Figure 3 Kosovo\* Political Map

## 2.1. Key data and trends

### 2.1.1. Economy

The main features of the economy are the following:

• Real GDP: 5.1 Billion EUR, Employment rate (Kosovo\* Institute of Statistics) is 28.0% (as 2016).

• Kosovo\* is rich in natural resources, and has been an important mining centre for much of its history. In Kosovo\* there is substantially high reserves of lead, zinc, silver, nickel, cobalt, copper, iron and bauxite.

The overall economic development of the Kosovo\* shows a steady increase since 2003 in terms of nominal GDP and nominal GDP/inhabitant.



Figure 4: Nominal GDP per inhabitant/yr

In terms of the main economic sectors, the primary sector is still very relevant in Kosovo\*, whilst of decreasing relevance in terms of economic weight and employment. The secondary sector is stable also the tertiary sector.







Figure 6: Share of secondary sector in economy: Industry



Figure 7: Share of tertiary sector in economy: Services

The employment rate in Kosovo\* is slowly increasing





Figure 8: Employment rate in Kosovo\*



The Gini index represents the (in) equality of wealth distribution.

In terms of the Imports and Exports between Kosovo\* and SEE region there is a decrease in imports and an increase in exports.

Figure 9: Gini Index



Figure 10: Import share of Kosovo\* in SEE region





#### 2.1.2. Water Sector

Water resources represent an important factor in the country's economic and social development. It is estimated that Kosovo\* has a water availability of 1600 m<sup>3</sup>/water/year per capita. In hydrographic terms, Kosovo\* is divided into 5 river basins: Drini i Bardhe, Ibri, Morava e Binçes, Lepenc and Plava. In an average humidity year, approximately 3.8 x 10<sup>9</sup> or

121.2 m<sup>3</sup> /sec of water flow out of Kosovo\*'s territory<sup>1</sup>, while the water availability including surface water and underground water is about  $4.6 \times 10^9 \text{ m}^3$ 

The main hydrological feature in Kosovo\* is the unequal and inadequate distribution of water demand when compared to the resources availability. The water energy potential in Kosovo\* is very low and it has been used until now to a very modest extent. The main reserves of groundwater are located in the western part of Kosovo\*, where reserves of surface water are also greater compared to the eastern and south-eastern parts where demand for water is very high.

Kosovo\* has a few natural lakes, while its artificial lakes include: Batllava, Gazivoda, Radoniq, Perlepnica and Badovc. It also has a few irrigation lakes. Kosovo\* is rich in thermal water resources used for health and recreation.





Regional water companies in Kosovo<sup>\*</sup> are: RWC Prishtina (Pristina), Hydroregion South (Prizren), Hydro-drini (Peja), Mitrovica (Mitrovica), Radoniq (Gjakove), Hydro-Morava (Gjilan), bifurcation (Ferizaj) and HPE Iber- Lepenc. About 69.6% of Kosovo<sup>\*</sup>'s population is supplied with water through public systems managed by the Regional Water Companies, and about 29% are supplied with water from systems not managed by RWC or own systems.

<sup>&</sup>lt;sup>1</sup> Report on the State of Water 2015

<sup>&</sup>lt;sup>2</sup> Kosovo\* Water Statistics 2015

#### Nexus Mapping Study for South East Europe – Report for Kosovo\*

Year	2010	2011	2012	2013	2014	2015	2016			
Unit	Million m3/year									
Water Supply	139.5	146.4	138.1	134.5	131.8	137	143.7			
Urban Sector										

#### Table 2 Water Supply of Urban Sector<sup>3</sup>

In 2016, about 89.59% of population of Kosovo\* was supplied with water through public systems managed by Regional Water Companies, while about 10.41% of the population did not have access to the services of water supply. In 2016, the total amount of water supply for households, industrial activities and institutions was 62.07 million m<sup>3</sup> of water. Meanwhile, the supply of households with drinking water has increased from year to year, for example, in 2010 it was 41.88 million m<sup>3</sup>; in 2014 it was 46.72 million m<sup>3</sup>; while in 2016 it reached 52.33 million m<sup>3</sup>.



Figure 13: Water availability and abstraction (in million m<sup>3</sup>/yr) and Water Exploitation Index (in %), latest year available<sup>2</sup>.

The water used for system of irrigation in agriculture varies according to the year. In 2010 it was 42 million m<sup>3</sup>, in 2014 it reached 53 million m<sup>3</sup>, and in 2017 it was 52.62 million m<sup>3</sup>. Regional Water Companies in Kosovo\* are: Irrigation Company Drini JSC and Irrigation Company Radoniqi- Dukagjini JSC. The following table presents the time series of data for irrigation in agriculture.

Table 3 Water Usage in Agriculture<sup>4</sup>

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Unit	Million m <sup>3</sup> /year														

<sup>&</sup>lt;sup>3</sup> Kosovo\* Water Statistics 2017

<sup>&</sup>lt;sup>4</sup> Kosovo\* Water Statistics 2017

Agriculture	34	36	33	36	39	41	44	40	42	46	50	52	67.11	67.52	64.98
Irrigation															
System															

Industrial and energetic operators are the greatest users of water. The greatest spenders of water in Kosovo\* include: KEK, Feronikel and Sharrcem. These operators are mainly supplied with water from superficial accumulating lakes. Some of the smaller industrial operators are supplied with water from the public network, whereas a few of them use well-based independent water supply systems.

Table 4 Water Usage in Industry<sup>5</sup>

Year	2010	2011	2012	2013	2014	2015	2016				
Unit	Million m3/year										
Water Supply Industry Sector	37.2	37.2	37.2	37.2	36.1	41.6	37.1				

Kosovo\* face pressure from water consumption, as shown by the river basin related Water Exploitation Index +.



Freshwater quality varies significantly across the region, which holds both pristine mountain streams as well as rivers polluted by industrial and urban wastewater, as well as agricultural run-off. Concentrations of key pollutants, such as organic pollution (measured in terms of BOD, biological oxygen demand) and ammonium, remained largely steady in the

<sup>&</sup>lt;sup>5</sup> Kosovo Water Statistics 2017

period 2000-2005. The extent of sewerage systems is low. Wastewater treatment is poor or non-existent in many urban and industrial areas<sup>4</sup>.



Figure 15: Changes in urban waste water treatment in the Western Balkans<sup>5</sup>.

The 10.41% of the population of Kosovo\* does not have access to drinking water services.

#### 2.1.3. Energy Sector

The energy sector along with mining and agriculture have been traditionally basic pillars of the Kosovo\* economy. Kosovo\* has significant potential for electricity production. The lignite reserves of Kosovo\* with around 12.5 billion tons, of which 10.9 billion are exploitable, are considered to belong to largest lignite reserves in Europe. Nevertheless, Kosovo\* is facing serious problems in meeting electricity demand for the entire last decade even though since 1999 some improvements have been noted. Electricity is mostly generated from Thermal Power Plants (TPP) 'Kosovo\* A' and 'Kosovo\* B', while a smaller amount is generated from hydropower plants (Ujmani, Lumbardhi, Radaci, Dikanci and Burimi), (Tables below).



Figure 16: Energy production and imports of Kosovo\* in 2015<sup>6</sup>.

TPP Unit	TPP Unit capacity (M	Year of			
	Installed	Net	Available	(age)	
TPP Kosova A					
Unit A1	65	Not operational	0	1962 (51)	
Unit A2	125	Not operational	0	1964 (49)	
Unit A3	200	182	100-130	1970 (43)	
Unit A4	200	182	100-130	1971 (42)	
Unit A5	210	187	100-135	1975 (38)	
TPP Kosova B					
Unit B1	339	310	180-260	1983 (30)	
Unit B2	339	310	180-260	1984 (29)	
Total TPPs A+ B	1478	1171			

#### Table 5 Thermal Capacities of Generation Units in Kosovo\*6

#### Table 6 Hydro Capacities of Existing HPP

Concration units	Unit capacity (MW)		Commissioning (reconstruction)	
Generation units	Installed	Net	commissioning (reconstruction)	
HPP Ujmani	35.00	32.00	1983	
HPP Lumbardhi	8.08	8.00	1957 (2006)	
HPP Dikanci	1.00	0.94	1957 (2010)	
HPP Radaci	0.90	0.84	1934 (2010)	
HPP Burimi	0.86	0.80	1948 (2011)	
Total HPPs	45.84	42.58		

<sup>&</sup>lt;sup>6</sup> Long-term Balance of Electric Energy 2017-2026





In 2016, gross electricity generation from existing thermal power plants was 6248.8 GWh, while electricity generated in hydro power plants amounted to 234.6 GWh.

Electricity produced by Hydropowers in Kosovo\* is a lower value compared to the electricity produced by Thermopowerplants.







Figure 19: Electricity Demand and Its Coverage

Besides the generation of electricity, distribution and supply are also facing technical problems and loss of electricity. In the recent years, significant investments were made in the distribution system and have influenced the diminishment of losses; in 2016 they are still about 28 % of total distribution demand. They include: technical losses, commercial losses, and unbilled energy in the northern area of Kosovo\*.



Figure 20: Evolution of energy efficiency compared to economic growth in Kosovo\*



Figure 21: Energy efficiency in Kosovo\*: energy consumption per capita (tCO2)

The major consumer of energy is the Transport sector with 61.2% followed by households (30%), industry (4.5%) and agriculture (4.2%).

In the long-term Balance of Electric Energy 2017-2026 is predicted that in 2026 the energy consumption will be 6423 GWh and the losses in network 14.3 %.

Residential buildings are the largest single consumer of energy in Kosovo\* is used mainly for heating, though use of electricity for air conditioning and appliances is growing. Thus, household energy consumption will play an important role in shaping environmental impacts, in particular those arising from energy production. The main sources for domestic hesting is the following:

• Kosovo\*: 60% biomass, 35% electricity, 2% oil products, 1% coal<sup>8</sup>

## 2.1.4. Food Sector

Agriculture and rural development are one of the most important sectors, contributing to the overall economic development. These sectors bring high opportunities for Kosovo\* and its citizens to alleviate poverty by creating new jobs and creating a favourable developmental environment for the residents in rural areas.

In Kosovo<sup>\*</sup>, the food and agriculture sector has the potential to contribute significantly to overall economic development, poverty reduction and food safety, as in 2016 had a share of 10.5% in GDP<sup>7</sup>. The share of agricultural products export value to total export value in 2016 was 15%. The total value of agricultural production including services is estimated to be 736.8% million €, where the plant products had a value of 412.3 million €, with a share of 56%, livestock products 302.4 million € or 41%, and services 22.1 million €, which had a

<sup>&</sup>lt;sup>7</sup> Green Report 2017

share of 3%. To further advance and improve the situation, agricultural policies are oriented towards increasing sustainable agricultural productivity, including policies that affect the agricultural business environment and the manner of using natural resources to support structural transformation and innovation in agriculture.

The area of agricultural land in use refers to the total area of arable land - fields, meadows and pastures, perennial crops and gardens used by agricultural economy, regardless of the type of ownership.

	2015	2016	Difference	Difference in %	Participation in %
Arable land (excluding vegetables)	178,129	178,902	773	0.4	43.0
Vegetables	7,257	8,321	1,064	14.7	2.0
- from which the vegetables in the open field (first crop)	6,859	7,864	1,005	14.7	-
- from which the vegetables in greenhouses (first crop)	398	457	59	14.8	-
Garden	587	994	407	69.3	0.2
Fruit tree	4,727	5,493	766	16.2	1.3
Vineyards	3,068	3,117	49	1.6	0.7
Seedlings	178	196	18	10.4	0.0
Meadows and pastures (including joint land)	216,481	218,808	2,327	1.1	52.6
Total area of utilized agricultural land	410,427	415,831	5,404	1.3	100.0

Table 7 Used Agricultural Land<sup>8</sup>. Data on forest land, unused agricultural land and non-agricultural land are not included.

According to the data of Agricultural Holdings Survey of 2016, the total utilized area of agricultural land is 415,800 ha, of which the majority is meadows and pastures (including joint land) 218,800 ha or 52.6%, while arable land-fields (excluding vegetables) cover 178,900 ha or 43%.

Land used by farms in Kosovo\* accounts for about 45% of the total utilized area of agricultural land. Based on the size of the surface of arable land, the farm structure is classified into four main categories:

- I. Farms with very small size of less than 0.5 ha to less than 1ha constitute 10.9% of farms and had a surface of 20.279 ha.
- II. Farms with a size of 1 to less than 5 ha had a share of 52.9%, which means that over half of the farms belong to this category and represent about 98,260 ha.
- III. Farms with size ranging from 5 to less than 10 and 10 to less than 20 ha had a representation of 24.6% involving a surface area of 45,756 ha, and
- IV. Farms with a size of 20 up to 30 ha and more participated with 11.5%, covering the area of 21,409 ha.

