MINISTRIA E MJEDISIT, PLANIFIKIMIT HAPËSINOR DHE INFRASTRUKTURËS

MINISTARSTVO ŽIVOTNE SREDINE, PROSTORNOG PLANIRANJA I INFRASTRUKTURE

MINISTRY OF ENVIRONMENT, SPATIAL PLANNING AND INFRASTRUCTURE

AGJENCIONI PER MBROJTJEN E MJEDISIT TE KOSOVES

KOSOVSKA AGENCIJA ZA ZAŠTITU SREDINE

KOSOVO ENVIRONMENTAL PROTECTION AGENCY

Annual report on the state of the environment for 2020

Prishtina, August 2021

Republika e Kosovës
Republika Kosova - Republic of Kosovo
Qeveria – Vlada – Government

Ministria e Mjedisit, Planifikimit Hapësinor dhe Infrastrukturës
Ministarstvo Životne Sredine, Prostornog Planiranja i Infrastrukture
Ministry of Environment, Spatial Planning and Infrastructure

AGJENCIONI PËR MBROJTJEN E MJEDISIT TË KOSOVËS
KOSOVSKA AGENCIJA ZA ZAŠTITU SREDINE
KOSOVO ENVIRONMENTAL PROTECTION AGENCY

Annual report on the state of the environment for 2020

Prishtina, August 2021

Republika e Kosovës
Republika Kosova-Republic of Kosovo
Kuvendi - Skupština - Assembly

Legislature VIII
Autumn session

The Assembly of the Republic of Kosovo, pursuant to Article 65 (9) of the Constitution of the Republic of Kosovo, article 72 of the Rules of Procedure of the Assembly, as well as article 25 of the Law No. 03/L-025 on Environmental Protection, at the Plenary Session held on 22 November 2021, following the review of the annual report on the state of the environment in Kosovo for 2020, issued the following:

DECISION

The Annual Report on the State of the Environment in Kosovo for 2020 is hereby approved.

Nr. 08-V- **127**
Prishtinë, 22.11.2021

Glauk KONJUFCA

President of the Assembly

Decision shall be sent to:
- Assembly of the Republic of Kosovo,
- Directorate for Support of Parliamentary Commissions
- Archive of the Assembly

Republika e Kosovës
Republika Kosova-Republic of Kosovo
Qeveria - Vlada - Government

No. 14/39
Date: 13.10.2021

Pursuant to article 92 paragraph 4 and article 93 paragraph 4 of the Constitution of the Republic of Kosovo, article 25 of the Law No. 03/L-025 on Environmental Protection, based on article 4 of the Regulation No. 02/2021 on Areas of Administrative Responsibility of the Office of the Prime Minister and Ministries amended and supplemented by the Regulation 04/2021, in compliance with article 19 of the Rules of Procedure of the Government of the Republic of Kosovo No. 09/2011, the Government of the Republic of Kosovo, in the meeting held on 13 October 2021, renders the following:

DECISION

1. The Annual Report on the State of the Environment in Kosovo for 2020 is hereby approved.

2. The Secretary General of the Office of the Prime Minister shall be obliged to forward the report from point 1 of this Decision to the Assembly of Kosovo.

3. The Decision shall enter into force on the day of its publication in the Official Gazette of the Republic of Kosovo.

Albin KURTI

Prime Minister of the Republic of Kosovo

Shall be sent to:
- Deputy Prime Ministers
- All the ministries (ministers)
- General Secretary of the OPM
- Archive of the Assembly

Table of Content

1. Introduction

The drafting of the Report on the State of the Environment in Kosovo is based on the Law on Environmental Protection[1]. According to Article 25 of this law, the Government of Kosovo, on the proposal of the Ministry of Environment, Spatial Planning and Infrastructure, submits to the Assembly an Annual Report on the State of the Environment.

The report should contain data on: the state of the environment and changes in the environment compared to the previous report, environmental impacts on the health of the population, the condition of endangered environments, implementation of the environmental strategy and action plan, measures taken for protection of the environment, development of environmental institutions and financing of the system for environmental protection.

In accordance with the duties and responsibilities of government institutions, the Kosovo Environmental Protection Agency is the institution that drafts this document.

This annual report presents the state of the environment for 2020, but even earlier data occupy a considerable place for the purpose of comparison.

To compile the report, KEPA has collected environmental data from monitoring institutions, operators, various enterprises, publications, reports and other sources. The data collected have been processed into qualitative environmental information that is now presented in this report.

The presentation of the situation for some environmental sectors is less covered due to lack of data, lack of monitoring, insufficient legal basis or other institutional and managerial aspects.

The quality of this report, to some extent, is also a reflection of the quality of monitoring implemented nationwide and the level of organization of the environmental information system. These two environmental systems are still in the development and empowerment phase so there is still a lack of complete and reliable data.

The main purpose of this report is to inform decision-making institutions on the state of the environment in Kosovo, in order for the presented data to serve for the design of adequate environmental policies and for the orientation of developments, planning and strategic investments in sectors that have an impact on the environment, such as: economy, industry, energy, transport, agriculture, etc.

[1] *Law on Environmental Protection No. 03/L-025*

2. Summary of the main findings of the report

Air - Air quality in the territory of Kosovo is monitored through systematic measurements of the network of monitoring stations managed by KEPA/KHMI, and consists of 12 static stations and 1 mobile station. The data from the monitoring speak for exceeding the maximum allowed values, for some parameters and in particular for PM10 and PM2.5, and this mainly during the winter season. Data reporting is also done through the online reporting system. Regarding the trend of annual concentration of monitored parameters, based on annual data for the period 2013-2020, there is a significant decrease in the concentration of pollutants that may be related to measures taken to reduce pollution. The process of identifying sources of pollution carried out through the inventory of air emissions, shows that the largest emissions for PM10 and PM 2.5 come from the small combustion sector and industry. The largest emissions for NOx come from the industry and transport sector while the largest emissions for SO2 come from industry. Annual greenhouse gas emissions in Kosovo are estimated at about 9613 Gg (Giga grams) CO2 eq, (equivalent) or about 9.6 million tons of CO2 eq. The main source of greenhouse gas emissions is the energy sector with a share of 86% of total emissions, the second sector is agriculture, forestry and land use with 8%, the waste sector represents 5% of total emissions and the sector of industrial processes and product use by about 1%. The implementation of low-level laws, bylaws and policies for the air sector has also been noted, as is the case with policies for the control of emissions from mobile sources and those for the control of oil quality. Low level of implementation of legal requirements at the local level. Although the Law on Air Quality requires the drafting of Local Air Quality Action Plans, so far only a few municipalities in Kosovo have drafted and approved such a document.

Water - Surface water quality in Kosovo continues to be affected by pollution resulting from urban and industrial water discharges, uncontrolled dumping of waste into rivers, use of pesticides and fertilizers in agriculture as well as damage to river beds from the use of aggregates and illegal construction. Currently, surface water quality monitoring is performed at 54 monitoring points in the river, while water quantity monitoring is performed at 26 monitoring stations. There is still no regular monitoring of the water quality of lakes and groundwater, just as there is no biological monitoring of surface water. The indicators presented in this report indicate the presence of organic pollutants in river waters, although it can be concluded that surface waters are not endangered by eutrophication. Kosovo has not yet developed a wastewater treatment system, as it is in the construction phase of wastewater treatment plants. The construction of the wastewater treatment plant for the Prizren region has already been completed, while the other plants are in the phase of feasibility studies and realization of works. Currently functional wastewater treatment plants are the wastewater treatment plant in

Skenderaj with an annual capacity of about 734,421 m^3, as well as 2 wastewater treatment plants (Harilaq and Badovc) with a small capacity (104,750 m^3/year).

Land - Currently, Kosovo does not have a program or regular monitoring of soil quality. This activity is carried out mainly through projects and periodic activities. According to the analysis of the land coverage trend, it has been concluded that the change of land destination remains one of the main environmental challenges in the land sector. It was found that there was an increase in the areas of urban areas, industrial and commercial areas and those for mineral extraction, while there was a loss of areas for the categories of agricultural land, pastures and forests, while the areas of green and recreational areas have remained the same. About 7.35% of land areas in Kosovo have been identified with very strong erosive intensity, 16.1% strong, 35.4% medium, 24.55% weak, 10.1% very weak and 6.5% without erosion. Agriculture is considered as one of the main sources of pollution of agricultural lands, which comes as a result of the use of chemical fertilizers and other chemicals for soil treatment. Active and old industries are also a potential source of soil pollution due to the generation of industrial waste and the use of chemicals that in some cases are stored in unsafe places.

Protected areas and biodiversity - During 2020, the national register of protected areas has been increased for 7 new areas, increasing the number of protected areas to 217 areas with an area of 125816.6 ha or 11.53% of the territory of Kosovo. Despite the continuous increase in the number of protected areas and their area, efficient management of protected areas and prevention of illegal actions in these areas continues to be a problem for Kosovo institutions. There are still protected areas that enjoy special protection status which do not yet have relevant management bodies. The lack of spatial, management and regulatory plans for some of these areas is also considered to be a problem. The monitoring of fauna through trap cameras provided information on the presence of some rare and endangered species of fauna in Kosovo. There is a lack of specific programs for monitoring biodiversity in general or specific species in particular. The implementation of several initiatives and projects for cross-border management of natural areas is considered positive and important.

Waste Management - Kosovo continues to face a lack of efficient waste management. Waste generation per capita is estimated at 230.85kg/inhabitant/year. Currently at the national level about 84% of the generated waste is collected. Most of them are disposed of in sanitary landfills, while there is still no organized system of separation at the source and recycling of waste. The management of sanitary landfills in Kosovo is not good and among the main problems are the non-functioning of landfill water pumping systems, poor compression of landfilled waste and insufficient waste coverage. A large number of illegal landfills have been identified throughout Kosovo, although there has been little progress in 2020 (1489 in 2019, and 1189 in 2020). Despite the continued commitment of central institutions, municipalities and donors, illegal landfills continue

to be a challenge for this sector. Activities for source separation, waste treatment, waste recycling and other aspects related to the circular economy are still on a low scale. Compared to 2019, during 2020 there was a greater generation of hospital waste, which came as a result of dealing with the COVID-19 pandemic.

Public health - The number of registered environmental diseases continues to have a linear trend in Kosovo. In some cases a significant increase in the number of some diseases related to environmental aspects has been registered. During 2020, the large number of patients with COVID-19 should be singled out. However, in Kosovo there is still no detailed and indicator-based study that would assess the real impact of the state of the environment on public health. According to statistical data on the causes of death in Kosovo, it is found that the largest number of deaths in terms of causes related to the environment are those from diseases of the circulatory system, tumours and diseases of the respiratory system. The average age of people who die in Kosovo is estimated at 73.1 years. Drinking water control shows that about 99.4% of the tests were in compliance with local standards of water quality.

Utilization of natural resources - Exploitation of stone and other mineral resources is realized through quarries, which is one of the most frequent forms of exploitation of natural resources in Kosovo. During 2020, 228 licenses for stone exploitation and 204 licenses for exploration of stone reserves were issued. The data show that there are also illegal operators that deal with this activity. It is estimated that during 2020, according to the plan, 157,970.95 m^3 of wood were used from the forests of Kosovo, by the private and public sector. illegal cutting of forests is not included in this assessment. As for water, the largest amount of water is used for drinking from the household sector, industry sector and land irrigation.

Measures taken to improve the state of the environment - Kosovo continues its commitment to harmonizing national legislation with EU Directives, although their implementation remains a challenge. Strategies and action plans have been drafted and approved for all environmental sectors, both at the central and local level, but the level of their implementation is partial. Although inspection and surveillance activities in the nature protection sector have increased during 2020, illegal activities that degrade and damage the environment are still in alarming numbers. Although the budget for environmental capital projects has increased, and the number of donor projects has also increased, the need and demand for environmental investments remains high. The issue of the environment in Kosovo is still treated with low priority by the Government of Kosovo.

3. State of the Environment

3.1. Air

3.1.1 Air quality

The quality of the air condition in the territory of Kosovo has been assessed by systematic measurements of monitoring stations in the country. MMPHI - KEPA/KHMI, has a monitoring system of 12 stations and 1 mobile station (fig.1).

Figure 1: Location of air quality monitoring stations

Particle Dust (PM10, PM2.5), NO2, SO2, O3 and CO are monitored at monitoring stations. The table with data on monitoring stations and monitored parameters is presented in **Annex 1** of the Report.

The air quality norms applicable for air quality monitoring in Kosovo are defined according to Administrative Instruction No. 02/2011 on Air Quality Norms, which are presented in **Annex 2** of this report.
Data reporting is also done through the online air quality reporting system from the monitoring network administered by the Hydrometeorological Institute of Kosovo [2].
Air quality monitoring in Kosovo is divided into two areas: **Agglomerate -AKS1** (Prishtina), with IHMK stations, Rilindja, Obiliqi, Dardhishta and Palaj), and **ZKS1 Area (Rest of Kosovo)** with stations in Gjilan, Peja, Prizren, Drenas, Brezovica, Mitrovica and Elez Han.
Table 1 presents air quality data by monitored parameters and by relevant stations for 2020. The data show that there were exceedances of the allowed values mainly for the PM10 parameter, in almost all monitoring stations. In the stations in Gjilan and Peja were registered the largest number of exceedance cases with 82, in KHMK Prishtina were registered 57 cases of exceedance, in that Rilindja 78 cases, in Prizren 53 cases, in Drenas 42 cases, in Mitrovica 54 and in Obilic 62 cases.
The largest number of cases of exceedances was recorded during the autumn-winter season, which is a result of the use of fuels for heating. In this season, meteorological conditions greatly affect the air quality due to humidity, atmospheric precipitation, fog, etc.
Exceedances of air quality norms were also recorded for the parameter PM2.5, whereas other monitored parameters were within the quality norms.

Table 1: Air quality data by parameters and monitoring stations for 2020

Area: Aglomerate -AKS1 (Prishtina Region)				
Station: Prishtina, KHMI				
Parameter	Average annual concentration	Excesses 24 h	Excesses 8 h	Excesses 1 h
PM10	32.5 µg/m3	57		
PM2.5	22.9 µg/m3			
NO2	20.3 µg/m3			0
SO2	*13.9 µg/m3*	0		0
O3	*43.6 µg/m3*		1	
CO	*1.9 mg/m3*		0	
Station: Prishtina, Rilindja				
Parameter	Average annual concentration	Excesses 24 h	Excesses 8 h	Excesses 1 h
PM10	37.4 µg/m3	78		
PM2.5	24.0 µg/m3			

[2] http://ihmk-rks.com/t/?page=1,5 and http://kosovoairquality.rks-gov.net/secure/index2.html

NO2	26.0 µg/m3			1
SO2	*11.0 µg/m3*	0		0
O3	*46.3 µg/m3*		3	
CO	*1.5 mg/m3*		0	
Station: Drenas				
Parameter	Average annual concentration	Excesses 24 h	Excesses 8 h	Excesses 1 h
PM10	25.9 µg/m3	42		
PM2.5	19.3 µg/m3			
NO2	12.7 µg/m3			0
SO2	*6.1 µg/m3*	0		0
O3	*49.7 µg/m3*		4	
CO	*0.3 mg/m3*		0	
Station: Obiliq				
Parameter	Average annual concentration	Excesses 24 h	Excesses 8 h	Excesses 1 h
PM10	30.1 µg/m3	62		
PM2.5	21.5 µg/m3			
NO2	18.0 µg/m3			0
SO2	*14.6 µg/m3*	0		2
O3	*35.0 µg/m3*		0	
CO	*1.5 mg/m3*		1	
Station: Dardhishtë				
Parameter	Average annual concentration	Excesses 24 h	Excesses 8 h	Excesses 1 h
PM10	30.4 µg/m3	54		
PM2.5	20.9 µg/m3			
NO2	10.4 µg/m3			0
SO2	*15.5 µg/m3*	0		0
O3	*42.2 µg/m3*		0	
CO	*2.4 mg/m3*		3	
Station: Palaj				
Parameter	Average annual concentration	Excesses 24 h	Excesses 8 h	Excesses 1 h
PM10	17.6 µg/m3	12		
PM2.5	12.6 µg/m3			
NO2	8.2 µg/m3			0
SO2	*7.6 µg/m3*	0		0
O3	*51.7 µg/m3*		0	
CO	*0.2 mg/m3*		0	
ZKS1 Area (Rest of Kosovo)				
Station: Prizren				
Parameter	Average annual concentration	Excesses 24 h	Excesses 8 h	Excesses 1 h
PM10	29.6 µg/m3	53		
PM2.5	22.1 µg/m3			
NO2	17.8 µg/m3			0
SO2	*8.4 µg/m3*	0		0
O3	*58.8 µg/m3*		17	
CO	*0.4 mg/m3*		0	
Station: Gjilan				
Parameter	Average annual concentration	Excesses 24 h	Excesses 8 h	Excesses 1 h
PM10	39.4 µg/m3	82		
PM2.5	29.3 µg/m3			

NO2	18.9 µg/m3			0
SO2	*5.5 µg/m3*	0		0
O3	*50.6 µg/m3*		2	
CO	*0.5 mg/m3*		0	
Station: Hani i Elezit				
Parameter	Average annual concentration	Excesses 24 h	Excesses 8 h	Excesses 1 h
PM10	25.6 µg/m3	34		
PM2.5	17.6 µg/m3			
NO2	18.0 µg/m3			0
SO2	*5.5 µg/m3*	0		0
O3	*52.8 µg/m3*		1	
CO	*0.2 mg/m3*		1	
Station: Mitrovica				
Parameter	Average annual concentration	Excesses 24 h	Excesses 8 h	Excesses 1 h
PM10	29.2 µg/m3	54		
PM2.5	22.1 µg/m3			
NO2	14.1 µg/m3			0
SO2	*42.1 µg/m3*	0		0
O3	*26.5 µg/m3*		0	
CO	*0.3 mg/m3*		0	
Station: Peja				
Parameter	Average annual concentration	Excesses 24 h	Excesses 8 h	Excesses 1 h
PM10	36.4 µg/m3	82		
PM2.5	28.7 µg/m3			
NO2	14.3 µg/m3			0
SO2	*10.2 µg/m3*	0		0
O3	*35.9 µg/m3*		1	
CO	*0.6 mg/m3*		1	
Station: Brezovica				
Parameter	Average annual concentration	Excesses 24 h	Excesses 8 h	Excesses 1 h
PM10	7.6 µg/m3	1		
PM2.5	5.7 µg/m3			
NO2	1.5 µg/m3			0
SO2	*3.8 µg/m3*	0		0
O3	*92.4 µg/m3*		18	
CO	*0.3 mg/m3*		0	

Regarding the trend of annual concentration of monitored parameters, based on annual data for the period 2013-2020, there is a significant decrease in the concentration of pollutants that may be related to measures taken to reduce pollution. The trend of decreasing concentration is evident especially in the case of parameters PM10 and PM2.5 (figure 2 and figure 3).

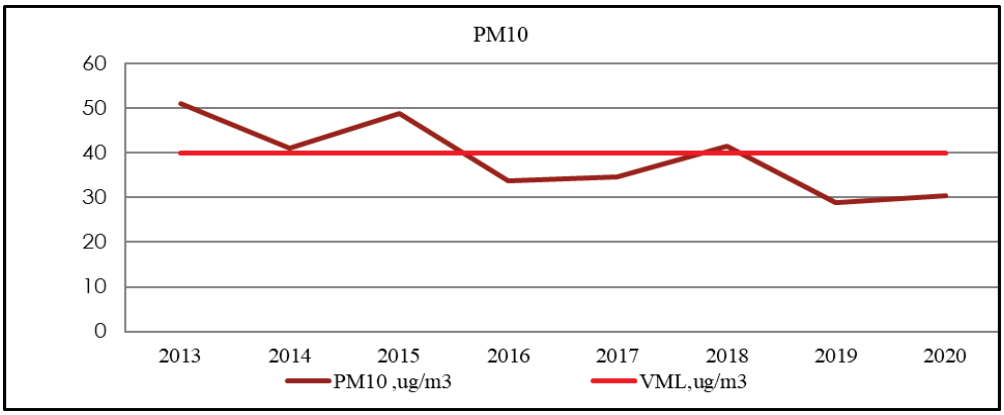


Figure 2: *The trend of annual PM10 averages for the years 2013-2020*

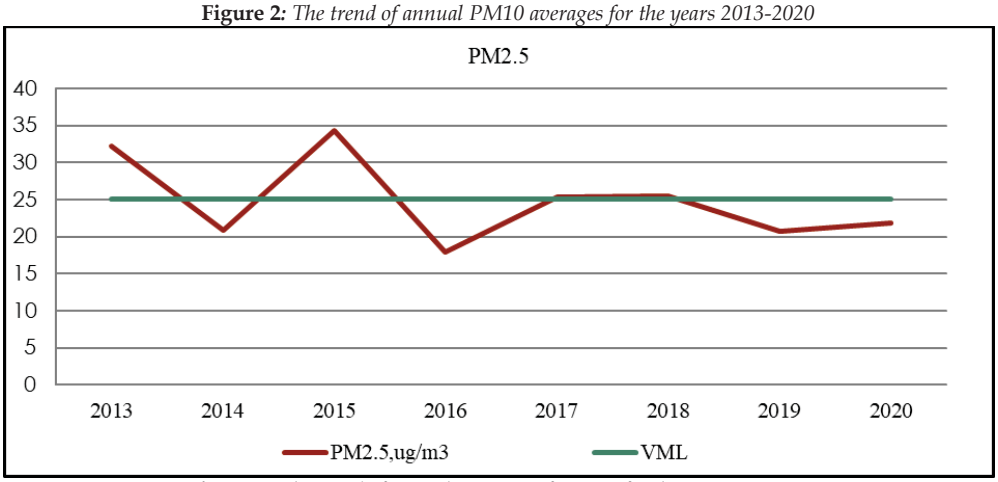


Figure 3: *The trend of annual averages of PM2.5 for the years 2013-2020*

The annual concentration trend for the period 2013-2020 for other air quality parameters is presented in **Annex 3**.

