Kosovo

Annual Report on the State of the Environment 2023

AMMK

Annual Report on the State of the Environment

2023

September, 2024
Prishtina

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 ŽIVOTNE SREDINE
KOSOVO AGENCY FOR ENVIRONMENTAL PROTECTION

Annual Report on the State of the Environment 2023

Prishtina,
September 2024

Contents

List of abbreviations

3R	Reduction, reuse and recycling
AKS1	Kosovo agglomeration 1
KEPA	Kosovo Environmental Protection Agency
KFA	Kosovo Forestry Agency
AQI	Air Quality Index
WSRA	Water Services Regulatory Authority
KAS	Kosovo Agency of Statistics
WB	World Bank
EU	European Union
WWTP	Wastewater Treatment Plant
NO2	Nitrogen Dioxide
O3	Ozone
EMV	Emissions Limit Values
SO2	Sulfur dioxide
EIONET	European Environment Information and Observation Network
NOx	Nitrogen oxides
EQ	Equivalent
ESS L.L.C	Environmental Sustainable Solution
CO2	Carbon dioxide
KSF	Kosovo Security Force
PM	Particles
GHG	Greenhouse gases
GIZ	German Technical Cooperation
H	Level
KHMI	Kosovo Hydrometeorological Institute
KINP	Kosovo Institute for Nature Protection
KNIPH	Kosovo National Institute of Public Health
IPA	EU Instrument for Pre-accession Assistance
IUCN	International Union for Conservation of Nature
IWRM-K	Integrated Water Resources Management in Kosovo
JICA	Japan International Cooperation Agency
CoE	Council of Europe
KEK	Kosovo Energy Corporation
KFOR	Kosovo Forces
KLMC	Kosovo Landfill Management Company
ICMM	Independent Commission for Mines and Minerals in Kosovo
RWMC	Regional Waste Management Company
RWC	Regional Water Company
EP	Environmental Permit
MAFRD	Ministry of Agriculture, Forestry, and Rural Development
MESPI	Ministry of Environment, Spatial Planning and Infrastructure
NM	Natural Monument
NMSI	Natural Monument of Special Importance
MTI	Ministry of Trade and Industry
TSM	Total Suspended Matter
WHO	World Health Organization

NP	National Park
MWMP	Municipal Waste Management Plan
KEAP	Kosovo Environmental Action Plan
LEAP	Local Environmental Action Plan
KEP	Kosovo Environmental Program
TD	Total Dust
Q	Feed
UCCK	University Clinical Center of Kosovo
FMC	Family Medicine Center
NR	Natural Reserves
SIDA	Swedish International Development Agency
NDS	National Development Strategy
CCS	Climate Change Strategy
BOD	Biochemical Oxygen Demand
COD	Chemical Oxygen Demand
TPP	Thermal Power Plant
TPPA	Thermal Power Plant A
TPPB	Thermal Power Plant B
UNDP	United Nations Development Programme
MAV	Maximum Allowed Values
EIA	Environmental Impact Assessment
SEA	Strategic Environmental Assessment
ZKS1	Kosovo Monitoring Area 1

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1. Introduction

In order to monitor the quality and properties of the environment and provide the appropriate information for the administration, the Government and the Assembly of Kosovo, and for implementing environmental protection policies based on the Law on Environmental Protection[1], the Kosovo Environmental Protection Agency has prepared the Annual Report on the State of the Environment for the year 2023. According to Article 25 of this law, the Government of the Republic of Kosovo, at the proposal of the Ministry of Environment, Spatial Planning and Infrastructure, is hereby presenting the said report to the Assembly of the Republic of Kosovo.

Through professional work during the determination of the content, methodology and way of monitoring the state of the environment, the Report contains data on the general state of the environment in Kosovo, and specifically on the air, land, water, biological diversity and climate changes sector. The report includes visual presentation of the state of endangered environments and the impact of environmental pollution on the health of the population. The implementation of environmental projects, plans, and programs, the development of environmental institutions, as well as the funding of the environmental protection system from the state budget and donations, are important parts included in the present report.

Pursuant to the duties and responsibilities of government institutions, the Kosovo Environmental Protection Agency is the institution that drafts this document. This annual report, in addition to presenting the state of the environment for 2023, pushes forward and compares the quality of environmental data in some cases with those from one year ago and in some cases with those from three years ago.

For the drafting of the report, KEPA has collected environmental data from monitoring institutions, operators, various enterprises, publications, reports, and other sources. The collected data have been processed into qualitative environmental information, presented in this report. The biggest challenge has been the reporting of data to other institutions outside MESPI and KEPA, including the local level and respective operators.

The purpose of the report is to inform decision-making institutions about the state of the environment in Kosovo and, based on the findings and recommendations, to develop policies, draft and implement legislation and strategic investment planning.

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

2. Summary of key findings of the report

Air - The data on PM10 parameter show that the annual average has not exceeded the limit value of 40 μg/m³ in any of the monitoring stations. Also, for the other monitored parameters, there have been no exceedances of the annual average limit values in the entire Agglomeration area. However, the number of days with exceedances for the PM10 parameter, according to the standard of 35 days per year, shows that only one monitoring station in the agglomeration area-AKS1, specifically Prishtina-Rilindje, has recorded exceedances (36 days), while in ZKS1 exceedances have been recorded only at the measuring station in Gjilan (40 days). In 2023 there is a significant decrease in values compared to the year 2022, especially for the parameters PM 10 and PM 2.5. As for the air emissions, according to the assessment based on consumption of fuels, the main source of emissions for NO2 and SO2 pollutants is energy and heating generation, while for PM2.5, PM10, total dust and carbon monoxide pollutants (CO), the main source of pollution is that of small combustion, which includes residential, institutional and commercial sources. Transport is the second source of NO2 pollution after the energy generation sector, while the manufacturing and construction industry is the second sector for CO pollution after small combustion. Annual greenhouse gas emissions in Kosovo for the year 2022, for the energy sector based on the energy balance. The energy sector is the main source of greenhouse gas emissions with a share of around 86% of the total emissions. Within the energy sector, the main sources of emissions are: energy industry, transport, manufacturing and construction industry and energy consumption for heating in residential, commercial and institutional buildings. In 2022, 8879 Gg CO2 eq were emitted, which means that compared to the previous year, emissions have decreased by 344 Gg CO2 eq.. The main gas emitted by the energy sector is CO2 with 99%, while Methane (CH4) N2O represents only 1% of emissions. To reduce GHG emissions from the energy sector, it is recommended to increase the capacities for production of energy from renewable energy sources, increase the number of cars that use alternative fuels and electricity, change heating fuels, expand central heating systems as well as increase the energy efficiency in buildings.

Water– Almost all parameters in the basin of river Iber, respectively, at the monitoring points of the Prishtevka/Bresje and Graqanka/Vragoli rivers, show higher values. In the basins of the Morava e Binçës and Lepenci rivers with 5 monitoring stations, there is indicated an increase in the chemical oxygen demand along the flow of the rivers. According to the monitoring results during 2023, the presence of the total amount of phosphorus/mg/l P from the analyses carried out shows that the amount of phosphorus in the waters of the rivers of Kosovo does not present a notable impact on the surface waters, whereby we can conclude that the surface waters in Kosovo are not at risk of eutrophication. Investments in wastewater management and in the construction of wastewater treatment plants have shown immediate results in improving the quality of water in rivers.

Based on the assessment of the chemical status of underground water according to underground water quality standards, exceedances of the standard value for the nitrate parameter are indicated by the rivers Iber and Morava e Binça, while the exceedances of the ammonium parameter are manifested in the river Iber, while no exceedances of the nitrite parameter are indicated. As for the ecological status in the basins of rivers Ibër, Morava e Binçës, and Lepenci, most of the locations have been assessed as having poor to good status in terms of diatoms, poor to moderate status in terms of macroinvertebrates, and poor to good status in terms of fish.

Land - Currently, Kosovo does not have a program or regular monitoring of soil/land quality. This activity is mainly carried out through periodic projects and 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. Agriculture is considered 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. Likewise, sanitary and illegal waste landfills and active and obsolete industries are potential sources of land pollution due to industrial waste generation and the use of chemicals, which in some cases are stored in unsafe places.

Waste Management - Kosovo continues to face a lack of efficient waste management. Waste generation per capita is estimated to be 235 kg/per capita/year. Currently, at the national level, around 90% of the generated waste is collected. Most of them are deposited of in sanitary landfills, while there is still no organized system of waste separation at the source and recycling of waste. In 2023 is recorded an increase in waste disposal compared to the previous year 2022. The management of sanitary landfills in Kosovo is not good with major problems being the non-functioning of the landfill water pumping systems, poor compression of deposited waste as well as inadequate waste coverage. Within the composition of waste, organic waste makes up 30.4%, plastic 20%, paper and cardboard 15%, green waste 5%, textile 5%, and glass 5%. In 2023, there has been a decrease of 2% of treated-sterilized hospital waste. Despite the continuous commitment of central institutions, municipalities and donors, illegal landfills continue to be a challenge for this sector. During the year 2023, around 400 illegal waste landfills were registered, which compared to 2022 marks a decrease of 50%. Activities for waste separation at source, waste treatment, waste recycling and other aspects relating to the circular economy are yet at a low scale.

Protected areas and biodiversity - During the year 2023, 3 new areas were added to the national register of protected areas, while the procedures for placing 30 new areas under protection have been initiated. The number of protected areas in 2023 was 260, covering an area of 126,115.8 ha or 11.6% of Kosovo's territory. Despite the continuous increase in the number of protected areas and their surface, efficient management of protected areas and prevention of illegal actions in these areas continues to remain a problem for Kosovo institutions. There are still protected areas that enjoy a special protection status which do not yet have relevant management

bodies. The lack of management plans and regulatory plans for protected areas is considered to be a problem. There is a lack of specific programs for monitoring biodiversity in general or specific species in particular. Several cross-border initiatives and projects are assessed as activities of importance and having positive impact on the cross-border management of natural areas.

Public health- The number of environmental diseases (which are affected by the state of the environment) recorded during 2023 has marked a decrease.

Endangered areas- The report has specifically addressed the environmental situation in the areas of operation of operators KEK, Feronikel, and Sharrcem, where also the general aspects of environmental management, including air emissions, water discharges, industrial waste management, as well as other environmental aspects, have been dealt with. The report also presents general data for 17 other locations that are considered environmental hotspots and which were created mainly as a result of past industrial activity caused by mining activities from old unmanaged landfills, stored chemicals, waste oils, pesticides, herbicides, etc.

Measures taken to improve the state of the environment - Kosovo continues its commitment to aligning the national legislation with EU directives, although their implementation remains a challenge. Strategies and action plans have been drawn up and adopted 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 been implemented during 2023, the illegal activities that degrade and damage the environment are still in alarming number. Despite the lack of staff and the lack of enforcement of regulations on the institutional organizational structure, environmental institutions are fulfilling their duties and responsibilities satisfactorily and there are cases when impressive results are achieved. Although the budget for environmental capital projects has increased, and the number of projects from donors has also increased, the need and demand for environmental investments remains high.

3. State of environment and trend

3.1. Air

3.1.1. Air quality

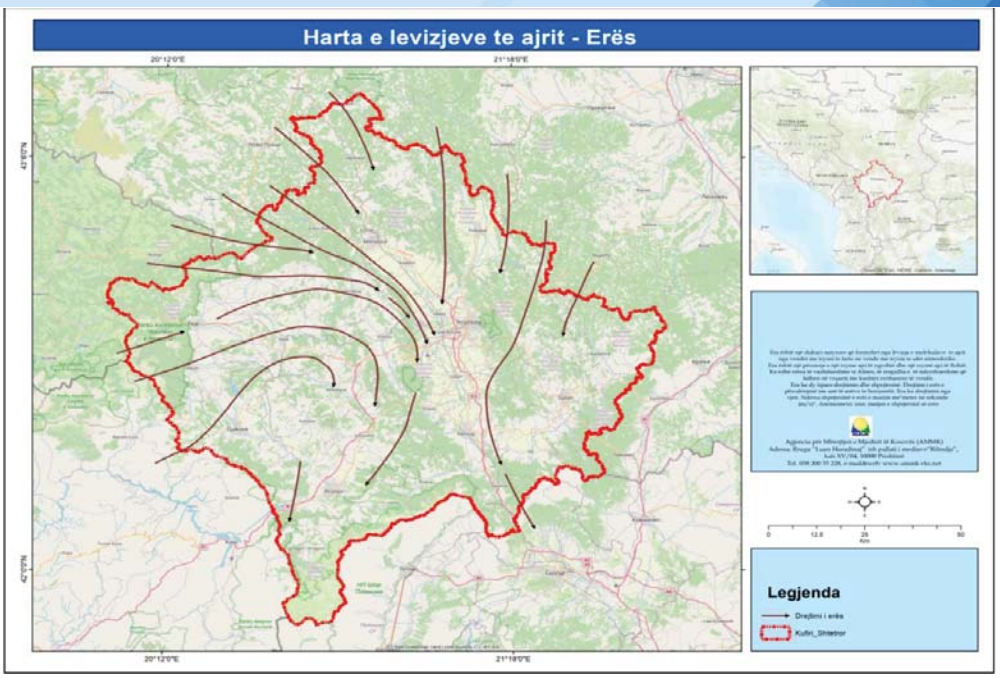
Monitoring of air quality is an important process that involves the collection and analysis of data on air pollutants in a certain area. This process helps in identifying sources of pollution, assessing its impact on the health of the population and the environment, as well as in developing policies and measures to improve air quality.

Monitoring was carried out at strategic points selected to represent pollution levels in different areas in: urban, suburban, industrial, and rural areas. These points are equipped with monitoring stations that record the levels of air pollutants. Monitoring has a specialized infrastructure that consists of an integrated network with 12 static stations and 1 mobile station. The monitored parameters are: PM10, PM2.5, O3, SO2, NO2, and CO. In Annex 1 to the report, the air quality monitoring locations and stations and their characteristics are presented.

Air quality standards in Kosovo are based on the EU directives on air quality (2008/50/EC Directive on Cleaner Air, a directive which defines the thresholds of pollutant concentrations that should not be exceeded for a certain period time. Kosovo's environmental legislation is aligned with air quality standards for short-term (hours or days) and long-term (years) air quality standards, since they can have serious health effects from long-term exposure to pollutants. Air Quality Norms according to Administrative Instruction No. 02/2011 are presented in Annex 2.

Air Quality Index (AQI) shows the short-term state of air quality. It does not reflect the long-term (annual) state of air quality, which can vary considerably. It should be emphasized that AQI is not a tool for checking compliance with air quality standards and cannot be used for this purpose. Annex 3 presents the level of the Air Quality Index based on the concentration of pollutants, expressed in µg/m3.

Meteorological conditions are a very important factor that contributes to the air quality of an area. The following map presents the wind directions in Kosovo.



Map 1: Wind directions

Monitored areas- Air quality monitoring is divided into two areas, the Agglomerate Area (AKS1), with 2 stations located in the capital city (KHMI, Rilindja), and 3 in Obiliq (Obiliq Centre, Dardhishte, and Palaj), and the ZKS1 Area with stations in Gjilan, Hani Elezit, Brezovica, Prizren, Peja, Drenas, and Mitrovica, while the mobile station is used depending on the requests from the inspectorate and other requests.

Assessment of data - Table 1 and Figure 1 show the data on air quality for the year 2023 in annual average and the number of days with exceedances. The data show that the annual average for the PM10 parameter did not exceed the limit value of 40 µg/m³ in any of the monitoring stations. Likewise, also for the other monitored parameters, there were no exceedances of the limit values of the annual average in the entire area of the Agglomeration. However, the number of days with exceedances for the PM10 parameter, according to the standard of 35 days per year, shows that only one monitoring station in the Agglomeration Area-AKS1, namely Prishtina-Rilindje, has recorded exceedances.

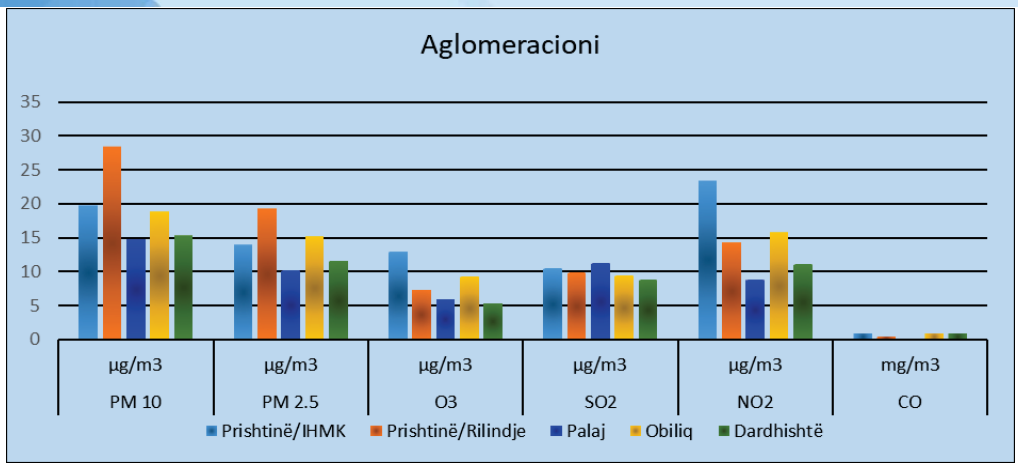


Figure 1: *Monitored parameters in AKS 1*

Table 1: Air quality data by parameters and monitoring stations in the agglomeration area for the year 2023

Stations	PM 10 µg/m^3	PM 2.5 µg/m^3	O3 µg/m^3	SO2 µg/m^3	NO2 µg/m^3	CO mg/m^3	Number of days with exceedances for PM10
Drenas	16.17	12.25	54.83	6.42	11.83	0.66	8
Mitrovica	23.83	16.50	26.58	22.42	9.42	0.48	25
Peja	21.25	15.75	52.33	6.08	14.92	0.83	24
Prizren	17.75	12.92	54.42	8.92	16.08	0.68	15
Brezovica	9.25	7.00	82.33	4.67	1.42	0.46	1
Hani Elezit	17.58	13.17	48.58	6.25	14.83	0.53	4
Gjilan	24.42	21.25	51.58	6.92	20.08	0.43	43

Table 2 and Figure 2 show the air quality data in annual average as well as the number of days with exceedances for the seven monitoring stations of ZKS1. According to these data, there have been no exceedances of the standards for the annual averages of the monitored parameters. However, for the PM10 parameter, according to the standard of 35 days within the year, an exceedance was recorded only at the Gjilan station by 43 days.