According to the ranking presented above, it results that about 63.8% of all farms in Kosovo\* had less than 5 ha of utilized agricultural area and together these small farms account for 118.540 ha of utilized agricultural land. On the other hand, only 15.8% of farms

<sup>&</sup>lt;sup>8</sup> Green Report 2017

with size 5 to less than 10 ha owned utilized land area of 29,498 ha. When talking about the largest farms ranging from 10 to 20 or 30 and more ha, they had only 37,667 ha of agricultural land with a share of 20.3%.





Land use distribution in Kosovo\* is 47% of area arable land, 48% forests, 3% urban areas and 2% industrial areas.





In Kosovo\*, the production of food has increased by 19% from year 2007 (608 million Eur) to 2016 (725 million Eur), while the food consumption increased more significantly from

year 2009 (688 million Eur) to 2016 (974.8 million EUR) by 41.7%. Exports maintain the same value almost all the years while the imports are increasing by 36.5 %.

### 2.1.5. Ecosystem and Biodiversity

Kosovo\* enjoys a rich biological and landscape diversity.

**State of flora and vegetation** – although many studies have been conducted on Kosovo\* flora and vegetation by many national and international authors, no full inventory of flora is available and the exact number of plant species is yet to be determined in Kosovo\*. According to notes from various authors, it is believed that in Kosovo\* there are around 2,800 – 3,000 species of vascular flora.<sup>9</sup>



Lilium albanicum



Polygala doerfleri



Plantago gentianoides

Indiscriminate woodcutting, habitat degradation and global climate changes are some of the factors exerting direct impact on various plant and animal species, some of which are at risk of extinction. Important habitats are being damaged and degraded, while ecosystems are destabilized as a consequence of human interferences, especially those close to settlements. In recent years, as a result of rampant woodcutting and forest wildfires, many species are at a risk of losing their habitat, giving ground to invasive alien species that change the floral landscape of ecosystems.

The red list of vascular flora of Kosovo\* is important as it focuses attention of all entities working with nature on the gravity of threat to biodiversity; it lists species in need of protective measures and provides information that may serve as basis for further monitoring. The Red Book is important as it provides information that helps set out protection priorities at local level and build better cooperation with international environmental organizations.

<sup>&</sup>lt;sup>9</sup> The RED Book of Vascular Flora of Kosovo, MESP



#### Figure 24: Graphical Representation of the Number of Plants Specifies that fall under various risk categories

Protected nature areas are defined as parts of nature, which require special protection in order to preserve biological and landscape diversity due to their vulnerability or due to scientific, cultural, aesthetic, educational, economic interests or due to other public interests. In order to protect, conserve and manage these natural values in a sustainable manner, the practice of declaring such areas as protected natural areas is a well-known and recognized practice.

**State of fauna** – in terms of fauna, Kosovo\* has a rich diversity of species, although research in this regard is yet to be completed. The richest fauna areas in Kosovo\* are all mountain massifs in Kosovo\*, however, the following may be singled out: Sharri Mountains and Bjeshkët e Nemuna. The overall condition of fauna has deteriorated as a result of increased human presence in their habitat and continued threat of pouching that occurs periodically, especially during weekends in protected areas.



Lacerta viridis



Merops apiaster



Vulpes vulpes

Deer and wild goats are the most endangered by pouching, while grey bear and wolf have seen good progress. The biggest threat of dwindling numbers and even extinction of lynx comes from quarries in the strict nature reserve "Rusenica", which represents main habitat of this rare type in National Park "Sharri". Some species of predator birds are also endangered.

It is estimated that in Kosovo\* there are 250 types of vertebrates, 200 types of butterflies and more than taxa of macrozoobenthos of waters. The exact number of fauna species

need to be determined based on inventorying that is planned to be conducted in future, as well as during development of Red Book of Fauna, also part of other projects.

The number of protected nature areas in Kosovo\* (2016) is 173 and includes an area of 126,070.29 ha, or 11.55% of Kosovo\*'s total area. Within these areas there are 19 Strict Nature Reserves ("Koretnik", "Lubeteni", "Arnen Reservoir", "Maja e Rops", "Rusenica", "Kamilja", "Pisha e Madhe", Bistra etc. (NP "Sharri", PK "Bjeshkët e Nemuna"), 1 Nature Park (Pashtriku and Lake Vermicë) 146 Monuments of Nature ("Drini i Bardhë with Radavc cave", "Cave of Gadime"," Mirusha Waterfalls "," Rugova Gorge "," Drini i Bardhë Canyon at the Ura e Fshejtë ", Trungu i Rrapit në Marash", Shpella e Panorcit, etc.), 5 Landscapes ("Gërmia", "Shkugeza", etc.), and 1 Special Protected Zone of Birds ("Ligatina e Hencit, Radeva"). (Table below). The largest areas of protected areas are National Parks: "Bjeshkët e Nemuna" and "Sharri", Nature Park "Pashtrik Mountain and Lake Vermicë" Protected Landscapes "Germia" and "Waterfalls of Mirusha" etc.

IUCN Category	Name	Nr.	Area in ha	Share in the protected areas %
I	Strict Nature Reserves	19	10,885.82	0.99
п	National Parks	2	115,957	10.6
ш	Nature Monuments	145	6,010.79	0.56
v	Nature Park	1	5,934	0.5
v	Protected Landscape	5	2.437	0.2
v	Special Protected Zone of Birds	1	109.5	0.01
	Total	173	126070.29	11.55 %8

#### Table 8 Protected Areas<sup>10</sup>

<sup>&</sup>lt;sup>10</sup> Annual Report, State of Environment in Kosovo 2017



#### Figure 25: Protected areas as a share of the territory<sup>9</sup>.

Kosovo\* reports on loss of biodiversity of flora and fauna related to water due to the following causes: water pollution, insufficient water quantity, especially during dry periods, erosion, construction of hydro-powers plants, and gravel extraction from river beds<sup>10</sup>.

### 2.1.6. Institutional setting

This section examines the institutions involved in water, in energy, food, ecosystem and biodiversity in Kosovo\*.

### 2.1.6.1. Water Sector

Institutions involved in water management<sup>11</sup> in Kosovo\* are the Ministry of Environment and Spatial Planning (MESP), The Water Department (WD), The Environmental Protection Department (EPD), Kosovo\* Environmental Protection Agency (KEPA), Hydro Meteorological Institute of Kosovo\* (HMIK), Ministry of Agriculture, Forestry and Rural Development (MAFRD), Ministry of Economic Development (MED), Ministry of Finance (MF), Office of the Prime Minister, Inter-Ministerial Water Council (IMWC), Water Services Regulatory Authority (WSRA), Institute of Public Health of Kosovo\* (NIPHK), and The Kosovo\* State Environmental Inspectorate (KSEI).

The Ministry of Environment and Spatial Planning (MESP) is legally assigned with the key responsibilities in the areas of environment and spatial planning, including water resources, waste, forests, air quality, land management and planning development. MESP has a Minister with a Cabinet, a General Secretary Office, and 8 Departments (the Environmental Protection Department (EPD), and implements the Kosovo\* Water Strategy 2017 – 2036

<sup>&</sup>lt;sup>11</sup> Kosovo\* Water Strategy 2017-2036

(Art. 40 "- Financing the construction of water facilities and equipment"; art. 46 "Competencies for protection from harmful water floods"; "Article 47 - Protection Program from harmful water actions; Article 49 - Responsibility for the protection of water flows and facilities; Article 51 - Protection from erosion and regulation of streams; Article 55 -Torrents – Regulation of torrents; Article 57 - Notifications and Obligations; Article 68 -Zone for washing; Article 72 - Water Permit).

The Ministry includes the Planning, Housing and Construction Department (SPHCD), the Water Department (WD), the Central Administration Department (CAD), the Procurement Department (PD), the Expropriation Department (ED), European Integration and Policy Coordination Department (EIPCD) and the Law Department (LD)).

With regard to the management responsibility of the water resources sector in Kosovo\*, the Water Law No.04/L-147 defines the MESP as the competent water resources management authority in Kosovo\* - with particular responsibilities for:

- Water resources management and planning at the river basin district level;
- Setting standards for environmental protection (including wastewater discharge);
- Issuing permits for water use including abstraction and discharge, although it should be noted that some of these powers might be delegated to the River Basin District Authority.

Under the auspices of MESP is the Kosovo\* Environmental Protection Agency (KEPA), which includes the Hydro-Meteorological Institute (HMI), the Institute for Nature Protection (INEP), the Institute for Spatial Planning (ISP) and other directorates and units.

The MESP does not have responsibilities for the provision or promotion of water utility services, i.e. water supply and/or wastewater collection and treatment.

### The Water Department (WD)

The Water Department (WD) is structured along the following 3 Divisions:

- The General Water Policy Division which carries out analysis and strategic planning on the use, exploitation and protection of waters.
- The Division for Water Resources Management which carries out administrativelegal tasks for the direct application of provisions related to water economy regarding the use and protection of water from negative impacts, water protection from pollution, protection and control of water quality, water regulation and water flows, protection from erosion and streams regulation.
- The Division for River Basin Coordination, which collects data, establishes and organises database on river basins, collects information on monitoring, cooperates with other relative institutions of Kosovo\*, maintains evidence on water property, governs water resources in river basin level including planning and compensation for using and polluting waters, carries out environmental impact assessments during

development of spatial and urban plans, supervises researches, protection of public interest, controls the temporary hydro-economic permission. This Division is separated in 2 Units, which are the Unit for Drini i Bardhë Basin and the Unit for Ibër, Morava e Binçës and Lepenc Basin.

The Environmental Protection Department (EPD) is organised in the following divisions: Division for Education and Environmental Awareness; Division of Protection from Industrial Pollution; Waste and Chemical Division; and Nature Protection Division. The Division for Nature Protection includes the National Parks Sector and 5 Regional Offices located at Prishtina, Mitrovica, Peja, Prizren and Gjilan, which act as links of communication between the Ministry and the Municipalities.

The Kosovo\* Environmental Protection Agency was established in 2003 under the Law on Environmental Protection it is an institution within the MESP carrying out administrative, professional, scientific support and investigative tasks in the field of environmental protection. KEPA regularly reports on the state of the environment regarding water supply, water pollution, untreated sewage disposal, eutrophication and surface water monitoring.

The Hydro-meteorological Institute of Kosovo\* (HMIK) was established in 2006 as part of MESP. According to the Law on hydro-meteorological activities (Law No. 02/L-79 of 2006) HMIK is in charge for executing all hydro-meteorological activities in Kosovo\* which, among others, include measurement and monitoring of hydrological information as well as publishing the information about the surface and ground water quality. The work of the Institute covers hydrology, meteorology as well as physical and chemical analysis of the environment (water, air and soil).

### Ministry of Agriculture, Forestry and Rural Development (MAFRD)

The role of MAFRD, defined by Law on Irrigation No 02/L-9, is mainly to create and implement policies on irrigation and drainage, while having no direct and in-field operational activity. Specifically, the competences of the Ministry are to:

- Determine the irrigation and drainage policies,
- Develop the criteria and proposed limits for irrigation fees,
- Give the consent in coordination with KPA for transferring certain responsibilities for managing with of the primary, secondary and tertiary canals and following facilities, from the company to the association, within appropriate territories,
- Define the responsibilities and boundaries between companies and associations and between associations only,
- Represent the interests of agriculture in the area of irrigation and drainage of agricultural land in the monitoring units of public enterprises,
- Specify the responsibilities of physical boundaries between water supply companies and water user associations and between associations.

Ministry of Economic Development (MED). Pursuant to the Law on Publicly-Owned Enterprises (No. 03/L-087), Ministry of Economic Development, through its Unit on Policies and Monitoring (PMU), oversees the business of publicly owned enterprises (including the Regional Water Companies) in the Kosovo\* and ensures their responsible and transparent operation.

Ministry of Finance (MF). The MF seeks to ensure responsible, fair and transparent management of public funds and to advise the Government of Kosovo\* on its economic and fiscal policies.

Office of the Prime Minister. The Prime Minister is heading the Inter-Ministerial Water Council (IMWC). The IMWC (previously WTF) acts as a committee of relevant Government Ministers chaired by the Prime Minister, with responsibility for improving the situation in the water sector through the development of sector policies and action plans based on good practices.

Inter-Ministerial Water Council (IMWC). Article 15 of the new Law on Waters defines the establishment of an Inter-Ministerial Water Council (IMWC) as an independent body that shall act as coordinating and decision-making body in order to further promote the development of Kosovo\*'s water sector.

The Water Services Regulatory Authority (WSRA) (previously Water and Wastewater Regulatory Office) is an independent regulatory body accountable to the Assembly of Kosovo\* and is the key licensing and economic regulator for the water services sector whereas the MESP acts as the environmental regulator. Since the beginning of 2013 the WSRA is no longer responsible for regulating solid waste services as the responsibility for solid waste management went back to the municipalities.

The Institute of Public Health of Kosovo\* (NIPHK) is a body within the Government of Kosovo\* with responsibilities for a wide range of issues related to public health, including the monitoring and implementation of standards of the potable water in Kosovo\*, in compliance with the requirements of Article 7 of the Law on Public Health No. 2007/02 L78.