More specific details on air quality in Kosovo for 2020 can be found in the Annual Report on the air situation in Kosovo[3].

3.1.2. Air emissions

During 2020 - 2021, KEPA in support of the project "Information Management System for air quality, behavior change and communication services" supported by the Millennium Foundation of Kosovo (MFK). In the framework of this project, the sources

[3] *Report on the air situation in Kosovo 2020 (http://www.ammk-rks.net/repository/docs/Raporti_për_gjendjen_e_ajrit_në_Kosovë_per_vitin_2020_(final_web_alb).pdf)*

of air pollutants have been identified for the entire territory of Kosovo and an Inventory of air emissions for Kosovo has been created.[4].

Emission inventory provides an estimate of the location and amount of pollutants released into the air from various sources. Inventory is one of the main tools used in air quality management as it provides information through which we understand who are the relative contributors by activities and resources, thus enabling effective action to reduce emissions and improve ambient air quality. In the framework of the preparation of the emission inventory, the following pollutants were evaluated: particulate matter: PM10, PM2.5, nitrogen oxides (NOx), sulphur dioxide (SO2), carbon monoxide (CO), general volatile non-methane compounds of (NMVOC), arsenic (As), cadmium (Cd), mercury (Hg) and lead (Pb).

Methodology and data sources - The creation of emissions inventory was based on a methodology set by the European Environment Agency[5] and was supported by existing data in Kosovo. This includes data from other inventories created by the Kosovo Environmental Protection Agency and the Japan International Cooperation Agency for specific areas of Kosovo and for other purposes.

At the national level, the data were collected by institutions such as the Kosovo Agency of Statistics, the Kosovo Cadastral Agency and the Ministry of Infrastructure. At the local level, data were collected by city municipalities. In some cases, specific data have been obtained from other studies such as those undertaken by the European Union. The data in the Emissions Inventory specifically represent the year 2018. This year was set as it was estimated that the data available for creating the inventory were more accurate and reliable.

The following emission sources are included in the inventory, which we refer to as "sectors":

- Small burnings - home heating (including cooking) utilities and businesses;
- Transport: roads and aviation;
- Industry: power plants and large industrial installations;
- Agriculture;
- Landfills (Waste);
- Mines and quarries, and
- Natural resources (forests).

Results and conclusions - A summary of emissions in Kosovo in 2018 for each sector is presented in Table 2 and Figure 4.

[4] *"Project Management, Air Quality Management System, Behavior Change and Communication Services' TASK 1: Emissions Inventory Update: Detailed Methodology for Substance Emissions Inventory in Kosovo and Electronic Database Scope*

[5] *EEA report no. 13/2019; Guidebook on air pollutant emissions inventory EMEP / EEA 2019 - European Environment Agency (europa.eu)*

Table 2. Emissions in Kosovo in 2018 for the main pollutants by sectors

Pollutants	Small burnings	Transport	Industry	Agriculture	Quarries	Total
	(Mg/year)	*(Mg/year)*	*(Mg/year)*	*(Mg/year)*	*(Mg/year)*	*(Mg/year)*
PM10	18 883	4 174	14 003	1 443	112	38 616
PM2.5	18 397	1 860	6 372	204	11	26 846
NOx	1 976	14 169	26 971	4 028	0	47 145
SO2	1 745	9.5	44 201	2,8	0	45 958

As can be seen from the table and figure the largest emissions for PM10 and PM 2.5 come from the small combustion sector and industry. The largest emissions for NOx come from the industry and transport sector while the largest emissions for SO2 come from industry.

Emission of other pollutants, such as heavy metals, is about 630 kg / year, and emission of volatile non-methane compounds (NMVOCs) - about 28 Mg / year.

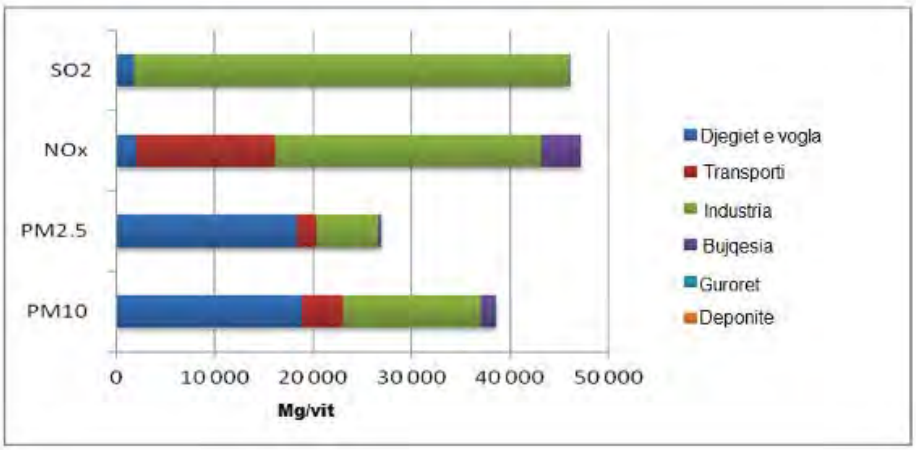


Figure 4. *Emissions in Kosovo in 2018 for the main pollutants by sectors [mg / year]*

Figure 4 shows the share of sectors in the emissions of the main pollutants, while Figures 5 and 6, show the extent (locations) of PM10 and NOx emissions.

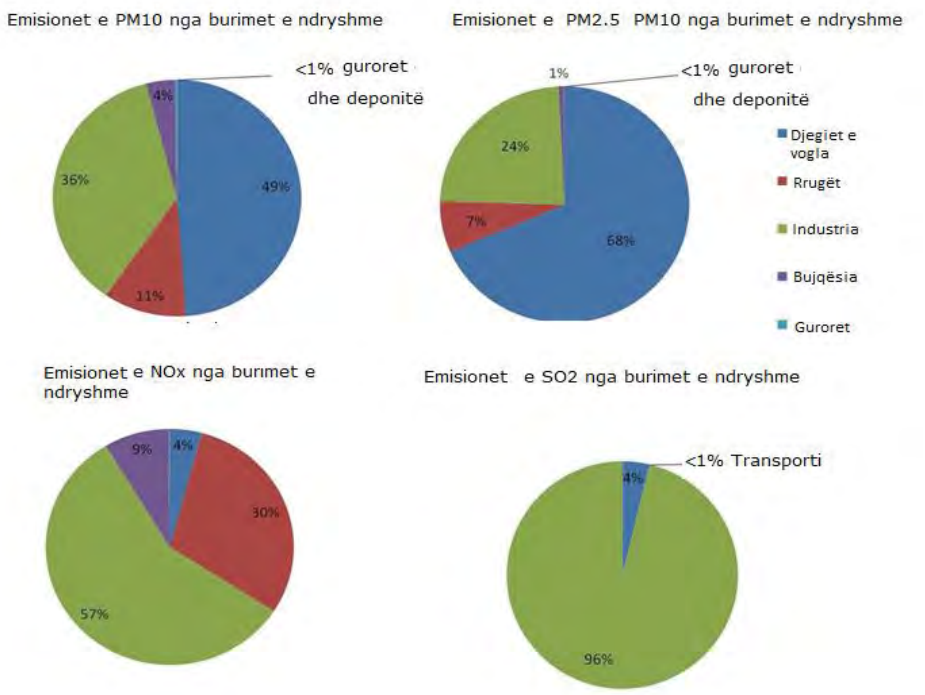


Figure 5. *Participation of sectors (resources) in emissions of major pollutants*

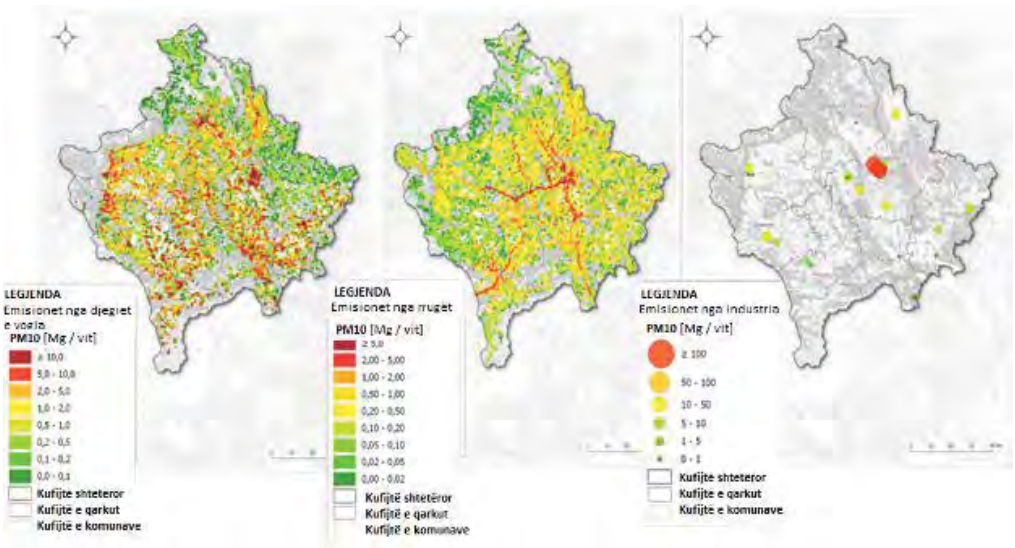


Figure 6: *Annual PM10 emission for major sources*

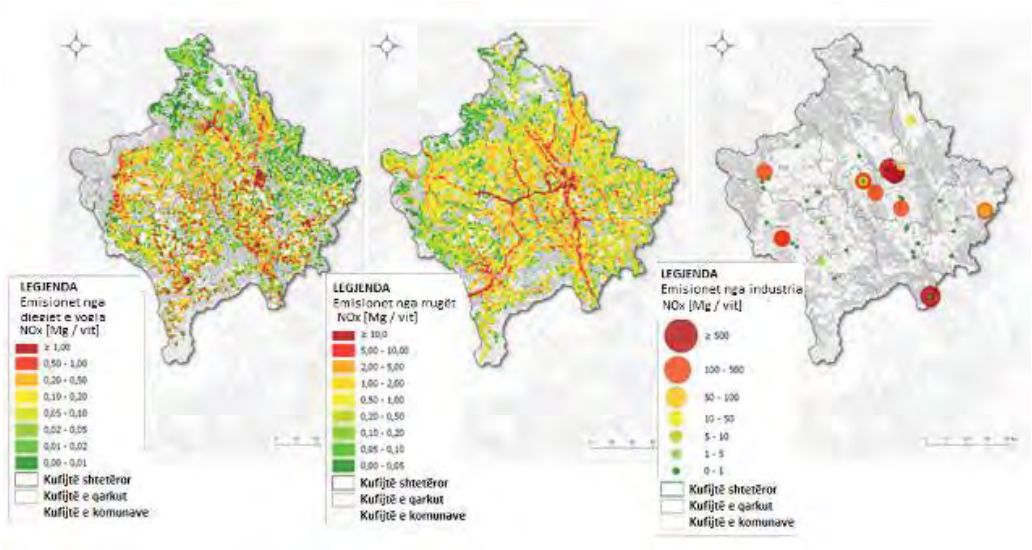


Figure 7: *Annual NOx emission for main sources*

Based on the data presented regarding the inventory of air emissions for Kosovo, these conclusions can be drawn:

- The largest sources of PM10 and PM2.5 emissions are small burnings, mainly domestic heating. Overall, almost 50% of PM10 and 68% of PM2.5 comes from minor burns. The industry is second in size with 37% for PM10 and 24% for PM2.5. Transport, mainly road traffic, is the third source with 11% and 7% of the shares. The remaining sectors account for less than 5% of emissions.
- Industry and transport, mainly road traffic, are the largest sources of NOx emissions. Industry represents 57% and transport 30%.
- Industry is the largest source of 96% SO2 emissions.
- Most PM10, PM2.5 and NOx emissions occur in urban areas and along major roads.
- Small burns are the main source of emissions of heavy metals, CO and NMVOC. However, heavy metal and NMVOC emissions from industry are not included.

3.1.3. Greenhouse gas emissions

In the framework of activities for 2020-2021, KEPA has also made the assessment of greenhouse gas emissions for 2019.

Annual greenhouse gas emissions in Kosovo for 2019 are estimated at about 9613 Gg (Giga grams) CO2 eq, (equivalent) or about 9.6 million tons of CO2 eq. The main source of greenhouse gas emissions is the energy sector with a share of 86% of total

emissions. The second sector is that of agriculture, forestry and land use with 8%. The waste sector represents 5% of total emissions while the industrial processes and product use sector with about 1% (table 3 and figure 8).

Table 3: Total greenhouse gas emissions in Kosovo by sectors for 2019

GHG emissions in Kosovo for 2019	Gg CO_2 eq.
Electricity	8624
Industrial processes and use of products	130
Agriculture, forestry and land use	773
Waste	457
Total emissions	9613

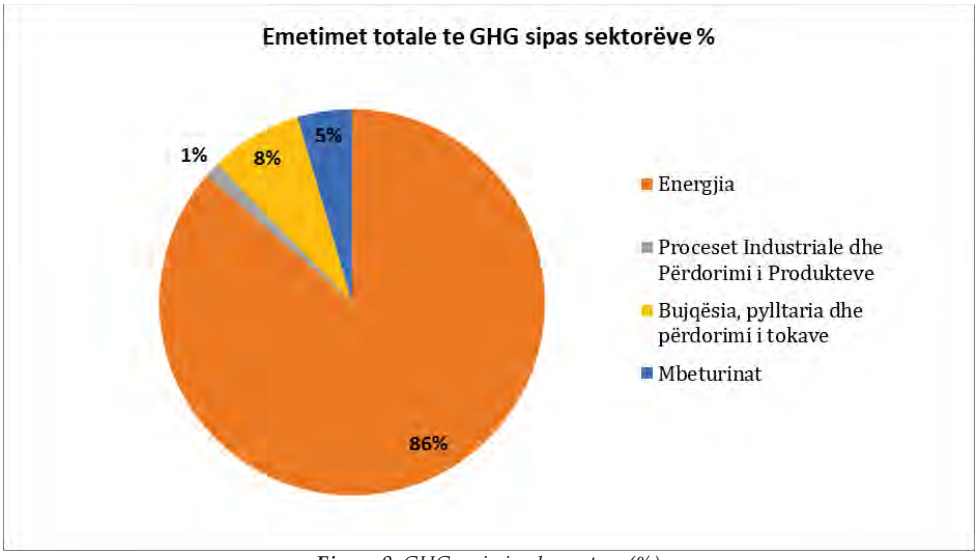


Figure 8: *GHG emission by sectors (%)*

The key categories of greenhouse gas emissions according to the IPCC (Intergovernmental Panel on Climate Change) are: energy industry, road transport, manufacturing and construction industry, enteric fermentation, solid waste disposal, cement production, urban water, direct emissions from land management, manure management etc. For more details table 4.

Table 4: Key emission categories for 2019 according to the IPCC

Category code according to IPCC	Category according to IPCC	Emitted greenhouse gas	2019 (Gg CO2 eq.)
1.A.1	Energy Industries	CO_2	6316
1.A.3	Road Transport	CO_2	1337
1.A.2	Manufacturing and Construction Industry	CO_2	561

3.A.1	Enteric fermentation	CH_4	476
1.A.4	Other Energy Sectors	CO_2	410
4.A	Solid Waste Disposal	CH_4	277
2.A.1	Cement production	CO_2	216
4.D	Urban Waters and Water Discharges	CH_4 & N_2O	105
3.C.4	Direct N2O Emissions from Land Management	N_2O	89
3.A.2	Manure Management	CH_4	69
1.B.1	Solid fuels	CH_4	36
3.C.5	Indirect N2O Emissions from Land Management	N_2O	33

The main emitted gas is CO2 with 88%, methane participates with 10% of the total emissions, while N2O and HFC participate with about 1% of the emissions (figure 9).

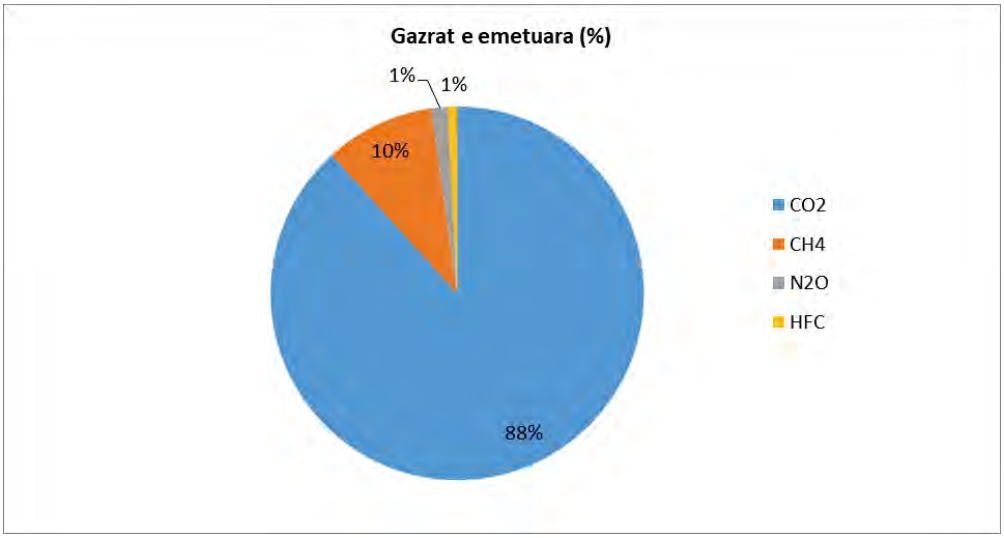


Figure 9: *Total gases emitted (%)*

The trend of total GHG emissions in Kosovo during the period 2014-2019 (figure 10), marks a non-linear trend. 2014 has the lowest emissions (8811 Gg CO2 eq.), while 2016 has the highest emissions (10641 Gg CO2). The year 2019 with 9995 Gg CO2 eq., Marks a tendency to increase emissions compared to the previous year 2018 (9852 Gg CO2 eq.) Total greenhouse gas emissions in Kosovo is highly dependent on the amount of energy produced from coal that is the main source of greenhouse gas emissions in our country.

Figure 10: *Trend of total gas emissions in Kosovo 2014-2019*

Compared to other countries in Europe, Kosovo has lower emissions (5 tons of CO2 equivalent) per capita than the European Union average, but has higher emissions than some of the countries in the region. As for CO2 emissions per unit of GDP (Gross Domestic Product), Kosovo with 0.5 kg of CO2 has higher emissions than the European Union average and higher than other countries in the region except Bosnia and Herzegovina.

For more details on greenhouse gas emissions in Kosovo you can also see the GHG Emissions Report in Kosovo 2014-2019[6]

3.2. Water

Industrial development, urbanization and intensive agriculture are just some of the factors that affect water pollution. Despite continued engagement, the uncontrolled use of water resources and damage to river beds still remains one of the forms of degradation of our water resources.

Pressures in the water come mainly as a result of increased volume of discharged wastewater without proper physical, chemical and biological treatment. All of this has an impact on the increase of values in physical, chemical and microbiological parameters in water bodies. Other precipitation pressures are the runoff of agricultural lands and other pollution surfaces, which leads to the growth of suspended matter, inorganic materials (fertilizers -N, P, K, NH_4^+ etc.) and organic

[6] *Greenhouse gas emissions report 2014-2019 (http://www.ammk-rks.net/repository/docs/Raporti_GHG_2014-2019_(final_ueb_version).pdf)*

ones (PCB, Herbicides etc.). Among the biggest pressures on water bodies are industrial discharges of various activities.