Table 2: Air quality data by ZKS1 parameters and monitoring stations for the year 2023

Stations	PM 10 µg/m^3	PM 2.5 µg/m^3	O3 µg/m^3	SO2 µg/m^3	NO2 µg/m^3	CO mg/m^3	Number of days with exceedances for PM10
Prishtinë/IHMK	19.83	14.08	13.00	10.48	23.50	0.89	20
Prishtinë/Rilindje	28.58	19.33	7.33	9.88	14.33	0.43	36
Palaj	14.75	10.25	5.92	11.3	8.83	0.09	6
Obiliq	18.92	15.25	9.25	9.38	15.92	0.84	20
Dardhishtë	15.33	11.58	5.25	8.82	11.08	0.97	14

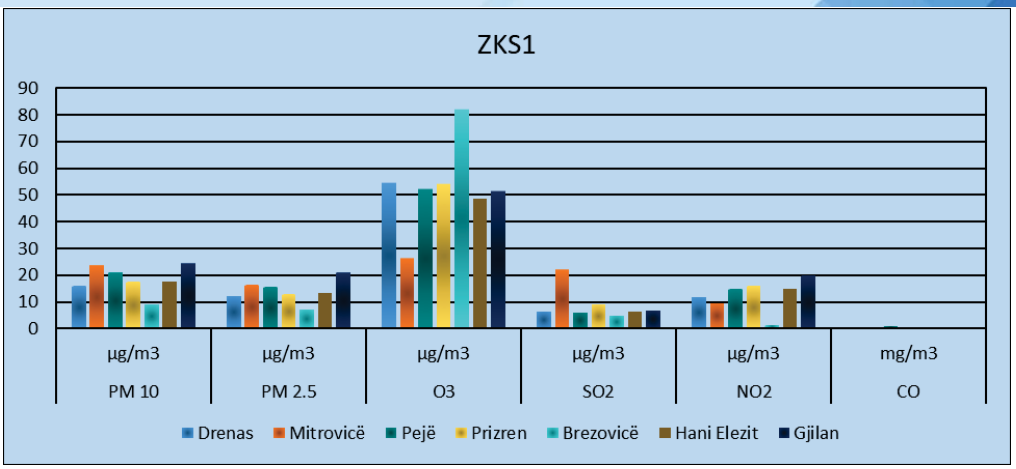


Figure 2: *Monitored parameters in ZKS 1*

Air quality trend - Based on the data monitored from 2013-2023, there has been performed also the analysis of the air quality trend, whereby we ascertain that we have an improvement in air quality in the entire territory of the Republic of Kosovo. The trend analysis was performed based on the annual concentration. In 2023 there has been a significant decrease in values compared to the year 2022, especially for the parameters PM10 and PM2.5. The below figures show the air quality trend for the parameters PM10, PM2.5, O3, SO2, NO2 and CO for years 2013-2023.

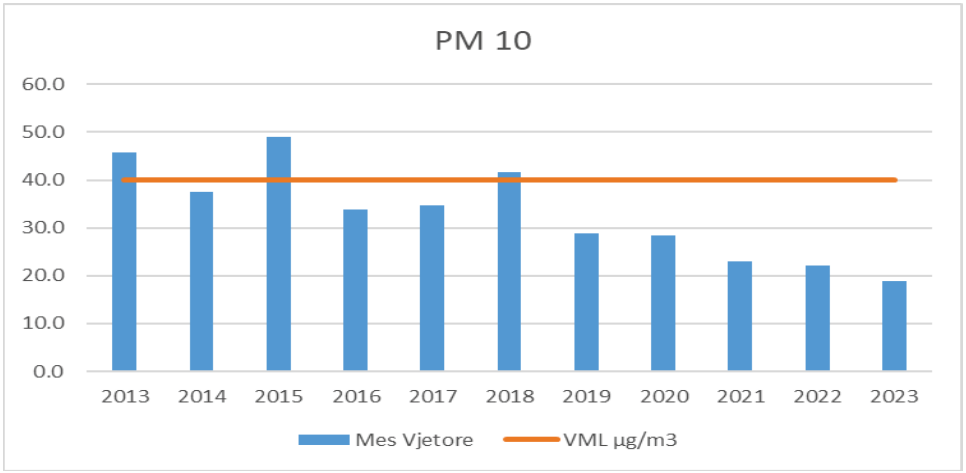


Figure 3: *The trend of annual PM_{10} averages for years 2013-2023*

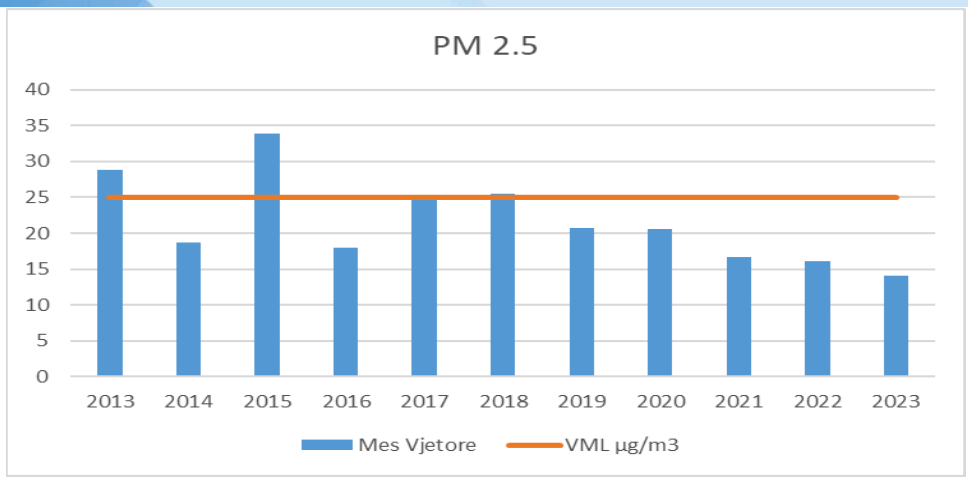


Figure 4: *The trend of annual $PM_{2.5}$ averages for years 2013-2023*

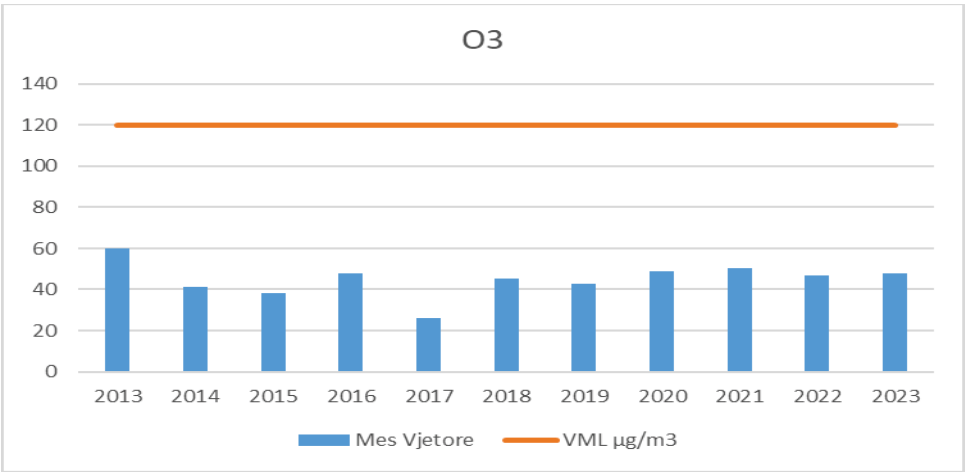


Figure 5: *The trend of annual O_3 averages for years 2013-2023*

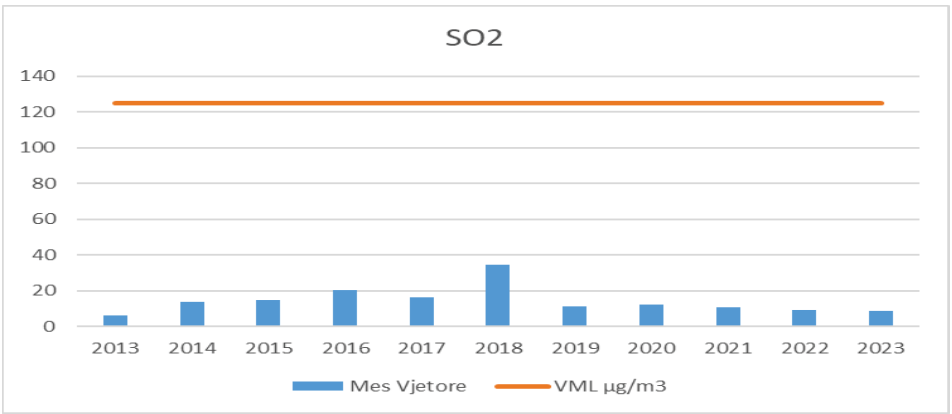


Figure 6: *The trend of annual SO_2 averages for years 2013-2023*

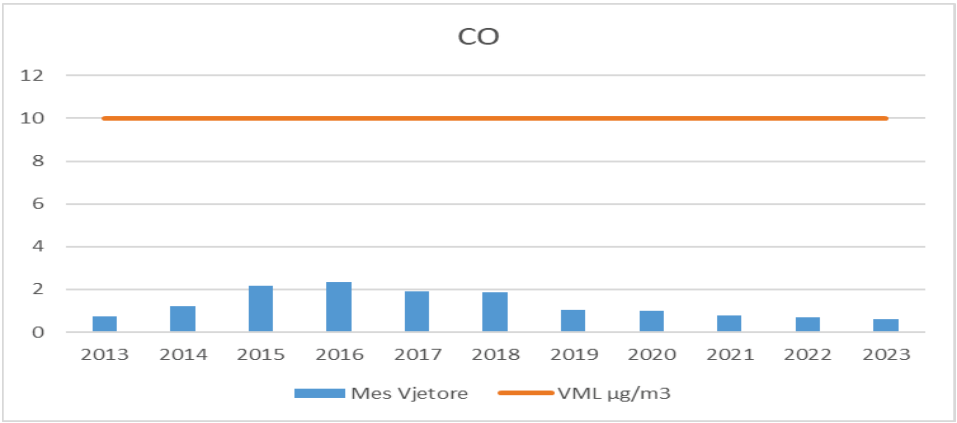


Figure 7: *The trend of annual CO averages for years 2013-2023*

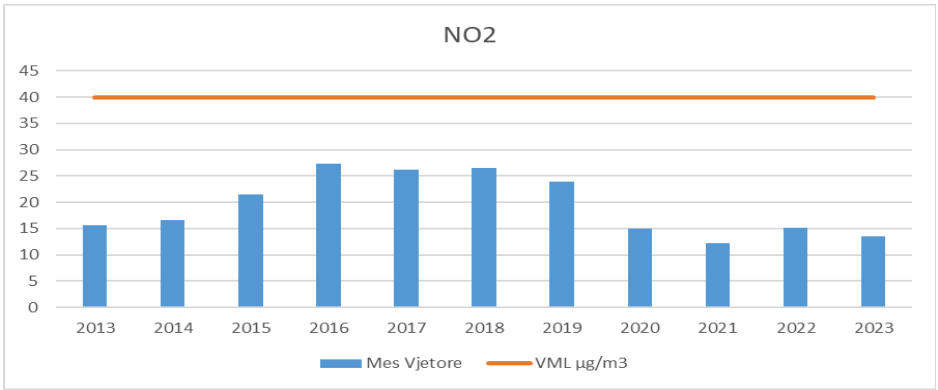


Figura 8: *The trend of annual NO_2 averages for years 2013-2023*

3.1.2. Air emissions

Emission inventory provides an estimate of the amount of pollutants released in the air from various sources. Inventory is one of the main tools used in air quality management, as it provides information whereby we understand who are the air pollution contributors by activities and resources, thus enabling the undertaking of effective action to reduce emissions and improve environmental air quality.

The Kosovo Environmental Protection Agency performs an assessment of emissions in the air on an annual basis, based on the consumption of fuels. During the year 2024, the assessment of air emissions was carried out based on the consumption of fuels for the year 2022. Table 3 presents the data on the main pollutants by pollution sources.

Table 3: Main pollutant air emissions by emission sources (tons/year) [2]

Emissions sources	NO_2	SO2	PM2.5	PM10	PT^3	NMVOC	CO
Energy Industry(Energy and heat generation)	15,590	105,990	210	500	740	90	550
Manufacturing and construction industry	4,290	1,120	330	340	350	440	1,630
Transport(Aviation, vehicles and railways)	9,310	850	360	360	360	450	1,200
Small combustions(Commercial, residential and agricultural)	1,530	610	7,390	7,600	7,990	6,140	40,230
Total (tons/year)	**30,720**	**108,570**	**8,290**	**8,800**	**9,440**	**7,120**	**43,610**

As it can be seen from the data presented in the table, the main source of emissions for NO2 and SO2 pollutants is energy and heating generation, while as PM2.5, PM10, total dust and carbon monoxide pollutants (CO), the main source of pollution is that of small combustion, which include residential, institutional and commercial sources. Transport is the second source of NO2 pollution after the power generation sector, while the manufacturing industry is the second sector in terms of CO pollution after small combustion.

Compared to the emissions of 2021, during 2022 a decrease in emissions was recorded for all pollutants compared to the previous year. While during the period 2014-2022, 2016 is the year with the highest emissions (Figure 9).

[2] *KEPA Annual Report on air emissions according to CLRTAP requirements reported to the European Environment Agency (https://cdr.eionet.europa.eu/xk/un/clrtap/inventories/envyfo8xa/)*
[3] *Total Dust*

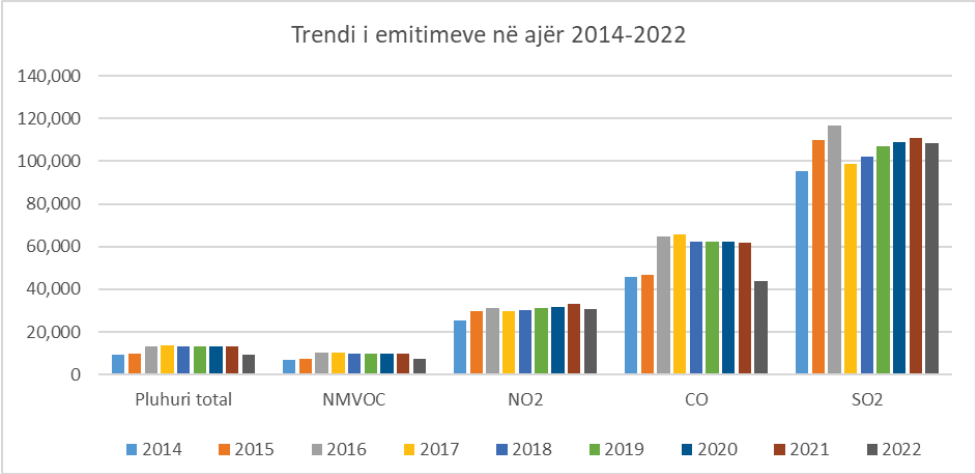


Figure 9: *The trend of air emissions 2014-2022 (tons/year)*

To reduce pollution and reduce emissions from various sources, it is required to draw up favorable policies on the use of fuels that have lower emissions to the environment, as well as for the implementation of clean technologies in manufacturing processes. It is also recommended to favor the use of alternative transport that has lower emissions into the air and to apply the time limit on the use of obsolete vehicles and those without catalysts.

Among other measures that must be implemented are: increasing the energy efficiency of buildings and increasing green spaces and promoting, as well as implementing clean technologies in industrial processes in order to reduce air emissions, etc.

3.1.3. Greenhouse gas emissions (GHG)

In the framework of activities for 2024, KEPA has also carried out the assessment of greenhouse gas emissions for 2022 based on the energy balance.
The energy sector is the main source of greenhouse gas emissions having a share of around 86% of the total emissions. Within the energy sector, the main sources of emissions are: the energy industry, transport, manufacturing and construction industry and energy consumption for heating in residential, commercial, and institutional buildings. In 2022, 8,879 Gg CO2 eq. were emitted, compared to the previous year, emissions have decreased by 344 Gg CO2 eq (Table 4).

Table 4: Greenhouse gas emissions (Gg) by the Energy sector for 2022

Category (sector) of consumption of energy resources	CO2	CH4	N2O	Total CO2 eq.
Energy industry (power and heating generation)	6381	0.06	0.09	**6409.32**
Manufacturing and construction industries (production of metals, non-metals, chemicals, food, etc.)	749	0.05	0.01	**753.23**
Transport (road transport)	1320	0.05	0.01	**1324.23**
Other energy-consumption sectors (household consumption, institutional and commercial buildings, agriculture, etc.)	302	3.03	0.05	**392.65**
Total of emissions	**8752**	**3.19**	**0.16**	
Total of emissions CO2. Eq.	**8752**	**79.75**	**48**	**8879**

The main gas emitted by the energy sector is CO2 with 99%, while Methane (CH4) N2O represent only 1% of emissions.

To have the GHG emissions by the energy sector reduced, it is recommended to increase the capacities for production of energy from renewable energy sources, increase the number of cars that use alternative fuels and electricity, change heating fuels, expand central heating systems as well as increase the energy efficiency in buildings.

3.2. Water

The general water sources in Kosovo are mainly used for urban, industrial, and agricultural purposes; therefore also the industrial development, urbanization, and intensive agriculture are some of the factors that affect water pollution. Despite the continuous commitment, the uncontrolled use of water resources and damage to river beds still remain one of the forms of degradation of our water resources.

Currently, the most critical problem is surface water pollution caused by water discharge, such pressures result mainly due to the increase in the volume of water discharged without adequate physical, chemical, and biological treatment. All this affects the increase in the values of physical, chemical, and microbiological parameters in water bodies. Other pressures from precipitation are the washing of agricultural lands and other polluting surfaces, which leads to an increase in suspended matter, inorganic matter (fertilizers—N, P, K, NH4+, etc.), and organic matter (PCB, herbicides, etc.). Among the biggest pressures on water bodies are the industrial discharges of various activities.

In recent years, policies have been drawn up for a better management of water resources through the establishment of a monitoring and control framework in order to reduce underground water and surface water pollution from industrial, agricultural, and population activities in rural and urban areas, which cause damage to aquatic ecosystems as well as rivers from indiscriminate exploitation, management of transboundary waters, and reduction of the effects of floods and droughts.

3.2.1. Surface water quality

Monitoring of river waters in the territory of the Republic of Kosovo is carried out by the Kosovo Hydrometeorological Institute. The quality of these rivers is determined based on 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).

The parameters that are monitored and the frequency of measurements are presented in Annex 4 to the report, while in Annex 5, a table with the codes of the stations for monitoring the physico-chemical quality of surface waters - rivers is presented.

In this report, the condition of the waters is reflected through 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-MTS (mg/L). The values presented in the graph represent average values for the year 2023.