The Kosovo\* State Environmental Inspectorate (KSEI) was created with the Administrative Instruction (AI) No. 02/2004-MESP "on the Establishment of Environmental Protection Inspectorate", dated 18.02.2004.

The water inspection tasks are identified in the Water Law 04/l-147, from article 94 to article 105. Part of the inspection activities is delegated to municipalities.

### 2.1.6.2. Energy Sector

The main institutions include Ministry of Economy Development (MED), Energy Regulatory Office (ERO) and the Independent Commission for Mines and Minerals (ICMM). The main energy enterprises include the Kosovo\* Electricity Transmission System and Market

Operator (KOSTT JSC), Kosovo\* Energy Corporation (KEK JSC) and district heating companies.

**Ministry of Economic Development** among others shall exercise the following competencies: To draft policies and strategies on the overall economic development of Kosovo\*; To support the development of market economy; To support the Government in exercising its shareholder duties in POE on behalf of Government; To prepare and monitor the implementation of legislation in the sectors of energy and mining; To prepare policies on Energy Efficiency and Renewable Energy Sources in compliance with respective EU Directives; To monitor energy systems; To cooperate in the preparation and implementation of international agreements in the sectors of energy, mining, and To perform other tasks allocated to the former-Ministry of Energy and Mining.

**Energy Regulatory Office (ERO)**- as an independent agency of Kosovo\*, established by the Assembly of Kosovo\* in accordance the Constitution of Kosovo\*. ERO is primarily responsible for approving tariffs, conducting/facilitating the process of development of new generation capacities, monitoring the energy markets, and preparing and/or adopting energy sector regulations, including codes and rules. ERO ensures transparency and accountability of the energy market players, and engages with them to improve their economic, social and environmental performance.

**The Independent Commission for Mines and Minerals (ICMM)** was established in January 2005 by UNMIK Regulation 2005/2 – representing "Independent Regulatory Agency" in the Mining sector. ICMM is responsible for issuing exploration and exploitation licenses for minerals including lignite. It is also responsible for supervision of the issued licenses.



Figure 26: Organization Structure of Ministry of Economic Development

### 2.1.6.3. Food Sector

The mandate of the Ministry of Agriculture, Forestry and Rural Development is to: Develop polices and implement laws for development of agriculture including livestock and plant production, forestry and rural development and setting of standards for maintenance; Prevention of fire, disinfection form the insects and different diseases, license for felling of tree and control of hunting and fishing; Develop polices in the field of watering including also the projects for the planning of irrigation; Develop polices and implement laws particularly the utilization of land with the purpose of its protection; Take part in the activities of protection of the environmental that have to do with forestry, hunting, fishing and management of resources of the water.

Part of the Ministry Kosovo\* Forest Agency and Agency for Agricultural Development and Agriculture Institute in Peja.





Nexus Mapping Study for South East Europe – Report for Kosovo\*

### 2.1.6.4. Ecosystem and Biodiversity

Ministry of Environment and Spatial Planning (MESP).

- The Ministry's mandate is defined by Regulation No. 02/2011 for administrative responsibilities of the Office of the Prime Minister and other Ministries. It has the following responsibilities regarding environmental protection:
- Compiles and follows up the implementation of policies and programmes identifying and reducing environmental pollution;
- Participates in the development of strategic documents;
- Co-ordinates activities to promote policies;
- Sets environmental norms and standards and issues instructions meeting international standards;
- Oversees the implementation of these standards including inspection and other services as necessary;
- Manages the use and development of environmental infrastructure;
- Promotes community participation, initiatives and development activities;
- Develops policies, implements laws and supervises environmental protection activities, including water resources, air, soil and bio-diversity;
- Encourages and participates in developing and implementing public information campaigns and other promotional activities to raise public awareness and compliance with environmental protection standards;
- Supervises and assesses the state of the environment, particularly the impact of industrial activity, of public services and of economic activity;
- Develops policies for managing water resources and supervises their implementation.



Figure 28: Organization Structure of Ministry Environment and Spatial Planning

### 2.1.7. Legislation

### 2.1.7.1. Water Sector

#### Law on Waters of Kosovo\* (No. 04/L-147)

Purpose of this Law is to: provide sustainable development and utilization of water resources that are necessary for public health, environmental protection and socialeconomic development of Kosovo\*; establish procedures and guiding principles for the optimal distribution of water resources, based on the use and purpose; and ensure protection of water resources from pollution, overuse and misuse.

The secondary legislation that is currently regulating the water and wastewater management sector in Kosovo\*:

- AI No. 2/99 "on Testing and Enforcing Minimum Standards of Drinking Water Quality";
- AI No. 23/05-MESP "on the Determination of the Evidence Manner and the Legitimacy of Water Inspector" dated 11.10.2005;
- AI No. 24/05-MESP "on the Content, Form, Conditions and Method of Issuing and Retaining the Water Permit", dated 11.10.2005;
- AI No.06/2006 "for water payment structure", dated 02.2006;
- AI No. 06/07-MESP "on the Content of Water Infrastructure", dated 08.06.2007;
- AI No. 13/07-MESP "on the Criteria's for Defining the Water Protected Zones and their Protection Measures for Water Resources used for Drinking Water", dated 23.11.2007;
- AI No. 08/26 "on Limit Values of Effluents Discharged in Water Bodies and in Public Sewage Network" approved by the Government of Kosovo\* (GoK) on 09.07.2008;
- AI No. 12/2013 "Water Information System", dated 17.06.2013

Significant/key cross references with energy Agriculture and land use and ecosystems

Chapters on water use, water resources management, water river basin management, water facilities, and protection from harmful water actions and water protection are cross references to the agriculture and land use, energy and ecosystems.

# Law No 2009\_03-L-025 on environmental protection

The Law on Environmental Protection represents the legislative basis for Environmental Protection.

The purpose of this law is rational use of natural recourses and limitation of pollution discharge on environment, prevention of damage, rehabilitation and improvement of defective environment. The Law regulates, inter alia, the policy principles of environmental protection, Kosovo\*'s strategy for protection and sustainable development of the environment, environmental protection programs, authorization by the government to establish discharge and emission limit levels, measures for the rehabilitation of the environment, EIA consent, permitting and authorization, environmental monitoring and information. By this law it is regulated the role and responsibilities of the Kosovo\* Environmental Inspectorate (KSEI). In September 2011, the administrative instruction related to the organization and structure of the Kosovo\* Environmental Protection Agency (KEPA) was signed, incorporating the Hydro Meteorological Institute (HMIK) under KEPA.

Significant/key cross references with Water Agriculture and land use and ecosystems

Chapters such as: Protection and use of natural resources; Documents for Environmental Protection; Measures and Conditions for Environmental Protection; Specific Measures for Environmental Protection; Measures for Protection from Hazardous and Pollution Cadastre, are key cross references.

### Law No. 04/L-125 ON HEALTH

The main purpose of this law is supervision of the water and food quality control services in order to protect consumers, in coordination with the competent ministries, in compliance with the law.

### Significant/key cross references with Water

# Law No.02/L-9 for the Irrigation of Agricultural Lands and Law No. 03/L-198 on the amending and supplementing of Law NO.02/L-9

The main purpose of law is to regulate irrigation of agricultural land in Kosovo\*.

It includes significant/key cross references with Water, Agriculture and land use and ecosystems.

# Law No. 04/L-111 on Amending and supplementing the law No. 03/L-087 on Publicly Owned Enterprises(PEO)

The amended Law has taken into consideration the greater representation of the Municipalities of Public Enterprises as well has left the possibility for establishment of Public Local Enterprises. In accordance with these changes, to the Law on Public Enterprises, Government also in 2012, has issued the 'Rule with No.02/2013 on critters for establishment of Local Public Enterprises and Municipalities participation on the Boards of Directors of Water Regional Companies.

Significant/key cross references with: Water, Agriculture and land use

#### Law for Nature Protection

This law creates the legal basis for the protection of nature, its sustainable development and in particular: the protection, preservation, renewal and sustainable use of natural and renewable natural resources; revitalization of damaged areas of nature or parts thereof and compensation for damages; the preservation and restoration of ecological balance in nature; establishing a system for planning, management, monitoring, information and funding for nature protection; implementation of the goals defined in the policies of conservation; reduction of utilization of and damage to flora and fauna, especially those of particular importance, rare and endangered species and their habitats; the right to public information and public participation in the field of nature protection; the right of citizens to a healthy environment, rest and recreation in nature; ensuring biodiversity through the conservation of important natural habitats and important species of flora and fauna at favourable conservation status.

Significant/key cross references with: Water, Agriculture and land use

# 2.1.7.2. Energy Sector

### LAW No.03/L -184 ON ENERGY

The purpose and Scope of this law is to establishes the general principles and rules that will govern activities in the energy sector in Kosovo\*, with the aim to achieve a safe secure reliable, and high-quality supply of energy, to provide the conditions for functioning energy markets, and to also promote a more efficient use of energy, increased renewable energy sources and co-generation, and improved environment protection during energy activities.

The scope of this law includes electricity, heating, natural gas, and renewable energy sources, and the law provides for: the development and implementation of an energy strategy, including forecasting of energy balances and policy on energy efficiency, renewable energy sources and co-generation; activities for the regulation of the energy sector to be carried out by the Energy Regulatory Office; the roles of the Government of Kosovo\*, of local governments, and of other institutions, and provides for wider public participation in the development of energy strategy and its implementation.

Cross-references to: Water, Agriculture and land use, and Ecosystems.

#### Law No. 03/L-116 ON CENTRAL HEATING

The purposes of this law are to: set conditions for developing a sustainable and competitive market for district heating under principles of free market economy, fulfilling environmental protection; set conditions for a safe, reliable and efficient supply of heat for maintaining the indoor temperature at a suitable level, eventually providing hot tap water permanently around the year for domestic customers as well as satisfying the demand of the institutional, commercial or industrial customers; and set conditions that allow the final customers to enjoy the right to be connected and supplied with heat according to standards and at an economic price.

Cross-references to: Water.

### 2.1.7.3. Food Sector

#### Law No. 02/L-26 on Agricultural Land

The purpose of this law is to determine the use, protection, regulation and lease of agricultural land for the purpose of permanent preservation and protection of agricultural potential, based on the principles for a sustainable development.

By this law is regulated that agricultural land shall be used only for agricultural production and exceptionally may be used for other purposes only under certain conditions for construction of domiciles, industrial plants, railways, road communication, water reservoirs, airports, various installation lines or other facilities which permanently unable utilization of agricultural land for agricultural production is considered as permanent change of use of agricultural land.

Cross-references to: Water, agriculture and land use and ecosystems

#### Law No.04/L-040 on Land Regulation

The purpose of this Law is the establishment of legal basis to undertake measures and activities on voluntary basis for creation of the biggest parcels and regulation of the agriculture land, forests and forest lands in the function of more rational and economic use.

The objectives of this law are: defragmentation of land for more rational and economic land use; creation of parcels of regular geometrical shape; improvement of land through implementing agro-technical, agro-melioration and hydro melioration measures; improvement of infrastructure, including access to public infrastructure; reforestation of land of lower quality or polluted land; new land measures; creation of new cadastre.

Melioration measures in this law means improving agricultural land quality and features through calcification, irrigation, drainage, desalination, melioration fertilization, recultivation of damaged and degraded lands. Melioration measures on land regulation among other measures are construction and maintenance of irrigation and drainage schemes which is linked with the land use and water regime;

Cross-references to: Water, agriculture and land use

# Law No.02/L-9 for the Irrigation of Agricultural Lands and Law No. 03/L-198 on the amending and supplementing of Law NO.02/L-9

The purpose of this Law is to establish legal infrastructure for setting up and functioning

bodies offering services, and users of services as well as their organization in order to create optimum conditions for irrigation of agricultural land in Kosovo\* and its protection against excessive waters, aiming at increased yields of agricultural products.

This law regulates the organization and administration of irrigation and drainage of agricultural land in Kosovo\*, competences and delineation of responsibilities of irrigation and drainage entities, monitoring irrigation companies, establishment water use associations and federations, and other issues related to irrigation and drainage.

Cross-references to: Water, agriculture and land use

#### Law on Agriculture and Rural Development (L-03/098)

The purpose of this law is to establish a policy for the development of agriculture and rural development. Objectives of the agricultural and rural development are: Competition in agriculture and rural areas; income growth for rural population by increasing their welfare through improving working and living conditions; quality of food products, by ensuring that food chain is a sustainable quality and meets standards; sustainable protection of the environment and food security and food safety.

Support to improve competitiveness in agriculture and agro -food industry based on investment and supporting measures through projects that improve the situation

regarding: development of professional training for human capacity building to meet rural needs; restructuring of physical potential in agro –rural sector; management of water resources for agriculture; improve production, processing and marketing of agricultural products.

Cross-references to: Water, agriculture and land use

#### Law No. 02/L-85 on Fishery and Aquaculture

This law regulates the management of fishing resources and activities of fishery and aquaculture exercised in the waters of the territory of Kosovo\*.