3.2.1. Surface water quality

River waters in the territory of the Republic of Kosovo are monitored by the Hydrometeorology Institute of Kosovo. The quality of these rivers is determined on the basis of physical, chemical and heavy metal analyses. The monitoring network has a total of 54 sampling sites (monitoring stations). The physical parameters currently being monitored are 10 physical parameters (measured 11 times a year), 39 chemical parameters (measured 11 times a year) and 8 heavy metals (2 times a year). River monitoring stations, monitored parameters and frequency of measurements have been presented in **Annex 4 and 5** of the report.

In this report, the state of the water is reflected through these indicators (parameters): Dissolved oxygen (mg/l O_2); Biochemical Oxygen Demand - BOD_5 (mg/l O_2), Chemical Oxygen Demand - COD (mg/l O_2); Total Organic Carbon - C (mg/l); Total phosphorus – P (mg/l), Total Suspended Matter-TSM (mg/L). The values presented in the charts are as average values for 2018 and 2019.

Parameters such as dissolved oxygen (O2), Biochemical Oxygen Demand for 5 days (BOD), Chemical Oxygen Demand (COD), show the level of organic and bacteriological pollution of water, and belong to the set of parameters expected to have pressures from the above mentioned phenomena. The presence of phosphorus (P_{tot}) causes eutrophication in the waters.

The Drini i Bardhë Basin - In this basin the selection is made for two rivers, namely Drini i Bardhë and Ereniku river (figure 11), where as annual average value is presented the Chemical Oxygen Demand /mg/l O_2 (COD) and that in both rivers of the monitoring stations along the flow excluding referent stations (sources).

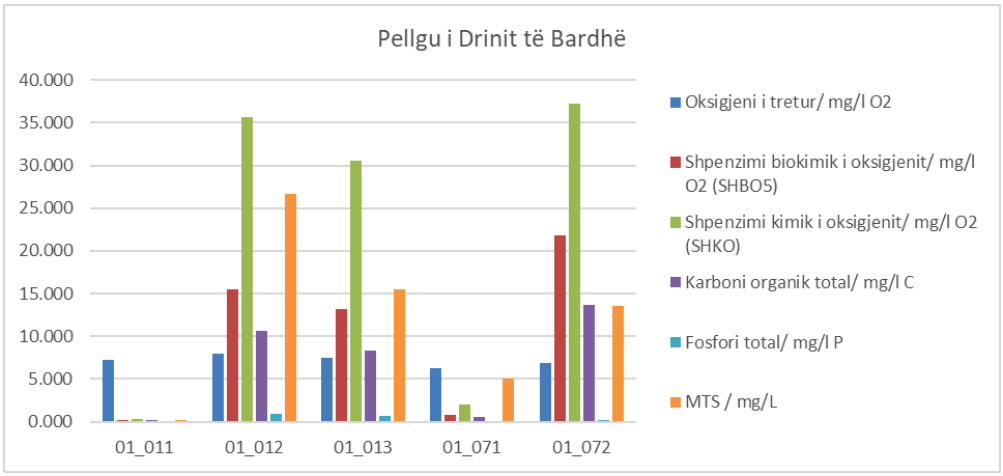


Figure 11: *Indicators selected by river water quality monitoring - HMIK 2018-2019 (Drini i Bardhë Basin)*

Iber River Basin - In this basin the selection has been made for these rivers: Ibri, Sitnica, Prishtevka, Graqanka and Drenica (Figure 12), where it can be seen that the river Prishtevka/Bresje, with almost all the presented parameters shows higher values, because the river stretches itself along the most populous area and includes also industrial areas.

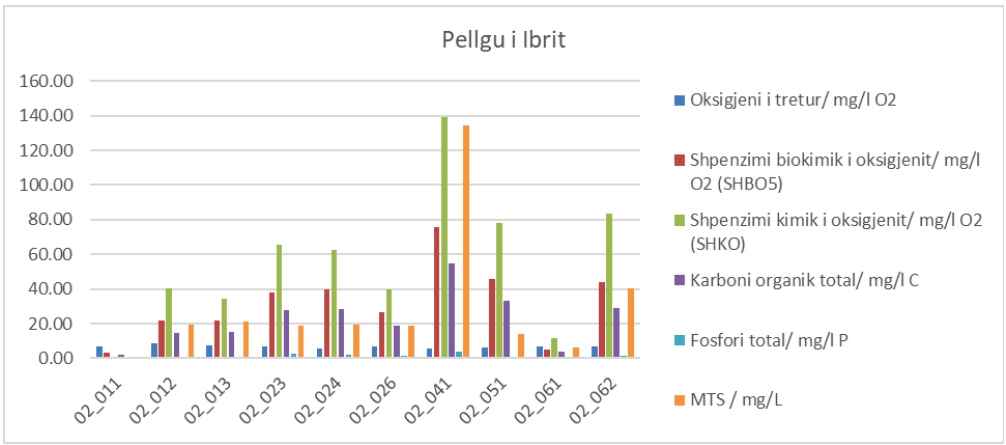


Figure 12: *Indicators selected by river water quality monitoring - HMIK 2018-2019 (Iber River Basin)*

Morava e Binçes and Lepenc Basin- In the Morava e Binçes Basin, the Morava e Binçes River has been selected with four monitoring stations in total (Figure 13), where almost in all its monitoring stations there is increase of these six parameters. While in the Lepenci Basin, two rivers have been selected: Lepenci and Nerodimja.

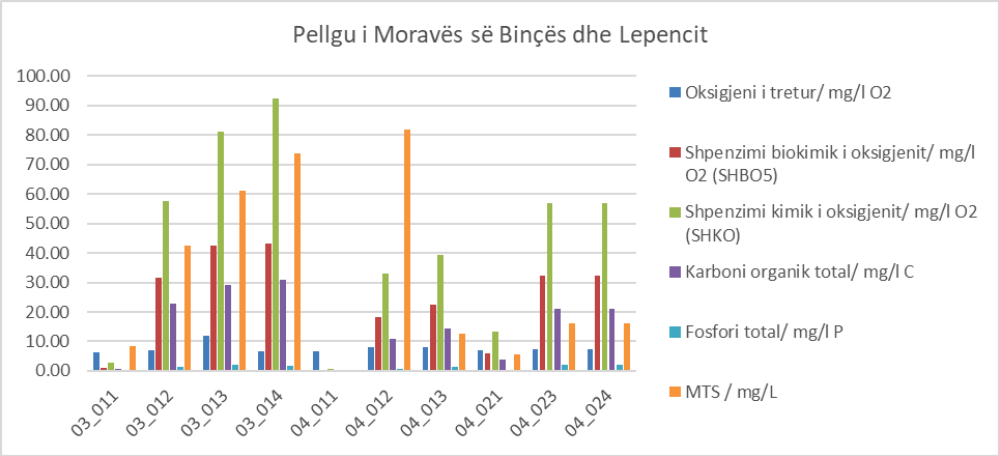


Figure 13: *Indicators selected by river water quality monitoring - HMIK 2018-2019 (Morava e Binçes and Lepenc Basin)*

Based on these three charts (territorial stretches of all basins), where the presence of total quantity of total phosphorus/mg/l P, based on the analyses conducted during this period, in the river waters will not have expressed impact on the surface waters, because its values shown in the 2020 chart range between 0.05 mg/l P (Ibri/ Kushtova) and 3.39 mg/l P (Prishtevka/Bresje). Based on that, we can conclude that surface waters in Kosovo are not endangered by eutrophication.

Also, the indicator Biochemical Oxygen Demand (BOD_5), during the monitoring period for 2020, shows that the estimated values range between 0.23 mg O_2/l (Ibri / Kushtova) and 75.66 mg O_2/l, in Prishtevka / Bresje river. This indicates the highest annual average water pollution of the rivers Prishtevka/Bresje for another consecutive year.

Even though in natural conditions clean waters do not have at all BOD_5 quantity, this pollution is justified by the fact that surface waters are always and all around increasingly exposed to discharges of polluted waters through which are created optimal conditions for increase of BOD_5 values.

The trend of changing water status for 2019 and 2020, for the respective monitoring stations for the indicators included in this assessment is shown in Table 5.

Table 5: The trend of river water quality 2019-2020

Monitoring stations	Dissolved oxygen / mg/l O_2	Biochemical Oxygen Demand / mg/l O_2 (BOD_5)	Chemical Oxygen Demand / mg/l O_2 (COD)	Total Organic Carbon / mg/l C	Total Phosphorus / mg/l P	Total Suspended Matter / mg/L (TSM)
RV01_011	↓	↑	↑	↑	↓	↔

RV01_012	↓	↑	↑	↑	↑	↑
RV01_013	↓	↑	↑	↑	↑	↓
RV01_071	↓	↑	↑	↑	No measurement	↑
RV01_072	↓	↑	↑	↑	↓	↓
RV02_011	↓	↑	↑	↑	No measurement	↓
RV02_012	↓	↑	↑	↑	↑	↑
RV02_013	↑	↑	↑	↑	↑	↑
RV02_023	↑	↑	↑	↑	↑	↑
RV02_024	↑	↑	↑	↑	↑	↑
RV02_026	↑	↓	↓	↓	↑	↓
RV02_041	↑	↑	↑	↑	↑	↑
RV02_051	↑	↑	↑	↑	↓	↑
RV02_061	↓	↓	↓	↓	No measurement	↑
RV02_062	↑	↑	↑	↑	↑	↑
RV03_011	↓	↓	↓	↓	No measurement	↑
RV03_012	↑	↑	↑	↑	↑	↑
RV03_013	↑	↑	↑	↑	↑	↑
RV03_014	↓	↑	↑	↑	↑	↑
RV04_011	↓	↑	↑	↑	No measurement	↔
RV04_012	↓	↑	↑	↑	↑	↑
RV04_013	↓	↑	↑	↑	↑	↑
RV04_021	↓	↑	↑	↑	No measurement	↑
RV04_023	↑	↑	↑	↑	↑	↓
RV04_024	↑	↑	↑	↑	↑	↓

3.2.2. Surface water amount

In addition to water quality, HMIK also monitors the amount of waters. The amount of water is monitored through the hydrometric network, which consists of a number of measuring stations in the rivers where the measurements for the amount of water are taken. These stations measure the Level (H) and Feed (Q). The following tables present the data for the water Level H (cm) and Feed (Q) in hydrometric stations, carried out in 2020 (table 6).

Table 6: Average annual values of H (cm) by metering stations 2020

Station	Avg. (cm)

Gjonaj	183
Këpuz	106
Gjakova	96
Deçan	40
Gryka	69
Drelaj	54
Vllashnje	75
Prizren	47
Pirana	122
Mirusha	39
Berkova	87
Leposaviç	147
Vragoli	51
Nedakovc	184
Millosheva	135
Lluzhan	87
Lipjan	28
Konçul	227
Viti	34
Domorovc	108
Hani i Elezit	72
Brod	37
Kaçanik	41
Mlika	74

The following Table presents the data for the Feed *Q* (m3/sec), for the hydrometric stations, carried out in 2020 (table 7).

Table 7: Average annual values of Feed Q (m3/sec) by metering stations 2020

Station	Avg.(m3/sec)
Gjonaj	30.461
Deçan	0.979
Gryka	7.625
Prizren	2.375
Lluzhan	2.123
Brod	1.240
Kaçanik	0.980
Mlika	1.677

3.3.3. Wastewater treatment

Kosovo has not yet developed a wastewater treatment system, as it is in the construction phase of wastewater treatment plants.

The construction of the wastewater treatment plant for the Prizren region has already been completed, while feasibility studies have been carried out and works are underway for the water treatment plants for the region of Gjakova, Peja, Gjilan, Prishtina, Ferizaj and Mitrovica. The feasibility study and project for Prizren, Gjakova and Peja is funded by the Government of Kosovo and the German Development Bank, while the feasibility study for urban water treatment for Gjilan, Ferizaj and Mitrovica is funded by the European Union.

Currently, the operational wastewater treatment plants include the wastewater treatment plant in Skenderaj with an annual capacity of about 734,421 m^3, managed by RWC "Mitrovica", and 2 wastewater treatment (Harilaq and Badovc) with small capacity (104,750 m^3/year), managed by RWC "Prishtina". Expressed in the percentage of the total number of inhabitants who have access to wastewater treatment plants, these treatment capacities are negligible and represent less than 1% of the population.

3.3. Land /soil

Demands for land use in the country are increasing on an annual basis, especially in the field of economic use, such as for the sector of agriculture, construction, roads, tourism, recreation and other infrastructure (waste management), water treatment plants, etc. Land use without a nationwide management plan remains the main challenge of sustainable land management. Sustainable land management and protection from pollution is a standard that must be met by all levels of local, central and private sector institutions. The integrated approach to land use planning and management is even at the focus and a priority of EU policy. The activities of the European Environment Agency are focused on monitoring, documenting and evaluating the spatial model, extent and dynamics of land use and land cover in Europe[7]. This monitoring and assessment dynamic of land use status should be applied in Kosovo as well.

3.3.1. Land use

Land use varies depending by which economic sector is used. Although there is a lack of data on land use from construction infrastructure or roads for 2020, in the agricultural sector these data are provided by the Survey of Agricultural Economies for 2019.

According to the data of this survey, the utilized area of agricultural land has not changed much and has been a rough trend of utilization for this period of time. In 2016, the total utilized area of agricultural land was 415,826 ha, while in 2017 there is a slight increase, which also continued to increase in 2018 where the area was 418,582 ha. The increase of agricultural land use continued in 2019 and in this case the area reached 420,141 ha, which shows a change in 2019 compared to 2018 by 0.4%. The largest area of utilized land is occupied by meadows and pastures (including common land) which constitutes 51.9% of the total utilized area of agricultural land[8].

3.3.2. Land cover

Land coverage is determined from satellite images, which are taken every 6 years. The last year when these images were taken was 2018, and until 2024 the existing

[7] *https://www.eea.europa.eu/themes/landuse/intro*
[8] *Green Report, 2020, MAFRD*

data of 2018 will be used, which were processed by the Kosovo Environmental Protection Agency within the project Implementation of CLC[9] 2018 in the Western Balkans, supported by the European Environment Agency. in Kosovo 30 land coverage classes have been identified out of 44 in the total CORINE nomenclature [10]. During 2020, KEPA has made a specific analysis of some of the land cover categories and has found that there has been an increase of urban areas, industrial and commercial areas and those for the extraction of minerals, and there has been a loss of areas for the categories of agricultural lands, pastures and forests. The areas of green and recreational areas have remained the same (table 8).

Table 8: Analysis of the change of key land cover categories 2012-2018

Type of land cover	Area (ha) 2012	Area (ha) 2018	Change (ha)
Discontinuous urban structure	42457	42630	173
Industrial or commercial units	4264	4538	274
Mineral extraction area	1621	1818	196
Urban green areas	39	39	0.00
Sports and recreational spaces	107	107	0.00
Arable land without irrigation system	129099	128932	-166
Pastures	17018	16669	-348
Deciduous forests	401328	400955	-372
Coniferous forests	21412	20941	-470

A more detailed report on land cover according to CLC can be found on KEPA website.[11]

3.3.3. Land monitoring

Kosovo still lacks a land monitoring system. The institutions responsible for land monitoring are the Kosovo Agricultural Institute and the Kosovo Hydrometeorological Institute. KHMI currently lacks the necessary capacity to monitor and assess soil pollution. Both of these institutions operate within the respective ministries. Peja Agricultural Institute, in addition to the competencies for monitoring agricultural inputs, food and preservation of the living environment, land suitability, it also performs many technical and scientific activities related to land analysis, with special emphasis on agriculture.[12]

A study on agricultural land pollution was conducted thanks to EU funds and implemented by GIZ and NIRAS. This project has monitored the agricultural lands of 17 municipalities in Kosovo which has included 214.749 ha. Lands in the proximity of industrial sites have been resulted to be contaminated.

[9] *CLC - Corine Land Cover (Land coverage according to CORNIE methodology)*
[10] *Coordination of information on the environment/Koordinimi i të dhënave në mjedis*
[11] *http://www.ammk-rks.net/repository/docs/Raport_CLC2018_Final.pdf*
[12] *Green Report, www.mbpzhr-ks.net*

3.3.4. Erosion

There are currently no data on an annual basis regarding the output of this environmental indicator. However, based on some data provided by previous research, KEPA has made an assessment in GIS for the spatial extention of land surfaces with very strong erosive intensity and other surfaces with strong, medium and weak erosive intensity and soil surfaces without erosion. As presented in the following table, 7.35% of land surfaces in Kosovo have very strong erosive intensity, 16.1% strong, 35.4% medium, 24.55% weak, 10.1% very weak and 6.5% have no erosion[13] (table 9).

Table 9: Forms of erosion in Kosovo (%)

No.	Form of erosion	% of land area
1	very strong	7.35
2	strong	16.1
3	medium	35.4
4	weak	24.55
5	very weak	10.1
6	no erosion	6.5

Areas with very strong and strong erosive potential lie mainly in mountainous areas while those with low erosive potential and no erosion lie mainly in valleys and flat land surfaces (figure 14).

[13] *Environmental Indicators Report, KEPA 2020* http://ammk-rks.net/repository/docs/Mjedisi_i_Kosov%C3%ABs_2020_Raport_i_trequesve_mjedisor%C3%AB_-_SHQIP.pdf

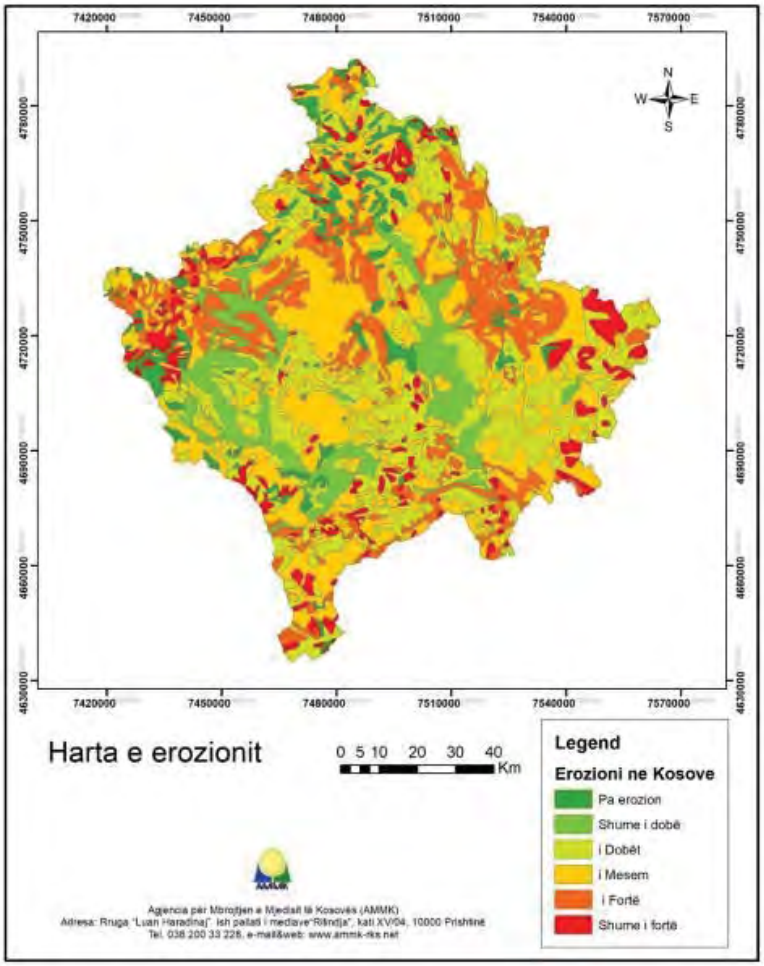


***Figure 14**: Map of the distribution of erosion forms*

3.4.5. Impact of agriculture on land pollution

Environmental pollution from the agricultural sector is inevitable and manifold. The negative impacts of agriculture are serious and may include soil, water and air pollution and degradation.

Agrochemicals include substances used in agriculture to increase soil productivity and its parameters, preparations for combating diseases of agricultural crops and livestock.