Parameters such as: Dissolved Oxygen (O2), Biochemical Oxygen Demand for 5 days (BOD_5), Chemical Oxygen Expenditure (COD), indicate the level of organic and bacteriological pollution of the water and belong to the set of parameters which are expected to be impacted from the aforementioned phenomena. While the presence of Phosphorus (P_{tot}) causes eutrophication in waters.

Drini i Bardhë Basin– In this basin, the selection of monitoring points was done for two rivers: Drini i Bardhë and Ereniku rivers, where the total suspended matter /mg/l (MTS) specifically in the monitoring stations along the river flow are presented as average annual raised values, by excluding reference stations (source locations).

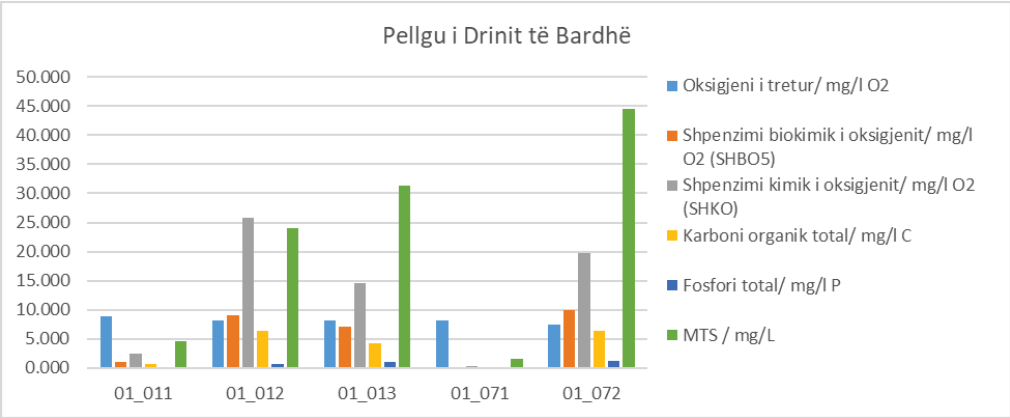


Figure 10: *Indicators selected by monitoring river water quality - KHMI 2023 (Drini i Bardhë Basin)*

Iber River Basin – In this basin, the selection of monitoring points was done for these rivers: Iber, Sitnica, Prishtevka, Graqanka and Drenica (Figure 2), where it can be seen that the Prishtevka/Bresje and Graqanka/Vragoli rivers with almost all presented parameters show higher values, because the stretch of the river itself is along the most populated area and it also includes industrial areas.

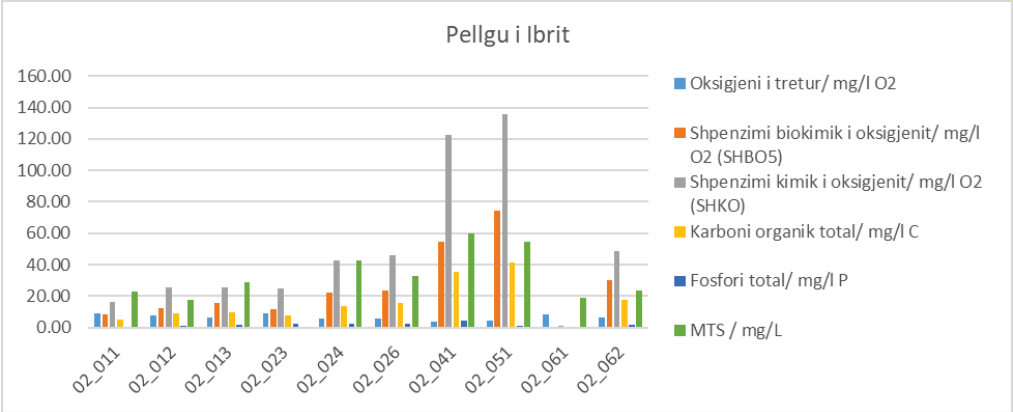


Figure 11: Indicators selected by river water quality monitoring - KHMI 2023 (Iber River Basin)

Morava e Binçës and Lepenc Basin- In the Morava e Binçë basin, the Morava e Binçës River has been selected with a total of four monitoring stations (Figure 3), where an increase of the Chemical Oxygen Demand parameter was recorded. Whereas in the Lepenci River Basin, were selected two rivers: that of Lepenci and Nerodimja, and here, as well, is indicated an increase in the Chemical Oxygen Demand along the river flow.

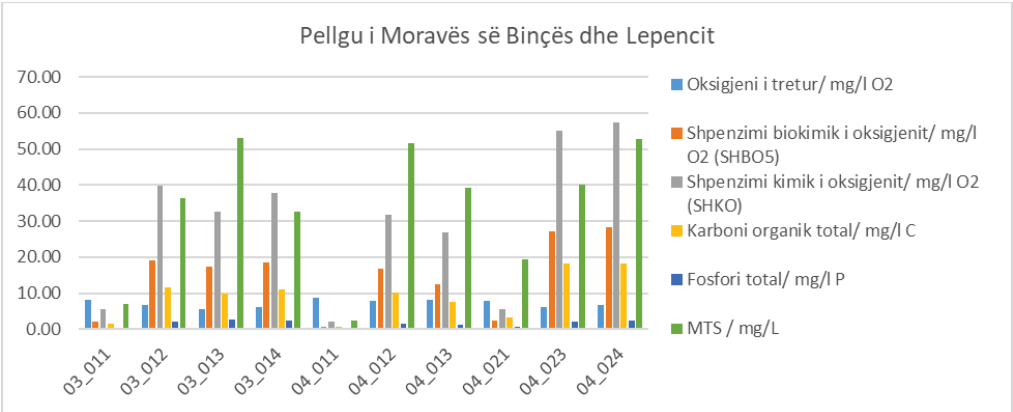


Figure 12: *Indicators selected by monitoring river water quality - KHMI 2023 (Morava e Binçës and Lepenci Basin)*

Based on these three charts (territorial stretches of all basins), indicating the presence of the total amount of phosphorus/ mg/l P, based on the analyses carried out, it is noted that the amount of phosphorus in the river waters does not represent a notable impact on the surface waters, because its values presented in the 2023 chart range between 0.10 mg/l P (Ibër/Kushtovo) and 4.54 mg/l P (Pristevka/Bresje). We conclude that surface waters in Kosovo are not at risk of eutrophication.

Also, the indicator Biochemical Oxygen Demand (BOD_5), during the monitoring period in 2023, shows that the calculated values range between 0.18 mg O_2 /l in Ereniku/ Jasiq and 74.32mg O_2/l in Graqanka/Vragoli rivers. So this year, the Prishtevka/Bresje and Graqanka/Vragoli Rivers show pollution of the highest average annual value. Even though in natural conditions clean waters do not possess any amount of BOD_5, this pollution is justified by the fact that surface waters are always exposed to polluted water discharges whereby optimal conditions are created for the increase of BOD_5 value.

The Government's program for investments in polluted water management, within the planned investments 2017-2021, together with donors, has resulted in investments in wastewater treatment plants worth over 60 million EUR (WWTP for Prizren, Peja and Gjakova).

Such investments in the WWTP at the Drini Bardhë Basin, although in the initial stages, have resulted in improved water quality in the rivers. Figure 4 shows the trend for the three years 2021, 2022 and 2023.

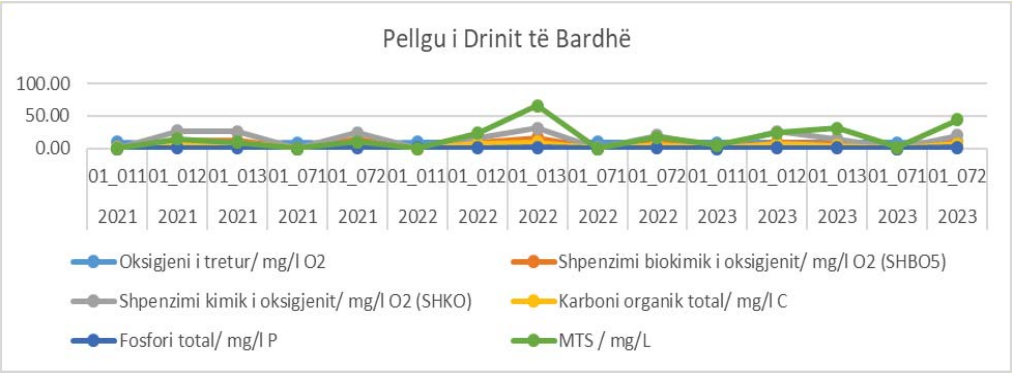
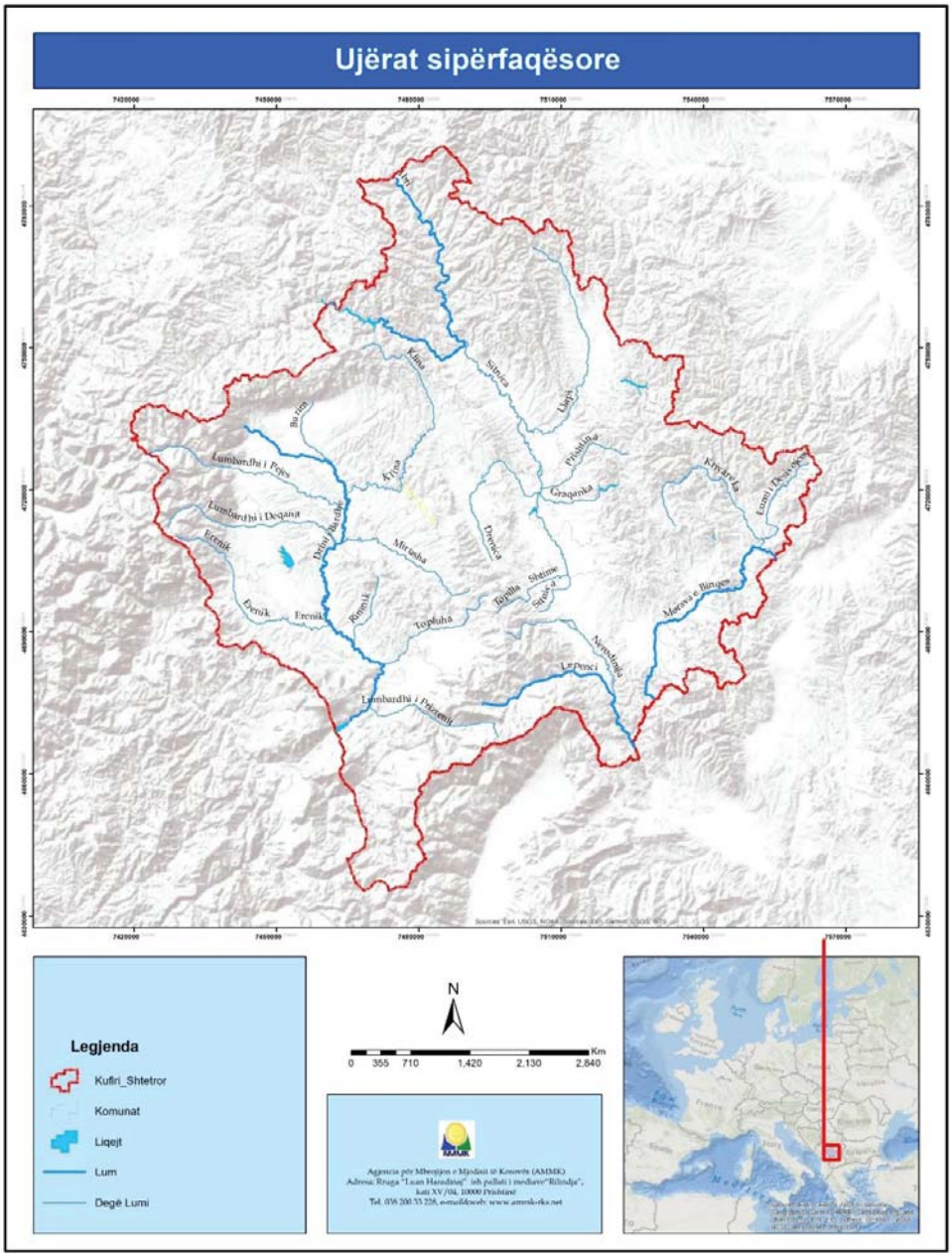


Figure 13: *The trend from the river water quality monitoring in the Drini Bardhë Basin for years: 2021, 2022 and 2023*

The indicators of the trend of the changing water status for years 2022 and 2023, at the relevant monitoring stations that are included in this assessment, are presented in Table 5.

Table 5: River water quality trend for 2022-2023

Monitoring stations	Dissolved oxygen/ mg/l O_2	Biochemical Oxygen Demand/ mg/l O_2 ($SHBO_5$	Chemical Oxygen Demand/ mg/l O_2 (SHKO)	Total Organic carbon/ mg/l C	Total Phosphorus/ mg/l P	Total Suspended Matter/ mg/L (MTS)
RV01_011	↓	↑	↑	↓	↓	↑
RV01_012	↓	↑	↑	↓	↔	↑
RV01_013	↓	↓	↓	↓	↓	↓
RV01_071	↓	↓	↓	↓	↓	↑
RV01_072	↓	↑	↓	↑	↑	↑
RV02_011	↑	↑	↑	↑	↑	↑
RV02_012	↓	↑	↓	↑	↓	↑
RV02_013	↓	↓	↓	↓	↔	↑
RV02_023	↔	↔	↔	↔	↑	↔
RV02_024	↑	↑	↓	↓	↑	↑
RV02_026	↓	↑	↑	↑	↑	↑
RV02_041	↑	↑	↑	↑	↑	↓
RV02_051	↑	↑	↑	↑	↔	↑
RV02_061	↓	↓	↑	↓	↑	↑
RV02_062	↑	↑	↑	↑	↑	↑
RV03_011	↓	↑	↑	↑	↓	↓
RV03_012	↑	↑	↑	↓	↑	↑
RV03_013	↓	↓	↓	↓	↑	↑
RV03_014	↓	↓	↓	↓	↓	↑
RV04_011	↑	↓	↓	↓	↓	↑
RV04_012	↓	↑	↑	↑	↑	↑
RV04_013	↓	↑	↑	↑	↑	↑
RV04_021	↑	↑	↑	↑	↑	↑
RV04_023	↑	↑	↑	↑	↔	↑
RV04_024	↓	↑	↓	↑	↑	↑



Map 2: Surface water network in Kosovo

Underground water quality

This report is based on the results of the pilot monitoring program for the three river basins: Iber, Morava e Binçës and Lepenci. The program is a support of the IWRM-K project and implemented by KHMI.

The objective of the pilot monitoring program for the three river basins is to establish and test an initial approach for monitoring underground water in these three basins, so that in the future this program can serve as a guide for the national underground water monitoring network.

The realization of this pilot project was done within the first phase of the project with a frequency of measurement twice per year (respectively in the season of spring and autumn), with a total of 20 monitoring points for the three basins: Iber, Morava e Binçës, and Lepenci.

Below we present the charts for the three most significant parameters for assessing the quality of underground water.

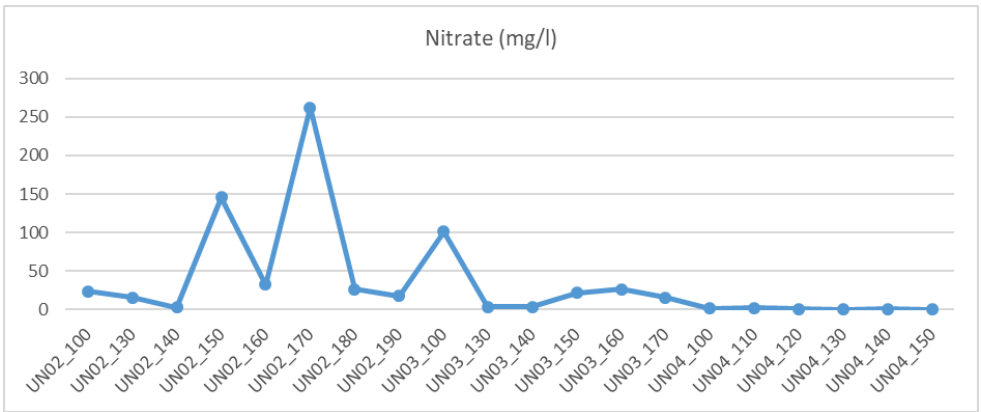


Figure 14: The nitrate parameter from the underground water quality monitoring KHMI/IWRM 2023 (Basins: Iber, Morava e Binçës and Lepenci)

For the purposes of assessing the chemical status of underground water, the standards according to the Directive on groundwater[4] and Directive on water intended for consumption[5] have been used.

Figure 15 shows the nitrate parameter (mg/l) in the three basins: Ibër, Morava e Binça and Lepenci. According to these standards, the monitoring points that exceed the standard value for the nitrate parameter are: Ibër UN02_150 and UN02_170 as well as Morava e Binçës UN03_100.

[4] DIRECTIVE 2006/118/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 12 December 2006 on the protection of groundwater against pollution and deterioration

[5] DIRECTIVE (EU) 2020/2184 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2020 on the quality of water intended for human consumption

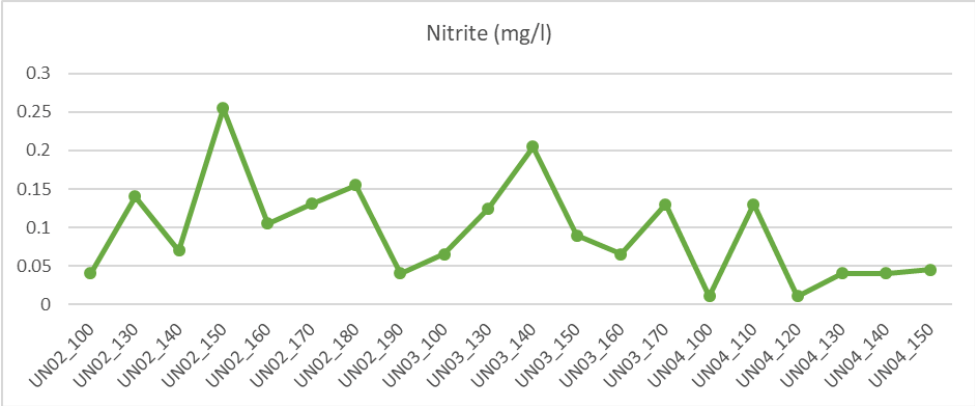


Figure 15: The nitrite parameter based on the underground water quality monitoring – KHMI/IWRM 2023 (Basins: Ibër, Morava e Binçës and Lepenci)

Figure 16 shows the nitrite parameter (mg/l) in the three basins: Ibër, Morava e Binça and Lepenci. According to these standards, none of the monitoring points indicates exceedances of the standard value for the nitrite parameter.