The main objectives of this law are: Rational exploiting of fish in fishing waters in order to protect biodiversity; Catching and cultivating fish only according to the terms foreseen by this law and by-laws derived from this law; Designating management conditions and supervising fishing resources; Designating measures for fish protection; and Designating rights and obligations of legal entities or physical persons that exercise fishing and aquaculture activity.

Fishing waters are all waters in Kosovo\*'s territory except waters proclaimed as protected territories by special laws, fish ponds, accumulations, lakes or springs the source of which is protected by laws for potable water supply, lakes or water springs reserved for potable water supply.

Cross-references to: Water, agriculture and land use and ecosystems

#### Law No 2003/3 on Forests in Kosovo\*

The main purpose of this law is to create legal framework for integrated management of forests and forest land in such a way as to provide a valuable yield and at the same time preserve biodiversity; forest protection; conservation, and sustainable development of all types of forests; reforestation activates; and management of non-wood forest products.

Cross references to the water, agriculture land use and ecosystems are in the chapters regulating protection of forest and non-wood products and all reforestation activities and management plans.

Cross-references to: Water, agriculture and land use and ecosystems

#### Law No. 02/L-53 on Hunting

This law regulates sustainable management, breeding, protection, hunting and use of wild fauna as natural wealth of general interest which enjoy special protection.

Protection of integrity of ecosystem and ecological balance, adequate protection of wild animals, ensuring their welfare and conditions for economic utilization of resources, need for safety and ethical standards of hunters. Cross-references to: Water, agriculture and land use and ecosystems

#### 2.1.7.4. Ecosystem and Biodiversity

Implementation of the Law of Nature Protection is a responsibility of Ministry of Environment and Spatial Planning. Under are cited some of the primary Laws.

- Law on Environmental Protection No. 03/L-025
- Law on Strategic Environmental Assessment (SEA) No. 03/L-230
- Law on Environmental Impact Assessment (EIA) No. 03/L-214
- Law on Nature Protection No.03/L-233
- Law on Air Protection from Pollution no. 2004/30
- Law on Waste no 02/-L-30
- Law for Nature No. 03/L-233
- Law No. 04/L-086 of National Park "Bjeshket e Nemuna"
- Law No. 04/L-087 of National Park "Sharri"
- Law for hunting 02/L-53,
- Forest Law no. 2003/3, 2004/29
- Law on Chemicals No. 2007/02-L116 , UNMIK Reg. 2008/8
- Law on Biocide Products No. 03/L-119

### 2.1.8. Policies and strategic documents

To make a better evaluation of resources and to define the collaboration between sectors like water, food, energy, biodiversity the Ministries responsible for each sector have developed strategic plans.

Strategies developed recently in Kosovo\* are:

- 1. Kosovo\* Water Strategy Document 2017-2036
- 2. Energy Strategy of Kosovo\* 2017-2026
- 3. Long-term Balance of Electric Energy 2017-2026
- 4. Program for Agriculture And Rural Development 2015
- 5. Strategy and Action Plan for Biodiversity 2011-2020
- 6. Strategy\_for\_Environment\_Protection\_2013-2022

### 2.1.8.1. Water Sector

#### KOSOVO\* WATER STRATEGY Document 2017-2036

The main purpose of this document is to: provide sustainable development and utilization of water resources that are necessary for public health, environmental protection and socio-economic development oof Kosovo\*; establish procedures and guiding principles for the optimal distribution of water resources, based on the use and purpose; ensure protection of water resources from pollution, overuse and misuse; determine the institutional structures for managing the water resources. In accordance with the principle of integrated water management, the Strategy has a broad multi-sector approach that endeavours to consider all significant aspects of water management in Kosovo\* including:

Water services to citizens and economic entities urban areas (water supply, wastewater collection, wastewater treatment and surface water drainage); Irrigation; Flood Defence; Drought Prevention; Erosion; Fisheries; Tourism, Recreation and Thermo-mineral Water and Generation of Energy from Hydropower Plants.

The Strategic Objectives of this Strategy are: Efficient Exploitation of Water; Effective Protection of Water; Effective Protection from Water; Efficient, Effective and Equitable Governance; In addition, and bearing in mind the European Perspective of Kosovo\*, a horizontal objective is established timely Approximation with the requirements of EU legislation.

Cross-references to energy, agriculture and land use and ecosystems.

# 2.1.8.2. Energy Sector

#### Energy Strategy of Kosovo\* 2017-2026

The Energy Strategy of Kosovo\* aims at achieving effective management of existing energy resources and protection of the environment. It focuses on enhancing the security of energy supply according to European standards, as well as on the diversification of energy resources. This strategy aims also at stimulating rational utilisation of energy, promoting energy efficiency, promoting development of renewable energy resources and introduction of new technologies that do not cause irreparable damage to the environment, thus respecting the application of internationally accepted environmental standards. The goals and measures provided in this document establish a clear vision on some key aspects of high importance for the development of the energy sector during the decade 20017-2026.

Cross-references to: Water, agriculture and land use

# 2.1.8.3. Agriculture

#### Program for Agriculture and Rural Development 2015

The agriculture sector in Kosovo\* plays a very important role in offering opportunities in employment and income generation. SWOT analysis for agriculture of Kosovo\* stresses that import substitution and free access to the EU market, as well as important opportunities for improvement of income from agriculture in Kosovo\*. However, this potential will be realized only if farms are able to compete with market prices in the region and the EU.

General Objectives of the program - Increasing competitiveness of Kosovo\*'s agriculture and import substitution; Creation of new jobs and increasing the employment in rural areas; Support of farmers in the selected sectors, aiming to align with the rules, standards, policies and practices of the EU; Supporting economic, social and territorial development aiming at sustainable and inclusive growth, through the development of physical capital; Addressing the challenges of climate change through the utilization of renewable energy.

Specific objectives of the program per each specific sector like fruits and vegetables, meat, milk, grape, poultry etc. are: production growth for commercial purposes; Improvement of the quality in order to fulfil the relevant standards and those of the EU; Modernization of farms through the use of new equipment/technologies; Production of renewable energy; Reducing the emission of nitric oxides and methane through proper treatment of organic manure and non-pollution of surface and ground water and Improving the integration of farmers with buyers of their products.

Cross-references to: Energy, water, agriculture and land use and ecosystems.

# 2.1.8.4. Environment & Biodiversity

#### Strategy for Environment Protection 2013-2022

The long-term goals for the environmental sector are the following:

- o a better quality of life for all citizens;
- Sustainable economic, social and cultural development.

The overall objective is to reduce pollution to levels which meet the EU acquit and international standards.

The long term overall objectives are: Reducing pollutant emissions including environmental degradation and damage and minimizing or prohibiting those economic activities that are dangerous for human health and the environment; Protection of bio-diversity and actions to preserve the general ecological balance within Kosovo\*; Rational and sustainable use of natural resources including agricultural land; Protection of valuable natural landscapes, such as national parks and monuments.

The main objectives in water sector are: Completion and harmonization of water legislation; Construction of waste water treatment plants (WWTP) and extension of the sewerage networks; Rehabilitation and extension of drinking water infrastructure; Riverbed regulation and protection; Improvement of surface water monitoring; Establishment for underground water monitoring.

The main objectives on soil/lands are: Protection of the agriculture land from urbanization; Preparation of the strategy for sustainable land management and land use; completion and harmonization agriculture land legislation; Prevent and reduce further degradation of pollutants and soil erosion; Inter- institutional coordination for the protection of agricultural land; Improvement of the land management as a natural recourse. The main objectives for natural heritage and biodiversity are: Completion and harmonization of new legislation on nature protection; Improvement of management of protected areas with the high biodiversity; Enforcement Nature Protection Law 03 / L - 233, supplemented by secondary legislation; Strengthening managing capacities for the authorities of protected areas; Preparation of spatial and management plans for protected areas , while respecting the conditions for the protection of nature; Education and raising the awareness of the population in protected areas; Implementation of NEAP for biodiversity (2012-15); Drafting of read book for flora and fauna;

The main objectives for energy are: Completion and harmonization of new legislation EU; advanced clean technologies for the production of electricity from fossil resources; Encouraging the production of energy from alternative sources; Increase efficiency in energy production and consumption.

Cross-references to: energy, water, agriculture and land use and ecosystems.

## 2.1.9. Establishment of coordination bodies or instruments

In general, Kosovo\* has an established administrative system where several authorities share the competencies for the specific Nexus sectors, with one 'line' authority leading initiatives. At the highest level, this is usually a Ministry, with a number of agencies and institutions in supporting roles. Some cases are:

Kosovo\* has a rather traditional set-up with the water resources management split between different Ministries: The Ministry of Environment and Spatial Planning (MESP) is legally assigned with the key responsibilities in the areas of environment and spatial planning, including also water resources. The Ministry of Economic Development is responsible to prepare policies on Energy Efficiency and Renewable Energy Sources in compliance with respective EU Directives. The mandate of the Ministry of Agriculture, Forestry and Rural Development covers irrigation development, and it takes part in activities of protection of the environmental that have to do with forestry, hunting, fishing and the management of resources of the water. In order to advance the water sector reform, the Government of Kosovo\* has established the Water Task Force (WTF) in 2008 (see Box 3). Kosovo\* has also created a cross-sector Committee for Climate Change with the responsibility to follow up the implementation and enforcement of strategic documents and of the action plan for climate change in full compliance with the requirements of UNFCCC and Kyoto Protocol. In addition, the Inter-Ministerial Working Group (IMWG) enhances the Government coordination on climate change policies to ensure it recognizes the country's vulnerability and the adverse effects from the climate change, and it develops appropriate short-, mid- and long-term mitigation and adaptive measures and actions to ensure that the country is able to cope with climate change impacts. IMWG has three subgroups: (1) Subgroup for Greenhouse Gas Inventory - led by the Environmental Protection Agency (KEPA), (2) Subgroup for Greenhouse gases

reduction - led by the Ministry of Economic Development (MED), and (3) a Subgroup for adaptation - led by MESP - Department of Environment Protection (DEP)<sup>11</sup>.

Box 1: Kosovo's\* "Inter-Ministerial Water Council"

In order to advance the water sector reform, the Government of Kosovo\* has established the Water Task Force (WTF) in 2008. WTF was an inter-ministerial decision-making body with the tasks to advance the water sector related policy and strategy framework and related action plans and to serve as platform coordinating the efforts of the domestic and external actors in reforming the sector (http://www.kryeministri-ks.net/tfu/?page=2,1).

During the 3<sup>rd</sup> meeting of the WTF on March 24th, 2010 it was agreed that the WTF should be transformed in a more permanent institution. Accordingly, an Inter-Ministerial Water Council (IMWC) was introduced in the draft of the new water law that was ultimately approved by the Parliament in March 2013 and promulgated by the President in April 2013. Consequently, the Government of Kosovo\* decided to establish the IMWC in its Cabinet meeting of September 19th, 2013. Based on this decision, the IMWC is anchored at Prime Minister Level, made up of Ministers and ensures the overall coordination of water sector development.

According to the provisions of the water law (articles 15-19), the "IMWC is a coordinating and decisionmaking body that examines the systematic issues of water, harmonization of the different needs and interests, and proposes measures for the development, utilization and protection of water resources and system of Kosovo"\*. In terms of highest pertinence, the IMWC members shall consist of the Ministers of Economic Development, of Environment and Spatial Planning, of Local Government Administration and of European Integration (four Line Ministries) and headed by the Prime Minister. Donors (Switzerland as lead coordinator of water donor community, plus another active sector donor) are non-voting members of the IMWC.

The Council has its Secretariat which is supported by the Swiss Cooperation Office through two full-time permanent advisors and two part-time intermittent advisors (a legal expert and a water economics expert) seconded to the Office of the Prime Minister, as well as an administrative assistant and other international and short-term experts, as per needs. These advisors and experts shall actively and regularly assist on demand the IMWC in its work and report to the IMWC Chairperson.

The economies usually lack Nexus coordination bodies and instruments, which could manage trade-offs and promote synergies. In some administrative set-ups, coordination bodies have been identified, which address some of the Nexus sectors:

Kosovo\*: Article 15 of the new Law on Waters defines the establishment of an Inter-Ministerial Water Council (IMWC) as an independent body that shall act as coordinating and decision-making body in order to further promote the development of Kosovo's\* water sector.

Specific coordination action has furthermore been in place for the set-up of strategies and plans, such as the either the drafting of the Sava River Basin Management Plan or the economies' Rural Development Programmes, though it is unclear how strong the integration of the different Nexus sectors has been and how it has focused on synergies beyond negotiations/trade-offs. Policy development via regulation, strategies or plans is characterised by:

- More or less formal cooperation, which does however not necessarily translate into policy integration;
- Isolated efforts;
- Lack of common targets;
- Overlapping responsibilities and competing objectives among local and central governments.

The following overview can be provided:

	Kosovo*
Nexus coordination body	no
Coordination between some Nexus sectors	yes
Multi-sector Water Council	yes
Consultative Council for Agriculture and Rural Development	no
Climate change coordination body	yes
Nexus coordination instruments	no
One authority for several Nexus sectors	no
Recent new administrative structures	yes
Recent new distribution of competences	yes

Table 9: Overview on the administrative setup and coordination instruments for the Nexus in Kosovo\*.