According to Kosovo Customs, about 805 tons of agrochemicals are imported in the form of Insecticides, rodenticides, fungicides, herbicides, anti-growth products and plant growth regulators, disinfectants and similar products. The use of

agrochemicals is essential in increasing the yield of agricultural crops. However, the use of agrochemicals also has drawbacks especially in soil, water resources and air pollution. While we still do not have accurate statistics on the use of chemicals such as pesticides, herbicides or fungicides, then the degree of environmental impact is difficult to determine. In addition to killing insects or weeds, such preparations can be toxic to a host of other organisms including birds, fish, beneficial insects, and plants not target to eradication.

Import of inorganic fertilizers (artificial) also known as fertilizers, only in 2019, according to Kosovo Customs was 26,681 t. There are no statistical data on the amount used for agricultural needs from the imported total.

According to the Cadastre Report of hazardous waste and chemicals[14] and the relevant database created by KEPA, hazardous waste from agriculture, horticulture, aquaculture, forestry, hunting and fishing generated in 2019 are 160.8 t or 0.1% of total hazardous waste. Waste agrochemicals are calculated as a percentage applied to imported or used agrochemicals respectively. One component of agrochemicals is dedicated to non-usage by the crop, respectively contamination of soil and aquatic environment, and the other component refers to expired agrochemicals being taken out of use for the purposes mentioned above. Since the content of agrochemicals is also with heavy metals, their impact on the environment is long-term in the existing ecosystem.

3.4.6. Impact of industry on soil pollution

In Kosovo there is still no system of proper level of hazardous waste management. After 1999, large quantities of hazardous waste were collected in warehouses, garages and inadequate places and without any standard of their storage. They are found in many regions of Kosovo. Currently, hazardous waste is stored in the facilities of the former factories, in warehouses of a very low security level and without standard.

KEPA, in cooperation with other relevant institutions has made an inventory of the main sources of untreated industrial hazardous waste in Kosovo. There are currently 17 locations with hazardous substances (figure 15). All these locations are a source of soil pollution.
Similarly, active operators of the industrial sector such as KEK, NewCoFeronikëli and Sharcem, which generate industrial waste and dispose of it in the respective landfill are another source of soil and groundwater pollution. The amount of industrial waste generated in 2019 was 2,096,118.00 ton[15].

[14] *http://ammk-rks.net/repository/docs/Raport_Kadastri_i_mbeturinave_te_rrezikshme_dhe_kimikateve_(web).pdf*
[15] *Industrial Waste Survey 2019, KAS.*

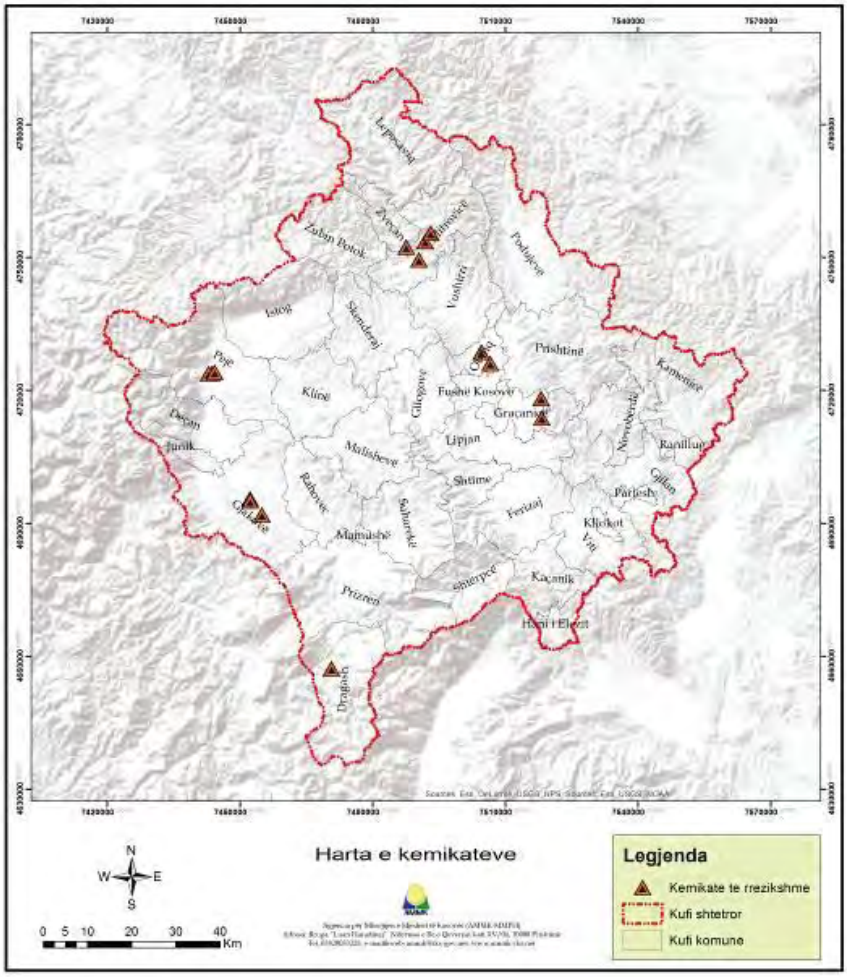


Figure 15. Landfills of hazardous waste in Kosovo

More details on locations of hazardous waste and other industrial waste landfills are presented in the Report on Industrial Hazardous Wastes in Kosovo[16].

3.4. Waste management

The state in the waste sector in this reporting year is not satisfactory. Despite some initiatives to improve the situation in this sector, however, the situation continues to be aggravated. We still face inadequate waste management.

[16] *Report on Industrial Hazardous Wastes in Kosovo (http://www.ammk-rks.net/repository/docs/Raporti_kemikatet_shq.pdf)*

In terms of municipal waste management, there are some additional commitments by operators handling this waste, but also a more promising approach by municipalities to improve the situation in this sector.

On the other hand for a wide range of waste there is still no special treatment, and this includes hazardous waste, part of hospital waste, construction - demolition waste, waste tires, waste oils, etc., the condition of which still presents a major challenge to the well-being of the environment.

Kosovo's current waste management system does not provide complete data on waste generation, collection, treatment and disposal, and this presents a challenge also in terms of the situation of this sector.

The condition of municipal waste sanitary landfills continues to be dire each year due to many factors, with particular emphasis on their poor landfill management, lack of investments etc.
Management of industrial waste and active industrial landfills, but also those inherited from mining and industrial activities, present a specific problem for the environment. Their condition is not fully known, so it is necessary to make an assessment in the future and draft plans and projects for their management and rehabilitation.

Figure 16: *Landfill in Mitrovica (Gërmova)*

3.4.1. Generation of municipal waste

No analysis has been conducted on the waste composition yet, either at local or central level, which would provide data on the level of generated waste in different municipalities, with differentiated data between rural and urban zones.

According to the Municipal Waste Management Report for 2020, data on the amount of waste collected are taken from the reports of 36 municipalities, and based on the processing of these reports, waste generation per capita (kg/capita/day) has resulted in 0.63 kg/capita/day, respectively 230.85kg/capita/day.

It should be noted that this result for waste generation is based only on the amount of waste collected by public operators, thus it does not include the entire amount of waste that is actually generated at the country level.

Therefore, taking into account the number of 1,779,521 inhabitants in the country (2011 census) and the annual amount of municipal wastes per capita, which is approximately 0.63 kg / inhabitant / day, the total amount of wastes generated is about 474,153.37 tons / year / 2020 (table 10 and figure 17).

Table 10: The amount of municipal wastes generated by regions

Region	2019		2020[17]	
	kg/inhab./year	*kg/inhab./day*	*kg/inhab./year*	*kg/inhab./day*
PRISHTINA REGION	247.00	0.68	213.58	0.60
MITROVICA REGION	274.38	0.75	271.00	0.74
PEJA REGION	383.13	1.05	323.00	0.88
PRIZREN REGION	226.62	0.62	183.87	0.50
FERIZAJ REGION	285.51	0.78	251.16	0.69
GJILAN REGION	344.45	0.94	268.72	0.74
GJAKOVA REGION	230.13	0.63	221.47	0.61
KOSOVO[18]	**266.24**	**0.73**	**230.84**	**0.63**

[17] ***Explanatory information**: The report is generated from the reporting of 36 municipalities for 2020 (excluding municipalities: Leposavic and North Mitrovica). Generation for 2020 is a preliminary data, as the data reported by Municipalities are in the process of verification. Generation is based on the amount of wastes collected by licensed operators.*

[18] Values for Kosovo are average values and are obtained by dividing the amount of municipal wastes collected (kg) by the number of inhabitants served.

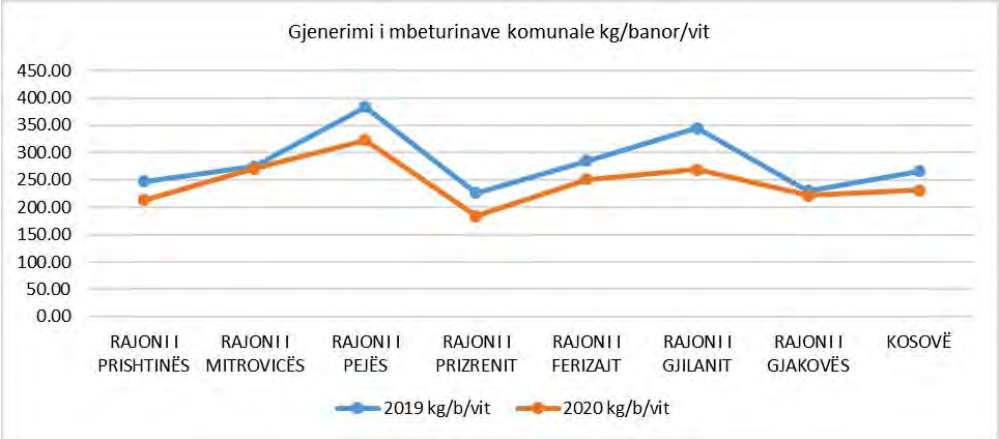


***Figure** 17: Municipal wastes generation kg / inhabitant / year 2019 and 2020*

3.4.2. Illegal landfills

In May 2021, illegal landfills in the field in 38 municipalities were registered, in which case 1189 illegal landfills were registered. Compared to the previous registration of illegal landfills, which was carried out in June 2020, this year marked a slight improvement in the elimination of illegal landfills with a difference of 300 landfills. As can be seen in Table 12 below, the region with the most illegal landfills in both studies was the region of Prishtina, while the region with the least landfills was the region of Gjakova. The biggest improvement in terms of elimination of illegal landfills was recorded in the region of Mitrovica, where 121 landfills were eliminated.

Table 11: Illegal landfills by regions 2019-2020

No.	REGIONS	Total illegal landfills 2019	Total illegal landfills 2020	Addition-elimination of illegal landfills 2019-2020
R1	PRISHTINA REGION	313	277	-36
R2	MITROVICA REGION	222	101	-121
R3	PEJA REGION	141	156	15
R4	PRIZREN REGION	298	256	-42
R5	FERIZAJ REGION	127	118	-9
R6	GJILAN REGION	325	242	-83
R7	GJAKOVA REGION	63	39	-24
KOSOVO		**1489**	**1189**	**-300**

Illegal landfills that have been registered are classified according to the size and fraction of wastes (figure 17). According to the wastes fraction, illegal landfills are

classified as: (a) household wastes landfill; (b) construction and demolition wastes landfills; (c) landfills for hazardous industrial wastes; (d) bulky wastes landfills; and (e) other (mixed) landfills.

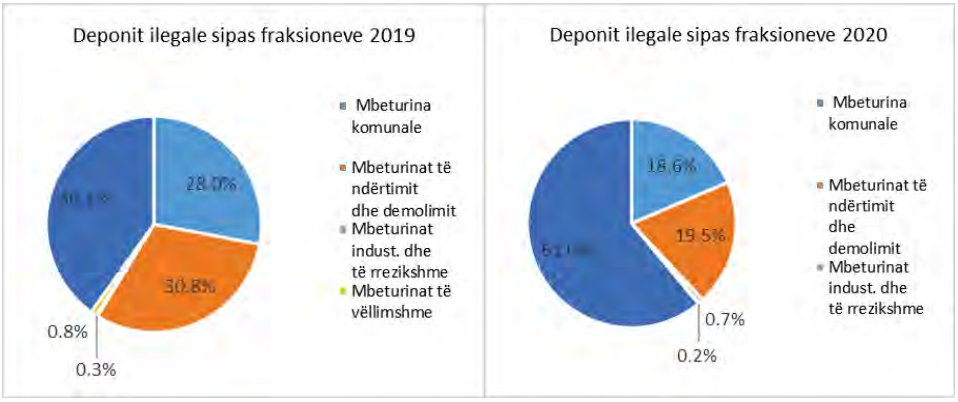


***Figure** 17: Illegal landfills by fractions 2019 & 2020*

By size, illegal landfills are classified into large, medium and small, based on bulk according to their visual assessment, during the field registration, see the map below (figure 18).

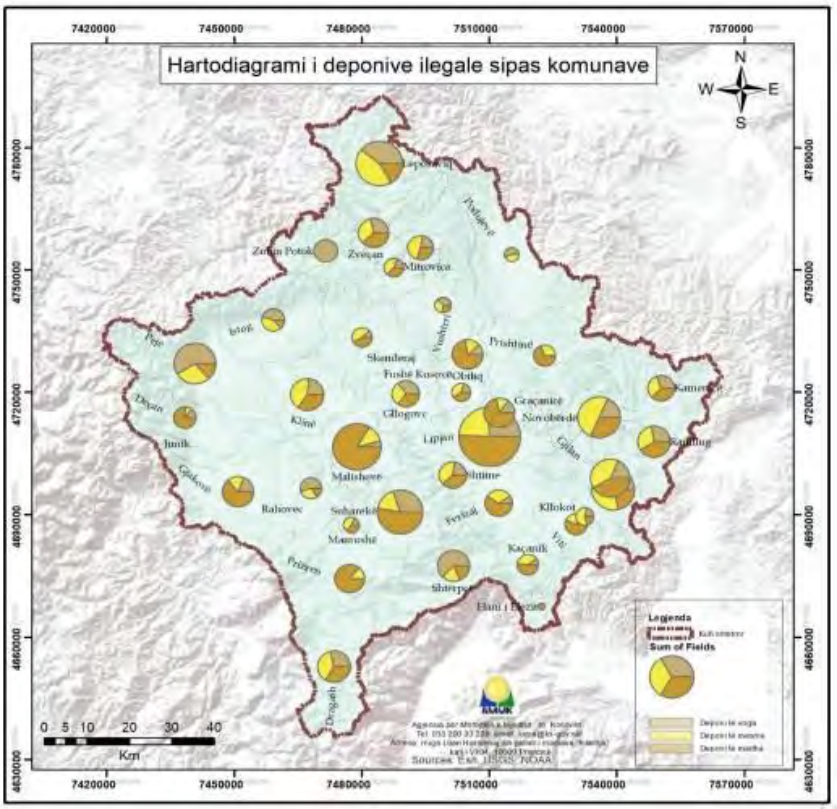


Figure 18: Map by size of illegal landfills in Kosovo for 2020

3.4.3. Disposal of municipal wastes in sanitary landfills

The amount of municipal wastes generated and disposed of in sanitary landfills in Kosovo is increasing, as shown in the following figure. However, in 2020 there is a decrease in the amount of wastes disposed, compared to 2019.

The largest amount of wastes is disposed of in the sanitary landfill in Mirash (Prishtina), while the smallest amount in the sanitary landfill in Dragash. In the sanitary landfills managed by KLMC: Mirash (Prishtina), Dumnica (Podujeva), Velekincë (Gjilan), and Landovica (Prizren), waste disposal in 2020 compared to 2019 has increased by about 4000 tons. Meanwhile, in the regional sanitary landfill in Mitrovica (Gërmova) in 2020, 47,415.38 tons were deposited, respectively 12% less waste than in 2019, while in the sanitary landfill in Peja in 2020, 52496 tons were deposited, with an insignificant difference compared with the previous year. In the sanitary landfills of Dragash and Podujeva, only generated wastes in the respective municipalities is disposed. Thus, in the landfill of Podujeva, in 2020 we have an

increase of disposal of 518 tons, compared to 2019, while in the sanitary landfill of Dragash, we have a decrease of disposal of 437 tons less (figure 19 and figure 20).

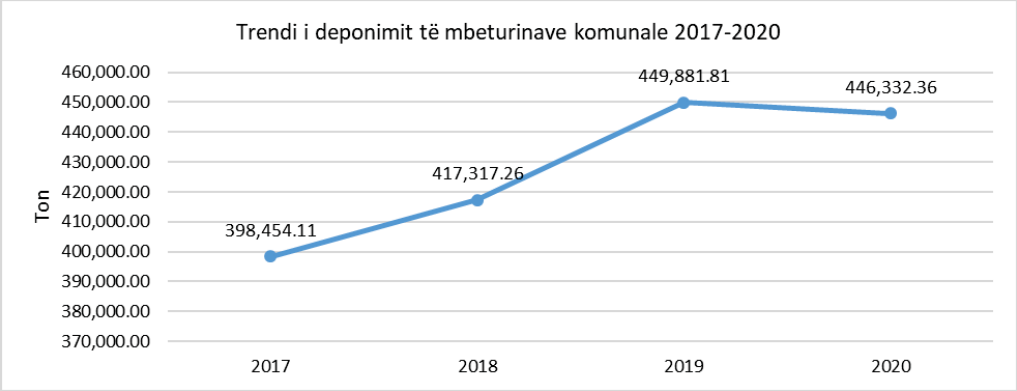


Figure 19: *The trend of municipal waste disposal in Kosovo, 2017-2020*

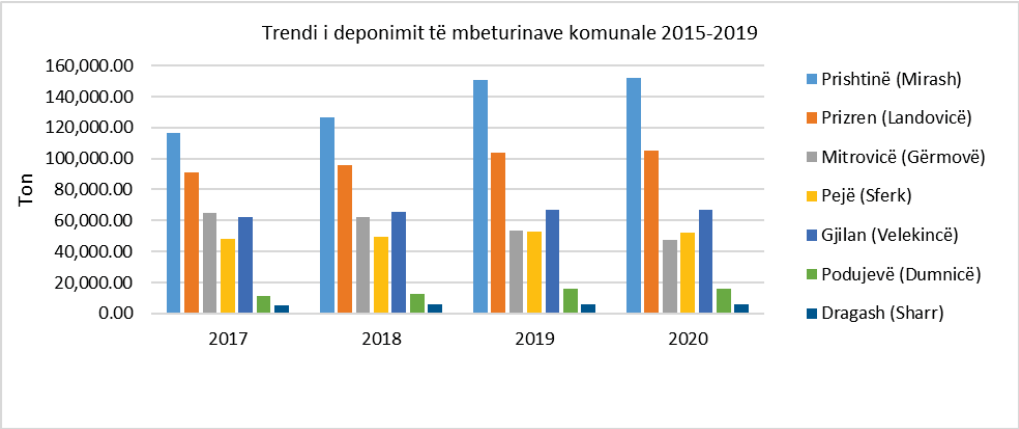


Figure 20*: Municipal waste disposal in sanitary landfill in Kosovo, 2017-2020*

3.4.4. Hospital wastes

A part of the hospital wastes generated in the hospital centres in Kosovo is subjected to treatment through the sterilization process in sterilizers which are located within 8 hospital centres.

Based on the data reported by these hospital waste treatment centres, in 2020 there was an increase of 273,226.96 kg more of the amount of hospital wastes treated compared to 2019. The increasing trend of treatment of this wastes is increasing year by year, and it seems that the increase in the treatment of this wastes in 2020 has also

been influenced by the generation of wastes from the treatment against the Covid-19 pandemic.

The largest amount of this wastes of 766,347.40 kg during 2020 as in previous years was treated in the plant which operates within the UCCK, followed by the plant in Prizren with 273,226.96 kg, while the smallest amount was treated in the plant located in the Hospital Centre in Vushtrri.

Another spectrum of hospital wastes such as pathological wastes and expired drugs have undergone the process of their disposal according to the legislation in force. Specifically, during 2020, 110,680.18 kg of hospital wastes were destroyed, as well as about 32,000 packages with capsules and liquid contents.

It is worth mentioning that during 2020, as part of the protection measures against the Covid-19 Pandemic, based on customs data, single and multiple-use protective masks in quantities of 95,136 kg were imported, as well as material for the production of protective masks in quantities of 44,880 kg (figure 21).