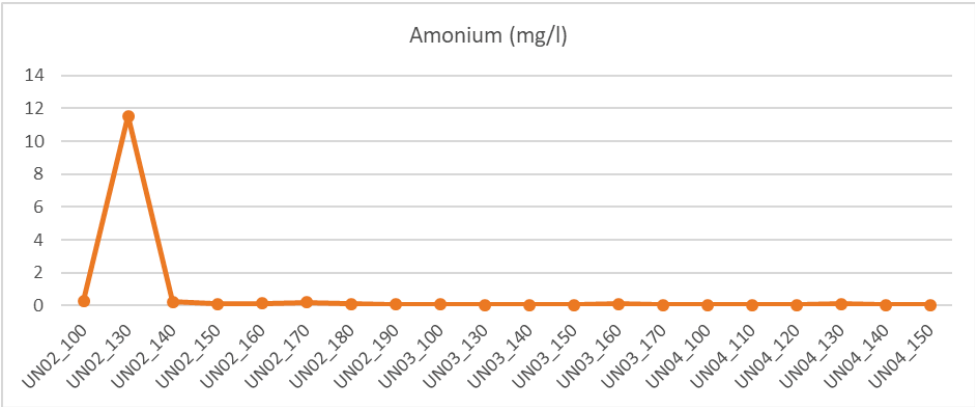
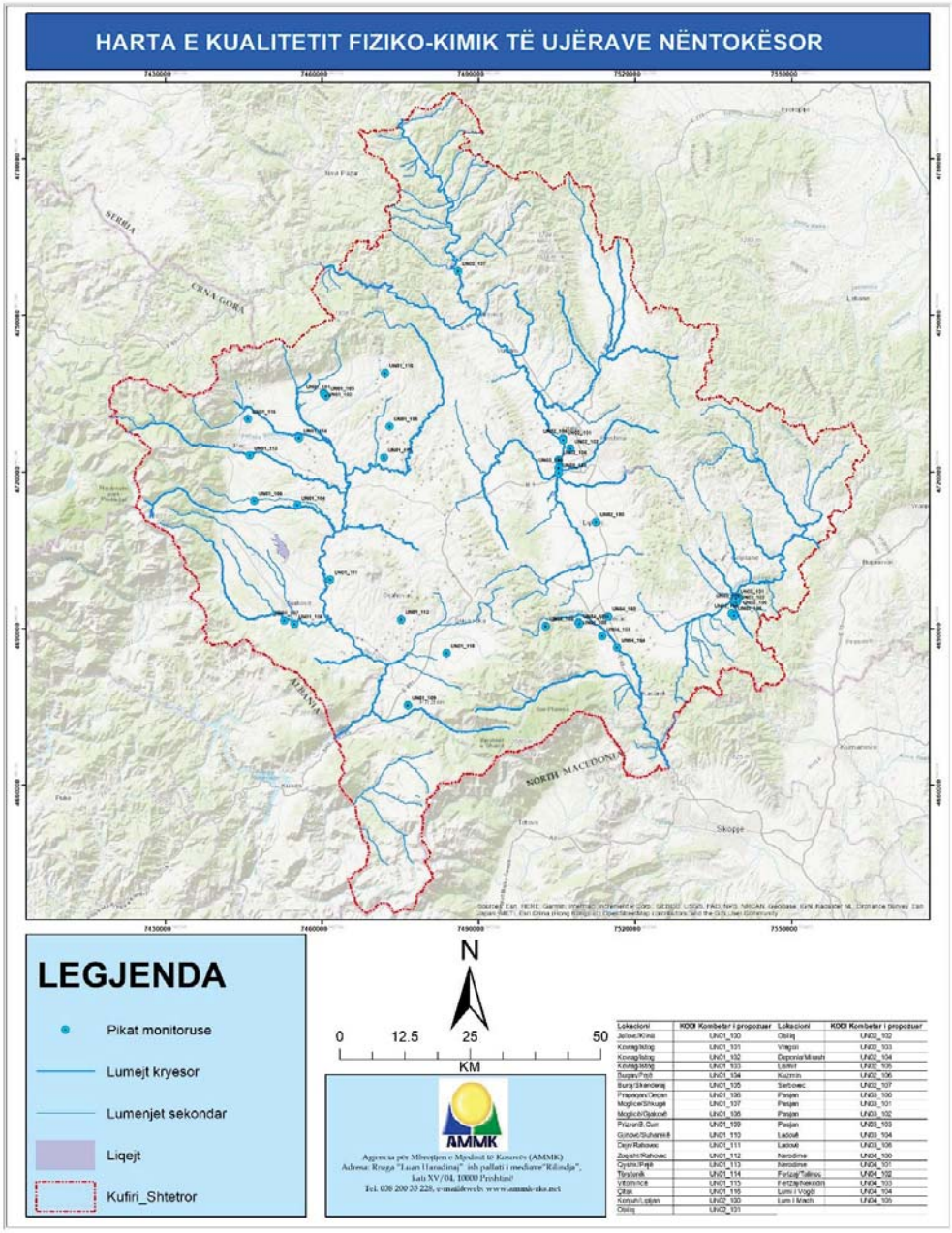


***Figure 16:** The ammonium parameter based on the underground water quality monitoring – KHMI/IWRM 2023 (Basins: Ibër, Morava e Binçës and Lepenci)*

According to these standards, only the monitoring point UN02_130 in the Ibër river basin exceeds the standard value for the ammonium parameter.

In Annex 6 to this report, you may find the table with the codes of the monitoring stations of physico-chemical quality of underground water, while on map 3 the distribution of the locations of monitoring stations of the physico-chemical quality of underground water is presented.



Map 3: *Distribution of the locations of monitoring stations of the physico-chemical quality of underground water*

Biological monitoring of surface water

Biological monitoring in the Iber, Morava e Bincës, and Lepenci river basins [6]

The Pilot Monitoring Program for river basins in Kosovo is an important step for improving the management of water resources and compliance with EU standards. Having been implemented by the Integrated Water Resources Management Program and the Government of Kosovo, this program has tested an approach for monitoring water quality in the Iber, Lepenci, and Morava e Binçës river basins.

Biological Monitoring- The EU Water Framework Directive requires the assessment of water quality through various indicators, including macroinvertebrates, fish and diatoms, which provide a more accurate picture of anthropogenic impacts on ecosystems by integrating biogeochemical changes within the biological system.
The monitoring, carried out three times a year (spring, summer, autumn) for biological elements, will help improve and expand access throughout Kosovo by taking into account the requirements of the EU Water Framework Directive. The monitoring activity was conducted over a 12-month period, from April 2023 to February 2024, in order to collect comprehensive data and assess seasonal changes in water quality.

Summary results of biological monitoring in the Iber River basin

Composition of diatoms - In 33.4% of water bodies, diatoms have a high and good status/potential. Total species identified: 196 diatom species were identified in all sampling locations, during spring season around 139 species, in summer season around 187 species, while the autumn season represents the highest number of species.

Table 6: Ecological status of water bodies in the Ibër River basin - diatoms

No.	Id /Code	Settlement	Spring	Summer	Autumn	2023
			Ecological status	Ecological status	Ecological status	Composition
1	1 RV02_011	Ibri - Kushtovë	good	high	high	high
2	2 RV02_012	Ibri - Mitrovicë	moderate	good	moderate	moderate
3	3 RV02_013	Ibri -Kelmend	poor	poor	bad	poor
4	4 RV02_021	Sitnica - Bablak	poor	poor	bad	poor
5	5 RV02_024	Sitnica - Plemetin	poor	poor	poor	poor
6	6 RV02_025	Sitnica - Nedakovc	moderate	poor	poor	poor
7	7 RV02_026	Sitnica - Mitrovicë	poor	poor	poor	poor
8	8 RV02_031	Llapi - Murgullë	good	good	good	good

[6] *Integrated Water Resources Management Program in Kosovo (Final Report Pilot Monitoring of Surface Water and goundwater In Ibri River Basin, Morava e Binces River Basin and Lepenc River Basin), April 2023 – February 2024.*

9	9 RV02_033	Llapi - Milloshevë	moderate	poor	moderate	moderate
10	10 RV02_041	Prishtevka - Bresje	bad	bad	poor	bad
11	11 RV02_051	Graqanka - Vragoli	bad	bad	bad	bad
12	12 NCA	Drenica - Krojmir	good	moderate	moderate	moderate
13	13 RV02_061	Drenica -Pjetershtice	good	good	good	good
14	14 RV02_062	Drenica - Vragoli	moderate	moderate	poor	moderate
15	15 RV02_071	Shtimljanka - Devetak	moderate	good	good	good
16	16 RV02_072	Shtimljanka - Muzeqin	poor	poor	poor	poor
17	17 XK-02-08-03	Reservoir - Batlava	moderate	good	mirë	good
18	18 XK-02-16-01	Reservoir - Gazivode	good	high	mirë	good

Macroinvertebrates - In 16.7% of water bodies, macroinvertebrates have a high and good status/potential. The summarized ecological status based on macroinvertebrates and based on the monitoring of all three seasons shows that in three monitoring areas macroinvertebrates have a good status [16.7%], three of them have a moderate status [16.7%], 8 have a poor status [44.4 %] and the remaining 4 monitoring locations have a bad status [22.2 %]. All sites having a good status are located in the upstream areas of the Ibër, Llap and Shtime Rivers. Monitoring sites with poor status are located in the river Sitnica and its two tributaries, Prishtina and Graçanka. Anthropogenic pressures in other areas are reflected in the status of these monitoring areas through poor or moderate status.

Table 7: Ecological status of water bodies in the Ibër River basin - macroinvertebrates

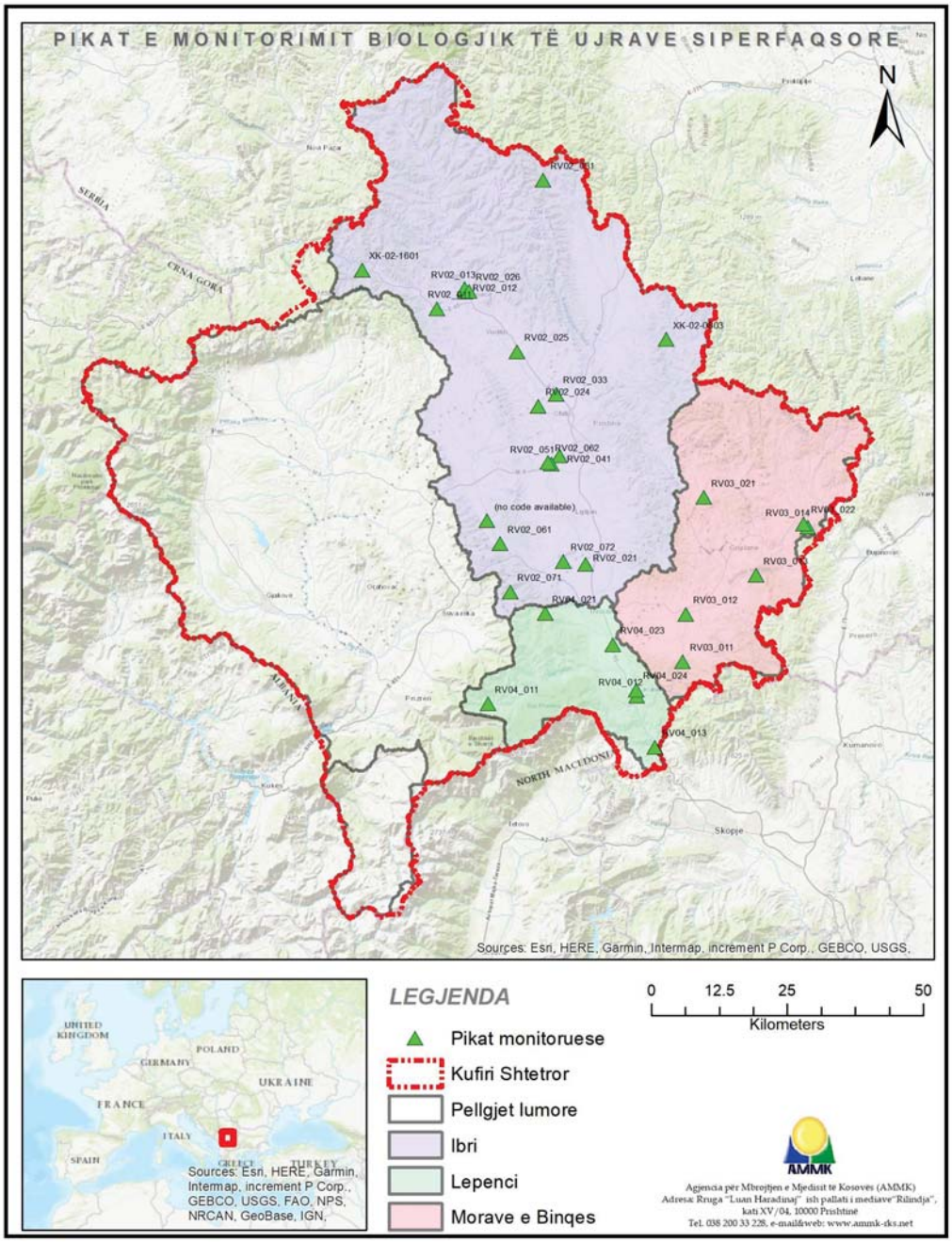
No.	Id /Code	Settlement	Spring	Summer	Autumn	2023
			Ecological status	Ecological status	Ecological status	Composition
1	RV02_011	Ibri - Kushtovë	moderate	good	good	good
2	RV02_012	Ibri Mitrovicë	poor	poor	bad	poor
3	RV02_013	Ibri -Kelmend	poor	poor	bad	poor
4	RV02_021	Sitnica - Bablak	poor	poor	bad	poor
5	RV02_024	Sitnica - Plemetin	bad	bad	bad	bad
6	RV02_025	Sitnica - Nedakovc	poor	bad	bad	bad
7	RV02_026	Sitnica - Mitrovicë	poor	poor	bad	poor
8	RV02_031	Llapi - Murgullë	good	lartë	good	good
9	RV02_033	Llapi - Milloshevë	poor	poor	poor	poor
10	RV02_041	Prishtina - Bresje	bad	bad	bad	bad
11	RV02_051	Graqanka - Vragoli	bad	bad	bad	bad
12	NCA	Drenica - Krojmir	poor	moderate	moderate	moderate
13	RV02_061	Drenica -Pjetërshticë	moderate	moderate	moderate	moderate
14	RV02_062	Drenica - Vragoli	poor	poor	poor	poor
15	RV02_071	Shtime - Devetak	moderate	good	good	good
16	RV02_072	Shtime - Muzeqinë	poor	poor	poor	poor

17	XK-02-08-03	Batllava	moderate	poor	poor	poor
18	XK-02-16-01	Ujmani	moderate	moderate	moderate	moderate

Fish – have a good and high status only in 16.7% of water bodies. In three water bodies the fish have a good status (Iber-Kushtove, Llapi - Murgulle and Shtime - Devetak) [16.7%], in 4 they have a moderate status (Llapi - Miloshevë, Drenica - Krojmir, Drenica - Pjetreshtice, Batllavë and Gazivode reservoirs (Ujmani) [22.2%], while in six they have a poor status [33.3%], and in 5 they have a bed status [27.8%]. The results show that the fish have a good and high status in 16.7% of water bodies.

Table 8: Ecological status of water bodies in the Ibër river basin - fish

No.	Id /Code	Settlement	Spring	Summer	Autumn	2023
			Ecological status	Ecological status	Ecological status	Composition
1	RV02_011	Ibri - Kushtovë	good	high	high	high
2	RV02_012	IbriMitrovicë	moderate	good	moderate	moderate
3	RV02_013	Ibri -Kelmend	poor	poor	bad	poor
4	RV02_021	Sitnica - Bablak	poor	poor	bad	poor
5	RV02_024	Sitnica - Plemetin	poor	poor	poor	poor
6	RV02_025	Sitnica - Nedakovc	moderate	poor	poor	poor
7	RV02_026	Sitnica - Mitrovicë	poor	poor	poor	poor
8	RV02_031	Llapi - Murgullë	good	good	good	good
9	RV02_033	Llapi - Milloshevë	moderate	poor	moderate	moderate
10	RV02_041	Prishtevka - Bresje	bad	bad	poor	bad
11	RV02_051	Graqanka - Vragoli	bad	bad	bad	bad
12	NCA	Drenica - Krojmir	good	moderate	moderate	moderate
13	RV02_061	Drenica -Pjetershtice	good	good	good	mirë
14	RV02_062	Drenica - Vragoli	moderate	moderate	poor	moderate
15	RV02_071	Shtimljanka - Devetak	moderate	good	good	good
16	RV02_072	Shtimljanka Muzeqinë	poor	poor	poor	poor
17	XK-02-08-03	Reservoir Batlava	moderate	good	good	good
18	XK-02-16-01	Reservoir Gazivode	good	high	good	good



Map 4: *Biological monitoring locations in the Ibër, Morava e Binçës and Lepenc river basins*

Summary results of biological monitoring – Morava e Binçës River basin

Composition of diatoms - Based on the calculated values of diatom indexes, the studied water bodies have the following ecological status and ecological potential: One water body has a high status, one has a good status, three have a moderate status, while one has poor status and one has a bad status. Only in one water body or 16.66% of diatoms have a good status/potential.

Table 9: Ecological status of water bodies in the Morava e Binçës River basin - diatoms

No.	Id /Code	Settlement	Spring	Summer	Autumn	2023
			Ecological status	Ecological status	Ecological status	Composition
1	RV03_011	Morava e Binçës - Kurbuliq	high	good	high	high
2	RV03_012	Morava e Binçës - Kllokot	good	poor	moderate	moderate
3	RV03_013	Morava e Binçës - Uglar	moderate	keq	keq	keq
4	RV03_014	Morava e Binçës - Domorovc	moderate	moderate	moderate	moderate
5	RV03_021	KrivaReka – Mare	moderate	good	moderate	moderate
6	RV03_022	KrivaReka - Domorovc	good	poor	poor	poor

Macroinvertebrates - In 33.3% of water bodies, macroinvertebrates have a good status/potential, no monitoring site pertains to the high status; two monitoring areas have a good status, while four others have a poor status. It should be noted that a high level of pollution was observed especially in the monitoring locations in Kllokot and Uglar due to sewage discharges from nearby settlements as well as from agriculture.