The capacities of management authorities are limited, in terms of human resources as well as regarding data and information. This has been detected during the data collection in the frame of this study and is also reported by other sources<sup>12</sup>.

# 2.1.10. Nexus-related initiatives

The following Nexus-related initiatives have been identified for XK.

Table 10 Overview on the current Nexus-related initiatives addressing XK, indicating d which Nexus elements are being addressed (W – Water; E- Energy, F – Food, E- Ecosystems). The table includes also information on which Nexus-relevant key policies the initiative has been active (CB: Capacity Building, RE: Resource efficiency; NBS: Nature-based Solutions; CC – Climate resilience)

Institution	Start/End	Nexus-related initiative	Nexus sectors				Policies			
			Wa	En	Fo	Ec	CB	RE	NBS	CC
GIZ	2008-15	Open regional fund – Energy Efficiency	?	x			x	х		?
	2012-	MoU Environment (No. 591/12)	х		х	х	х		?	Х
ENVSEC	2014	Lepenc River protection via Introduction of Integrated Water Management	x		?	?				

# 2.1.11. Climate change adaptation

Kosovo\* is not yet recognized by the United Nations system, so it is not a signatory to international conventions such as the UN Framework Convention on Climate Change (UNFCCC). In 2015, Kosovo\* signed a Stabilization and Association Agreement with the European Union, and is working to align its legislation with EU legislation as part of the EU approximation process, including environment and disaster risk reduction.

The responsible authority for environment and climate change policy is the Ministry of Environment and Spatial Planning (MESP). Based on an agreement between the UNDP and the MESP, as of December 2012 MESP jointly with UNDP coordinates donor support to th climate change agenda for Kosovo\*. Kosovo\* has no register of sources and emissions of GHGs yet and it also has not identified the base year from which GHG emissions will be estimated. The Greenhouse Gas Inventories for 2008 and 2009 are one of the first initiatives in Kosovo\* contributing to the global efforts to minimize the human impact on the climate change. This project continues with further capacity building activities on GHG monitoring and reporting in 2013-2014. Kosovo\* has not yet started to submit Communications to the Secretariat in the UNFCCC.

Sector or	Possible measures
sub-sector	
Capacity	Setting up Inventory System of and strengthening reporting on
building	GHG (KEPA)
	climate change policy developed and implemented for all GHG's
	contributing
	Training on negotiations under UNFCCC and EU respectively
Energy	Implementing Kosovo* Energy Efficiency Action Plan 2010-2018
efficiency	Introducing energy efficiency standards
	Promotion and awareness raising
	Energy auditing system
	Establishing subsidy/lending schemes for energy efficiency
	measures
Renewable	Implementing Renewable Energy Action Plan (NREAP) 2011 - 2020
energy	Developing the available hydro-power potential through
	concessions
	Developing the available wind potential through concessions
	Securing reliable supply of fuel wood and biomass for heating
	Promoting use of biomass for district heating and industrial co-
	generation
	Setting favourable regulatory conditions for photovoltaic
	electricity generation
	Shallow geothermal for heating
	Biogas production from animal husbandry waste

Table 11 GHG emission reduction measures by sectors and sub-sectors (NAMA)<sup>12</sup>

<sup>&</sup>lt;sup>12</sup> Climate Change Strategy 2014-2024

District heating	Reconstruction and extension of district heating networks
and industrial	Introducing renewable energy and high energy efficiency
co-generation	(combined heat and power)
	Co-generation on industrial sites for both district heating and
	industrial needs
Thermal power	Improving efficiency of existing TPPs
plants and coal	Increasing the efficiency of production of electricity through
mines	replacement of TPP
	Preventing self-combustion of lignite
Waste	Separate waste collection and recycling
management	Using non-hazardous solid waste (domestic waste, tires, etc.) as
	alternative fuel
	production
	Home composting
Agriculture	Manure storage, preparation and application methods
	Proper application of mineral and organic fertilizers
	Organic production
Forests	Implementing Climate Protection Strategy in the Forest Sector in
and nature	Kosovo*
	Sustainable forest management increasing resilience of forests
	Protection from forest fires
	Afforestation and reforestation of bare lands
	Promotion of wood products
	Integrating carbon sequestration into forest management
	Parts of forests and protected areas left to natural development
	Designation and development of protected areas

Kosovo\* has developed the Climate Change Strategy 2014-2024 which is a document summarizing the mitigation and adaptation measures that will boost sustainable development. It is crucial for responding and anticipating the impacts of climate change in Kosovo\*. These current and expected impacts include:

- Total emissions of all greenhouse gasses in 2008 in Kosovo\* reached 9.5 Mt CO2 eq. They increased by almost 11% to 10.5 Mt CO2 eq. in 2009. This relatively high increase was driven almost solely by increased fossil fuel combustion.
- In comparison with other countries in Europe Kosovo\* has relatively low emissions per capita (5.7 t CO2 equivalent per capita per annum in 2008, while greenhouse gas emissions per unit of GDP (0.84 kg CO2 equivalent per EUR in 2008) are higher. Per capita emissions are just over half of the EU average (9.93 t) and emissions per unit of GDP are almost double of those in the EU average (0.4 kg/EUR).
- These statistics illustrate the economic and social challenges for Kosovo\* in the trap with low but growing emissions, and even lower GDP per capita. This situation justifies the application of the principle of common but differentiated responsibility

defined in Article 3.1 of the United Nations Convention on Climate Change (UNFCCC).

- Higher temperatures will cause heat waves and forest fires more likely. Since 2000 there have been an increasing number of forest fires in Kosovo\*;
- Increased temperatures, more uncertain rainfall, and reduced runoff combined with socioeconomic developments and increased use of water resources will heighten exposure to drought;
- Ecosystem degradation and reduction of ecosystem services.

To reduce the risk and damage from current and future impacts of climate change in a costeffective manner and to exploit potential benefits stemming from climate change. Considering the large uncertainty regarding the current level and future projections of GHG emissions in Kosovo\* it is difficult to set a meaningful mitigation objective in terms of quantitative emission reduction targets. For the same reason, and for the reason of uncertainty of future social and economic development of the country, it is also difficult to set LED objectives for long term (e. g. 2050 as in the EU Roadmap). Because of this the mitigation objectives are set in qualitative terms as follows:

#### LEDC Objective 1:

Kosovo\* will develop the capacity to fulfil its future obligations under the UNFCCC and as a member of EU.

#### **LEDC Objective 2:**

Kosovo\* will slow the increase of GHG emissions through

- o increased energy efficiency in all sectors,
- o development of renewable energy sources and
- o sustainable use of natural resources

#### AC Objective 1:

To introduce new and improve current mechanisms of disaster risk reduction, especially important for sectors of economic significance that are particularly vulnerable to climate change impacts;

#### AC Objective 2:

To enhance adaptive capacity1 of natural systems, in particular vulnerable ecosystems, and society, in particular vulnerable communities, such as poor farmers, marginal groups and women, to address the climatic impacts and related risks on their lives and livelihoods;

#### AC Objective 3:

To build the capacity of local partners, actors and stakeholders to integrate climate change issues and adaptation into the local development processes, and empower them for addressing climate change issues.

## 2.1.11.1. Investment for Climate Change

Table 12 Investment in Climate Change Adaption

Selected Program	Amount	Donor	Year	Implementer
Climate Change Adaptation Program in Western Balkans	€3.5 million	GiZ	2012– 2018	Kosovo: Ministry of Environment and Spatial Planning (MESP)
Enabling Transboundary Cooperation and Integrated Water Resources Management in the White Drin and the Extended Drin Basin	\$8.9 million	GEF	TBD	TBD
Kosovo Energy Efficiency and Renewable Energy Project	\$32.5 million	World Bank	2014– 2020	Ministry of Economic Development
Kosovo Disaster Risk Reduction Initiative	\$500,000	UNDP Kosovo	2013– 2016	Red Cross of Kosovo, Swiss Platform for Natural Hazards
Confidence Building Through Disaster Risk Reduction in Northern Kosovo Region	\$300,000	UNDP Kosovo	2014– 2016	Part of Kosovo Disaster Risk Reduction Initiative
Kosovo Floods Recovery Support	\$100,000	UNDP Kosovo	2014– 2015	Part of Kosovo Disaster Risk Reduction Initiative
Disaster Resilience Initiative Support for Kosovo (D-RISK)	\$300,000	UNDP / Government of Japan	2016– 2018	MESP, Red Cross of Kosovo, Ministry of Internal Affairs/Emergency Management Agency, municipalities
Support for the Ministry of Environment and Spatial Planning on Environment and Climate Change	\$392,000	UNDP Kosovo	2010– 2014	MESP, others

# 2.1.12. Nexus-related overview of Trans boundary basins/ aquifers

The following initiatives have been carried out.

# Memorandum of Understanding on Environment (No. 591/12) between Ministry of Environment, Spatial Planning of Kosovo<sup>\*</sup> and Ministry of Environment and Physical Planning from Republic of Macedonia

Based on this Memorandum parties will cooperate in the following fields: Nature protection (biological, geological and biodiversity protection, protection of protected areas,

protection of relics and endangered species of plants and animals); Spatial planning in order to harmonize all major interventions including road infrastructure, joint environmental projects and other projects of mutual interest; Protection of air pollution; climate change issues; protection of transboundary waters; wastewater management issues with the focus on dangerous substances and other dangerous chemicals; Environmental Impact Assessment and Strategic Environmental Assessment; Flooding risk management; prevention of industrial accidents; cooperation in the implementation and respect of the rights and obligations arising from by International the conventions; etc.

Main activities: Identification and implementation of joint programs and projects in fields of cooperation; Exchange of information on measures in the fields of cooperation; Organizing conferences, symposia, seminars and meetings at the experts level, exchange of experiences and professional literature; exchange information in the field of legislation; scientific cooperation, Common approach in negotiations with the International Organization for areas of cooperation; Implementation of joint projects and Exchange of experiences in order to access EU founds for transboundary projects. Duration of this Memorandum is five years. Following this Memorandum last year (2014) was implemented "Lepenc River protection via Introduction of Integrated Water Management" project financed by ENVSEC.

Cooperation with Government of Albania (UN-administered region, Security Council resolution 1244) regarding transboundary water issues began in September 2010.

Transboundary river basins	Aquifers	Countries/economies covered
Drin	Beli Drim/Drini Bardhe (AL, KO), Prespa and Ohrid Lakes (AL, EL, MK), Skadar/Shkoder Lake, Dinaric east coast aquifer (AL, ME)	AL, EL, KO, MK, ME, XK
	Metohija	KO, ME, XK
	Pester	ME, RS, XK

The following groundwater bodies of XK are shared:

#### Table 13 Transboundary river basins and aquifers in the SEE region. Source: UNECE, 2011

# 2.1.13. Turning Nexus trade-offs to synergies

In order to avoid trade-offs and foster synergies between the different Nexus policies, regulation, strategies and plans shall promote an early and wide integration of the aspects and concerns of the related Nexus sectors in own developments.

Recent policy developments in the Water and Food/Agriculture sectors show a higher integration of objectives and targets of the other sectors, than Energy or Ecosystems, being the latter focused on ways to minimize the negative impacts of economic development on biodiversity.

	Kosovo*
Water integrates Energy	high
Water integrates Food/Agriculture	high
Water integrates Ecosystems	low
Energy integrates Water	low
Energy integrates Food/Agriculture	no
Energy integrates Ecosystems	low
Food/Agriculture integrates Water	low
Food/Agriculture integrates Energy	high
Food/Agriculture integrates Ecosystems	no
Ecosystems integrates Water	low
Ecosystems integrates Energy	no
Ecosystems integrates Food/Agriculture	no

Table 14: Integration of Nexus aspects in recent regulation, strategies or plans for the Nexus in Kosovo\*.

Explanation: "high" indicates identification of synergies, "medium" indicates identification and assessment of conflicts, risks and constraints; "low" indicates inclusion of concerns, needs or supply aspects; and "no" none of the previous (only textual mentioning). Note that a more detailed analysis can lead to a higher scoring.

The legislation on the different Nexus sectors in Kosovo\* is mainly from the beginning of the 2000 decade; except the 2013 Law on the Water Information System. Numerous mentions and cross-references are included in the regulation, such as e.g. reference to Drainage and Irrigation management in Law 02/L-9, the references to sustainable protection of the environment and irrigation water management in L03/098 (Agriculture and Rural Development) and the Forest Law (2003/3) referring to biodiversity protection. However, the references focus mainly on concerns, thus have a low level of integration.

Regarding strategies and plans, all sectors have been subject of recently developed documents. The main purpose of the Kosovo\* Water Strategy 2017-2036 is to provide sustainable development and utilization of water resources that are necessary for public health, environmental protection and socio-economic development, as well as to ensure water conservation. Integration is included in the Program for Agriculture and Rural Development 2015 as to produce renewable energy.