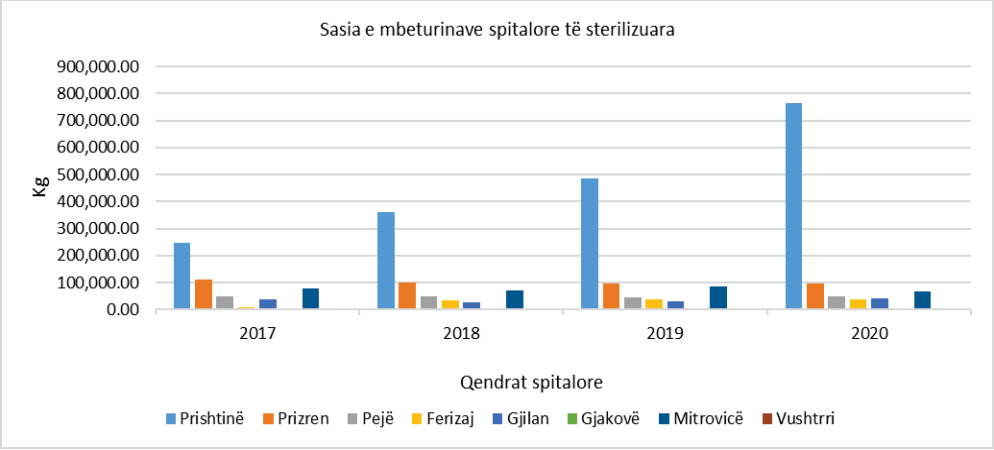


***Figure 21**: Amount of hospital wastes treated through sterilization during the year 2017-2020*

3.4.5. Wastes treatment

Based on the waste treatment survey, conducted by the Kosovo Agency of Statistics[19], which includes businesses that deal with wastes treatment, for 2019, the below figures reflect in percentage the amount of each category of wastes treated. Thus, we see that the largest percentage of treated wastes belongs to those made of metals, followed by those of plastics. The forms of treatment have been disposal, sterilization, recycling, respectively their separation and classification (figure 22).

[19] KAS, *Waste Treatment Survey, 2019*

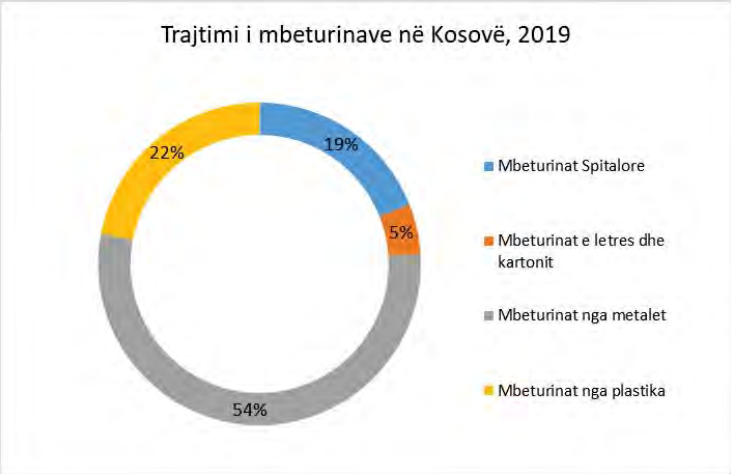


***Figure 22**: Waste Treatment in Kosovo, 2019*

3.4.5. Industrial wastes

The results from the industrial waste survey[20] show the declining trend of industrial wastes generation. Thus, in 2019 there is a decrease of 18% and 20% respectively compared to 2018 and 2017. The declining trend in generation has also been followed by the trend of processing these wastes. The amount of industrial wastes generated in 2019 was 2,096,118.00 tons, respectively 2,096,097.00 tons of processed industrial wastes (figure 23).

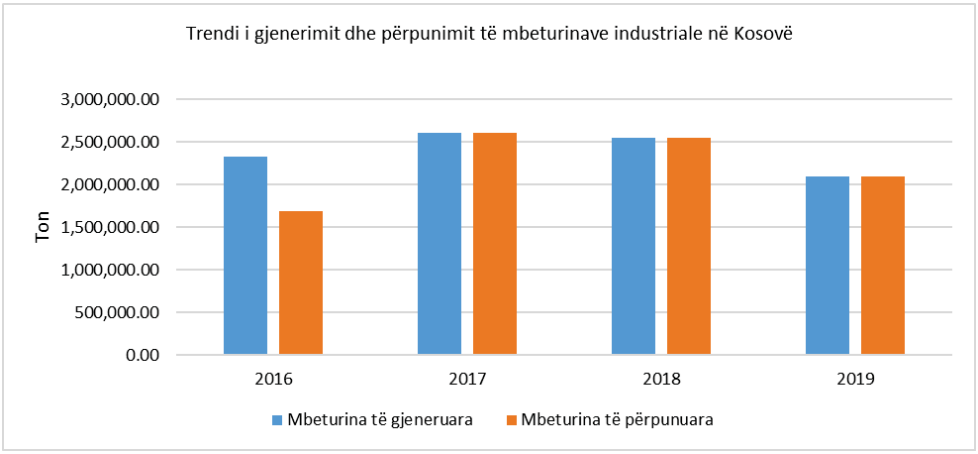


***Figure** 23: Trend of generation and processing of industrial wastes, 2016 - 2019*

[20] *KAS, Industrial Waste Survey, 2019*

From the forms of processing these wastes, 299 tons were burned, 9,223 tons were recycled, 1,519,488 tons were disposed of, while 567,088 tons of wastes were sent elsewhere.

The largest amount of industrial wastes generated by sectors was from sector D (Electricity, gas, steam and air conditioning supply) with 1,312,043 tons, while the second sector in terms of waste generation was sector E (Water supply, sewerage, waste management and land regulation) with 328,233 tons.

3.4.6. Import and export of plastic bags and sacks

The presence of bags everywhere in our surrounding environment has become a very serious phenomenon, and undoubtedly the import and large use of plastic bags and sacks also contributes to this negative phenomenon. Of the total amount of municipal wastes generated by households, as well as from economic and industrial activities, a large amount is caused of plastic bags and sacks.

Based on the data obtained from Kosovo Customs, the amount of plastic bags and sacks imported in 2020 is 931,447 kg, which indicates a significant decrease compared to previous years, where in 2019, for example, 1,094,622 kg were imported, respectively 1,358,773 kg in 2018. On the other hand, in 2020, 1,671,613 kg of plastic bags and sacks were exported, thus marking a very significant increase in exports compared to previous years. (figure 24).

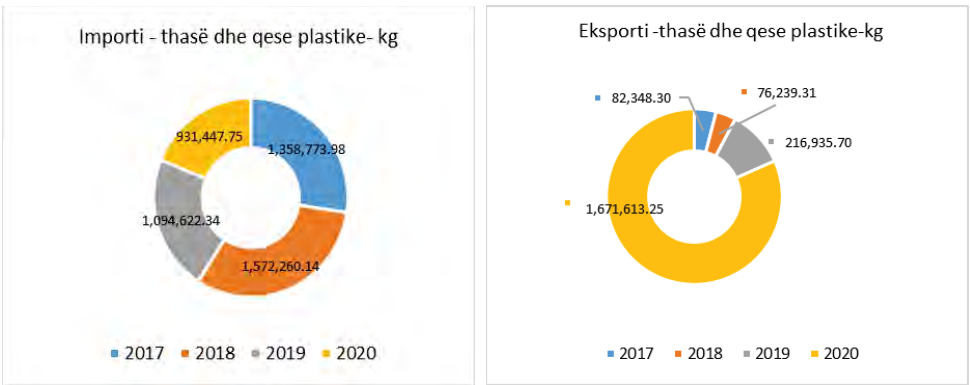


***Figure** 24: Quantity of plastic bags and sacks imported and exported, 2017 – 2020*

3.4.7. Circular Economy

The circular economy is a model of production and consumption, which involves sharing, reusing, repairing, refurbishing and recycling existing materials and products as long as possible. In this way, the life cycle of products is extended. In practice, it implies reducing waste generation to a minimum. When a product reaches the end of its life, its materials are kept within the economy wherever possible. These can be productively used again and again, thereby creating further value. Circular economy is a departure from the traditional, linear economic model, which is based on exploitation-production-consumption and waste generation. The European Union is focused on and is calling for the practical application of this model of economy.

Even in Kosovo, recently there are several initiatives in the direction of the circular economy, giving hope that our country will be up to date with the trends of the European Union. These initiatives have been undertaken mainly by some companies in the private sector, with organization of discussions by NGOs, as well as with several small pilot projects in some municipalities with the support of GIZ, and other donors. In some municipalities of the country such as: Prishtina, Drenas, Fushë Kosova, Vushtrri, Prizren, Gjakova, etc., concrete steps have been taken towards creating conditions for waste separation at source, as a prerequisite for waste recycling. Many families have access to this infrastructure through common collection points, individual containers and home composters.

Table 12: Number of households with access to infrastructure for waste separation at source

Gllogoc	Fushë-Kosova	Mitrovica	Vushtrri	Prizren	Rahovec	Gjakova
2719	6505	210	8570	600	260	295

The Ministry of Environment, Spatial Planning and Infrastructure, through the Kosovo Environmental Protection Agency, in 2018, in Mitrovica has financed the project for the construction of a plant for separation and classification of municipal waste which will serve the region of Mitrovica.

A project initiated by the Municipality of Gjakova and supported by MESPI, for waste separation and classification, is in the process of implementation. This project envisages the construction of a waste separation facility within the municipal waste transfer station, before they are sent to the Landovica landfill. This facility will be completed early within 2021

In the Strategy (2021-2030) and the Action Plan (2021-2023) for Integrated Waste Management in Kosovo, the circular economy is set as a strategic objective, and the

action plan envisages investments (euro) for the realization of this objective as follows.

Table 13: Planned budget for the strategic objective - circular economy 2021 -2030[21]

Strategic objective	2021-2023	2024-2030	**Total**
Strategic objective 4: Circular economy	EUR 3.053.737	EUR 24.332.785	**EUR 27.386.523**

3.5. Protected areas and biodiversity

3.5.1. Chronology of declaration of protected areas

In the chronology of the declaration of nature protected areas in Kosovo, three time periods can be distinguished which are related to the general developments in Kosovo. The period 1950 - 1970, represents the initial phase of nature protection and the declaration of nature protected areas in Kosovo which begins with the declaration of the first area in 1950, which was "Gazimestani". Until the beginning of the 70's, the number of protected areas reached 19. In this period the following are placed under protection: Gadime Cave and some other monuments of botanical importance such as: Rrapi in Marash, Trungjet in Isniq, etc. The period between 1970 - 1988, is characterized by the declaration of a considerable number of nature areas. The reason for this success is related to the establishment of the Kosovo Office for Nature Protection in 1974, by the Assembly of Kosovo. In this period, a total of 32 nature areas were placed under protection, of which should be singled out: the reserve "Bifurcation of the Nerodime River", the first National Park "Sharr Mountain" (1986), the spring of the Drini i Bardhe with the Cave and Waterfall in Radavc (1983) as well as some other natural monuments.

The period after 2000 is characterized by the re-establishment of Kosovo institutions, including the Ministry of Environment and Spatial Planning, respectively the Kosovo Institute for Nature Protection. During this period, over 170 different areas were taken under legal protection and many more were proposed for protection (Figure 25). Among the protected areas should be singled out: National Park "Bjeshkët e Nemuna" (2013), NP "Sharri" (extended), Wetland of Henc - Radeva, etc., while most are natural monuments of botanical, hydrological, geomorphological character, etc.

[21] *Strategy (2021-2030) and Action Plan (2021-2023) for Integrated Waste Management in Kosovo, MESP 2021*

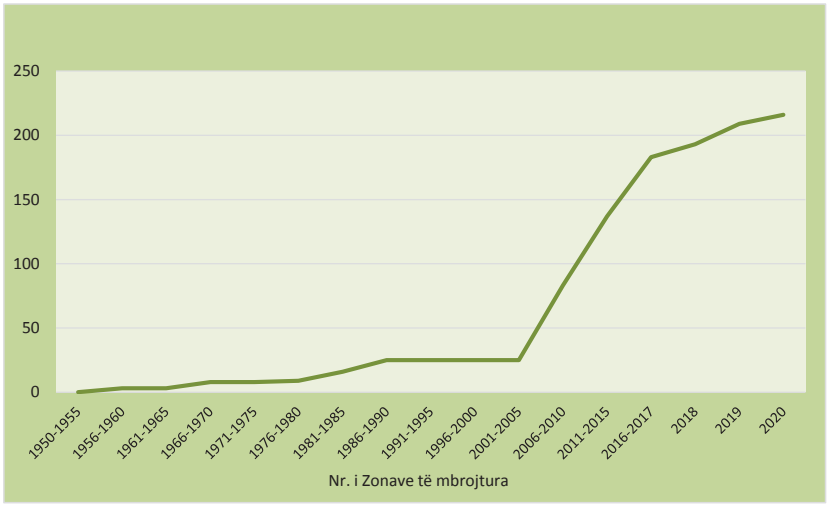


***Figure 25**. Number of nature protected areas 1950 – 2020*

3.5.2. Nature protected areas during 2020

During 2020, 7 new protected areas (7 natural monuments) were added to the total number of protected areas - in the territory of the municipality of Viti: *Thermo-mineral water spring in Ballancë, Trungjet e Qarrit (quercus cerris) in Binçë, Pylli i mllakës (Quercus sp.) in Sllatina e Epërme, Trungu i Qarrit (quercus cerris) in Germova, etc.*

In the same period, the identification of natural values in the municipality of Peja has started and studies (professional rationales) have been prepared for the natural values in the municipalities of Gjilan and Lipjan, which have been processed for approval.

The total number of protected nature areas in Kosovo (2020) is 217 which include a surface area of **125816.6 ha**, or 11.53% of the surface area of Kosovo. These areas include: 19 Strict Nature Reserves ("Rezervati i Arnenit", "Maja e Ropsit", "Rusenica", "Kamilja", etc), 2 National Parks ("Sharri" and "Bjeshkët e Nemuna"), 189 Natural Monuments ("Spring of Drin i Bardhë with Radavci Cave", "Gadime Cave", "Mirusha Waterfalls", "Rugova Gorge", "Drini i Bardhë Canyon at Ura e Fshajtë", "Trungu i Rrapit in Marash" etc), 1 Nature Park ("Pashtrik Mountain and Vërmica Lake"), 5 Protected Landscapes ("Shkugëza","Pishat e Deçanit"etc) and 1 Special Protected Area of Birds ("Henc-Radeva wetland"). The largest surface area of protected areas consists of National Parks: "Bjeshkwt e Nemuna" and "Sharri", Nature Park "Pashtrik Mountain and Vermica Lake", Protected Landscape "Germia" and MNRV "Mirusha Waterfalls", etc. (Table 14).

Table 14. Nature Protected Areas by categories 2020

IUCN Cat.	Name	No.	Surface area/ha	Participation in the total surface area of the PA	Participation of the PA in the surface area of Kosovo
I	Nature Strict Reserves	19	10,882.92	7.7	0.99
II	National Parks	2	115,957	82.2	10.6
III	Natural Monument	189	6,041.6	4.3	0.56
V	Nature Park	1	5,934	4.2	0.5
V	Protected Landscape	5	2.152	1.5	0.2
V	Special Protected Area of Birds	1	109.5	0.08	0.01
	Total	217	125816.722	10023	11.53

3.5.3. Biodiversity

Due to its geographical position, our country is a very rich region in terms of biodiversity. Climate and ecological conditions have enabled the presence of many species of flora, vegetation and fauna and with special emphasis on endemic and stenoendemic species. The diversity of the landscape within the country derives from the natural features as well as the activity of human society. Kosovo is also known for a high diversity of genetic resources, species and ecosystems.

The reduction of the number of species of animals, plants, natural habitats and ecosystems, or even the possibility of their extinction, is a serious problem globally. According to a special report of the European Commission there are a number of factors that threaten biodiversity such as: pollution; damage caused by industry or the discharge of oils into the environment; climate change; overexploitation of natural resources, hunting without criteria, use of agricultural land above its capacity; deforestation and loss of habitats and invasive species.

Given the great importance of biodiversity, it is clear that its preservation and, above all, taking preventive measures is a very important obligation that affects its protection. Conserving biodiversity not only ensures the protection of the organisms but also supports our expectations for a higher quality of life in the future. There is no detailed data on the total number of species according to the categories of the living world, since the entire territory of Kosovo is not covered by research and the fact that during research new species of plants and animals are constantly discovered. An approximate overview of the species by category and the number of respective species included in the IUCN Red List is presented in Table 15.

[22] Note: this surface area of protected areas does not include protected areas located within the National Parks "Sharri" and "Bjeshkët e Nemuna"
[23] Note: the percentage is derived from the total area including the surface area of protected areas within national parks.

Table 15: Total number of species by main categories and number of species included in the IUCN Red List

Species Group	Species Number	Number of species in the IUCN Red List
Algae	> 400	No assessment
Mushrooms	> 380	40
Flowering plants	> 2000	237
Insects	> 130	140
Fish	> 30	15
Amphibians	> 20	13
Reptiles	> 25	20
Birds	> 200	24
Mammals	> 100	39

Flora - In terms of floristic diversity, our country is rich, especially with endemic, relict and steno-endemic species present especially in Sharr Mountains, Bjeshkwt e Nemuna, Koritniku, Pashtriku, not to mention the northern and central part of the country, which are also rich in different species. Although research on the flora and vegetation of our country has been done by various local and international authors, an inventory of the flora has not yet been made and the exact number of plant taxa is not known. According to the notes of various authors, it is thought that in our country are present about 2800-3000 species of vascular flora.

Kosovo has over 100 species of vascular flora of endemic character, some of which (16 species) are also sub-endemic (local endemic). An assessment of the status of these species and their endangered status was made in the framework of the Red Book of Vascular Flora of Kosovo, but also in the framework of specific research by the Faculty of Natural Sciences of UP (Table 16).

Figure 26. *Sharr carnation (Dinathus scardicus) near Lake Kuqishta*

Table 16: Trend of qualitative and quantitative degradation of habitats of some selected species and factors that have influenced the degradation [24]

Species	The current trend of quantitative habitat degradation	Quantitative change of habitat for the last 15 years (%) compared to the current trend	Type of degradation for the quantitative indicator	The current trend of qualitative habitat degradation	The main factors affecting habitat loss and degradation
Achillea alexandri-regis	Decline	1% decline	Abiotic, Biotic	Decline	Succession and fire
Aristolochia merxmuelleri	Decline	2% decline	Abiotic, Biotic	Decline	Human activities
Cerastium neoscardicum	Decline	3% decline	Abiotic, Biotic	Decline	Succesion, fire
Crepis bertiscea	Decline	1% decline	Abiotic, Biotic	Decline	Climate change and successive processes
Crepis macedonica	Decline	3% decline	Abiotic, Biotic	Decline	Human activities
Fritillaria macedonica	Decline	3% decline	Biotic	Decline	Succession
Gentiana pneumonanthe subsp. nopcsae	Decline	3% decline	Abiotic	Decline	Water regime change
Linum elegans	Decline	1% decline	Biotic	Decline	Human activities
Senecio scopolii	Decline	1% decline	Biotic	Stable	Human activities
Sideritisscardica	Decline	3% decline	Abiotic, Biotic	Decline	Human activities
Silene pusilla subsp. candavica	Decline	1% decline	Abiotic, Biotic	Decline	Human activities
Silene retzorffiana subsp. nicolicii	Decline	1% decline	Abiotic, Biotic	Decline	Human activities

[24] *Vlerësimi i ruajtjes së bimëve endemike në Kosovë, Millaku et al., Hacquetia (Conservation assessment of the endemic plants from Kosovo)*

Solenanthus krasniqii	Decline	10% decline	Abiotic, Biotic	Decline	Human activities, invasion of alien species, fires
Stachys serbica	Decline	30% decline	Abiotic, Biotic	Decline	Human activities
Tulipa gesneriana (Syn.:Tulipa scardica)	Decline	3% decline	Abiotic, Biotic	Decline	Human activities
Tulipa serbica	Stable	0.5% decline	Biotic	Stable	Human activities

Vegetation- The vegetation of our country is classified into: 139 associations or firocenosis, 63 alliances, 35 orders and 20 classes, which represent characteristic ecosystems, which are also habitats for many animal species. The vegetation of the lowland meadows is classified into: 4 associations belonging to one alliance, one order and one class. While the vegetation of subalpine and alpine hilly meadows is classified into: 65 associations, 33 alliances, 22 orders and 13 classes.

Fauna - In the framework of regular activities for monitoring and inventory of biodiversity in nature protected areas, Kosovo Institute for Nature Protection - IKMN, despite the situation with the global pandemic COVID-19 during 2020 has continued to carry out wild fauna monitoring activity, albeit at a much lower intensity.

During this activity, carried out jointly with the officials of the two National Parks, cameras were set up - a trap mainly in the parts where it is believed that there are possible areas of movement of the largest number of wild animals.