Table 10: Ecological status of water bodies in the Morava e Binçës River basin - macroinvertebrates

No.	Id /Code	Settlement	Spring	Summer	Autumn	2023
			Ecological status	Ecological status	Ecological status	Composition
1	RV03_011	Morava e Binçës - Kurbuliq	good	good	high	good
2	RV03_012	Morava e Binçës - Kllokot	poor	poor	poor	poor
3	RV03_013	Morava e Binçës - Uglar	poor	poor	poor	poor
4	RV03_014	Morava - Domorovc	poor	moderate	poor	poor
5	RV03_021	Kriva Reka-Marec	good	moderate	good	good
6	RV03_022	Morava e Binçës-Kurbuliq	poor	poor	moderate	poor

Fish - Fish have a good status in only one water body or 16.66% of water bodies.

Table 11. Ecological status of water bodies in the Morava e Binçës River basin - fish

No.	Id /Code	Settlement	Spring	Summer	Autumn	2023
			Ecological status	Ecological status	Ecological status	Composition
1	RV03_011	Kurbuliq	good	good	good	good
2	RV03_012	Kllokot	poor	poor	poor	poor
3	RV03_013	Uglar	bad	bad	bad	bad
4	RV03_014	Morava Domorovc	moderate	i moderuar	moderate	moderate
5	RV03_021	Marec	moderate	moderate	moderate	moderate
6	RV03_022	KrivaRekaDomorovc	poor	poor	poor	poor

Summary results of biological monitoring – Lepenc River basin

Composition of diatoms - In three water bodies (50%) diatoms have a high and good status/potential. Based on the calculated values of the diatom indexes, the studied water bodies have the following ecological status and ecological potential: One water body has a high status; two have a good status, while one has a moderate status and two have a poor status.

Table 12: Ecological status of water bodies in the Lepenc River basin - diatoms

No.	Id /Code	Settlement	Spring	Summer	Autumn	2023
			Ecological status	Ecological status	Ecological status	Composition
1	RV04_011	Lepenc - PrevallëSubain	high	high	high	high
2	RV04_012	Lepenc - Kaçanik	good	good	good	good
3	RV04_013	Lepenc - Hani iElezit	good	moderate	moderate	moderate
4	RV04_021	Nerodime - Jezerc	good	good	good	good
5	RV04_023	Nerodime - Gërlicë	poor	poor	bad	poor
6	RV04_024	Nerodime - Kaçanik	moderate	poor	poor	poor

Composition of macroinvertebrates - In 66.66% of water bodies, macroinvertebrates have a good status/potential. One location has a poor status and one has a bad status, indicating a high level of anthropogenic impact, mainly caused by the discharge of untreated sewage water from the city of Ferizaj. Both locations belong to the Nerodime sub-basin, which is the main tributary of the Lepenci River. Four water bodies have a good status.

Table 13: Ecological status of water bodies in the Lepenc River basin - macroinvertebrates

No.	Id /Code	Settlement	Spring	Summer	Autumn	2023
			Ecological status	Ecological status	Ecological status	Composition
1	RV04_011	Lepenc -Prevallë	good	good	good	good
2	RV04_012	Lepenc-Kaçanik	good	good	moderate	good
3	RV04_013	Lepenc-Hani iElezit	moderate	good	good	good
4	RV04_021	Nerodime-Jezerc	good	good	good	good
5	RV04_023	Nerodime-Gërlicë	poor	bad	bad	bad
6	RV04_024	Nerodime- Kaçanik	bad	poor	poor	poor

Composition of fish – Fish have a good status in only one water body or 16.66% of water bodies.

Table 14: Ecological status of water bodies in the Lepenc River basin - fish

No.	Id /Code	Settlement	Spring	Summer	Autumn	2023
			Ecological status	Ecological status	Ecological status	Composition
1	RV04_011	Prevallë - Subain	good	good	good	good
2	RV04_012	Lepenci - Kaçanik	moderate	moderate	moderate	moderate
3	RV04_013	Hani i Elezit	poor	poor	poor	poor
4	RV04_021	Jezerc	good	good	good	good
5	RV04_023	Gërlicë	bad	bad	bad	bad
6	RV04_024	Nerodimja - Kaçanik	bad	poor	bad	bad

3.2.2. Surface water amount

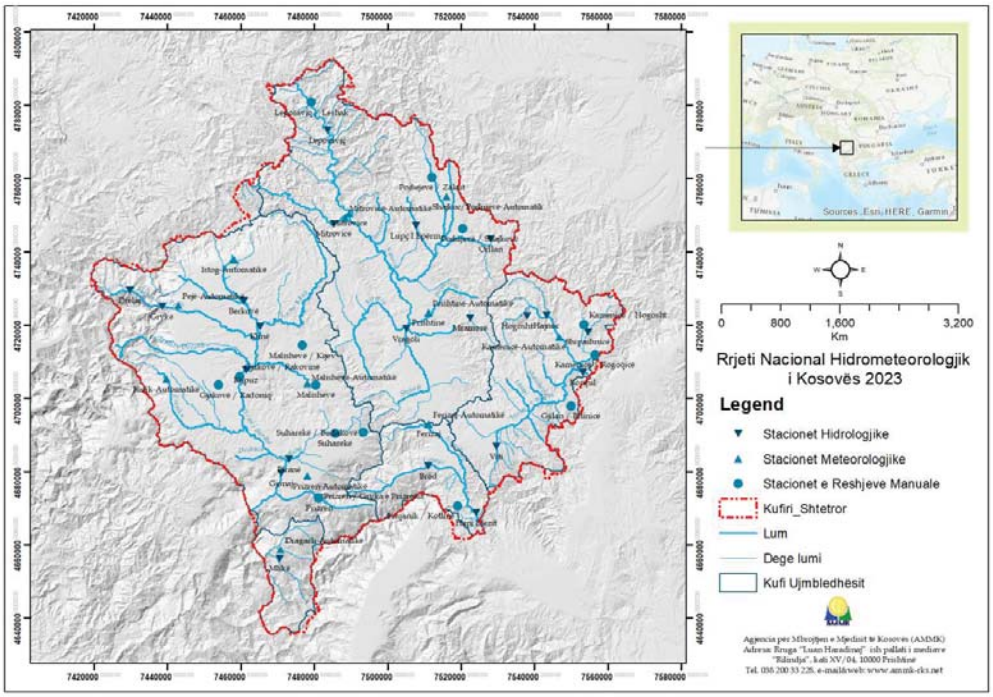
In addition to water quality, KHMI also monitors the amount of water. The amount of water is monitoring through the hydrometric network, which consists of several measuring stations across the rivers where the measurements of the amount of water are carried out. These stations measure the Level (H) and Feed (Q). Table 15 presents the data on the water level H (cm) and Feed (Q) at the hydrometric stations obtained in 2023, table 16 presents the data on the feed Q (m3/sec), for the hydrometric monitoring stations obtained in 2023, while map 5 presents the distribution of Kosovo's Hydrometeorological Network.

Table 15: Average annual values of water level H (cm) by measuring stations 2023

Station	Avg. (cm)
Gjonaj	236
Këpuz	150
Grykë	93
Drelaj	68
Klinë	48
Berkovë	123
Leposaviç	235
Vragoli	66
Mitrovicë	122
Orllan	31
Mramorë	16
Lupç i Epërm	54
Konçul	263
Viti	39
Hani i Elezit	81
Brod	32
Mlikë	70

Table 16: Average annual values of Feed Q (m3/sec) by measuring stations 2023

Station	Avg.(m3/sec)
Gjonaj	81.75
Grykë	8.488
Prizren	1.934
Brod	0.928
Mlikë	1.469



Map 5: *National Hydrometeorological Network of Kosovo*

3.2.3. Utilization of water resources

The biggest consumers of water resources are the large industrial operators, such as 'KEK'', `'NewCoFeronikli'', 'Sharrcem', etc. Most of them are supplied with water from surface accumulative lakes (Table 17).

Table 17: Utilization of water 2022-2023 by large industrial enterprises [7]

Users	**Amount of water spent (m^3/year) 2022**	**Amount of water spent (m^3/year) 2023**
Kosovo Energy Corporation – KEK	18389642	16097678
New Co FERRONIKEL	882986	1552307
SHARRCEM	139061	107467
Total	**19411689**	**17757452**

[7] *Annual Reports on the State of the Envrionment, New Co Feronikeli*

3.3. Land/soil

Despite the work of MAFRD to build the legal infrastructure for lands and their use for agriculture purposes and the drafting of many strategies and action plans in this respect, a concrete and long-term policy has not yet been created to protect the lands and ensure that they are used in a rational, long-term, and sustainable way, which will also be used by new generations.

Law No. 08/L-087 on amending and supplementing Law No. 04/L-040 on Land Regulation regulate the use of lands, especially agricultural land, in a progressive manner.

The Strategy for Agriculture and Rural Development 2022-2028, among other things, identifies measures to increase efficiency for setting up appropriate, effective public and private institutions to optimize the use of land, forest, and water resources in a sustainable and environmentally friendly manner. Therefore, the implementation and enforcement of the legal infrastructure and agricultural strategies in the right way will affect so that the land be used according to the principle of sustainable development.

In this respect, the Spatial Planning documents, zonal maps and the drafting of plans for special content areas of interest to the state that are under the guidance of MESPI policies are of considerable importance for land protection and conservation.

3.3.1. Agricultural land use

Despite the tendency, in recent years, to change the destination of agricultural land and use it for other purposes (privatization, construction, or expropriation, etc.), this tendency, which is related to recent economic development, has non-significant variability compared to previous years.

Agricultural land use is divided into two groups;

- The first group covers arable agricultural land and
- The second group includes meadows and pastures used for cattle grazing, including joint land.

The total area of agricultural land used in 2022 was 420,482 ha, which represents 23 ares*(*Translator: Are-a land measurement unit equal to 100 square meters*!) of agricultural land per capita.

Table 18: The trend of agricultural land use 2018-2022 by categories

	2018 ha	2019 ha	2020 ha	2021 ha	2022 ha	Changes 2022/2021 in %	Share in % 2022
Arable land	188,359	188,365	188,372	188,375	188,405	0.02	44.81
Of which with vegetables in the open field (first	7,818	8,319	8,435	8,491	8,584	1.11	

crop)							
Of which with vegetables in greenhouses (first crop)	468	518	547	562	583	3.65	
Gardens	1,003	1,122	1,133	1,089	1,080	-0.87	0.26
Tree plantations	7,687	9,244	10,029	10,144	10,377	2.30	2.47
Vineyard plantations	3,272	3,367	3,437	3,471	3,472	0.03	0.83
Plant nurseries	109	111	137	140	150	7.12	0.04
meadows and pastures (including joint land)	218,152	217,932	217,102	217,107	216,998	-0.05	51.61
Total of agricultural land area used	**418,582**	**420,141**	**420,210**	**420,327**	**420,482**	**0.04**	**100.00**

Of the total agricultural land area used, the majority, consisting of 51.6% or 216,998 ha, are meadows and pastures. A high percentage consisting of 44.8%, or 188,405 ha, is arable land, and the rest, having the share of 3.6%, or 15,079 ha, are gardens, tree plantations, vineyards, and nurseries.

3.3.2. Land monitoring

Up to the present, no special program for monitoring the environment has been drawn up, which would also include the monitoring of lands in Kosovo. In this respect, we still do not have a monitoring system, despite the fact that there are two institutions responsible for this purpose.
The two main institutions responsible for land monitoring such as: MAFRD through the Agricultural Institute and MESPI through the Hydrometeorological Institute have not yet set up a land monitoring system. Land monitoring requires a political and professional will, which would enable us to have knowledge about the structure, composition, pollution and quality of the land.
Land monitoring was carried out only according to projects and on a case-by-case basis as per the requirements of environmental impact assessment (EIA).

The main benefits that we will have from land monitoring are considered to be the following:

- Knowledge about the main indicators of agricultural lands;
- Knowledge about the content of heavy metals;
- Knowledge about the use or non-use of lands for certain purposes;
- Knowledge about the land quality standards etc.

Potential and required parameters (indicators) for land monitoring that would be necessary to be carried out both in terms of agriculture and pollution, depending on the institutional responsibility, are:
Physico-chemical indicators: *Temperature, pH, composition of sand particles, supporting root layer, permeability, water-holding capacity;*
Inorganic chemical indicators: *electrical conductivity, N, P, K, cation exchange capacity (Ca, Mg, Na, K), trace elements (Mn, Zn, Cu, Fe), assimilable inorganic nutrients, hydrogen carbonates (HCO3 -), heavy metals (Cd, Cu, Ni, Fe, Pb, Mn), pesticides;*
Organic matter: *organic matters (OM), dry residue, total organic compounds (TOC), soil fertility (C/N), measurable pesticides: aldrin, dieldrin, endrin, isodrin, dichlorodiphenyltrichloroethane (DDT), polycyclic aromatic hydrocarbons (PAHs) anthracene, phenanthrene, fluoranthene);*
Biological indicators: *bioaccumulators such as algae, aquatic plants and animals;*
Erosion *and indicators that assess soil erosion due to the lack of plant cover; monitoring the rate of erosion, etc.*

3.3.3. Land pollution

Land is a vital component of natural capital, developing biodiversity and providing vital ecosystem services. Land is the source of food production, water purification and carbon storage. However, there are potentially around 2.8 million contaminated and unhealthy sites in EU countries[8].

The main sources of land pollution in our country have been identified: agricultural pollutants (chemical preparations used in agriculture), mining and urban waste dumps, urban water discharge, transport, industrial pollutants, hazardous and unsystematized waste, physical degradation of land surfaces, end-of-life vehicle collection locations, etc. (Table 19).

Table 19: Land pollution sources

Agriculture	Municipal waste	Sanitary landfills	Chemicals and hazardous waste	Industry	Mines	Vehicle graveyards
Chemical preparations for use in agriculture	Poor management of urban waste, landfills and illegal waste	Sanitary landfills source of land pollution	Deposits outside any standards	Industrial waste	The flow of polluting waters with heavy metals	Used car depots and auto repair shops
Around 80,882 tons of various types of fertilizers were used, while 122,752 ha of agricultural land were treated with pesticides.	During the year 2023, around 400 illegal dumping sites of unmanaged municipal waste and construction waste have been identified	-7 sanitary landfills, - 3 transfer stations, and - 1 landfill that are not authorized by MESPI, are not managed pursuant to standards	Dozens of chemical and hazardous waste sites managed in improper conditions	Dumping sites managed out of standards in active industrial areas such as KEK, SharCem, NewCoFeronik -el, etc.	Mining and industrial waste dumping sites that have not yet been rehabilitated	Discharge of used oils and other waste from 600 old car dump sites

[8] https://www.eea.europa.eu/en/topics/in-depth/soil

Land pollution in Kosovo is related to industrial and mining activities, especially in certain areas where the mining, industrial and power plant industries are based. The pressure of land pollution also comes from hazardous waste, which has been identified by MESPI in 17 locations throughout the country. No permanent solution for the cleaning of these contaminated sites has yet been found.

As a conclusion, we emphasize that the institutions responsible for establishing a unified and integral system of land protection and monitoring are MESPI and MAFRD. A special attention should be paid to the establishment of the monitoring system which would identify any relevant land indicators. The collection, analysis, reporting and assessment of data on land indicators will be key issues in this process.

Thanks to the identification and assessment of land indicators, the responsible institutions will focus on finding mechanisms to improve and prevent further land pollution. In conclusion, along with the preparation of action plans and policies for the protection of land against pollution, degradation or concreting, central and local institutions should also plan investments for the implementation of these plans or policies.

3.4. Waste management

Waste management in Kosovo is one of the main challenges for both the central and local levels of government. When we speak about the management of municipal waste based on the legislation in force, it falls directly on the responsibility of the municipalities. This process includes the collection, transportation and integrated waste treatment. This waste is produced by the daily activity of citizens and businesses.

There is a solid base of legislation that regulates waste management, as well as documents such as the “Strategy and Action Plan” for integrated waste management in Kosovo, while at the local level, all municipalities have adopted 5-year municipal waste management plans as well as regulations on waste management. A range of objectives and activities are envisaged in these planning documents. Despite commitments to improve the state of waste management, difficulties of various natures continue to be encountered.

KEPA constantly monitors the situation in this sector and, based on its findings, it estimates that there is an improvement of the situation of waste management in almost all municipalities. Thus, based on the data reported by municipalities, and field monitoring, it has been estimated that there is an increase in the level of coverage with waste collection services, an increase in collection, the removal and cleaning of illegal landfills, and also an improvement in the area of fulfilling legal obligations at the local level.

There are initiatives from the central level for the implementation of projects envisaged under the Strategy and Action Plan, such as feasibility studies for sanitary landfills, the application of a tax for plastic bags, research of the situation regarding the commencement of the implementation of the system of return of deposit refund system for bottles and cans and the commencement of the implementation of this objective, circular economy, etc.

Also, the cooperation with external donors who are supporting us in capacity building, direct investments in technical equipment and software for the implementation of projects and other activities in the waste management sector.

KEPA requests from stakeholders who are responsible for municipal waste management to initiate positive initiatives that affect integrated waste management, first of all the application of the 3R model (reduction of waste generation, its reuse, and recycling), as it is a well-known fact that only these waste management initiatives can affect sustainability and other benefits of the waste sector, be they environmental but also economic and social.

Another spectrum of waste for which yet there is no proper management is hazardous waste, a part of hospital waste, animal waste, construction and demolition waste, tire waste , waste oils, etc., which continue to present a serious challenge for environmental wellness.

Of course, these types of waste require concrete analyzes and research, in the first place to have a clearer picture of their state and also specific investments in order to bring their management under full control, improve their status and consequently eliminate the negative impact on health and the environment.

On the basis of regular monitoring by KEPA, it is estimated that the state of sanitary landfills for the disposal of municipal waste has already deteriorated excessively and almost all controlled landfills (5 regional and 2 municipal) are on the verge of collapse.