# 2.1.14. Integration of climate resilience aspects in sector policy, regulation and management

Climate change resilience can be fostered by a varied set of measures addressing aspects like water scarcity, droughts or floods, temperature increase<sup>13</sup>, heat waves, plagues and diseases, and ranging from efficiency increases to changes in production or management. Lists of options for action are usually included in the reporting to the UNFCCC.

Overall, climate change resilience has only partially been included in the sector-specific strategies/plans of Kosovo\*. This can lead to situations where the sectors are not ready to deal appropriately with climate change.



Table 15: Overview on the integration of climate resilience in recent regulation, strategies or plans in Kosovo\*.

Explanation: "yes" indicated climate change being integrated; "high" indicates contributions to climate change resilience, "low" indicates recognition of climate change constraints; and "no" none of the previous (only textual mentioning). For some of the documents, a screening assessment whether the considerations are of 'high' or 'low' relevance has been carried out.

The Program for Agriculture and Rural Development 2015 addresses the production of renewable energy, and the reduction of emissions, but no adaptation activities for increased resilience.

## 2.1.15. Integration of resource use efficiency aspects

Resource efficiency is an approach to produce more from less input, use resources in a sustainable way, and manage them more efficiently throughout their life cycle. Circular economy is an approach aiming to keep resources within the economy when products no longer serve their function so that materials can be used again and therefore generate more value (Di Maio et al., 2017); and thereby supports resource use efficiency.

Improving the efficiency of water use is usually presented as an opportunity for large water savings, particularly in the agricultural sector. The recent modernisation of irrigation practices in Spain highlights the rebound effect of Jevons paradox – the fact that efficiency increase does not translate into reduced consumption - is one of many possible consequences of efficiency improvements (Dumont et al., 2013).

Policies that encourage the adoption of more efficient irrigation technology may be appealing under the premise that they will decrease the amount of applied water required to maintain current crops and yields. However, this ignores the possibility that farmers may adjust their behaviour in response to the change in irrigation efficiency, for example by switching to higher-revenue crops that are more water intensive, or by irrigating previously unirrigated land, resulting in an increase rather than a decrease in water consumption (Sears et al., 2018).

Box 2: Water efficiency, water savings and the Jevons paradox

Resource use efficiency is included in the competencies of the sector administrations in place. However, resource efficiency seems to be so far only relevant for the energy sector, and some minor consideration is given to water use efficiency in irrigation, but not to water reuse, as a component of circular economy. Additionally, energy efficiency initiatives are often secondary when compared with the generation of new renewable energy.



Table 16: Overview on the resource efficiency considerations in recent regulation, strategies or plans in Kosovo\*14.

Under the 'Sustainability Eventually' scenario, the SCENES project proposes significant water abstraction reductions for the electricity and domestic sectors as targets for 2030:

	Kosovo*		
Electricity sector	Decrease >50%		
Manufacturing	Decrease <50%		
sector			
Irrigation	No/slight change		
Domestic	Decrease >50%		

Table 17: Percentage change in water abstractions for Kosovo<sup>\*15</sup> as per the 'Sustainability Eventually' scenario under the SCENES project

The (few) projections and quantifications included in the strategies and plans of the economies indicate that such a scenario will likely not be achieved; thus, leading to water use unsustainability in at least part of the region.

The Kosovo<sup>\*</sup> Water Strategy 2017-2036 addresses water efficiency. The Energy Strategy of Kosovo<sup>\*</sup> 2017-2026 aims at achieving effective management of existing energy resources and protection of the environment, and at stimulating rational utilisation of energy, promoting energy efficiency and the development of renewable energy resources; the latter is also included in the Program for Agriculture and Rural Development 2015. The promotion of organic farming is considered as one of the options in the Climate Change Strategy 2014-2024. However, its relevance has not been assessed in this study.

# 2.1.16. Consideration of nature-based solutions

Nature-based solutions are defined as "actions to protect, sustainably manage, and restore natural or modified ecosystems, that address societal challenges effectively and adaptively,

simultaneously providing human well-being and biodiversity benefits"<sup>16</sup> and include different concepts such as planning approaches (Integrated Water Resources Management) and infrastructure (Green Infrastructure, Natural Water Retention Measures). As climate change, population growth, and increasing consumption of resources create new threats with implications across the Nexus, nature-based solutions provide flexibility that enables adaptive management that is necessary to cope with changing conditions, and is more likely to sustain benefits in the midst of uncertainty and increased variability<sup>17</sup>.

Nature-based solutions are not reflected as a priority within the assessed strategies/plans, and are usually not even reflected.

	Kosovo*
Water	no
Energy	no
Food/Agriculture	no
Ecosystems	no

Table 18: Overview on the consideration of nature-based-solutions in recent regulation, strategies or plans in Kosovo\*.

The following relevant details for Kosovo\* is highlighted:

• Kosovo\*: The Strategy for Environment Protection (2013-2022) refers to rather oldfashioned 'riverbed regulation and protection' but does not address nature-based solutions.

# **2.2.** The role of international action

International agreements, decisions or actions can influence the way that Kosovo\* address the Nexus. There are three main pathways:

- By ratification of international agreements or conventions and the implementation of corresponding action plans;
- Via the process of EU accession, and the subsequent changes in institutions, regulation, planning, financing and management; and

By means of projects or initiatives developed with the support or involvement of international bodies.

Regarding the first of the three elements, Kosovo\* has not ratified a large number of Nexus-relevant agreements and conventions. In the frame of this study, the implementation details have not been assessed.

	Kosovo*
Convention on Environmental Impact	
Assessment in a transboundary context	
Multilateral Agreement among the Economies of South-Eastern Europe for implementation of the Convention on Environmental Impact Assessment in a Transboundary Context	
Rio Convention on Biological Diversity	
Convention on International Trade in	
Endangered Species of Wild Fauna and Flora	
Convention on Conservation of Migratory Species of Wild Animals	
Convention on the Conservation of European Wildlife and Natural Habitats	
Helsinki Convention on Watercourses and International Lakes	
Ramsar Convention on Wetlands of	
International Importance especially as Waterfowl Habitat	
Aarhus Convention on access to information, public participation in decision-making and access to Justice in environmental matters	-
Protocol on pollutant release and transfer	
registers (to the convention on public participation	
United Nations Framework Convention on	
Kvoto Protocol	
Energy Community Agreement	2005
WHO Framework Convention on Tobacco Control	

Table 19: International multi- or bilateral agreements/conventions undersigned by Kosovo\* in the different Nexus fields (indicating the year of ratification/adoption)

The impact of the EU accession process on integration of the Nexus is also relevant and reflected in chapter 2.1.13.

International initiatives have made significant contributions to addressing the Nexus in Kosovo\*, and – in some cases - to promote decisions that foster synergies. The following table provides an overview on initiatives identified and shows that these initiatives address usually several of the Nexus sectors, and with a strong aspect of capacity building/institutional set-up. In several of the initiatives, resource efficiency, nature-based

solutions and climate change adaptation have been addressed. However, this Study does not aim for a full review of the previous studies, thus uncertainties are marked in Table 20.

Institution	Start/End	Nexus-related initiative	Eco	nomies	Nexu	is sec	tors	Ро	licies		
			Kosovo*	Water	Energy	Food	Ecosystems	Institutional capacity building	Resource efficiency	Nature-based solutions	Climate resilience
GIZ	2008-15	Open regional fund – Energy Efficiency	х	?	х			х	х		?
World Bank	2012-15	Danube Region Water Supply and Wastewater Sector Capacity Building Program	?	x	?			x		?	?
		MoU Environment (No. 591/12)	х	х		х	х	х		?	Х
ENVSEC	2014	Lepenc River protection via Introduction of Integrated Water Management	x	x		?	?				
EU?	2014-20	IPARD	?	?	?	х	?	?	?	?	?
WWF	2009-?	Activities on establishing Natura 2000		?	?	?	х	х	?	?	?

Table 20: Overview on the current Nexus-related initiatives

Indicating the economies involved and which Nexus elements are being addressed. The table includes also information on which Nexus-relevant key policies the initiative has been active

## 2.2.1. Nexus approach in the transboundary water management

The following transboundary basins and aquifers have been identified in Kosovo\* and region:

Transboundary river basins	Aquifers	Economies covered
Drin	Beli Drim/Drini Bardhe (Albania, Kosovo*), Prespa and Ohrid Lakes (Albania, Greece, The Former Yugoslav Republic of Macedonia), Skadar/Shkoder Lake, Dinaric east coast aquifer (Albania, Montenegro)	Albania, Greece, Kosovo*, The Former Yugoslav Republic of Macedonia, Montenegro
	Metohija	Kosovo*, Montenegro
	Pester	Montenegro, Serbia
	Korab/Bistra – Stogovo, Jablanica/Golobordo	Albania, The Former Yugoslav Republic of Macedonia

Table 21: Transboundary river basins and aquifers in Kosovo\*xviii.

Based on UNECE Second Assessment of Transboundary Rivers, Lakes and Groundwaters it can be stated that both the quantity and quality of transboundary water resources in SEE are under significant stresses.

Agriculture, domestic use, industry and tourism are the main users influencing withdrawal rates of water resources. Inefficiencies in water use and losses due to ageing and suboptimal infrastructure are significant, most prominently so in the agriculture sector where the majority of farmers apply unsustainable irrigation practices.

Agricultural activities also contribute significantly to the worsening of the quality of water resources through chemical pollution from the use of fertilisers and pesticides leading to loss of biodiversity and deterioration of ecosystems.

Another cause of pollution is insufficient or lacking wastewater treatment including illegal discharges from industry and erroneous use of septic tanks in rural areas. Mining activities are also having negative impacts on several basins in SEE. Additionally, illegal or uncontrolled waste disposal sites are contributing to the pollution of both surface and groundwaters.

Seasonal impacts on water use, generation of waste and wastewater originate from tourism, as well as illegal construction on the banks of water bodies for recreational purposes.

Hydropower is the main non-consumptive water user in most of the transboundary basins in the SEE. Cooling for energy production, agriculture, domestic use, industry and tourism are the main consumptive users influencing withdrawal rates of water resources. The construction and operation of hydropower plants on waterways in SEE both pose challenges, ecological and socio-economic, and create benefits e.g. job creation, flood regulation, water diversion, irrigation, drinking water supply and recreational purposes. The challenges are multifaceted and range from bio-physical impacts, such as hydrological and morphological alteration, fragmentation of habitats, erosion linked to soil and land loss, changes in sediment transport capacity and deposition, impacts on water quality and landscapes; to social impacts related to resettlement, loss of cultural and historic sites, land-use changes and alterations of livelihoods of local communities<sup>xix</sup>. Furthermore, concerns about impacts of human health due to water storage in large reservoirs have also been expressed<sup>xx</sup>.

The least understood constituent of SEE water resources are aquifers. Knowledge has significantly improved in recent years<sup>xxi</sup> for the Dinaric Karst region of the Balkan peninsula<sup>xxii</sup>.

Climate change impacts on water resources in SEE can be observed already with altered water regimes and runoffs in the area<sup>xxiii</sup>. That is in line with IPCC projections of SEE being a region to be severely hit by climate change in the future. The area will be faced with decreasing summer rainfall, increasing frequency and severity of droughts, risk of floods and extreme weather events. This may lead to secondary impacts of deteriorating water availability and quality, damages to human health, negative impacts on industry, forest fires, soil degradation, desertification, loss of land and habitats. Climate change will thus exacerbate the tensions between competing water uses and between users at different parts of the basins within the region, further complicating cross-border cooperation.