In the places where these cameras were placed the common species of mammals were photographed and recorded such as: Brown bear (*Ursus arctos*), Roe deer (*Capreolus capreolus*), Chamois (*Rupicapra rupicapra*), Wolf (*Canis lupus*), Fox (*Vulpes vulpes*), Pine marten (*Martes martes*), Badger (*Meles meles*), Wild boar (*Sus scrofa*), Brown hare (*Lepus europaeus*), Wild cat (*Felis sylvestris*) etc.

Data on the presence of wild fauna species reflect the factual situation in animal diversity research in Kosovo, where there are still substantial deficiencies for a large number of species in terms of data about populations, number of individuals, their trend and factors that threaten them. For this reason, the monitoring of such species should start as soon as possible, so that the species which within the Red Book of Fauna could not be assessed for the categories of threat due to lack of data, can be assessed accurately, before they are irreversibly endangered by anthropogenic and other hazards.

The largest number of threats to the species assessed within the Red Book belong to these threat groups: use of biological resources, modifications of natural systems, climate change and severe weather, human intervention and disturbance, pollution and residential and commercial development. Logging and forest harvest, poorly managed recreational activities, surface water exploitation (especially for agricultural purposes), domestic and urban wastewater, habitat shifting and

alteration, and tourism and recreation areas are the most common specific hazards that threaten the assessed species[25].

A more specific assessment of the condition and density of populations of wild mammal species in the forest ecosystems of Kosovo through the methodology of camera traps was also made within the project "*Developing methods for measuring national distributions and densities of wild mammals using camera traps: A Kosovo study*". Table 18 presents data on the average density of some wild mammal populations in Kosovo, based on the results of measurements from 10 monitoring points of the above project.

Table 17: Mean population density for some wild mammal species [26]

Species	Density (individuals/km)		Forest population size	
	Mean	Range	Mean	Range
Red fox (*Vulpes vulpes*)	1.03	0.58-1.55	4935	2778-7433
Grey wolf (*Canis lupus*)	0.08	0.04-0.12	374	202-584
Wild boar (*Sus scrofa*)	1.34	0.78-1.97	6469	3754-9460
Roe deer (*Capreolus capreolus*)	3.19	1.90-5.00	15334	9126-24059
Badger (*Meles meles*)	0.08	0.03-0.14	364	146-656
Brown hare (*Lepus europeus*)	1.81	0.94-2.82	8728	4524-13572
Beech marten (*Martes foina*)	0.36	0.16-0.59	1720	789-2831
Wild cat (*Felis sylvestris*)	0.08	0.03-0.13	381	152-648
Brown bear (*Ursus arctos*)	0.25	0.12-0.41	1190	596-1966

3.6. Public Health

Air quality, water quality and acoustic pollution are the main environmental factors affecting human health. Exposure to air, water and acoustic pollution affects the occurrence of ischemic heart disease, chronic obstructive pulmonary disease, lung cancer, acute lower respiratory tract infections, diarrhea, stress, depression, etc. Some cases of illness and death can be caused by more than one risk factor at a time. For example, smoking and air pollution together affect lung cancer.

Air, water and noise pollution are mainly caused by fuel and waste incineration, industrial activities, quarrying activities and natural dust emissions, untreated urban and industrial water discharges, natural degradation and urban life.

[25] *Red Book of Fauna of Kosovo (http://ammk-rks.net/repository/docs/v2Libri_i_Kuq_-_6shtator_1_(1).pdf)*

[26] *Developing methods for measuring national distributions and densities of wild mammals using camera traps: A Kosovo study; Sarah E. Beatham et al, 2020.*

Dust particles (PM) are the main indicator of air pollution which depending on the form of emission can carry many heavy metals and other chemical compounds that are very toxic if introduced into the body. Short-term or long-term exposure to solid particles has been proven by scientists to be associated with: cardiovascular disease, decreased lung capacity, respiratory infections and asthma worsening, lung cancer, premature death, etc.

PM particles have the ability to penetrate deep into the lung pathways and the circulatory system damaging human health. The 2013 assessment by the WHO, the International Agency for Research on Cancer (IARC), found that air pollution has a carcinogenic effect and PM particles play a key role in this background. This study also showed the correlation between air pollution and the growth of cancer in the urinary tract (bladder).

Addressing risk factors for non-communicable diseases, including air pollution, is a key factor in maintaining public health. Atmospheric air quality control is not in the domain of the citizen except for intentional burning, therefore requires action from local and national decision makers to reduce emissions from sectors such as transport, energy, waste management, urban planning and agriculture..

The National Institute of Public Health (NIPH) is a Health Institution that prepares and implements the public health strategy. This strategy includes hygienic-sanitary measures, prophylactic-counter-epidemic measures, social-medical measures, health promotion, health education, quality control of water, air, food, EPI (Expanded Program on Immunization), health policy, health economics and health information throughout the territory of Kosovo.

NIPH monitors environmental diseases in the population of the country every year. According to the data, in the period January - December 2020, a total of 157,849 cases of infectious diseases were reported, with Mb 8638.70 per 100000 inhabitants. This number of diseases is lower compared to the same period of 2019 (198940 cases of the disease or 10887.50 Mb / 100,000 inhabitants).

The spread of the new coronavirus (COVID-19) has posed an extraordinary challenge for our country and the world. The data show that the risk of developing severe disease and death from Covid-19 is highest in the elderly and those with concomitant diseases (in the same way as for seasonal flu). There is still no complete data on this disease, as more is learned about the virus, (its effects and behavior, the peak of the epidemic, the exact impact on individuals). Therefore, the focus should be on prevention assessments reviews, control and management of this infection.

The Ministry of Health encountered various challenges in dealing with the corona virus, all the more so given the fragile health system that is not yet ready to meet this global challenge with many unknowns. In 2020, 51502 cases of infections with Covid-19 were recorded or 2818.58 Mb / 100000 inhabitants cases.

Table 18 presents the trend of environmental diseases for the years 2019-2020.

Table 18 : Environmental diseases 2019 and 2020

Diseases	Cases	Over 100000 inhabitants	Cases	Over 100000
	2019		2020	
ITPR-Pneumonia/ARI	12284	672.27	6187	338.60
SARI (severe form of pneumonia)	63	3.45	46	2.52
Influenza-like illness (ILI)	79952	4375.58	70809	3875.21
Influenza A	386	21.1	56	3.1
Influenza A pdm09	71	39	0	0
Seasonal influenza	0	0	0	0
Influenza B	0	0	102	5.6
Acute diarrhea	87635	4796.05	25104	1373.88
COVID-19	0	0	51502	2818.58
Varicela	12600	689.57	2796	153.02
Bloody diarrhoea syndrome	35	1.92	12	0.66
Meningitis syndrome	195	10.56	18	0.99
EHKK	1	0.5	1	0.05
EHSV	3	0.16	0	0
West Nile virus	0	0	0	0
Lyme disease	0	0	0	0
Leishmaniasis	6	0.30	0	0
Malaria	3	0.16	0	0
Legionellosis	1	0.05	0	0
Exanthematic Fever Syndrome	0	0	0	0
Invest in the improvement	17	0.93	2	0.11
Typhoid fever	1	0.10		
Epidemic parotitis	63	3.45	24	1.31
TBC	0	0	0	0
Intoxicatio alimentaris	2394	131.02	304	16.64
Acute jaundice A	44	2.68	13	0.71
Jaundice B	36	1.97	68	3.72
Jaundice C	11	0.60	1	0.05
Toxic jaundice	0	0	0	0
Fulminant jaundice	0	0	0	0
Typhus abdominalis	0	0	0	0
Campylobacter	0	0	0	0
Adenovirosis	35	1.92	1	0.05
Sallmonelosis	134	7.33	1	0.05
Shigellosis	32	1.75	1	0.05

Rota virus	271	14.83	39	2.13
Tularemia	12	0.66	1	0.05
Lymphadenitis	0	0	0	0
Leptospirosis	4	0.22	0	0
Measles	16	0.87	2	0.11
E.coli pathogens	22	1.20	4	0.22
Brucelosis	13	0.71	6	0.33
Anthrax	0	0	0	0
Tetanosis	0	0	0	0
Echinoccocosis	0	0.00	0	0
Toxoplasmosis	8	0.44	3	0.16
Q fever	1	0.05	0	0
Giardia sis	0	0.00	0	0
Viral conjuctivitis	0	0	2	0.11
Yersinia enterocolitica	0	0.00		
Gastroenterocolitis	379	20.74	57	3.12
Lymphadenitis ac.coli	49	2.68	2	0.11
Vulnus morsumcani	0	0	0	0
Campylobacter	0	0	0	0
IST	1321	67.10	538	29.44
Parasitosis	141	7.72	12	0.66
Giardiasis	0	0.00		
Status post ictus ixodes	109	6.00	61	3.34
Status post morsum cani	3	0.16	0	0
Status post morsum viperi	19	1.04	1	0.05
Other contagious diseases	503	27.53	73	4.00
Total	198940	10887.50	157849	8638.70

With the exception of Jaundice B disease and COVID-19, all other diseases for 2019 are reported to be in lower numbers.

Table 19 presents the causes of death in Kosovo for the period 2017-2019, from some diseases that may be related to the state of the environment. From these data is noticed that the highest number of deaths in terms of categories of diseases related to the environment are those from diseases of the circulatory system, tumours and respiratory system diseases.

Table 19: Causes of deaths in Kosovo 2017-2019[27]

	2017	**2018**	**2019**
	Number of cases	**Number of cases**	**Number of cases**
Infectious and parasitic diseases	74	78	128
Tumours	1107	1031	1503
Endocrine, nutritional and metabolic diseases	172	204	261
Circulatory system diseases	4649	4249	3950

[27] *Causes of deaths in Kosovo, KAS (https://askdata.rks-gov.net)*

Respiratory system diseases	663	281	593
Digestive system diseases	96	92	178
Urogenital system diseases	185	210	204
Injuries, poisonings and other consequences from external agents	19	4	3
External causes of morbidity and mortality	157	108	200

According to data from the Kosovo Agency of Statistics, the average age of the dead in Kosovo for 2019 was 73.1 years, whereby the average age of death for women was 75.2., and for males 71.5.[28]

3.6.1. Drinking water quality

Drinking water quality refers to microbiological and physico-chemical characteristics. The quality of drinking water is an important indicator for the well-being and health of the population. Kosovo has good legislation for protection of drinking water. Administrative Instruction No. 16/2012, Administrative Instruction No. 15/2017, are among the important guidelines for the protection of drinking water and which are in line with EU standards for drinking water.

RWCs have the responsibility of supplying quality water to their customers, and are also obliged to internally monitor/test water quality. On the other hand, NIPHK is an institution with legal responsibility to control and monitor drinking water throughout the country. NIPHK ensures that water distributed by RWC is in accordance with the values according to the local standard for microbiological and physico-chemical parameters. In this report the quality assessment is done based on the data reported by the WC to WSRA.

Based on the results of monitoring conducted by the Water Centre of the National Institute of Public Health (NIPHK) in accordance with its responsibilities, the overall quality of drinking water in Kosovo provided to customers in the service areas of seven RWCs, during 2020, has been in line with drinking water standards. During 2020, a total of 4,408 water samples were taken from taps for the purpose of water quality testing in terms of physico-chemical and microbiological properties. Of the total samples taken for testing, 99.4% of them were in accordance with local water quality standards. Referring to these statistics, it is estimated that the quality of water supplied by RWCs is at a very good level.

As can be noticed from Table 20, during 2020 RWC Mitrovica nd RWC Gajkovo had the highest compliance in terms of microbiological parameters values with 100%, while RWC Bifurcation had lowest compliance with 97,5%.

[28] *Average age of the dead, KAS 2019 (https://askdata.rks-gov.net)*

Table 20: Rate (%) of bacteriological and physico-chemical tests in accordance with water quality standards by RWC -2020

Kompanies	Microbiology	Physico-Chemical	Average for RWC
Prishtina	99.9%	100%	99.9%
Hidroregjioni Jugor	99.0%	98.1%	98.8%
Hidrodrini	99.2%	100%	99.4%
Mitrovica	100.0%	97.9%	99.5%
Gjakova	100.0%	100%	100.0%
Bifurkacioni	97.5%	96.3%	97.1%
Hidromorava	99.3%	100%	99.5%
Average	99.5%	99.4%	99.4%

Coverage with water supply service during these years, according to WSRA, reaches the level of 78%, while the coverage with wastewater services reaches the level of 65%. RWCs Prishtina, Gjakova and Hidrodrini have achieved high coverage of the population with services within their respective service areas.

In the light of further engagement to improve aspects of water quality assurance provided to consumers and population, the NIPHK is committed to advancing, i.e. updating, the AI 16/2012, in view of the latest requirements of the European Directive and WHO Recommendations.

3.7. Exploitation of natural resources

3.7.1. Exploitation of quarry and other mineral resources

Another frequent form of exploitation of natural resources is exploitation of quarry and other mineral resources that is carried out through quarries (separation sites), where according to the data of the Independent Commission for Mines and Minerals in Kosovo there are issued 228 licenses for exploitation of quarry, and 204 licenses for quarry reserve research. Data on the exploited amount of mineral reserves for the year 2020 are presented in Table 21.

Table 21: The amount of exploited mineral reserves for 2020

Minerals	No. of licenses	Exploited reserves	Unit
Lignite	3	8,537,948.00	t
Andesite	8	110,461.16	m^3
Clay	14	481,721.16	t
Calcareous	195	5,748,916.91	m^3
Basalt	1	39,000.58	m^3
Sand and gravel	21	66,343.18	m^3
Quartz sand	7	14,340.00	m^3
Serpentinite	3	194,212.31	m^3
Marl	7	226,325.00	m^3
Schist	2	24,938.30	m^3
Marble	8	823.65	m^3
Gabbro	2	200.00	m^3
Tuff	1	265.00	t

The municipalities in the regions of which there have been the most requests for licensing in quarrying activities and that have been provided with these licenses are the municipalities of Malisheva, Klina, Kaçanik and Lipjan. While those with the most requests and licenses for sand and gravel are Peja, Gjakova and Kamenica.

Economic Operators who have licenses do not respect the environmental criteria set out in the license by not re-cultivating or revitalizing the area after the use of construction and industrial minerals. Moreover, the development of illegal activities by many operators increases environmental pollution and its degradation and at the same time increases the risk to citizens and animals. During the years 2016-2019, 453 illegal cases of extraction of hard stone minerals, sand and gravel were identified. The ICMM Inspectorate only during 2019 has forwarded 47 criminal reports to the competent prosecutions, based on reports that have come from the field, for unlicensed operations and are in the process of review by the competent courts. It has also prepared 54 rulings on administrative fines related to operations outside the terms of the exploitation license[29].

According to the land coverage analysis conducted by KEPA based on satellite images, it is estimated that from 2012 to 2018, the areas of mineral extraction activities have increased by about 200 ha.

According to data from the Kosovo Agency of Statistics, respectively statistics of active enterprises by economic sectors, in 2019, 194 businesses were registered for the mining and quarrying sector.

3.7.2. Riverbed aggregates exploitation

One of the most common forms of exploitation of water resources is the extraction of sand and gravel from river beds. Uncontrolled use of these resources leads to degradation of rivers and negatively affects the flora, fauna of the river and the more frequent occurrence of floods. Illegal exporters nowadays dominate the sand and gravel market. These unauthorized operators do not comply with any criteria when extracting sand and gravel. Among the most degraded rivers are Drini i Bardhë, Lumbardhi i Pejës, Ereniku, Ibri etc. According to ICMM data, there are about 180 illegal operators operating in Kosovo who carry out interventions with separation dimensions, degrading the river bed and the ecosystem in general.

[29] "*Licensing Process for Construction and Industrial Minerals 'Users and Evironmental Protection", NAO 2020*

3.7.3. Utilization of forest resources

According to assessments, reports, analyzes, prepared in advance by KEPA and other bodies, we come with recommendations that the situation with the forest area is quite stable with approximately 481,000 hectares or 44.7% of the total area of Kosovo, which provide timber, firewood, and various forest products used by the population or the industry. However, some of them also have significant areas of barren soil or affected by erosion. Out of this total area of forest land, 278,880 hectares are classified as public forests and 185,920 hectares as private forests, given that this area varies relatively slightly over the years.

About 156 thousand m^3 woods were used by public and private forests during 2020, according to data from the Kosovo Forest Agency. The region of Gjilan has used the largest amount of wood while that of Prishtina has used the smallest amount. For more details table 22.

Table 22: The amount of wood mass (m^3), used by regions and sectors for 2020.

No.	Regional Coordination Directorate	Public forests (m^3)	Private forests (m^3)
1	Prishtina	1071.08	25842.4
2	Mitrovica	0	41621.71
3	Peja	5297.74	2348.47
4	Prizren	2901.74	2297.15
5	Ferizaj	6017.57	5773.22
6	Gjilan	8673.98	53576.17
7	DMKE	2266.84	282.88
Sub-total		26,228.95	131,742.00
TOTAL		**157,970.95**	

3.7.4. Utilization of water resources for industrial needs

Another category, and the largest, of water resources utilization is use for industrial needs. The largest consumers are large industrial enterprises KEK, New Co FERRONIKEL, Sharrcem etc.

Most of them are supplied with water from surface accumulative lakes (table 23).

Table 23: Utilization of water for 2020 by large industrial enterprises

Users	Consumed amount of water (m3 / year) 2020.
KEK	18149550
New Co FERRONIKEL	1437763
SHARRCEM	80112

3.7.5. Use of water resources for drinking and household

Regarding the utilization of water for drinking and household, there are seven regional water companies (RWCs) licensed by the Water Services Regulatory Authority (WSRA) that provide these services and 30 municipalities that benefit from the services of these companies. The total water production distributed by regional companies for 2020 was 153.7 million m^3. More than half of this water is obtained from surface sources while less from groundwater sources (table 24).

Table 24: Water supply sources, daily and annual quantity (m3)

No.	Water decision making	Quantity of water used in (m3 / day)	Quantity of water used in (m3 / year)	Value expressed as a percentage %
1	Natural source	111,295	40,622,816	26%
2	Reservoir	-	-	-
3	River	21,007	7,667,697	5%
4	Lake	246,030	89,800,920	58%
5	Well	43,575	15,904,983	10%
TOTAL			153,748,772m^3	

4. Measures undertaken to protect the environment

4.1. Implementation level of environmental strategies and plans

Kosovo has satisfactorily developed strategic and programmatic framework for the environment and its sectors, but implementation level is still low. Table 25 presents the main strategic and program documents of the environmental sector and their implementation level.

Table 25: Implementation level of strategies and action plans for environmental sector

Strategy / Plan	Validity period	Document status	Implementation level
Kosovo Environmental Strategy and National Environmental Action Plan.	2013-2022 (under review process)	Approved by the Government of the Republic of Kosovo Decision No. 05/140 Date 17.07.2013	It has not started to be implemented due to uncertainty in the approval process
Biodiversity Strategy and Action Plan	2011-2022 (under review process)	Approved by the Government of the Republic of Kosovo (under review process)	Partially
Air Quality Strategy 2013-2022	2013-2022	Approved by the Assembly of the Republic of Kosovo	Partially

Action Plan for Implementation of the Air Quality Strategy	2018-2020 (under review process)	Approved by the Assembly of the Republic of Kosovo	The implementation deadline has passed
Waste Management Strategy of the Republic of Kosovo	2013-2022 (under review process)	Approved by the Government of the Republic of Kosovo	Partially
Waste Management Plan of the Republic of Kosovo	Under review process	In the review process	Under review process
Climate Change Strategy and Action Plan for Kosovo	2017-2026	Approved by the Government of the Republic of Kosovo Decision, No. 05/90, date 19.02.2019	In the initial stage of implementation
State Water Strategy	2017-2022	Approved by the Government of the Republic of Kosovo and the Assembly of Kosovo during 2018	Implementation in the initial stage
Kosovo Spatial Plan - Kosovo Spatial Development Strategy	2010-2020+ (under review process)	Approved by the Assembly of the Republic of Kosovo	Partially - in the process of implementation, the zone map of Kosovo
Spatial Plan for "Sharri" National Park	2013-2022 (under review process)	Approved by the Assembly of the Republic of Kosovo	Partially – in the process of approval two more regulatory plans
Spatial Plan for the Natural Monument of Special Importance "Mirusha Waterfalls"	2014-2023	Approved by the Assembly of the Republic of Kosovo	Implementation has not started in the absence of the managing body for this protected area
Management Plan for "Sharri" National Park	2015-2024	Approved by the Ministry of Environment and Spatial Planning	Partially

With regard to environmental plans at the local level, most municipalities have Local Environmental Action Plans and Local Waste Action Plans, but very few of them have Local Air Quality Plans and Local Biodiversity Plans (table 26).