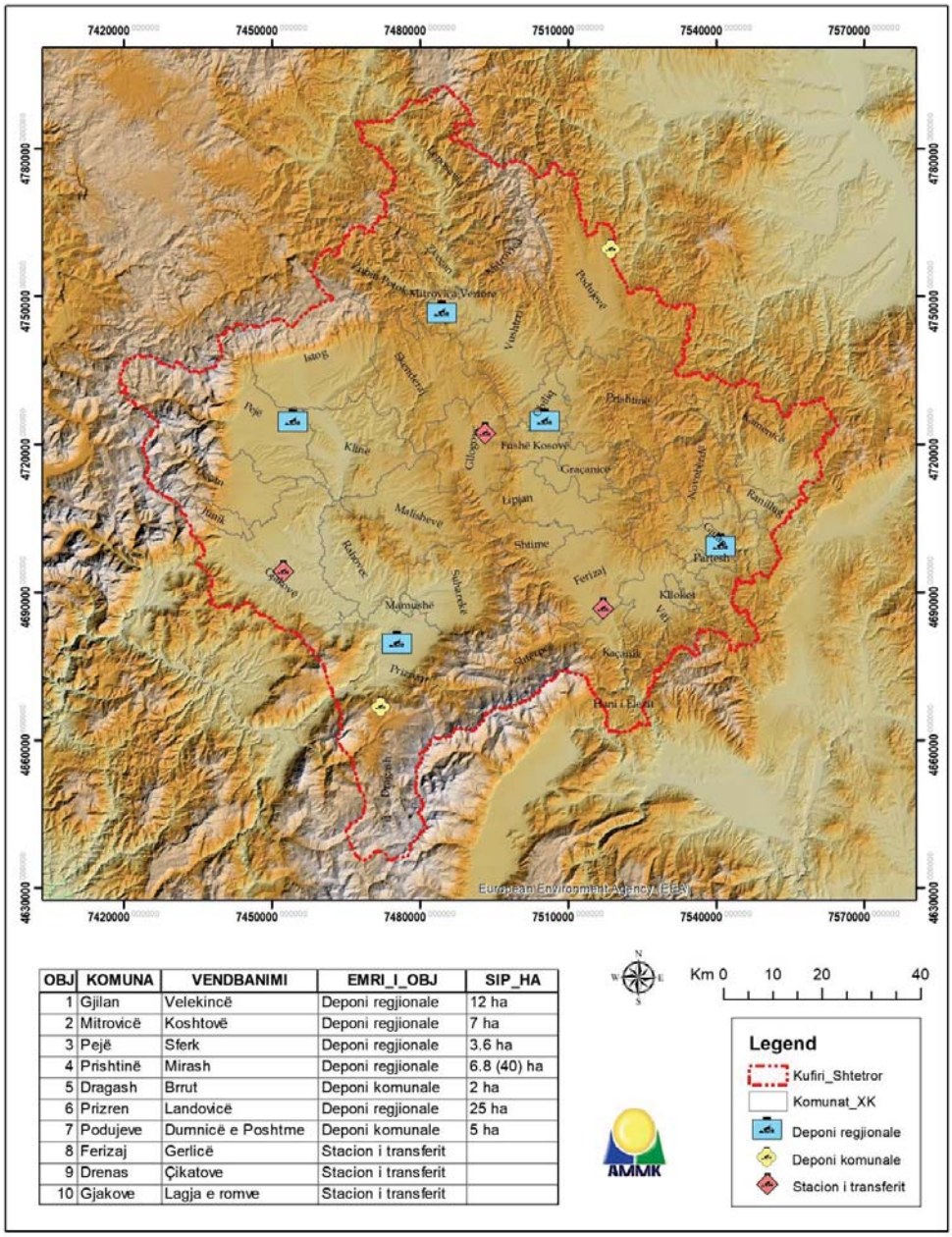
This situation is a result of many factors, with particular emphasis on inadequate management of landfills, lack of investments, exceeding of planned capacities for waste disposal, etc.

The management of industrial waste and active industrial landfills, as well as those inherited from mining and industrial activities, presents a specific problem for the environment. Their state is not fully known; hence it is necessary to carry out an assessment in the future and draw up plans and projects for their management and rehabilitation.

It has to be emphasized that the current waste management system in Kosovo does not provide complete data on the generation, collection, treatment and elimination of waste and this represents a challenge for the assessment of the situation in this sector.

Therefore, it is required that the actors responsible for waste management build data-maintenance systems and report on the state of waste management.

Regular and verified reporting on waste management is the most certain way to know and assess the situation in this sector and, on the basis of the findings, to try to take concrete measures and actions to improve the situation in the waste management sector.



OBJ	KOMUNA	VENDBANIMI	EMRI_I_OBJ	SIP_HA
1	Gjilan	Velekincë	Deponi regjionale	12 ha
2	Mitrovicë	Koshtovë	Deponi regjionale	7 ha
3	Pejë	Sferk	Deponi regjionale	3.6 ha
4	Prishtinë	Mirash	Deponi regjionale	6.8 (40) ha
5	Dragash	Brut	Deponi komunale	2 ha
6	Prizren	Landovicë	Deponi regjionale	25 ha
7	Podujeve	Dumnicë e Poshtme	Deponi komunale	5 ha
8	Ferizaj	Gerlicë	Stacion i transferit	
9	Drenas	Çikatove	Stacion i transferit	
10	Gjakove	Lagja e romve	Stacion i transferit	

Map 6: *Regional, municipal landfills and transfer stations*

3.4.1. Municipal waste generation

Waste generation is a global problem, and its challenges increase with population growth and urbanization. To ensure a sustainable environment, it is important to understand and undertake effective actions to manage and reduce waste generation in order to reduce the negative impact on the environment.

Waste generation is the process where waste is produced and accumulated, which must thereupon be treated in an appropriate manner to reduce its negative impact on the environment and public health. Waste generation is an important society problem due to the increase of industrial production and consumption.

In order to effectively manage waste, society and responsible institutions must take different measures, such as:

- **Recycling**: classification and processing of materials to create a new resource;
- **Waste reduction**: reducing waste production by using recyclable products and minimizing waste;
- **Circular economy**: using waste as a resource for producing new products by promoting the reuse economy;
- **Safe treatment**: treatment of toxic and hazardous waste in a safe manner and in accordance with environmental laws and standards;
- **Awareness and education**: informing the public about the importance of waste management and commitment to sustainable practices.

Each year, KEPA collects data on the amount of municipal waste generated by municipalities at the country level. The data on the amount of waste generated at the level of the municipalities were obtained from the reporting of municipalities to KEPA.

The table below shows the data on municipal waste generation for municipalities for years 2021, 2022, and 2023.

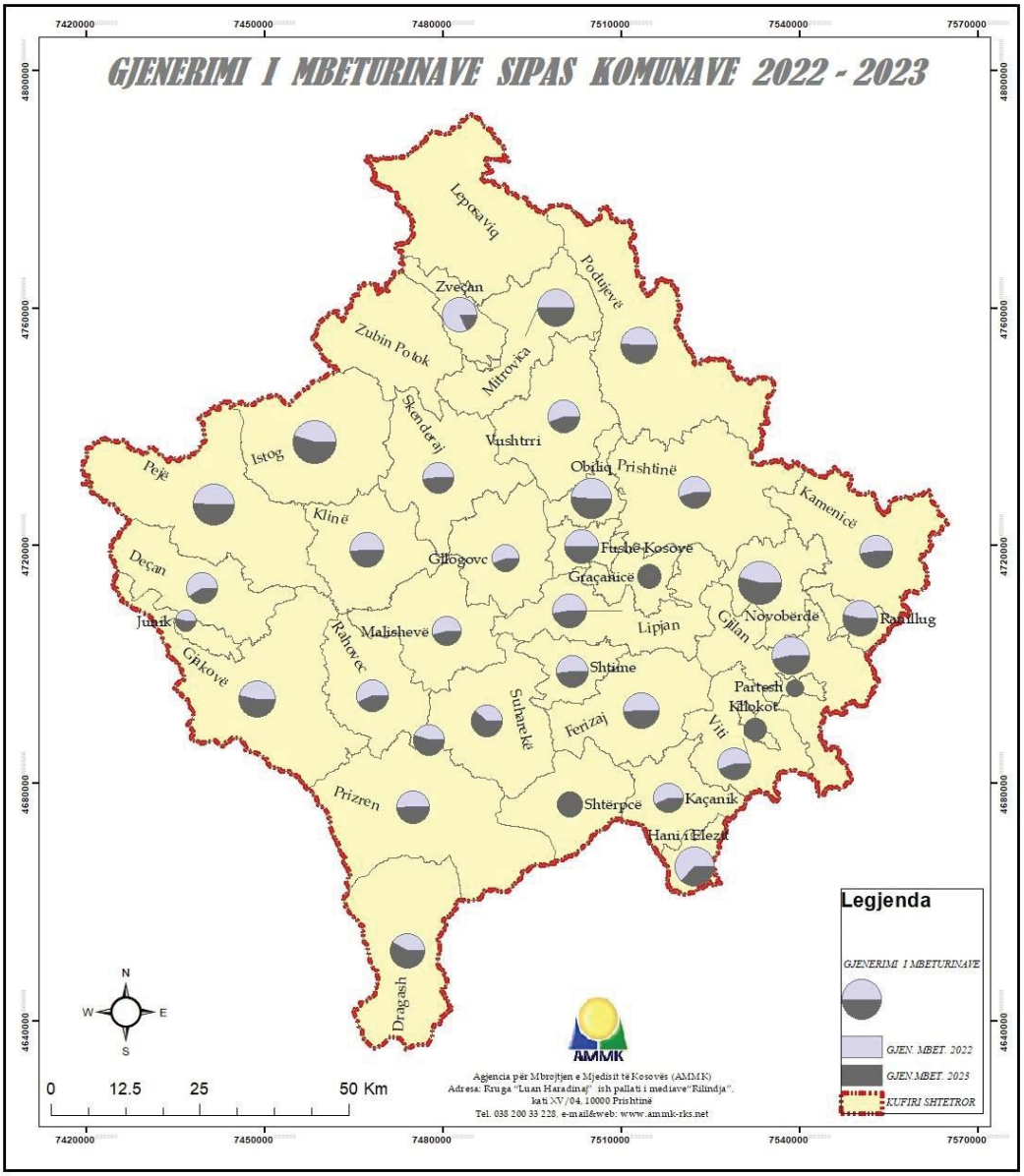
Despite the fact that the reporting was not complete, KEPA has assessed the data and it is estimated that there is an almost linear trend in the amount of waste generated per capita in Kosovo.

Table 20: Municipal waste generation kg\per capita\year (2021, 2022 & 2023)

[9]Municipality	Collection of waste tons/year	Generation kg/per capita/year	Collection of waste tons/year	Generation kg/per capita/year	Collection of waste tons/year	[10] Generation kg/per capita/year
	2021	2021	2022	2022	2023	2023
Prishtinë	76,339.00	212.13	71,515.00	197.06	89,840.00	243.94
Drenas	7,458.10	150.33	7,209.77	143.61	10,685.00	220.86
Fushë-Kosovë	17,626.83	253.81	17,972.20	241.75	18,913	236.88
Graçanicë	4,503.26	252.8	5,453.49	258.43	5,022.00	318.32
Lipjan	13,053.12	243.47	13,279.00	239.47	13,213.00	251.08
Obiliq	7,152.62	390.52	7,138.20	381.58	7,217.00	382.93
Podujevë	18,139.50	300.22	17,090.00	284.15	16,106.00	293.95
Mitrovicë	21,967.00	306.06	25,995.00	364.82	25,924.00	291.91
Skënderaj	7,464.06	208.55	7,098.00	179.5	8,683.00	203.22
Vushtri	19,596.85	209.53	19,456.00	278.46	20,593.00	293.27
Mitrovica V.	0.00	0.00	0.00	0.00	0.00	0.00
Zveçan	2,430.00	363.15	0	0	0	0
Zubin-Potok	0.00	0.00	0.00	0.00	0.00	0.00
Leposaviq	0.00	0.00	0.00	0.00	0.00	0.00
Pejë	36,063.00	391.97	36,164.00	376.12	33,077.00	327.78
Istog	16,256.30	459.88	11,892.00	374.2	11,569.00	240.60
Klinë	9,758.70	258.9	9,173.00	242.81	7,738.00	171.81
Prizren	49,839.86	235.31	49,409.00	259.41	49,166.00	243.02
Suharekë	15,181.54	265.98	13,776.00	230.67	13,484.00	174.12
Malishevë	10,596.00	180.38	10,243.70	169.15	9,968.00	155.12
Rahovec	14,426.90	200.35	14,611.00	199.78	14,051.00	190.99
Dragash	7,952.00	313.77	7,490.00	246	7,479.00	236.75
Mamushë	1,080.00	243.96	1,080.00	229.81	1,200.00	252.22
Ferizaj	23,476.48	283.74	27,995.50	281.13	24,427.00	195.48
Kaçanik	3,942.74	170.7	5,859.00	181.39	4,770.00	124.9
Shtime	4,486.51	224.51	4,621.00	225.31	4,691.00	204.19
Hani i Elezit	2,313.31	257.36	2,300.00	241.77	2,016.00	208.93
Shtërpca	1,827.34	289.26	0	0	1,720.00	133.66
Gjilan	25,124.14	298.79	25,398.00	328.11	25,557.00	374.41
Kamenice	5,493.55	225.01	5,297.50	205.75	5,061.00	181.69
Viti	6,351.20	209.63	6,366.00	192.31	6,451.00	252.37
Novoberde	2,181.15	444.77	2,149.00	406.64	1,076.00	393.05
Partesh	563.36	138.42	0.00	0.00	0.00	0.00
Kllokot	925.48	232.28	0.00	0.00	0.00	0.00
Ranillug	1,118.33	301.58	0.00	0.00	0.00	0.00
Gjakovë	25,585.22	322.61	24,801.00	305.02	22,544.00	237.97
Deçan	8,298.40	176.69	8,316.00	160.88	7,211.00	137.21
Junik	818.09	107.41	920	126.84	938.00	120.28
Nivel vendi	**469,389.94**	**9,123.83**	**460,068.36**	**7,551.93**	**470,390.00**	**235.25**

It has to be stated that this waste generation result is based solely on the amount of waste collected by waste collection and transport operators, so it does not include the entire amount of waste that is actually generated in the municipalities.

[9] Several municipalities have not reported to KEPA and consequently no data have been reflected.
[10] The data presented in this table refer to the amount of waste collected for the reporting year for municipalities and do not include the annual amount generated.



Map 7: *Waste generation by municipalities 2022-2023*

3.4.2. Analysis of the composition of municipal waste

The analysis of the composition of municipal waste is of particular importance, as it provides for both the central level and the local level better knowledge of the situation of waste and facilitates the drawing up and monitoring of the implementation of the national strategy, the drawing up of long-term plans for waste management, as well as easier access to the implementation of programs such as recycling and composting aimed at the minimization of waste generation.

This analysis of the composition of waste represents an indicator of the types of waste that are generated during a year in terms of time, quantity and quality, based on the total amount of waste that is generated within the year.

The analysis of the composition of municipal waste was carried out during one year, from October 2021 to November 2022, carried out in the 7 regions of Kosovo, in the municipalities of Prishtina, Prizren, Ferizaj, Gjakovë, South Mitrovica, Gjilan and Pejë. The samples were taken in 4 areas of the cities, including collective, individual residential, business and mixed categories (collective, individual and business residential premises).

The waste collection operators in these 7 regions are RWC (Regional Waste Company) "Pastrimi", RWC "Çabrati", RWC "Uniteti", RWC "Ambienti", RWC Ecohigjiena", RWC "Pastërtia", RWC "EkoRegjioni". Currently, almost all waste generated in these regions-municipalities is deposited in controlled regional and municipal landfills.

The research and analysis of the composition of municipal waste has been made possible by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, within the project "Sustainable Municipal Services-SMS" through Environmental Sustainable Solution "ESS L.L.C", the Public Services directorates of the respective Municipalities, and 6 regional companies that collect and transport municipal waste.

Table 21: ***Composition of waste*** [11]

Composition of waste	Phase I	Phase II	Phase III	Total
Organic waste	29.2%	32.9%	29.3%	30.4%
Green waste	5.0%	4.4%	4.2%	4.5%
Tetra Pak	2.1%	2.5%	3.2%	2.6%
Plastics	18.7%	19.7%	20.3%	19.6%
Paper / cardboard	16.3%	15.4%	13.6%	15.1%
Textile	4.9%	4.4%	5.0%	4.8%
Metals	1.3%	1.5%	2.7%	1.8%

[11] *Report on the analysis of the composition of waste in the 7 regions of Kosovo, ESS L.L.C, 2022*

Glass	4.5%	5.8%	6.2%	5.5%
Wood	0.9%	1.0%	2.5%	1.5%
MKD	2.0%	2.9%	4.3%	3.1%
Hazardous waste	0.2%	0.2%	0.3%	0.2%
Diapers	4.6%	3.5%	3.7%	4.0%
Small waste	10.3%	5.7%	4.7%	6.9%

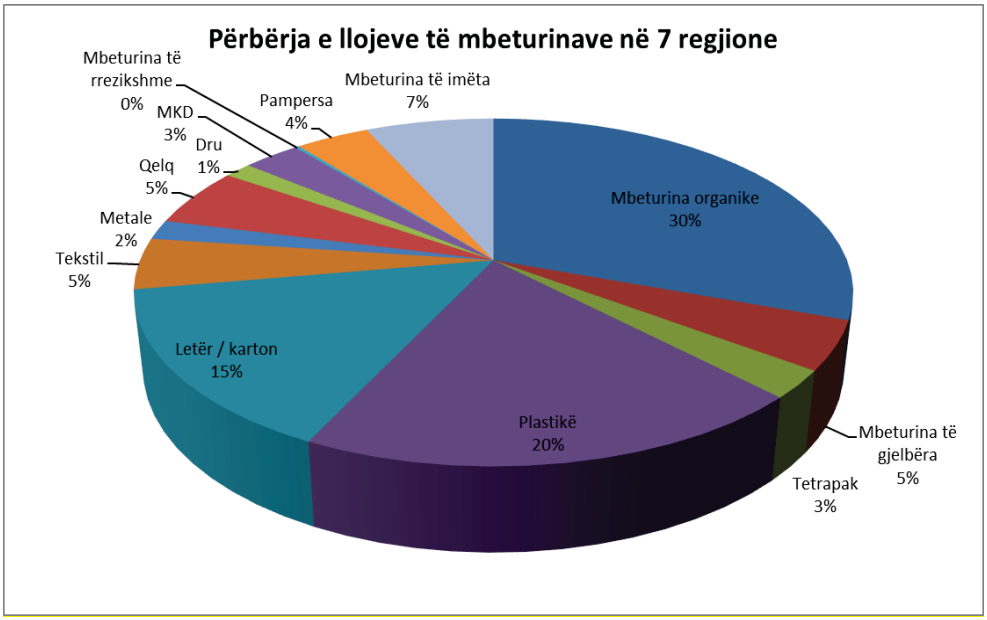


Figure 17: *Composition of waste in Kosovo*

3.4.3. Municipal waste disposal in sanitary landfills

Waste disposal is a key aspect of waste management and is important to ensure that environmental pollution is reduced and natural resources are conserved. However, this is the most traditional form of waste treatment, and efforts have to be made to have the waste undergo other preliminary treatments and ensure that only those amounts that cannot eventually be treated are disposed of.

Mixed waste disposed of in landfills is subjected to several processes, such as distribution in layers, compaction, covering with a layer of soil, etc., in order to prevent odor, minimize the space for disposal, protect from fires, etc.