Out of the above list of transboundary river basins or aquifers, those that are transboundary within the SEE2020 economies have been further assessed regarding their Nexus-related conflicts, trade-offs and actions to overcome them, taken at the

transboundary water management level:

Transboundary river basins or aquifer	Nexus-related challenges	Transboundary actions taken or planned	Nexus addressed
Metohija	Agriculture and local small industries in Kosovo*, resulting in pesticides and industrial organic compounds in the groundwater. No transboundary pressures	No transboundary action	Water and agriculture
Sava, incl. Macva- Semberija (Bosnia and Herzegovina, Serbia), Lim (Montenegro, Serbia), Tara massif (Bosnia and Herzegovina, Serbia)	Hydropower generation, agriculture and industry are the main economic sectors, sharing the major part of the available water resources in the sub-basin. The construction of water regulation structures and weirs at its tributaries; drainage networks, and flood protection systems, in combination with water abstractions, have caused hydrological and morphological alterations, including disconnection of adjacent wetland/floodplains. Interruption of river and habitat continuity and loss of wetland areas in the lower-middle and lower Sava areas are among the impacts. Organic, nutrient and hazardous substances pollution are also important pressure factors. Regarding Macva-Semberija, local and moderate nitrogen and pesticides from agriculture are reported (Serbia, Bosnia and Herzegovina); no water quantity problems. Regarding the Lim aquifer, 12/ <25% of the total abstraction is for agriculture. Regarding the Tara massif aquifer, moderate to strong environmental impacts are reported related to the Bajina Basta reversible hydropower plant system (Serbia).	<ul> <li>Sava River Basin Management Plan. Sava River Basin Flood Risk Management Plan. The Geographical Information System, the River Information Services (for the improvement of navigation safety), and the Flood Forecasting and Early Warning System were prepared by 2012.</li> <li>Development of the Hydrological Model for the Sava River Basin (SRB) in August 2015 as a product of the World Bank WPP, with external contribution.</li> <li>Guidance note on adaptation to climate change for flooding, hydropower, navigation, agriculture, and economic evaluation in August 2015 (WB WPP) when is also accomplished the final report on Water and Climate Adaptation Plan for the SRB.</li> <li>The project in 2017: "Outline of the Climate Adaptation Strategy and basin-wide priority measures for the SRB" supported by International Office for Water (IOWater). The main project deliverable was the report on Outline of the Climate Change Adaptation Strategy and priority measures for the SRB.</li> <li>The Accident Emergency Warning System is in place.</li> <li>Cooperation among the Parties to the FARSB through the ISRBC represents the most advanced effort of its kind in the South-Eastern Europe, Montenegro has already been approached by the ISRBC for integration. However, Montenegro is not a Party of the FASRB as it is not riparian economy. Cooperation between ISRBC and Montenegro has been based on MOU that was signed in Belgrade on December 9,2013<sup>xxiv</sup>.</li> <li>Regarding Macva-Semberija, groundwater abstraction regulation and quantity monitorine, protection zones, and</li> </ul>	Sava river aspects have been addressed in the RBMP. No information on actions on aquifers.

good agricultural practices used and effective, water use
efficiency, public awareness, wastewater treatment need to
be applied.
For the Lim aquifer, abstraction management, protection
zones and vulnerability mapping for land use planning need
to be applied, together with monitoring of groundwater
quantity and quality.
For the Tara massif aquifer, groundwater abstraction
management and quantity monitoring in use needs
improvement. An integrated monitoring system is needed.

Table 22: Nexus-relevant challenges and corresponding transboundary actions in river basins and aquifers in Kosovo\*xxv.

# **3.** Conclusions

Kosovo\*'s economic indicators show a steady positive trend since 2003, with slowly reducing patters in terms of GDP, (GDP has doubled from 2003 to 2016), employment and (less) poverty. The economy is not self-sufficient in terms of energy and food production, and imports both; these imports will continue in future as energy consumption increases steadily and agricultural areas are under pressure from urbanisation and flooding. Furthermore, the area preserves a rich biodiversity, with increasing protected areas and numerous endangered species.

Kosovo\* is not yet recognized by the United Nations system, so it is not a signatory to international conventions such as the UN Framework Convention on Climate Change (UNFCCC). In 2015, Kosovo\* signed a Stabilization and Association Agreement with the European Union, and is working to align its legislation with EU legislation as part of the EU approximation process, including environment and disaster risk reduction.

Kosovo\* has insufficient water resources, and in the future, this will likely be a limiting factor for economic and social development of the country. It is estimated that Kosovo\* has only 1,600 m3/water/year per capita. Groundwater reserves are limited and are found mainly in the western part of Kosovo\*, where surface water resources are larger - compared to the eastern part, where water demands are very high, for urban supply, irrigation and industry.

Kosovo\* has difficulty in meeting peak demand for electricity. Energy predominantly comes from coal-fired power plants. Hydropower supplies 3–6 percent and its expansion is limited by the unequal distribution and inadequacy of water resources. The production of renewable energy sources and energy efficiency are both considered in the sector strategy.

53% of Kosovo<sup>\*</sup> is agricultural land. The sector provides food and income security for Kosovo<sup>\*</sup>'s rural population, although its share of GDP dropped from 25 percent to 14 percent in the last 25 years. The sector is mostly semi-subsistent and small-scale – 97 percent of holdings are under 5 hectares. Half of farms are active in livestock production, especially of dairy cows. Main agricultural products are corn, wheat, barley and milk. Sector growth is limited by inadequate irrigation, which covers only 17 percent of agricultural land. Fluctuations in rainfall leave regions without irrigation exposed to drought or flood conditions. The sector strategy aims primarily for the increase of the agricultural competitiveness and production.

Kosovo\* has an important biodiversity, which is yet to be fully discovered. There is loss of biodiversity of flora and fauna water: as a cause of pollution waters from urban pollution, agriculture and industry; Insufficient water quantity, especially during dry periods; Erosion;

Construction of hydro-powers for generation of electrical energy and gravel extraction from river beds.

Regarding the institutional set-up, there are leading Ministries for Water & Environment, Agriculture and Energy (Ministry of Economic Development), with several new structures and competencies. However, there is no inter-governmental coordination body set up; except for the Water sector, with the Inter-Ministerial Water Council (IMWC) allocated at the Prime Minister's Office.

The Nexus sector regulation has been adopted a decade ago, and offers numerous references to the other sectors, thus enabling cooperation.

However, the recently adopted strategies and plans do only make limited use of integration of the Nexus; with the exception of the water sector, which provides resources for energy and agricultural development, and the agricultural plans aiming for the production of renewable energy.

Whilst resource efficiency is somehow addressed in strategies and plans (energy, water, renewable energy and organic farming), climate change resilience or nature-based solutions are not covered by strategies or plans from the different sectors, thus limiting the Nexus approach.

Significant further steps are needed in administrative coordination and the development of strategies and plans as well as related investments to ensure a synergistic approach towards the water-Energy-Food-Ecosystem Nexus.

Main specific Nexus conflicts	Recommendations for Nexus synergies	Implementation
Hydropower development affects nature conservation areas	<ol> <li>To improve/upgrade the existing power plants (capacity, multi- purpose, generation efficiency) and invest in energy efficiency as the first steps that contribute to sustainability<sup>xxvi</sup></li> <li>To designate hydropower "no go" areas, e.g. for nature conservation priority zones<sup>xxvii</sup></li> <li>To increase the network of protected areas focusing in particular on the currently underrepresented natural and moderately modified rivers and streams, and on wetlands, as part of establishing representative networks of EU Natura 2000<sup>xxviii</sup></li> <li>To implement biodiversity mitigation measures<sup>xxix</sup> at existing and planned dams</li> <li>To establish ecologically</li> </ol>	The total capacity of small power plants that produce energy from water potential is 120,399 MW, wind parks have an installed capacity of 50 MW, and photovoltaic power stations have an installed capacity of 16.713 MW. Energy efficiency is included in different ratified agreements (e.g. Protocol on Energy Efficiency and Related Environmental Aspects, Bosnia and Herzegovina), legislation and plans/strategieshowever, it remains unclear if it is considered as a 'first step'. Regarding environmental flows, an analysis by WWF demonstrated that a small hydropower plant in the Crnojevića River (Montenegro) operating on an e-flow regime would produce 2.4% electricity per annum less than if operating on a biological minimum <sup>XXXII</sup> . Based on represented multidisciplinary

Main specific Nexus conflicts	Recommendations for Nexus synergies	Implementation
	<ul> <li>meaningful environmental flows<sup>xxx</sup></li> <li>6. To increase the deployment of solar and wind generators (which however could result in need for pumped storage hydro plants)<sup>xxxi</sup></li> </ul>	researches' results, the team of experts developed the general procedure and methodology for ecologically-acceptable flow assessment in Montenegro which was later transformed into a by-law proposal (2016). The Ramsar Secretariat congratulated the Government of Montenegro for adopting this new forward-looking rulebook, which directly contributes to implementing the goal of the Resolution 12 on 'protecting the water requirements of wetlands for the present and the future' adopted by the 12 <sup>th</sup> Ramsar Conference <sup>xxxiii</sup>
Water (over)allocation to the different uses, in particular during drought events	<ol> <li>To draft and implement (transboundary) River Basin Management Plans (Drin, Albania, The Former Yugoslav Republic of Macedonia, Montenegro, Kosovo*)<sup>oxxiv</sup></li> <li>To draft and implement (transboundary) Drought Management Plans or (as preliminary step) to use hands-on operational (IT) tools for decision- making, coordination and communication before and during drought events</li> <li>To create future projections of water demands depending on socio-economic analysis for the Bilecko Lake and its aquifer (Bosnia and Herzegovina, Montenegro)<sup>xxxv</sup></li> <li>To increase water management flexibility by multipurpose operations of dams<sup>xxxvi</sup></li> </ol>	Declaration on the management of the extended Drin River Basin, 18 <sup>th</sup> April 2011 Memorandum of Understanding for the Management of the Extended Transboundary Drin Basin (Drin MoU), between Montenegro, Greece, Albania, The Former Yugoslav Republic of Macedonia and Kosovo* (24th November 2011) Pursuant to the Agreement, the Commission has been established, with the aim of jointly understanding and resolving all problems related to the management of international river basins <sup>xxxvii</sup> To support their cooperation, projects funded by the Global Environmental Facility are being implemented by the Global Water Partnership and Global Water Partnership - Mediterranean in partnership with UNECE. In total the funding for 2016-2019 is US\$ 5.5 million. The projects aim to improve the joint analysis and understanding of transboundary issues and have set up pilot projects to demonstrate sustainable development along the river and lakesand contribute to the development and implementation of a Strategic Action Plan decided on by the Riparians <sup>xxxviii</sup> . Drought Management Centre for South East Europe – DMCSEE has been established in Ljubljana <sup>xxxvii</sup> . DMCSEE focuses its work on monitoring and assessing drought and assessing risks and vulnerability connected to drought. The Regional Strategy on Drought Management in the Danube Region is one of the outputs of the ongoing project DriDanube (Drought Risk in the Danube

Main specific Nexus conflicts	Recommendations for Nexus synergies	Implementation
		Region) lead by ARSO from Slovenia <sup>xi</sup> .
Dam operations causing hydro-peaking and subsequent ecosystem deterioration	<ol> <li>To setup flagship projects (such as reintroduction of sturgeons in the river basin or return of the eel and marble trout to the upper White and Black Drin catchments)<sup>xli</sup></li> <li>See above (bullet 4)</li> </ol>	
Dam operations during floods to reduce downstream impacts	<ol> <li>To develop Flood Risk Management Plans<sup>xliii</sup></li> <li>To identify and apply nature-based solutions<sup>xliii</sup> and green infrastructures (e.g. Natural Water Retention Measures)<sup>xliv</sup> to reduce flood risks</li> <li>To improve up and downstream communication and coordination</li> </ol>	
Pollution of surface and groundwater by pesticides and nutrients, and their treatment (costs)	<ul> <li>16. To harmonise transboundary criteria for the establishment and implementation of drinking water protected areas and their safeguard zones<sup>xiv</sup></li> <li>17. To promote organic farming and agricultural biodiversity<sup>xivi</sup> and afforestation</li> </ul>	Organic farming considered in Albania RDP and The Former Yugoslav Republic of Macedonia and Kosovo* Climate Change Strategies
Water pollution (caused by urban and industrial developments) and their treatment (costs)	<ul> <li>18. To create an inventory of non-point and point sources of pollution (landfills, septic tanks, quarries, wastewater discharges and others) for the (shared Dinaric) aquifers<sup>xivii</sup></li> <li>19. To improve the information available on the use of hazardous substances and their emissions<sup>xiviii</sup></li> <li>20. To agree on and implement (transboundary) water monitoring programmes<sup>xiix</sup>, and to improve the exchange of data</li> <li>21. To identify permanent and local sources of pollution, investigate systematically groundwater-dependent ecosystems and implement specific protection measures, and establish a proper and transboundary monitoring network for the Cijevna/Cemi karstic aquifer (Montenegro/Albania)<sup>1</sup></li> <li>22. To agree, regulate and implement EU/transboundary standards for wastewater discharges<sup>lii</sup></li> <li>23. To construct and operate more/all wastewater treatment plants</li> </ul>	

Main specific Nexus conflicts	Recommendations for Nexus synergies	Implementation
	24. To ban Phosphates' containing laundry detergents by 2012 and dishwasher detergents by 2015 (Phosphate Ban Scenario- Nutrients <sup>lii</sup> )	
Land-use intensification and disappearance of certain habitats/ecosystems	25. See above and below (bullets 17 and 28)	
Increased energy consumption	<ol> <li>Install energy-efficient wastewater treatment plants<sup>liii</sup> and water supply systems</li> </ol>	
Cross-sector governance, transparency and accountability	<ul> <li>27. To improve available datasets and their accessibility<sup>liv</sup></li> <li>28. To systematically employ Strategic Environmental Assessment (SEA) and Environmental Impact Assessments (EIA) to preliminarily assess effects of infrastructure developments (incl. hydropower), including scenario development and SWOT assessments for awareness-raising<sup>Iv</sup> and the informed involvement of stakeholders and the local communities</li> <li>29. To examine the experience with SEA with the aim of expanding the use of nexus analysis within it<sup>Ivi</sup>.</li> <li>30. To reconsider the mandates of ministries and intersectoral bodies<sup>Ivii</sup></li> <li>31. To analyze and coordinate/integrate the different timeframes and geographic scales for planning in different sectors<sup>Iviii</sup>.</li> <li>32. To improve access to environmental justices (Aarhus convention)</li> <li>33. To link spatial planning with river basin management and integrate adaptation to climate change<sup>IIX</sup></li> <li>34. To implement more effectively (e.g. protection measures for ecosystems and biodiversity<sup>IX</sup>)</li> <li>35. To aggregate the outcomes of public participation at specific decision-making levels in order to take these into account at more strategic levels<sup>Ixii</sup></li> <li>36. To develop broad, open, transparent and efficient platforms for reliable, high-quality data to</li> </ul>	