Table 26: Environmental plans at the local level

Municipality	Local Environmental Action Plan	Local Action Plan for Waste	Local Biodiversity Action Plan	Local Air Quality Action Plan	Local Mobility Plan
Prishtina	+	+	-	*In the drafting*	+

				process	
Obiliq	+	+	-	-	-
Drenas	+	+	-	+	-
Shtime	+	+	In the drafting process	-	+
Hani i Elezit	+	+	-	-	-
Prizren	+	+	+	-	+
Mitrovica	+	+	-	+	+
Deçan	In the drafting process	+	-	-	-
Gjakova	+	Under review	+	-	-
Rahovec	+	+	-	-	+
Skenderaj	-	+	-	In process	-
Kaçanik	In process	+	-	-	-
Dragash	-	+	+	-	-
Klina	-	-	-	-	-
Gjilan	+	+	-	-	In process
Fushe Kosove	-	+	-	-	In process
Vushtrri	-	+	-	-	-
Peja	-	+	-	-	-
Podujeva	-	+	-	-	In process
Junik	+	+	-	-	+
Kamenica	+	+	-	-	+
Istog	+	+	-	-	-
Malishevë	-	-	-	-	-
Lipjan	-	+	-	-	+
Suharekë	-	+	-	-	-
Ferizaj	+	+	-	-	-
Viti	+	+	-	-	+
Mamushë	+	+	-	-	-
Zveçan	-	+	-	-	-
Leposavic	-	-	-	-	-
Gracanicë	+	+	-	-	-
Ranillug	-	-	-	-	-
Partesh	-	-	-	-	-
Kllokot	-	+	-	-	-
Zubin Potok	-	+	-	-	-
Shterpc	-	+	-	-	-
Mitrovicë e Veriut	-	-	-	-	-
Novobërdë	-	+	-	-	-

4.2. Developments and institutional shortcomings

During 2020, there has been no significant development within the process of strengthening, affirming and building technical capacity of environmental institutions. In the light of these actions, we should mention changes in the organizational structure of the Government of the Republic of Kosovo, where the Ministry of Environment and Spatial Planning first joins the Ministry of Infrastructure and then the Ministry of Economy.

From other activities related to institutional development, the following should be distinguished:

- Implementation of some important projects with donors within environmental institutions;
- Increasing the number of natural persons licensed to draft Environmental Impact Assessment reports;
- Increase representation and membership of Kosovo environmental institutions in regional organizations, initiatives and projects.
- Implement the process of assessing the state of municipal waste through the development of indicators for reporting and monitoring the performance of Kosovo Municipalities for the waste sector.
- Capacity building of environmental institutions through trainings and programs at national, regional and international level;

Whereas, with regard to stagnations and obstacles in the strengthening of the environmental institutions during this period, the following are distinguished:

- Absence of a network for groundwater monitoring;
- Absence of monitoring of biological/ecological aspects of surface water;
- Lack of a special sector for Climate Change in MESP;
- Lack of a special institution at the central level for monitoring chemicals;
- Turnover of trained and experienced staff from responsible institutions of the environmental sector.
- Limited capacities of municipalities in the environmental sector;
- Small number of environmental inspectors at central and local level.
- Small number of officials at the Nature Protection Institute;
- Non-certification of officials (nature guards) and limited number of professional staff (nature supervisors) in the Directorates for the Administration of National Parks.
- Limited number of regular staff in the Directorate for the Administration of Natural Monuments of Special Importance;
- The Environmental Advisory Board is still not functional and there are no initiatives for its establishment, although foreseen under provisions of the Law on Environmental Protection.

- Non-functioning of Ecofund or a special fund/program for the environment. Revenues collected on behalf of environmental protection are transferred to the Kosovo Budget but are not used for environmental projects.
- Incomplete implementation of Regulation (GRK) No. 05/2017 on Internal Organization and Systematization of jobs in the Ministry of Environment and Spatial Planning.
- Inability of integrating MESP's staff (38 officials) in the northern municipalities within the duties and responsibilities defined under the contracts[30].
- Lack of coordination among relevant institutions for the processing and approval of the Spatial Plan for the Accursed Mountains National Park.

4.3. Inspection and control of implementation of the law

Within the work plan and implementation of the applicable legislation for *ex officio* inspection controls on economic entities and activities, natural and legal persons by the Inspectorate of Environment, Water, Nature, Spatial Planning and Construction/Ministry of Economy and Environment in 2020, carried out 275 inspections with minutes; 431 assistance in inspections; 71 decisions; 11 mandatory fines; 67 administrative fines; 86 Recommendations, Orders and Remarks; 30 initiatives in the Courts; and 44 complaints and requests. Specific details are presented in Table 27.

Table 27: Inspections and other legal procedures 2020

Type of inspection activity in the field of environmental protection	Number of activities
Inspection supervision with minutes	81
Assistance in inspections	183
Decisions	39
Mandatory fines	3
Administrative fines	6
Recommendations, orders and remarks	35
Submissions in the Courts	6
Type of inspection activity in the field of water protection	Number of activities
Inspection supervision with minutes	95
Assistance in inspections	41
Decisions	10
Mandatory fines	7
Administrative fines	59
Recommendations, orders and remarks	18
Initiations in the Courts	19
Complaints and Claims	24

[30] On 11.01.2016 the so-called "Civil Protection" was terminated in accordance with the Brussels Agreement of 26 March 2015 and the Decision of the Government. The MESP has engaged 38 officials distributed in various departments and MESP Agencies, for whom the ministry had failed to provide offices in the north of the country and to integrate them in the work process..

Type of inspection activity in the field of nature protection	Number of activities
Inspection supervision with minutes	25
Assistance in inspections	142
Decisions	7
Complaints and Claims	20
Type of inspection activity in the field of spatial planning and construction	Number of activities
Inspection supervision with minutes	74
Assistance in inspections	65
Decisions	15
Mandatory fines	1
Administrative fines	2
Recommendations, orders and remarks	33
Initiations in the Courts	5

Whereas in the nature protection sector based on the Law of Nature, the Law on National Parks, relevant criminal, minor offenses and civil legislation, during 2020 the Kosovo Environmental Protection Agency on behalf of the Directorate for the Administration of the National Park "Accursed Mountains" and the Directorate for the Administration of the "Sharri" National Park, has filed 112 criminal reports (table 28).

Table 28: Initiations of KEPA in the judiciary

Type of activity on behalf of the Directorate for the Administration of the Accursed Mountains National Park	2020
	Number of cases
Criminal reports in the Basic Prosecution in Peja	39
Criminal reports in the Basic Prosecution in Gjakova	1
Type of activity on behalf of the Directorate for the Administration of Sharri National Park	Number of cases
Criminal reports in the Basic Prosecution in Ferizaj	63
Criminal reports in the Basic Prosecution in Prizren	9

4.4. Permit issuance

According to data from MEE, during 2020, activities were carried out in all relevant areas. Based on authorizations under the environmental legislation, during 2020 were issued 60 Environmental Authorizations, 81 Environmental Consents, 50 Environmental Permits, 3 Integrated Environmental Permits, 1 Permit for conducting scientific research in nature, 87 licenses and permits in the field of waste, 86 Water Permit, 16 Water Consents, and other acts in the field of water. More detailed data on permit issuance activities in the environment, waste, nature and water sectors are presented in the following table.

Table 29: Activities for Permit issuance during 2020

Activities for Environmental Consent	
Applications received for Environmental Consents	142
Accepted	81
Rejected cases	3
Completion of the procedure	18
Suspension of procedure	7
Under review	33
Activities for Environmental Permit	
Applications received for Environmental Permit	74
Accepted	50
Rejected cases	18
Repeal of Environmental Permit Decisions	2
Completion of the procedure	1
Activities for Integrated Environmental Permits	
Accepted	3
Activities for Environmental Authorizations	
Received applications for Environmental Authorizations	65
Accepted	60
Rejected cases	5
Activities for permit and license issuance in the field of nature	
Permit for conducting scientific research in nature	1
Licensing of supervisors of protected areas	1
Activities of permit issuance in the field of waste	
Issued licenses for waste management	18
Rejected applications for Waste Management Licenses	2
Waste Management License Application under review	3
Permit for import of chemicals	3
Permit for import of biocidal products	40
Rejected applications for Permit for import of biocidal products	3
Permit for import of plastic bags without additive	17
Rejected applications for Permit for import of plastic bags without additive	2
Waste import permit	6
Permit for waste transit	1
Waste export permit	2
Rejection of applications for Waste Export Permit	3
Registers of waste trader and broker	3
Activities for permit issuance in the field of water	
Water Conditions	5
Water consents	16
Water Permit (utilization 50 - discharge 36)	86
Extensions of Water Permits	4
Additional information by e-mail	80

4.5. Financing the environmental protection system

Investing in environment is one of the direct forms of intervention to protect the environment, improve the state of the environment and prevent negative impacts on the environment. The main source of funding for environmental protection projects is the Kosovo budget, for both central and local level institutions. During 2020, the former Ministry of Environment and Spatial Planning merged with the Ministry of Economic Development, and functioned in a joint Ministry such as the Ministry of Economy and Environment. This also means that the budget of the ministry was also merged. Analyzing the budget dedicated to MESP and MEE for the period 2016-2020, we note that there has been a significant year to year increase in capital investment in environment.

While capital environmental investments in 2016 were over EUR 35.9 million, in 2017 they increased to about EUR 46 million, in 2018 to EUR 49 million, in 2019 to about EUR 50 million and in 2020 to about EUR 66 million (figure 29).

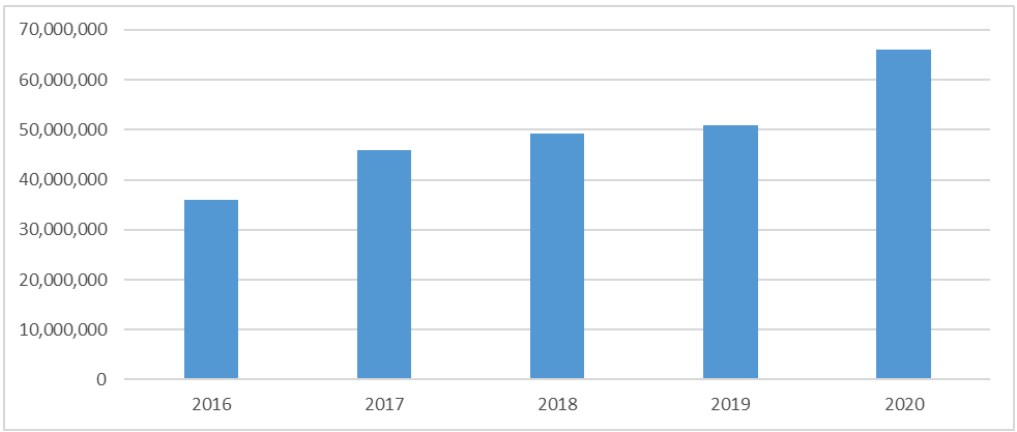


***Figure 29**: MESP / MEE Capital Expenditure Budget 2016-2020*[31]

During 2020, the MEE capital expenditures for the environmental sector have been mainly projects that have been implemented for the regulation of river beds, waste management, expansion of the sewerage and water supply network and other environmental projects in general interest.

Donor support has not been lacking even during 2020, where several new projects have started to be implemented, and at the same time the projects from previous years have continued to be implemented.

The following table presents data on some of the largest donor-supported projects for the water and environment sector.

[31] *Ministry of Finance www.mf.rks-gov.net*

Table 30: Some of the projects with donors in the environment and water sector in 2020

Project name	Donor	Project value	Implementation period
Improving the environmental performance of the "Kosova B" power plant	EU-IPA	€76.400.000.00	2019-2022
Environmental Program for Kosovo	SIDA-Swedish Government	€6.810.000.00	2016 – 2021
The "performance grant for clean environment"	EU, GIZ &KB	€3.500.000.00 EU - GIZ €3.500.000.00 KB	2015–2021
Project "Capacity development for air pollution control"	JICA-Japanese Government	$4.000.000.00	2017 – 2021
Japanese Grant Aid for Economic and Social Development	JICA-Japanese Government	250.000.000.00 JPY (Japanese Yen)	2018-2021
Environmental Data Collection (Threshold MCC Program)	MCC -USA	$3.000.000.00	2017-2021
Investing on household sector energy efficiency (Threshold MCC Program)	MCC -USA	$20.700.000.00	2017-2021
Investment in district heating system (Threshold MCC Program)	MCC -USA	$10.900.000.00	2017-2021
Review of the Kosovo Waste Management Strategy 2013-2021 and drafting a waste management plan	GIZ Gmb-German Government	€200.000.00	2019-2021
Strengthening Spatial Planning and Land Management	GIZ Gmb-German Government	€2.000.000.00 Phase 1 €2.500.000.00 Phase 2	2017-2021
Inclusive development program	SIDA, UN-Habitat, MESPI	6.195.300.00 $	2016- 2020
Preliminary Flood Risk Assessment for Kosovo River Basins Ibri, Lepenc and Plava	EU-WBIF	€701.072.00	2017-2021
Construction of an urban water treatment plant for Southwest Kosovo-Gjakova	SDC, KFW, KB	SDC- €7.600.000.00 KFW- €8.000.000.00 Municipality of Gjakova - €6.800.000.00	2019-2022
Construction of urban water treatment plant for Southwest Kosovo-Peja	KFW, KB	KFW- €8.000.000.00 KB- €3.800.000.00	2019-2022
Construction of urban water treatment plant for Southwest Kosovo-Prizren	KFW KB	KFW- €12.000.000.00 Municipality of	2017-2021

		Prizren – €3.500.000.00 KB- €5.000.000.00	
Construction of an urban water treatment plant for Prishtina	French Government KB	French Government (loan)- €66.000.000.00 KB- €20.000.000.00	2018-2022
Sustainable development of waste management - Peja Landfill	European Commission -IPA	€10.900.000.00 - EU €1.100.000.00- BK	2019-2021
Integrated Water Resources Management in Kosovo (IWRM-K)	SDC- Swiss Government	€24.000.000	2020-2024
Drin Dialogue-Enabling cross-border cooperation and integrated water resources management in the extended Drin River basin	GEF, GWP-Med	$1.000.000.00	2016-2021
Capacity building for the use of environmental data. Cooperation project between KEPA and the Swedish Environmental Protection Agency	SIDA	2.262.400.00 SEK (Swedish Krona)	2020-2023
Adapting to Climate Change in Transboundary Flood Risk Management for the Western Balkans (CCAWB II)	(GIZ) GmbH	Joint budget of regional project	2012-2021
Participation in the work and program of the European Environment Agency (Regional project)	EU-IPA	EU IPA – IPA fund with many beneficiaries €2.480.202.00	2018-2022
Nature-based solutions for sustainable communities in the Western Balkans	SIDA/IUCN	EU IPA – IPA fund with many beneficiaries	2019-2022
Environmental Partnership Program for EPPA Membership	EU-IPA	EU IPA – IPA fund with many beneficiaries	2020-2022
Transition to low emissions and a climate-sustainable economy in the Western Balkans (TRATOLOW)	EU-IPA	EU IPA – IPA fund with many beneficiaries	2021-2022

5. Recommendations

Air

- Implement objectives and projects of the Strategy and Action Plan for Air Quality, approved by the Government of Kosovo and the Assembly of Kosovo.
- Increase efficiency of the implementation of environmental legislation through complementary mechanisms and instruments.
- Complete and fully operationalize the national air quality monitoring system in order to improve collection, processing and reporting of air quality data.
- Strengthen the technical and institutional capacities for the maintenance of the air quality monitoring network, servicing and calibration of the equipment, as well as the accreditation of laboratories.
- Improve cooperation between monitoring institutions and operators, particularly in the process of information flow, processing and reporting and more efficient information to the public on air quality.
- Develop favourable policies for the use of fuels that have lower emissions into the environment and for application of clean technologies in production processes;
- Favour the use of alternative transport that has lower emissions into the air and apply the time limit for the use of obsolete vehicles and those without catalytic converters.
- Implement bylaws on permitted air emission rates from mobile and stationary sources.

Water

- Establish a network for groundwater monitoring and conduct regular monitoring of the groundwater situation.
- Monitor the biological parameters of surface water to determine the surface water quality index.
- Continue investments in the establishment of water infrastructure with special emphasis on the construction of wastewater treatment plants.
- Address priority issues related to adaptation to climate change in the water sector,
- Continue with the completion of legislation in the water sector and its transposition with European Union directives.
- Implement strategic objectives and projects planned in the National Water Strategy.
- Draft Management Plans for water basins.
- Conduct research on the impact of use of water for energy production and their impact on protected areas.

Land/Soil

- Draft a program for permanent monitoring of agricultural and industrial lands.
- Draft more favourable policies for sustainable development and land management.
- Strengthen implementation of the legal and programmatic framework for the sector of land protection from pollution and changes of intended use.

- Draft programs and projects for rehabilitation of lands identified as environmental hotspots.
- Monitor the use of pesticides and fertilizers on agricultural lands.

Protected area and biodiversity

- Continue research, identification and monitoring of nature areas and inventory of plant and animal species and natural habitats.
- Establish management bodies for protected areas of special interest.
- Take measures for the protection of endangered species of fauna according to the recommendations and findings of the Kosovo Fauna Book.
- Carry out continuous monitoring of the condition of rare and endangered plant and animal species.
- Protect habitats of rare and endangered species as well as prepare professional justifications for declaration of protected areas of birds and habitats according to the ecological network Nature 2000.
- Approval of the Spatial Plan for the National Park "Bjeshkët e Nemuna", the Management Plan for the National Park "Bjeshkët e Nemuna" and the Regulatory Plans.
- Ensure that all activities that are carried out within the territory of protected areas are in accordance with the Law on Nature Protection (No. 03 / L-233).
- MESP Inspectorate must carry out continuous inspection in protected areas.
- Increase the number of staff in the nature protection and biodiversity sector.

Waste

- Improve the management of Kosovo sanitary landfills, and implement monitoring of environmental discharges from landfills.
- Increase municipal waste collection service throughout the territory of Kosovo.
- Kosovo Municipalities must continuously be committed to the elimination of illegal landfills in their territory.
- Municipalities must designate locations for treatment and disposal of construction and demolition waste.
- Develop programs and systems at national level for waste separation at source and their recycling.
- Improve the system for collection, processing and reporting of waste data.

Public health

- Improve the urban environment to reduce negative environmental impacts.
- Invest in adding green areas in urban areas, in order to improve the state of the environment and public health.
- Invest in the improvement of drinking water quality and its regular monitoring.
- Invest in the improvement of water quality provided by Regional Water Companies.

- Increase % of coverage of the population with the water supply service and the wastewater (sewerage) discharge service.
- Carry out research on the impact of the state of the environment on public health.
- Reduce urban acoustic pollution, installation of barriers and creation of quiet areas;
- Maintain hygiene and sanitation in all public and private facilities;

General

- Re-submit for approval to the Government of Kosovo and the Assembly of Kosovo, the State Strategy and Action Plan for Environmental Protection and Sustainable Development, in accordance with the provisions of the Law on Environmental Protection.
- Increase the budget of the Government of Kosovo for the environmental sector and especially for environmental capital projects.
- Establish an ecofund (environmental fund) and use its funds for subsidies and programs to improve the state of the environment.
- Strengthen the implementation of environmental principles and in particular the principles "polluter pays", "user pays" and "principle of encouraging measures" for legal and natural persons who choose the best possible techniques and clean production.
- Strengthen the implementation of horizontal legislation with special emphasis on legal requirements from the Law on Environmental Impact Assessment and the Law on Strategic Environmental Assessment.