Municipal waste generated by the population is collected by waste collection and transport operators and regularly deposited in 7 existing landfills that are managed and controlled. Of these, 5 landfills are regional, while the other 2 are municipal.

None of these landfills meets even the minimum standards for landfills. There are no installed landfill gas (methane) capture systems; no landfill water treatment; there is a presence of unauthorized persons; landfills are not maintained and up to date there are no concrete investments to increase the safety and proper operation of these landfills. KEPA estimates that over 90% of the amount of waste generated within a year in Kosovo is deposited in these managed landfills, while the rest ends up in illegal dumping sites and a part is collected by the informal sector for trading purposes. There is a reduction of 9,771 tons compared to 2022, or 2% less (Figure 18).

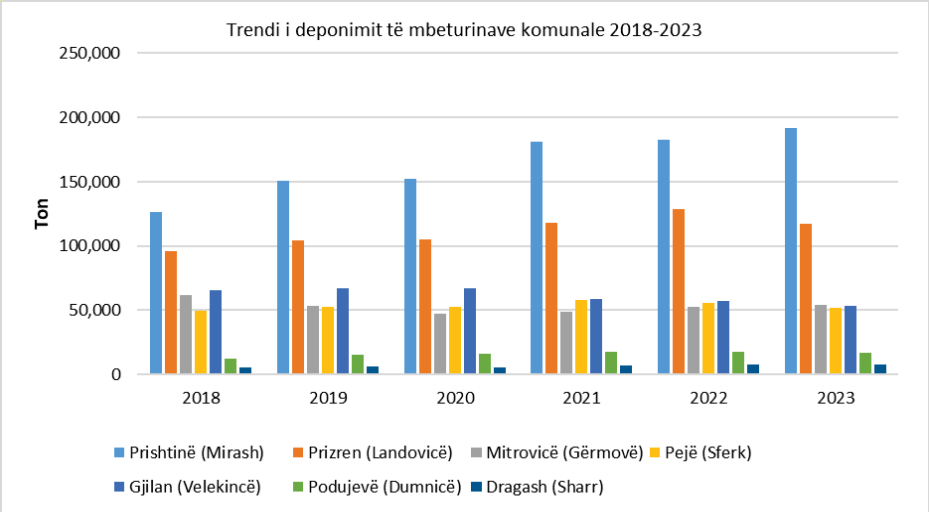


Figure 18: *Municipal waste disposal in sanitary landfills in Kosovo, 2018-2023*

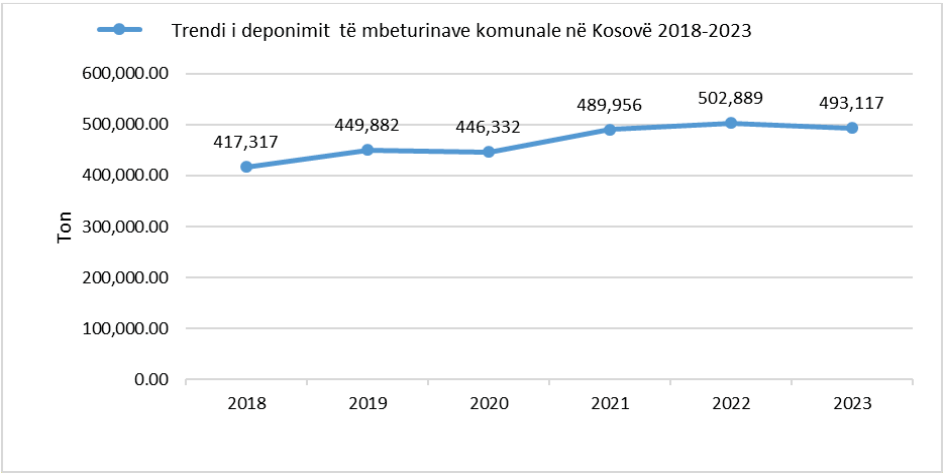


Figure 19: *The trend of municipal waste disposal in Kosovo 2018-2023*

The largest amount of waste in 2023 was deposited in the sanitary landfill in Mirash (Pristina), namely 191,644.72 tons, while the smallest amount was deposited in the sanitary landfill in Dragash, and it consisted of 7,479.00 tons.

Waste disposal in the sanitary landfills managed by KLMC: Mirashi (Pristina), Dumnica (Podujeve), Velekinca (Gjilan), and Landovice (Prizren) in 2023 has recorded a decrease of 6,841 tons, or is 1.8% less compared to 2022.

Whereas, in the regional sanitary landfill in Mitrovica (Gërmovë) 54,063.48 tons or 2.3% more waste was deposited of in 2023 compared to 2022, while in the sanitary landfill in Peja in 2023, 51,882.50 tons or 7.4% more waste was disposed of compared to 2022.

In the sanitary landfills of Dragash and Podujeva, are disposed of only the waste generated in the respective municipalities, thus during the year 2023, 7,479.00 tons, respectively 17,239 tons, were disposed of.

3.4.4. Waste treatment

Waste treatment includes the processes and technologies used to process and treat waste in order to minimize environmental pollution and conserve natural resources.

Some of the main waste treatment methods and technologies are:

- **Recycling**- the collected recyclable materials are reused to produce new products by reducing the need for new resources and environmental pollution;
- **Composting –** the process of having the organic waste decayed and turned into mineral materials and using it on arable land;

- **Incineration by generating energy and heat -** waste is burned at high temperatures to produce electricity and heat. Thereby, consumers are supplied with electricity and heating by consequently limiting the need for other energy sources.
- **Disposal of waste –** the waste that cannot be recycled, composted or incinerated ends up in a landfill.
- **Hazardous waste treatment through specific technologies -** hazardous waste such as chemicals, spent batteries and electronic devices are treated through specialized equipment to ensure that toxins and hazardous materials are safely isolated and processed.

Waste management through advanced technologies is a key aspect of waste management that aims to reduce environmental pollution and use reusable resources in a more efficient manner.

Based on the data published by the Kosovo Agency of Statistics, in the regular surveys that have been conducted with regard to the treatment of municipal waste[12],

[12]*KAS, Waste Treatment Survey, 2022*

where the actors who deal with waste treatment are included, the amount of each category of waste that is dealt with is reflected in the following chart.

As it can be seen in the chart, the largest amount of treated waste pertains to the waste generated by households, which was treated through the classic disposal, followed by paper and cardboard waste, plastics, etc. The forms of treatment included disposal, sterilization, recycling, respectively their separation and classification.

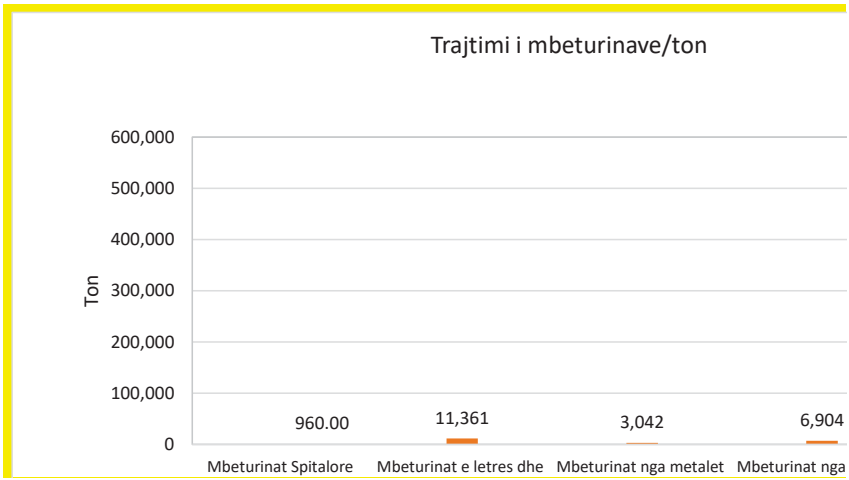


Figure 20: *Treatment of municipal waste in Kosovo*

3.4.5. Illegal landfills

Illegal landfills present a global problem, even for the developed countries, and are a more distinguished problem in non-developed countries and those in development. Illegal disposal of waste is closely linked to the lack of respective infrastructure, poverty, and low community awareness.

Illegal disposal of waste at illegal sites presents significant environmental, health, and aesthetic risks for the area and the ecosystem. These illegal dumping sites usually contain waste such as household waste, construction waste, industrial waste or hazardous materials, animal waste, etc. Consequently, they lead to soil, water, and especially underground water pollution and the degradation of natural scenery by adversely affecting the lives of plants and animals.

On the other hand, these polluted places attract pests such as rodents and insects, which can spread diseases to humans. It often happens that these wastes are burned, and as a result we have the spread of smoke, thus directly endangering health.

Illegal disposal of waste, according to the legislation in force is a punishable act and it may result in fines, punishments and other legal sanctions being imposed on those responsible. On the other hand it also reflects the community of the area and may decrease the value of land in affected areas.

The actors who are responsible for environmental protection must commit themselves to prevent illegal disposal through public awareness campaigns, stricter implementation of legislation, and providing conditions for adequate treatment of waste, especially those that are more specific. This is for the reason that campaigns and activities to clean up these areas are expensive, time-consuming, and often require specialized equipment and expertise.

In May 2024, acting at the request of the KEPA, the municipalities carried out the registration of illegal landfills, on which occasion 28 municipalities responded to the registration and have reported data to KEPA. It is estimated that in some municipalities the situation has improved in terms of the number of illegal landfills, while in some others the situation has worsened. There are 3 registered categories of landills: small, medium, and large. More data are presented in the below table.

Table 22: Number of illegal landfills identified, during 2022 and 2023, by municipalities

2022					2023				
	Illegal landfills by size			The total of illegal landfills 2022		Illegal landfills by size			[13]The total of illegal land-fills
Municipality	Small dumps (1-5 garbage sacks 200 l)	Medium landfills (6-20 garbage sacks 200 l)	Large landfills (>20 garbage sacks 200 l)		**Komunat**	Small dumps (1-5 garbage sacks 200 l)	Medium landfills (6-20 garbage sacks 200 l)	Large landfills (>20 garbage sacks 200 l)	
Prishtinë	9	1	4	14	**Prishtinë**	0	0	3	3
Gllogoc	6	3	1	10	**Gllogoc**	5	9	3	17
Fushë-Kosovë	0	3	6	9	**Fushë-Kosovë**	1	3	5	9
Graçanicë	3	5	8	16	**Graçanicë**	2	4	1	7
Lipjan	12	23	51	86	**Lipjan**	15	35	30	80
Obiliq	1	2	5	8	**Obiliq**				0
Podujevë	1	0	0	1	**Podujevë**				
Mitrovicë	5	2	7	14	**Mitrovicë**	6	6	4	16
Skenderaj	1	2	1	4	**Skenderaj**	3	13	10	26
Vushtrri	1	1	0	2	**Vushtrri**	1	1	1	3
Mitrovicë e V.	8	1	0	9	**Mitrovicë e V.**				
Zveçan	7	7	12	26	**Zveçan**				
Zubin-Potok	9	5	1	15	**Zubin-Potok**				
Leposaviq	17	13	10	40	**Leposaviq**				

[13] 12 municipalities have not carried out the registration and reporting of illegal landfills to KEPA; hence, we do not possess the data on these municipalities.

Pejë	5	4	4	13	**Pejë**	7	9	5	21
Istog	4	5	1	10	**Istog**	1	5	1	7
Klinë	10	12	11	33	**Klinë**	3	7	8	18
Prizren	9	3	2	14	**Prizren**	12	2	0	14
Suharekë	16	17	7	40	**Suharekë**	5	4	0	9
Malishevë	41	30	11	82	**Malishevë**				
Rahovec	3	3	2	8	**Rahovec**	2	3	2	7
Dragash	2	17	14	33	**Dragash**	0	11	27	38
Mamushë	5	0	5	10	**Mamushë**	2	2	2	6
Ferizaj	5	4	3	12	**Ferizaj**	0	5	1	6
Kaçanik	3	3	8	14	**Kaçanik**	8	3	4	15
Shtime	6	6	11	23	**Shtime**	0	6	5	11
Han i Elezit	2	1	2	5	**Han i Elezit**	3	4	1	8
Shtërpcë	17	14	8	39	**Shtërpcë**	10	7	5	22
Gjilan	35	11	2	48	**Gjilan**				
Kamenicë	3	6	3	12	**Kamenicë**	0	3	6	9
Viti	0	0	0	0	**Viti**				
Novobërdë	29	3	0	32	**Novobërdë**	0	3	1	4
Partesh	4	5	7	16	**Partesh**				
Kllokot	1	3	3	7	**Kllokot**				
Ranillug	2	1	1	4	**Ranillug**				
Gjakovë	2	7	17	26	**Gjakovë**	2	6	28	36
Deçan	2	4	2	8	**Deçan**	5	4	1	10
Junik	2	1	0	3	**Junik**	1	0	0	1
Gjithsej	**288**	**228**	**230**	**746**	**Gjithsej**	**94**	**155**	**154**	**403**

3.4.6. Hospital waste

Hospital waste is treated through the sterilization process in 7 sterilizers located in 7 regional hospitals (through sterilization are mainly treated: syringes, infusions, bandages, and various equipment used in health treatments). These wastes, after treatment through sterilization and grinding, are placed in urban solid waste containers and then disposed of in landfills.)

Another spectrum of waste (mainly expired drugs, various supplements, etc.) is disposed of in metal melting furnaces in several companies that are equipped with relevant environmental permits.

Another spectrum of wastes are the pathological wastes (placentas, embryos, amputated limbs, body fluids, etc.) that are buried and disinfected with lime by hospital centers through contracted companies.

Chemical waste used in healthcare is not segregated and does not undergo any specific treatment as required by legislation, and it is assumed to be thrown away improperly or mismanaged. Pharmaceutical waste (cytostatic and cytotoxic drugs) used in healthcare; their large amounts are deposited in the central warehouse in Prishtina, while a part of them is also stored in regional hospitals.

On the basis of the data reported and assessed by these hospital waste treatment centers, in 2023 we see an increase of waste consisting of 108,892.46 kg that has been treated-sterilized, respectively 1,029,672.71 kg of waste, or 10% more compared to 2022.

The largest amount of this waste during the year 2023, as in previous years, was treated in the plant operating in UCCK, namely the amount of 756,882.00 kg, followed by the plant in Prizren with an amount of 74,262.00 kg, while the smallest amount was treated in the plant located in the Hospital Center in Vushtri with only 2,541.21 kg of treated waste (Table 23).

Table 23: Amount of sterilized hospital waste in 8 regional hospital centres

Plant	2018	2019	2020	2021	2022	2023
	kg	kg	kg	kg	kg	kg
Prishtinë	360,819.10	487,169.60	766,347.40	465,335.00	610,564.20	756,882.00
Prizren	100,175.70	97,195.20	96,227.50	96,290.80	106,782.70	74,262.00
Pejë	49,215.00	45,720.00	50,480.00	47,560.00	44,678.00	44,488.00
Ferizaj	35,465.90	39,215.00	37,664.40	39,934.30	38,914.80	30,014.50
Gjilan	26,460.40	29,859.80	40,748.00	42,046.00	39,689.00	47,687.00
Gjakovë	2,951.00	3,357.00	3,159.00	3,284.00	1,288.00	0.00[14]
Mitrovicë	72,323.00	85,149.00	68,214.00	67,174.00	76,250.00	73,798.00
Vushtrri	2,504.00	2,580.35	632.61	1,185.74	2,613.55	2,541.21
Total	**649,914**	**790,245**	**1,063,472**	**762,809**	**920,780**	**1,029,672**

3.4.7. Industrial waste

The results from the industrial waste survey[15] show a progressive growth trend in industrial waste generation since 2019 (see the chart below). Thus, in 2022, there was recorded an increase of 34% compared to 2021 when 2,214,928.00 tons of industrial waste were generated, namely 3.5% more compared to 2020.

[14] *During 2023, the sterilizer at the Regional Hospital in Gjakovë did not operate at all due to a defect and the amount of waste generated from this center was treated at the sterilizer in Peja and Ferizaj.*

[15] *KAS, Industrial Waste Survey, for the year 2022*

During the year 2022, a total of 3,390,096.00 tons of industrial waste were processed. The forms of processing included disposing, burning, and recycling. More specifically, 280,042.00 tons of industrial waste were disposed of; 36,458.00 tons were burned; 2,805,042.00 tons were recycled, while 234,681.00 tons were sent elsewhere (below figure).

The data from 2022 show that the largest amount of waste generated by industry sectors pertained to Sector D (supply with electricity, gas, steam, and air conditioning) with 2,795,809.00 tons, which is followed by the Manufacturing sector with 335,452.00 tons.

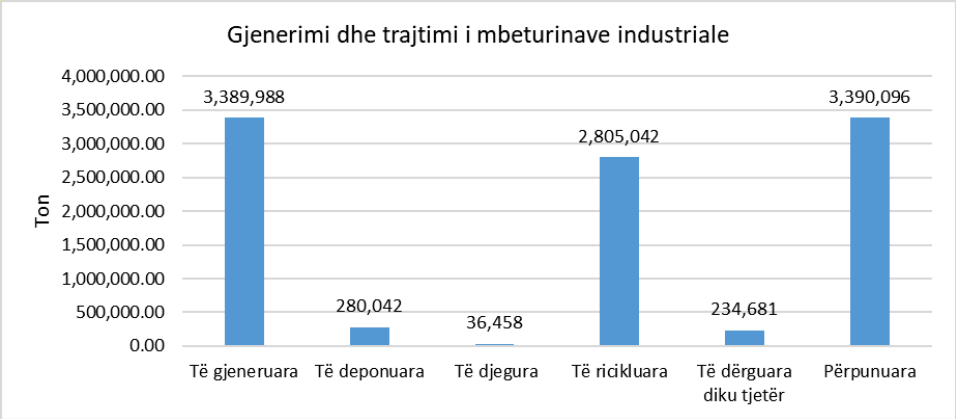


Figure 21: *Generation and treatment of industrial waste in Kosovo*

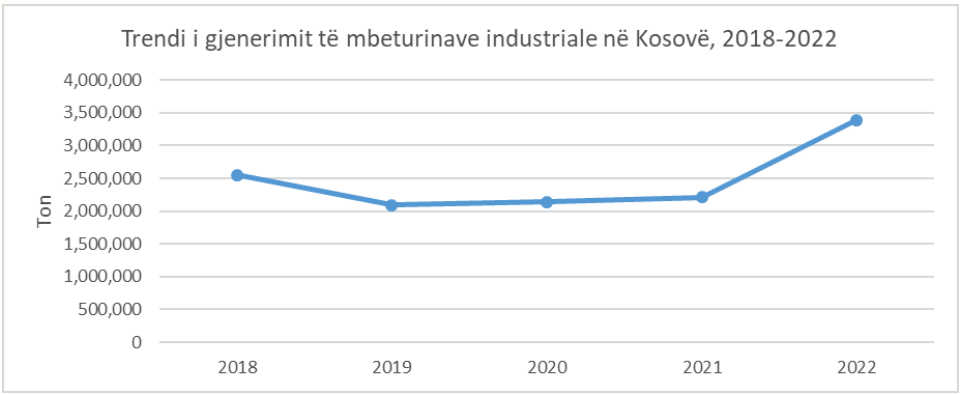


Figure 22: *Generation and treatment of industrial waste in Kosovo 2018-2022*

3.4.8. Import and export of plastic sacks and bags

The pollution of the environment with plastic waste is a very disturbing phenomenon that our country is constantly facing. The extensive use, especially of single-use plastic bags, contributes significantly to the pollution of the environment.