Main specific Nexus conflicts	Recommendations for Nexus synergies	Implementation
	serve as the foundation for high- quality decision-making <sup>Ixii</sup>	
	quanty accision making	

Table 23: Main Nexus conflicts in Kosovo\*, and past recommendations to overcome them

# 4. Annexes

# 4.1. References

#### 4.1.1. Acronyms

The following acronyms have been used in the development of this Study:

Table 2: Acronyms

Acronym	
AL	Albania
BHD	Birds and Habitats Directives
BiH	Bosnia and Herzegovina
САР	Common Agricultural Policy
CCS	Carbon Capture and Storage
DG	Directorate General
EC	European Commission
EEA	European Environmental Agency
EU	European Union
EU ETS	European Emission Trading System
EUR	Euro (currency)
FAO	Food and Agriculture Organization
FD	Floods Directive
FYROM	Former Yugoslavian Republic of Macedonia
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Green House Gas
GWP-Med	Global water Partnership - Mediterranean
HR	Croatia
IWLEARN	International Waters: Learning Exchange and Resources Network
IWRM	Integrated Water Resource Management
kWh	Kilo watt hours
m3	Cubic meter
ME	Montenegro
MS	Member State
OECD	Organisation for Economic Co-operation and Development
RCC	Regional Cooperation Council
REC	Regional Environmental Center for Central and Eastern Europe
RIWMFA	Regional Integral Water Management Framework Agreement
RS	Serbia

SDG	Sustainable Development Goal
SEE	South East Europe
SEE2020	Regional growth strategy "SEE 2020 – Jobs and Prosperity in European Perspective", endorsed in Sarajevo (November 2013)
SOER	State of the Environment
ТоС	Table of Contents
ToR	Terms of Reference
TWRM	Transboundary water resources management
UN	United Nations
UNECE	United Nations Economic Commission for Europe
UNFCCC	United Nation Framework Convention on Climate Change
WEFE	Water-Energy-Food-Ecosystems (Nexus)
WGE	Working Group on Environment
ХК	Kosovo*
yr	Year
MESP	Ministry of Environment and Spatial Planning
WD	The Water Department
EPD	The Environmental Protection Department
KEPA	Kosovo* Environmental Protection Agency
НМІК	Hydro Meteorological Institute of Kosovo*
MAFRD	Ministry of Agriculture, Forestry and Rural Development
MED	Ministry of Economic Development
MF	Ministry of Finance
IMWC	Inter-Ministerial Water Council
WSRA	Water Services Regulatory Authority
NIPHK	Institute of Public Health of Kosovo*
KSEI	The Kosovo* State Environmental Inspectorate
NAMA s	Nationally Appropriate Mitigation Actions

## 4.1.2. Glossary

The following terms have been widely used in the document, and are explained to ensure a common understanding.

Table 3: Glossary of key terms

Term	Explanation
Nexus	The interaction between policies and management of the different Nexus elements
Nexus approach	The Nexus approach has been introduced in the natural resources management agenda to facilitate the enhancement of water, energy and food security, while preserving ecosystems and their functions, and increasing climate resilience, by reducing tradeoffs, shifting towards more sustainable consumption patterns and improving demand management, building synergies and improving governance across sectors
Nexus fields/sectors of focus	Fields or sectors of the Nexus are in this case Water, Energy, Food and Ecosystems. Other institutions or projects work with different combinations of the Nexus fields or sectors
Conflict	the general pattern of groups dealing with disparate ideas <sup>13</sup>
Trade-off	A trade-off is a situation that involves losing one quality, aspect or amount of a

<sup>13</sup> Wikipedia

	Nexus element (e.g. water) in return for gaining another quality, aspect or amount of another Nexus element (e.g. energy). <sup>14</sup>
Climate resilience	the capacity for a socio-ecological system to: (1) absorb stresses and maintain function in the face of external stresses imposed upon it by climate change and (2) adapt, reorganize, and evolve into more desirable configurations that improve the sustainability of the system, leaving it better prepared for future climate change impacts <sup>15</sup>
Sustainable consumption patterns	Sustainable consumption relies on certain premises such as (1) Wise use of resources, and minimisation of waste and pollution; (2) Use of renewable resources within their capacity for renewal; (3) Fuller product life-cycles; and (4) Intergenerational and intragenerational equity <sup>16</sup>
Demand management	In natural resources management, demand management refers to policies to control consumer demand for environmentally sensitive or harmful goods such as water and energy <sup>17</sup>
Synergies	The creation of a whole that is greater than the simple sum of its parts <sup>18</sup>
Governance	The processes of interaction and decision-making among the actors involved in a collective problem that lead to the creation, reinforcement, or reproduction of social norms and institutions <sup>19</sup>
Natural resource management	The management of natural resources such as land, water, soil, plants and animals, with a particular focus on how management affects the quality of life for both present and future generations (stewardship) <sup>20</sup>
Strategic document	These include policy papers, strategies, action or investment plans, communications, key projects or similar initiatives

# 4.1.3. Literature references

The following literature has been used to develop the Study:

- Kosovo\* Water Strategy Document 2017-2036
- Energy Strategy of Kosovo\* 2017-2026
- Strategy\_and\_Action\_Plan\_for\_Biodiversity\_2011-2020
- Strategy\_\_Kosova\_for\_WM\_2013-2022
- Strategy\_for\_Environment\_Proetection\_2013-2022
- Climate change strategy 2014\_2024
- Long-term Balance of Electric Energy 2017-2026
- Report on the State of Water 2015
- Kosovo\* Water Statistics 2017
- Economic Catalogue for Agricultural Products 2017
- Green Report 2017
- Annual Report, State of Environment in Kosovo\* 2017
- UNECE (2011) Second Assessment of Transboundary Rivers, Lakes and Groundwaters. http://www.unece.org/?id=26343.

- <sup>15</sup> Wikipedia
- <sup>16</sup> Wikipedia
- <sup>17</sup> Wikipedia
- <sup>18</sup> Wikipedia

<sup>&</sup>lt;sup>14</sup> Adapted from Wikipedia

<sup>&</sup>lt;sup>19</sup> Wikipedia quoting Hufty, Marc (2011).

<sup>&</sup>lt;sup>20</sup> Wikipedia

<sup>10</sup> Strategy and Action Plan for Biodiversity 2011-2020, Ministry of Environment and Spatial Planning

<sup>12</sup> E.g. UNECE, 2017a, page 26

<sup>13</sup> Climate change scenarios for The Former Yugoslav Republic of Macedonia and Kosovo\* indicate overall increases in air temperature (DrinCorda, 2018)

<sup>14</sup> For some of the documents, a screening assessment whether the considerations are of 'high' or 'low' relevance has been carried out; for others a 'yes' or 'no' is stated

<sup>15</sup> Compared to the base year 2000, under the Sustainability Eventually Scenario. Source: CESR, 2007 quoted in EEA, 2010, page 129.

<sup>16</sup> IUCN, 2018

<sup>17</sup> Ozment, DiFrancesco & Gartner, 2015

<sup>xviii</sup> Source: UNECE, 2011

<sup>xix</sup> IEA (2000b)

<sup>xx</sup> Further details in IEA (2000b)

<sup>xxi</sup> DIKTAS, 2014

<sup>xxii</sup> UNESCO-IHP (2012)

xxiii UNECE (2011)

xxiv <u>http://www.savacommission.org/event\_detail/0/0/303/3</u>). Source: 2nd Sava River Basin Analysis,2016

xxv Source: UNECE, 2011, updated

xxvi Euronatur and ECA Watch (Schwarz, 2012) reports; and UNECE, 2017a, page 54

xxvii Recommendations of the 2010 EU Water Directors Statement (Kampa, et al. 2011)

xxviii Harmel et al, 2017, p.144 referring to the Drin river

<sup>xxix</sup> For example taken from the IEA guidelines for decision-making first published in 2000 and updated in 2010 or the European funded SHERPA project or the South-East-Europe Cooperation Programme, co-funded by the European Regional Development Fund has issued a series of recommendations and handbooks on sustainable management of hydropower as part of the SEE HydroPower Project.

xxx UNECE, 2017a, page 67

<sup>xxxi</sup> UNECE, 2017a, page 54

<sup>xxxii</sup> UNECE, 2017a, page 67. Note it is not clear if the regime has been implemented in practice.

xxxiii <u>http://www.greenhome.co.me/index.php?IDSP=849&jezik=eng</u>

<sup>xxxiv</sup> Harmel et al, 2017, p.134 referring to the Drin river. UNECE, 2011, p.277 refers to such an approach as "The Petersberg Phase II/Athens Declaration Process (coordinated by Germany, Greece and the World Bank, supported technically and administratively by GWPMed), acting in cooperation with UNECE, GEF and UNDP, facilitates a regional multi-stakeholder dialogue process, aiming to explore possibilities of moving the level of cooperation from the sub-basin to the Drin Basin level."

<sup>xxxvi</sup> UNECE, 2017a, page 73

<sup>&</sup>lt;sup>1</sup> Sources: latest available data from the economies' statistical sources, complemented with FAO Aquastat, Worldbank, IEA and UNEP-WCMC. Further details are available in the specific chapters of the Study.

<sup>&</sup>lt;sup>2</sup> Sources: Statistical data, FAO/Aquastat

<sup>&</sup>lt;sup>3</sup> Indicating the water consumption proportion of the available water resources. The WEI+ has been calculated as the quarterly average per river basin district. Source: EEA, <u>http://www.eea.europa.eu/data-and-maps/explore-interactive-maps/water-exploitation-index-for-river-1</u>.

<sup>&</sup>lt;sup>4</sup> EEA, 2010, page 24

<sup>&</sup>lt;sup>5</sup> Source: EEA, 2017, <u>https://www.eea.europa.eu/data-and-maps/indicators/urban-waste-water-treatment/urban-waste-water-treatment-assessment-4</u>

<sup>&</sup>lt;sup>6</sup> Source: IEA, 2017

<sup>&</sup>lt;sup>7</sup> Source: Schwarz, 2017.

<sup>&</sup>lt;sup>8</sup> Annual Balance of Energy in Kosovo\* 2017, Agency of Statistics in Kosovo\*

<sup>&</sup>lt;sup>9</sup> Sources: 2018 data taken from UNEP-WCMC, 2018. Montenegro data from

<sup>&</sup>lt;u>https://www.indexmundi.com/montenegro/habitat-protection.html</u> except 2020 data from Economy's Strategy.

<sup>&</sup>lt;sup>11</sup> Action Plan for Climate Change Strategy, August 2016, Ministry of Environment and Spatial Planning

<sup>&</sup>lt;sup>xxxv</sup> DIKTAS, 2014, p22
<sup>xxxvii</sup> WFD-eu.me xxxviii http://drincorda.iwlearn.org/gef-supported-drin-project xxxix www.dmcsee.org <sup>xl</sup> http://www.interreg-danube.eu/approved-projects/dridanube <sup>xli</sup> Harmel et al, 2017, p.144 referring to the Drin river <sup>xlii</sup> UNECE, 2017a, page 76 <sup>xliii</sup> WWAP/UN, 2018 <sup>xliv</sup> www.nwrm.eu <sup>xiv</sup> DIKTAS, 2014, p.22 <sup>xlvi</sup> Harmel et al, 2017, p.134 <sup>xlvii</sup> DIKTAS, 2014, p.22 <sup>xlviii</sup> UNECE, 2011, referring to the Danube river, p.173 <sup>xlix</sup> DIKTAS, 2014, p.22 <sup>I</sup> DIKTAS, 2014, p.20 <sup>li</sup> DIKTAS, 2014, p.22 <sup>III</sup> UNECE, 2011, p.173 iiii UNECE, 2017a, page 63 Iv E.g. UNECE, 2011, p.272: "Numerous measures are needed with regard to Beli Drim/Drini Bardhe aquifer (No. 133); priority should be given to monitoring groundwater quantity and quality, detailed hydrogeological and vulnerability mapping, delineation of protection zones, construction of wastewater treatment facilities as well as to public." awareness campaigns. <sup>Iv</sup> E.g. UNECE, 2011, p.272 re Beli Drim/Drini Bardhe aquifer <sup>Ivi</sup> UNECE, 2017a, page 77 <sup>Ivii</sup> UNECE, 2017a, page 77 <sup>Iviii</sup> UNECE, 2017a, page 77 lix Harmel et al, 2017, p.134 <sup>Ix</sup> Harmel et al, 2017, p.134 <sup>lxi</sup> UNECE, 2017a, page 26 <sup>lxii</sup> UNECE, 2017a, page 26