6. References

1. *KEPA, Land Surface Coverage Report in Kosovo CLC2018*
2. *KEPA 2020, Report on the State of Air ;*
3. *KEPA, Report on the state of the environment 2018-2019;*
4. *KEPA 2020, Municipal Waste Management in Kosovo*
5. *WSRAK, Performance Report for water service providers in Kosovo for 2020;*
6. *KAS 2019, Municipal Waste Survey 2020*
7. *KAS 2018, Waste Treatment Survey, 2019*
8. *KAS, Industrial Waste Survey, 2020*
9. *KEPA 2020, Fauna Red Book*
10. *Law no.03-L-025 on Environmental Protection*
11. *Law no. 06 / L-133 on Budget Allocations for the Budget of the Republic of Kosovo for 2020*
12. *MAFRD 2020, Green Report;*
13. *MESP 2012, Strategy and Action Plan for Biodiversity 2011-2020,*
14. *MESP 2012, Strategy and Action Plan for Air Quality 2011-2021*
15. *MESP 2014, Red Book of Vascular Flora of the Republic of Kosovo, MESP*
16. *MESP 2014, Waste Management Strategy 2013-2022*
17. *MESP 2014, Environmental Protection Strategy 2013-2022*
18. *MESP 2015, Kosovo National Water Strategy 2017-2034*
19. *MESP 2015, Climate Change Strategy 2014-2024*
20. *KEP/MESP 2020, Kosovo Red Fauna Book;*
21. *Report of Environmental Situation in KEK for 2020;*
22. *Annual Environment Report, Sharrcemi, 2020;*
23. *Annual report on the state of the environment in NewCoFeronikeli,*
24. *Administrative Instruction No. 02/2011 on air quality assessment*
25. *ERO 2020, Electricity and Thermal Energy Balance*

7. List of abbreviations, figures and tables

7.1. List of abbreviations

KARPNS	Kosovo Agency for Radiation Protection and Nuclear Safety
AKS1	Kosovo agglomeration 1
KEPA	Kosovo Environmental Protection Agency
AQI	Air Quality Index
RBRA	River Basin Regulatory Authority
WSRA	Water Services Regulatory Authority
KAS	Kosovo Agency of Statistics
KFA	Kosovo Forestry Agency
WB	World Bank
EU	European Union
BEZH	European Bank for Reconstruction and Development
CLC	Coverage of Land according to the CORINE Methodology
CPD	Coal Production Department
ECRAN	Environment and Climate Regional Accession Network
EFAS	European Flood Awareness System
GHG	Greenhouse gases
GIZ	German Technical Cooperation
HMIK	Hydrometeorological Institute of Kosovo
KINP	Kosovo Institute for Nature Protection
NIPH	National Institute of Public Health of Kosovo
IPA	EU Instrument for Pre-accession Assistance
IPCC	Integrated Environmental Permit
IUCN	International Union for Conservation of Nature
JICA	Japan International Cooperation Agency
EC	European Council
KEK	Kosovo Energy Corporation
KLMC	Kosovo Landfill Management Company
ICMMK	Independent Commission for Mines and Minerals in Kosovo
RWC	Regional Waste Company
RWtC	Regional Water Company
KTOE	Kilo Ton Oil Equivalent
MAFRD	Ministry of Agriculture, Forestry and Rural Development
MCC	Millenium Corporation Challenges
MoF	Ministry of Finance
MEE	Ministry of Economy and Environment
MEI	Ministry of European Integration
MESP	Ministry of Environment and Spatial Planning
NLM	Nature Monument
NMSI	Nature Monument of Special Importance

MTI	Ministry of Trade and Industry
TSM	Total Suspended Matter
MED	Ministry of Economic Development
WHO	World Health Organization
EO	Economic Operators
NGO	Non-Governmental Organization
NP	National Park
KEAP	Kosovo Environmental Action Plan
MWMP	Municipal Waste Management Plan
LEAP	Local Environmental Action Plan
KEP	Kosovo Environmental Programme
UCCK	University Clinical Centre of Kosovo
FMC	Family Medicine Centre
REC	Regional Environmental Centre
NR	Nature Reserves
BOD	Biochemical Oxygen Demand
COD	Chemical Oxygen Demand
SIDA	Swedish International Development Agency
CCS	Climate Change Strategy
TAIEX	Technical Assistance for Information Exchange
TPP	Thermal Power Plant
TPPA	Thermal Power Plant A
TPPB	Thermal Power Plant B
AI	Administrative Instruction
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
MAV	Maximum Allowed Values
EIA	Environmental Impact Assessment
ZKS1	Kosovo Monitoring Area 1
ERO	Energy Regulatory Office

7.2. List of figures

7.2. List of tables

8. Annexes

Annex 1. Air quality monitoring stations-Agglomeration AKS 1 and ZKS Zone 1

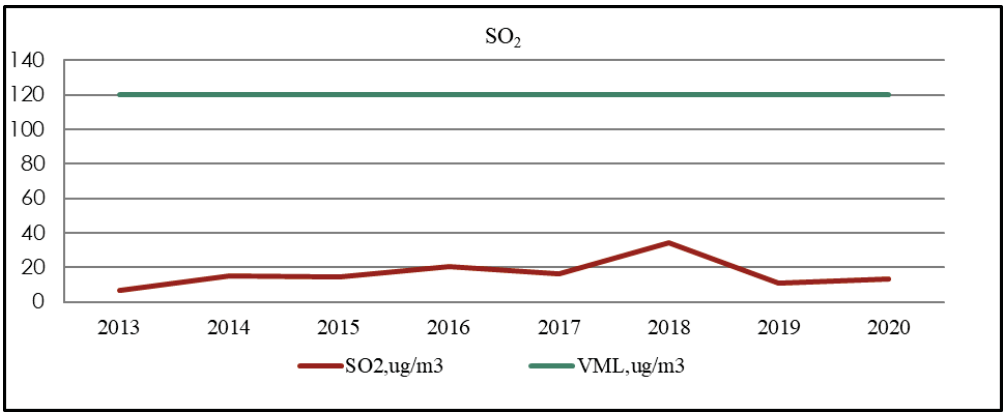
Agglomeration		Name of Monitoring station	Station Sign	Location	Parameters to be measured	Type of Station	Date of start of operation
AKS 1	1	IHMK	KS0101	Prishtina	PM10,PM2.5,SO_2, NO_x,O_3,CO	Urban background	09.01.2009
	2	Rilindja	KS0102	Rilindja Yard,	PM10,PM2.5,03,S O_2,CO,NO_2	Urban background	06.05.2010
	3	Obiliq	KS0110	MFC	PM10,PM2.5,SO_2, NO_x,O_3,CO	Urban background	01.03.2013
	4	Dardhishtë	KS0111	Primary school	PM10,PM2.5,SO_2, NO_x,O_3,CO	Urban / industrial background	01.03.2013
	5	Palaj	KS0112	Kosova Mont	PM10,PM2.5,SO_2, NO_x,O_3,CO	Industrial background	01.03.2013
ZKS 1	6	Peja	KS0305	P. S. "Lidhja e Prizrenit"	PM2.5,PM10,NOx, O_3,SO_2,CO	Urban background	04.04.2012
	7	Prizren	KS0406	Municipal Assembly	PM2.5,PM10,NOx, O_3,SO_2,CO	Urban background	01.04.2012
	8	Hani i Elezit	KS0508	Primary school "Ilaz Hallaqi"	PM2.5,PM10,NOx, O_3,SO_2,CO	Urban / industrial background	05.04.2012
	9	Gjilan	KS0609	Municipal Assembly	PM2.5,PM10,NOx, O_3,SO_2,CO	Urban background	01.04.2012
	10	Drenas	KS0103	Municipal Assembly	PM2.5,PM10,NOx, O_3,SO_2,CO	Urban background	05.04.2011
	11	Mitrovica	KS0204	Meteorological station	PM2.5,PM10,NOx, O_3,SO_2,CO	Urban background	/06.2013
	12	Brezovica	KS0507	Skiing area	PM2.5,PM10,NOx, O_3,SO_2,CO		

Annex 2: Air quality assessment according to Administrative Instruction No. 02/2011

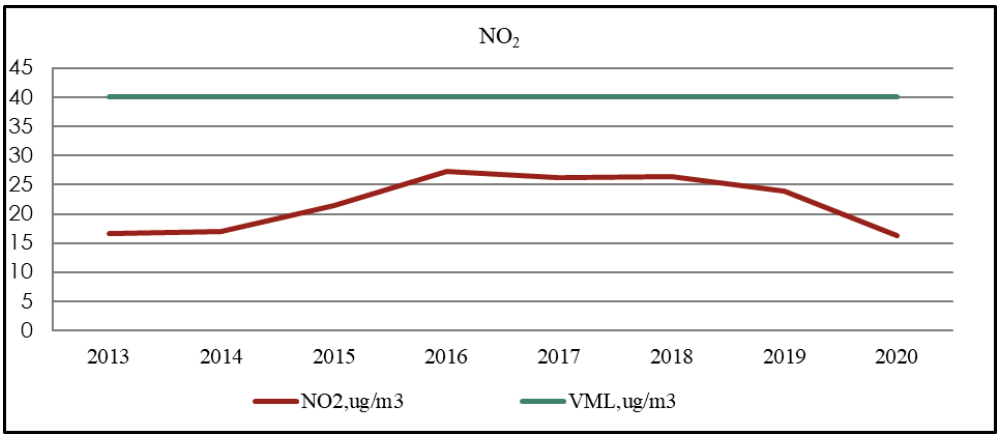
Parameter	Limit values	Unit of measurement	Limit value µg/m^3	Allowed exceedances within the year
NO2	Limit value for 1 hour, for the protection of human health	µg/m^3	200	18
	Annual limit value, for the protection of human health	µg/m^3	40	Not foreseen
	Annual limit value, for the protection of vegetation	µg/m^3	30	Not foreseen

SO2	Limit value for 1 hour, for the protection of human health	µg/m^3	350	24
	Limit value for 24 hours, for the protection of human health	µg/m^3	125	3
CO	Limit value for the daily average of maximum 8 hours, for the protection of human health	mg/m^3	10	Not foreseen
PM10	Limit value for 24 hours, for the protection of human health	µg/m^3	50	35
	Annual limit value, for the protection of human health	µg/m^3	40	Not foreseen
PM2.5	Annual limit value, for the protection of human health	µg/m^3	25	Not foreseen
O3	Long-term objective, for the protection of human health	µg/m^3	120	Not foreseen

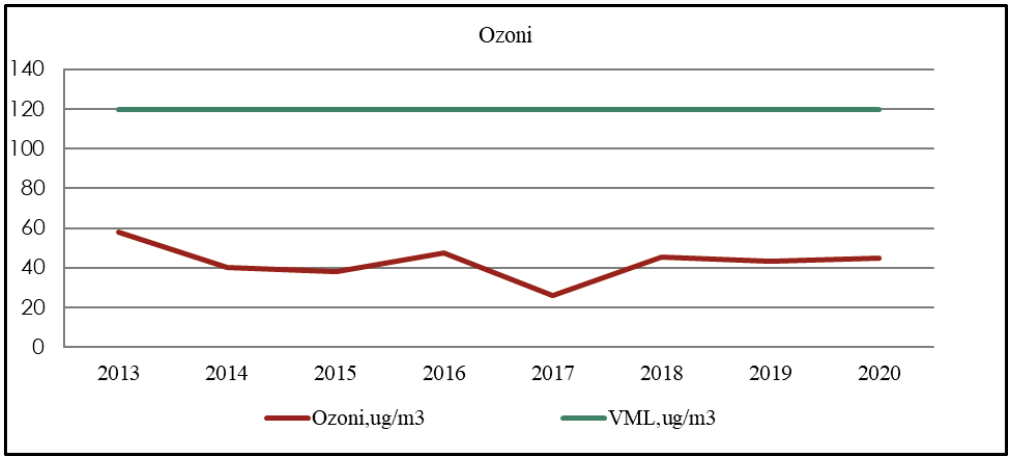
Annex 3: Trend of air quality parameters 2013-2020



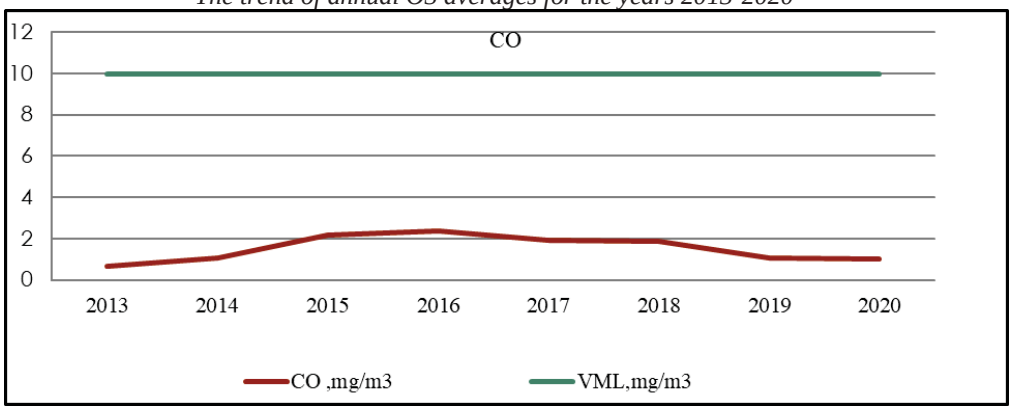
The trend of annual SO_2 averages for the years 2013-2020



The trend of annual NO_2 averages for the years 2013-2020



The trend of annual O3 averages for the years 2013-2020



The trend of annual CO averages for the years 2013-2020

Annex 4: Physical, chemical and heavy metals parameters monitored by HMIK [32]

Indicators	Symbol	Unit	Frequency of measurements/year
PHYSICAL PARAMETERS			
Hour	h	0:00	11
Weather	W	observation	11
Water temperature	Wt	0C	11
Air temperature	At	0C	11
Scent	Sc	smelling	11
Colour	Col	Co/Pt	11
The blur	Bl	NTU	11

[32] *Only blue marked parameters are evaluated and presented in this report.*

Electrical conductivity	χ	µScm-1	11
Water soluble matter	M.tert.	mg/l	11
Concentration of hydrogen ion	pH	0-14	11
CHEMICAL PARAMETERS			
Dissolved oxygen	OT	mg/l O2	11
Oxygen saturation	NgO	%	11
Chemical Oxygen Demand	COD	mg/l O2	11
Chemical Oxygen Demand with dichromate	COD-Cr	mg/l O2	11
Biochemical Oxygen Demand	BOD5	mg/l O2	11
Biochemical Oxygen Demand	BOD7	mg/l O2	11
Total Organic Carbon	TOC	mg/l C	11
Total suspended matter	TSM	mg/l	11
Detergents	DET	mg/l	11
Ion Nitrates	NO3-	mg/l	11
Nitrates nitrogen	N-NO3-	mg/l N	11
Ionization of nitrates	NO2-	mg/l	11
Nitrates	N-NO2-	mg/l N	11
Ammonium ion	NH4+	mg/l	11
Ammonium nitrate	N-NH4+	mg/l N	11
Total inorganic nitrogen	TIN	mg/l N	11
Non-ionized ammonium	NH3	mg/l	11
Non-ionized ammonium nitrogen	N-NH3	mg/l N	11
Total organic + inorganic nitrogen	TN	mg/l N	11
Total organic nitrogen	TON	mg/l N	11
Orthophosphate	PO43-	mg/l	11
Phosphorus orthophosphate	P - PO43-	mg/l P	11
Total phosphorus (poly + ortho)	TotP.	mg/l	11
Sulphate Ion	SO42-	mg/l	11
Total hardness	Th	0dH	11
Calcium solidity	Fca	mg/l	11
Magnesium solidity	FMg	mg/l	11
Calcium ion	Ca+	mg/l	11
Magnesium ion	Mg+	mg/l	11
P-Alkalinity	Pa	ml 0.1 e HCl	11
M-Alkalinity	Ma	ml 0.1 e HCl	11
Total alkalinity	AT	mmol/l HCl	11
Bicarbonates	HCO3-	mg/l	11
Free chlorine	Cl2	mg/l	11
Chlorides	Cl-	mg/l	11
Silicate	SiO32-	mg/l	11
Silicon on silicate	Si - SiO32-	mg/l Si	11
Chlorophyll a	Chlorophyll a	µg/l	11
Phenol	C6H5OH	mg/l	11

HEAVY METALS			
Chromium	Cr3+	µg/l	2
Cadmium	Cd2+	µg/l	2
Nickel	Ni2+	µg/l	2
Zinc	Zn2+	µg/l	2
Manganese	Mn2+	µg/l	2
Copper	Cu2+	µg/l	2
Iron	Fe2+	µg/l	2
Lead	Pb2+	µg/l	2

Annex 5: Codes of physical-chemical monitoring stations of surface waters - rivers

Code	Location	River	Emptying
RV01_011	Radavc	Drini i Bardhë	Mediterranean Sea/Adriatic Sea
RV01_012	Klina	Drini i Bardhë	Mediterranean Sea/Adriatic Sea
RV01_013	Gjonaj	Drini i Bardhë	Mediterranean Sea/Adriatic Sea
RV01_014	Vermica	Drini i Bardhë	Mediterranean Sea/Adriatic Sea
RV01_021	Istog	Istogu	Mediterranean Sea/Adriatic Sea
RV01_022	Zllakuçan	Istogu	Mediterranean Sea/Adriatic Sea
RV01_031	Stërnac i ulët	Klina	Mediterranean Sea/Adriatic Sea
RV01_032	Klina	Klina	Mediterranean Sea/Adriatic Sea
RV01_041	Drelaj	Lumbardhi i Pejës	Mediterranean Sea/Adriatic Sea
RV01_042	Pejë exit	Lumbardhi i Pejës	Mediterranean Sea/Adriatic Sea
RV01_043	Grabanica	Lumbardhi i Pejës	Mediterranean Sea/Adriatic Sea
RV01_051	Banjë e Malishevës	Mirusha	Mediterranean Sea/Adriatic Sea
RV01_052	Volljaka	Mirusha	Mediterranean Sea/Adriatic Sea
RV01_061	Deçan entry	Lumbardhi i Deçanit	Mediterranean Sea/Adriatic Sea
RV01_062	Kralan	Lumbardhi i Deçanit	Mediterranean Sea/Adriatic Sea
RV01_071	Jasiq	Ereniku	Mediterranean Sea/Adriatic Sea
RV01_072	Ura e Terzive	Ereniku	Mediterranean Sea/Adriatic Sea
RV01_081	Zhdrella	Rimniku	Mediterranean Sea/Adriatic Sea
RV01_082	Xërxa	Rimniku	Mediterranean Sea/Adriatic Sea
RV01_091	Buqalla	Toplluha	Mediterranean Sea/Adriatic Sea
RV01_092	Pirana	Toplluha	Mediterranean Sea/Adriatic Sea
RV01_101	Prevalla	Lumbardhi i Prizrenit	Mediterranean Sea/Adriatic Sea
RV01_102	Vllashnje	Lumbardhi i Prizrenit	Mediterranean Sea/Adriatic Sea
RV02_011	Kushtova	Ibri	Black Sea
RV02_012	Mitrovica	Ibri	Black Sea
RV02_013	Kelmend	Ibri	Black Sea
RV02_021	Bablak	Sitnica	Black Sea
RV02_022	Lipjan	Sitnica	Black Sea

RV02_023	Vragoli	Sitnica	Black Sea
RV02_024	Plemetin	Sitnica	Black Sea
RV02_025	Nedakovc	Sitnica	Black Sea
RV02_026	Mitrovica	Sitnica	Black Sea
RV02_031	Marinca	Llapi	Black Sea
RV02_032	Podujeva	Llapi	Black Sea
RV02_033	Millosheva	Llapi	Black Sea
RV02_041	Bresje	Prishtevka	Black Sea
RV02_051	Vragoli	Graqanka	Black Sea
RV02_061	Pjetërshtica	Drenica	Black Sea
RV02_062	Vragoli	Drenica	Black Sea
RV02_062B	Drenica	Çikatovë e Vjetër	Black Sea
RV02_071	Devetak	Shtime	Mediterranean Sea/Adriatic Sea
RV02_072	Vojnovc	Shtime	Black Sea
RV03_011	Korbuliq	Morava e Binçës	Black Sea
RV03_012	Kllokot	Morava e Binçës	Black Sea
RV03_013	Ranillug	Morava e Binçës	Black Sea
RV03_014	Domoroc	Morava e Binçës	Black Sea
RV03_021	Marec	Kriva reka	Black Sea
RV03_022	Domoroc	Kriva reka	Black Sea
RV04_011	Prevallë Subain	Lepenci	Mediterranean Sea/Aegean Sea
RV04_012	Kaçanik	Lepenci	Mediterranean Sea/Aegean Sea
RV04_013	Hani i Elezit	Lepenci	Mediterranean Sea/Aegean Sea
RV04_021	Jezerc	Nerodimja	Mediterranean Sea/Aegean Sea
RV04_022	Bifurkacioni	Nerodimja	Mediterranean Sea/Aegean Sea
RV04_023	Gërlica	Nerodimja	Mediterranean Sea/Aegean Sea
RV04_024	Kaçanik	Nerodimja	Mediterranean Sea/Aegean Sea

The Annual Report on the state of the environment in Kosovo 2020,
was prepared by the KEPA Directorate for Environmental status Assessment, with
the support of other units of the Kosovo Environmental Protection Agency.

Address of KEPA :

Luan Haradinaj Street, former printing house building-Rilindja floor XV / 04

Phone. +381 38 200 33 228, email: ammk@rks-gov.net

Prishtina, August 2021