The presence of plastic bags everywhere around us in our surroundings has become a very disturbing phenomenon, and undoubtedly, the import and extensive use of plastic bags contributes to this negative phenomenon.

Plastic bags and sacks make up a significant share of the total amount of municipal waste generated by households, as well as by economic and industrial activities.

On the basis of the data received from Kosovo Customs, the amount of plastic sacks and bags imported in 2023 consists of 820,099 kg, thus marking a decrease of 14% compared to 2022. On the other hand, in 2023, 3,200,686 kg of plastic sacks and bags were exported, recording an increase of 30% compared to 2022, when the amount exported was 2,233,872 kg (Figures 23 and 24).

It is worth mentioning that in August 2023 the ADMINISTRATIVE INSTRUCTION (GRK) NO. 07/2023 ON PACKAGING AND PACKAGING WASTES entered into force, wherefrom there has also derived the decision of MESTI of October 5, 2023 for the imposition of a fee of 5 cents per used plastic bag.

This decision is intended to affect the reduction of the use of single-use plastic bags as well as to raise citizens' awareness for the gradual minimization of the use of these bags, which, as we mentioned above, are a major source of pollution of the environment.

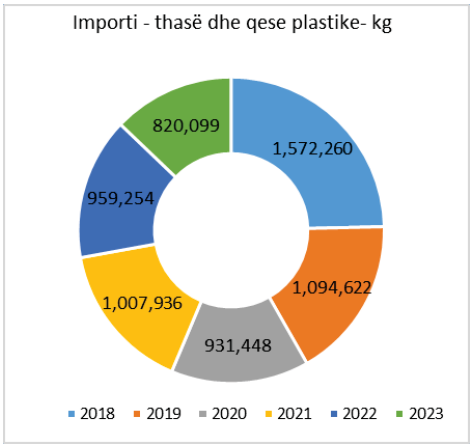


Figure 23: Quantity of imported plastic sacks, and bags, 2018-2023

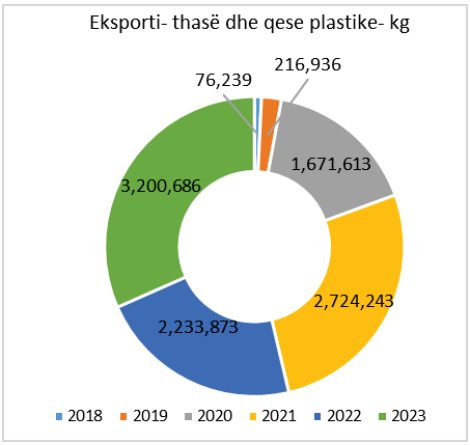


Figure 24: Quantity of exported plastic sacks and bags, 2017-2022

In the following tables, the quantities and monetary values of some categories of waste which were imported, respectively exported during the year 2023 are reflected. These data have been provided by the Customs of Kosovo.

Table 24: *Waste import during 2023*

Description of imported waste in 2023	**kg**	**Value €**
Small pieces, shavings, slices, grinding residues, saw dust and sanding dust	69,963.79	14,733.27
Other wastes and other ferric returns	4,489.01	974.21
Total	**74,452.80**	**15,707.48**

Table 25: *Waste export during* 2023

Description of exported waste in 2023	**kg**	**€**
Unbleached paper or cardboard waste and returns or corrugated paper or cardboard waste and returns	8,851,230.00	1,348,199.30
Other paper or cardboard waste made mainly from mechanical pulp	15,655,920.00	1,975,661.01
Other unsorted paper or cardboard waste	481,240.00	60,199.40
Other wastes and other ferric returns	90,844,953.45	29,306,389.95
Total	**115,833,343.45**	**32,690,449.66**

3.5. Protection of nature and biodiversity

3.5.1. Protected Areas

In the chronology of declaring protected nature areas, four chronological periods can be distinguished, which are connected to the general developments in Kosovo. Following the 1999 war, significant results were recorded in increasing the overall number of protected areas and in expanding protected nature areas of all categories.

The period from 1950 to 1970 represents the initial phase of nature protection and the declaration of protected nature areas in Kosovo, which begins with the declaration of the first area in 1950, known as "Gazimestan". By the early 1970s, the number of protected areas had increased to 19 (nineteen). During this time, areas like Gadime Cave and several other botanical monuments of importance, such as Rrapi in Marash, Trungjet in Isniq, etc. were placed under protection.

The period between 1970 and 1988 was marked by the declaration of a significant number of protected areas. This success can be attributed to the establishment of the Kosovo Nature Protection Entity in 1974 by the Assembly of Kosovo. During this time, a total of 32 areas were placed under protection, including: the "Nerodime River Bifurcation", the first National Park "Mali Sharr" (1986), the Source of the White Drin River with the Cave and Waterfall in Radavc (1983), and several other natural monuments.

During the period from 1989 to 1999, similar to other areas, there was a complete stagnation in terms of declaring protected areas. This was a time when, due to the exclusion of Albanian experts from nature protection institutions, and not only, we did not have any designated protected areas or proposed areas for protection.

The period after 2000 is marked by the re-establishment of Kosovo's institutions, including the Ministry of Environment and Spatial Planning, respectively the Kosovo Institute for Nature Protection. During this period, around 200 different areas were placed under legal protection, and over 30 other areas were proposed for protection. Among the protected areas, we can highlight: the National Park "Bjeshkët e Nemuna" (2013), NP "Sharri" (expanded), Pashtrik Mountain, Vërmica Lake, Wetland of Henc - Radeva, etc. Whereas, most of these areas are natural monuments with botanical, hydrological, geomorphological, and speleological characteristics.

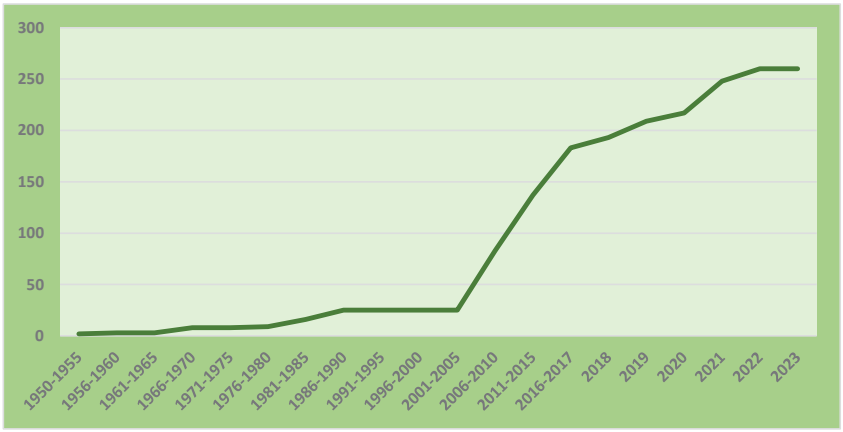


Figure 25: *Number of protected nature areas 1950-2023*

Protected nature areas - 2023 situation - The total number of protected nature areas in Kosovo (as of 2023) is 260, covering an area of 126,112.2 hectares, or 11.5% of Kosovo's territory. These areas include: 19 Strict Nature Reserves ("Arnen Reserve", "Maja e Ropsit", "Rusenica", "Kamilja", etc.), 2 National Parks (NP "Sharri", NP "Bjeshkët e Nemuna"), 230 Natural Monuments ("The Source of the White Drin with the Radavci Cave", "The Gadime Cave", "Mirusha Waterfalls", "Rugova Gorge", "The White Drin Canyon of Ura e Fshejte" , "Trungu i Rrapit in Marash", etc.), one (1) Nature Park ("Pashtrik Mountain and Vërmica Lake"), seven (7) Protected Landscapes ("Shkugeza", "Germia", "Pishat e Deçanit", etc.) and one (1) Special Protected Birds Area ("Henci-Radeve Wetland"). The largest protected areas are the National Parks: "Bjeshket e Nemuna" and "Sharri", the Nature Park "Pashtrik Mountain and Vërmica Lake ", the Protected Landscape "Germia", NMSI "Mirusha Waterfalls", and NM "Boshtra locality in Goleshi area", etc.

Table: Area and the number of Protected Areas 2023

IUCN Category	Title	No.	*Area/ha*	*Participation in the overall area of PA*
I	Strict Nature Reserves	19	10,882.96	7.7
II	National Parks	2	115,957	82.1
III	Natural Monuments	230	6,180.90	4.4
V	Nature Parks	1	5,934	4.2
V	Protected Landscapes	7	2,319.85	1.6
V	Special Protected Bird Areas	1	109.5	0.08
	Total	260	126122.75[16]	100[17]

[16] *Explanation: this area of protected zones does not include the protected areas within the National Parks "Sharri" and "Bjeshket e Nemuna"*

During 2023, 3 natural monuments in the municipality of Suhareka were placed under legal protection: Trungu i Qarrit (*Quercus sp*) in Suhareka, Trungu i dushkut (*Quercus sp*) in Krushica e Poshtme, and Trungu i dushkut (*Quercus sp*) in Bllaca. Moreover, over 30 natural monuments in the municipalities of Peja, Prizren, Kamenica and Artana are currently in the process of being placed under protection.

3.5.2. Biodiversity

Important areas of biodiversity include: "Sharri Mountains", "Bjeshket e Nemuna", Shala e Bajgores", "Kopaonik", "Kortinik", "Pashtrik", "Koznik", "Blinaja", "Gërmia", etc. which are characterized by the presence of fauna. These areas are also rich in rare and endemic plant species, which are classified into two groups: local endemic or stenoendemic and Balkan endemic.

Local endemic or stenoendemic plant species[18]

1. Aleksander's Barpezmi *(Achillea alexandri-regis)*
2. Dick's Bornmullera *(Bornmullera dieckii)*
3. Sharri Cerastium *(Cerastium neoscardicum)*

New taxa of vascular flora[19]

Yellow Crocus *(Crocus flavus)*, Quercus robur, the pedunculate oak *(Quercus robur subsp. Pedunculifora),* Centaurea cyanus *(Cyanus lingulatus)*, Savin Juniper *(Juniperus sabina),* Buttercup Flower *(Ranunculus degenii)*, Viola herzogii *(Viola herzogii)*, Alpine Pasque Flower *(Pulsatilla alpina),* Minuartia *(Minuarta baldaccii* subsp. *Baldacii),* Gypsophila *(Gypsophilia supergulifolia).*

Flora and vegetation

The number of taxa included in the Red Book of Vascular Flora (according to Raunkier) shows that Hemicryptophytes dominate with 155 taxa, then Geophytes with 32 and Chamaephytes with 27, Phanerophytes with 19 taxa and Therophytes with only 4 taxa.[20]

Status of assessed species - a total of 237 taxa have been processed in the Red Book of Vascular Flora. Based on the IUCN criteria (outlined in the "Guidelines for Using of IUCN Red List Categories and Criteria" Version 8.1 (August 2010), they have been assessed and categorized as follows: Extinct (EX) 1 species or 0.4%, Extinct as spontaneous or in the Wild (EW) 1 species or 0.4%, Critically Endangered (CR) 61 taxa or 26%, Endangered (EN) 86 taxa or 36%, Vulnerable (VU) 19 taxa or 8%, Near Threatened (NT) 34 taxa or 18%, and Least Concern (LC) 35 taxa or 16%.

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[17] Explanation: the percentage is calculated from the total area, including the area of protected areas within national parks.

[18] Flora and Vegetation of Kosovo, Rexhepi F. (1982)

[19] Red Book of Vascular Flora of the Republic of Kosovo, Fadil M, Ferat R, Elez K, Qazim P, Xhavit M, Naim B, (2013)

[20] Red Book of Vascular Flora of the Republic of Kosovo, Fadil M, Ferat R, Elez K, Qazim P, Xhavit M, Naim B, (2013)

Vegetation - The vegetation of Kosovo is classified into 139 associations or phytocenoses, 63 alliances, 35 orders, and 20 classes, which present characteristic ecosystems that are also habitats for many animal species. The vegetation of lowland meadows is classified into 4 associations within an alliance, an order and a class. While the vegetation of subalpine and alpine meadows is classified into 65 associations, 33 alliances, 22 orders and 13 classes.

Fauna - Our country is rich and quite heterogeneous in terms of fauna. This faunal wealth is the result of numerous influences from the Mediterranean, Euro-Siberian, and Nordic-Alpine regions, as well as frequent changes in ecological conditions from the past. In our country, there are species of mammals and birds, etc., that are quite rare not only for the Balkan region but also more broadly.

Some species are relics and are threatened by extinction, and are therefore listed in international conventions. According to current research and literature, many wild species of vertebrates are present, including fish, amphibians, reptiles, birds, and mammals.

The high forests and mountain ecosystems provide favorable conditions for the existence of large mammal populations such as the Brown Bear (*Ursus arctos*), Eurasian Lynx (*Lynx lynx*), Roe deer (*Capreolus capreolus*), Chamois (*Rupicapra rupicapra*), as well as many species of birds of prey and songbirds. These species are very important for the avifauna of Kosovo, the Balkans and Europe. The Golden Eagle (*Aquila chrysaetos*), Lesser Kestrel (*Falco naumanni*), and Western Capercaillie (*Tetrao urogallus*) are some of the most representative species in the country, which also hold international protection status. They are listed in the IUCN (World Conservation Union), EU-RL (European Red List), and wR-RL (World Red List).

The fauna is represented by almost all species that live in the Balkan Peninsula. The most abundant group of mammals in terms of number of species are rodents. The class of mammals consists of insectivores, such as European hedgehog (*Erinaceus europeus*), European mole (*Talpa europae*), common shrew (*Sorex araneus*) and rodents like the European hare *(Lepus europaeus*), common muskrat (*Ondatra zibethica*), water vole (*Arvicola terrestris*), house mouse (*Mus musculus*), striped field mouse *(Apodemus agrarius*), wood mouse (*Apodemus silvaticus*), edible dormouse (*Glis glis*), etc.

Whereas the carnivores are the Eurasian Lynx (*Lynx lynx*), Brown Bear (*Ursus arctos*), Wolf (*Canis lupus),* Fox *(Canis vulpes*), European wildcat *(Felis silvestris*), etc. Among the group of non-ruminants is the Wild boar *(Sus scrofa*), while ruminants include the Roe deer (*Capreolus capreolus*), Chamois (*Rupicapra rupicapra)*, etc. Bats (*Chiroptera*) have been minimally studied.

In the locations where the cameras are installed, various types of mammals have been photographed and recorded. The information regarding the presence of wild fauna species accurately reflects the current situation in surveys of animal diversity. However, there is still a significant lack of data on populations for many animal species, including the number of individuals, their trends, and the threats they face.

3.5.3. The state of forest resources

Kosovo is characterized by a sustainable forest area of approximately 481,000 hectares. Forests cover 45% of Kosovo's total area, which is considered a sustainable potential for the country's development. Of this, around 62% are public forests while approximately 38% are considered private forests.

According to forest inventory data, protected areas or forests cover about 12% of the total surface area and contain around 36% of the total volume.

The impact for the economic approach is significant, given the above data, and the fact that forests with high economic value (tall-stemmed forests) are located within two national parks: "Sharri" and "Bjeshket e Nemuna".

Figure 26 shows the distribution of land areas, revealing that the largest percentage is compriced of forests, agricultural land, meadows/pastures, and other categories.

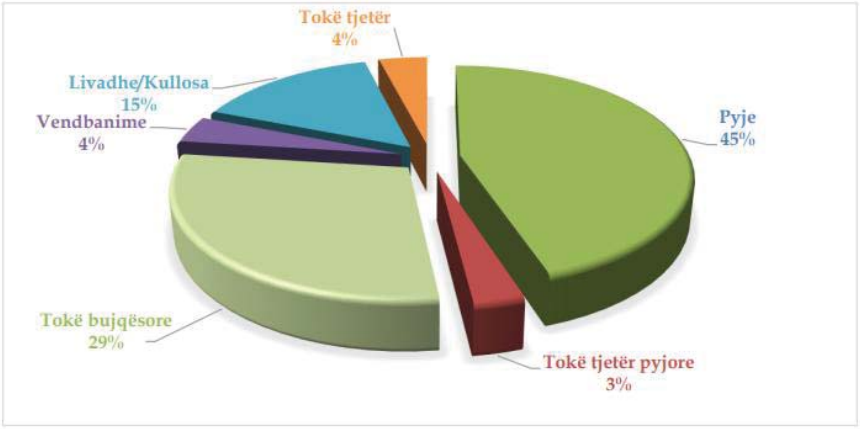

Figure 26: *Land use classes in Kosovo*

The forests of Kosovo are dominated by deciduous forests, covering 93% (449,400 ha) of forested areas, with more than half being single-storied, while 5% (23,800 ha) of forest areas are composed of coniferous forests that are evenly distributed among various structural classes. Pine plantations are a significant contributor to the single-storied areas. Overall, 50% of the forested area is classified as single-storied.

Tablea 27: Forest area by composition and structure of the cluster (ha)

Forest composition	Regjistration	Single-storey	Two-storey	Multi-storey	Total
Coniferous	2,200	6,400	6,200	8,800	23,800
Mixed	0	400	3,200	4,200	7,800
Deciduous	45,400	236,000	123,600	44,400	449,400
Total	**47,600**	**243,000**	**133,000**	**57,400**	**481,000**

In 2023, the implementation of utilizing state forests, as planned by the Coordination Directorates, included the following:

- Utilization of forest plots through tendering 52,821.38 m³.
- Utilization of forest plot for supplying firewood to households 26,666.68 m³.
- Planning for the extraction of wood mass from pre-commercial thinnings 5,419.75 m³.

This shows that the volume of forests used in socially-owned plots is 84,908.49 m³, while the volume used in privately-owned plots is 192,000.00 m³. In total, the two sectors have a volume of **276,908.49 m³.**

Table 28: Cutting of forests in privately and socially owned forests for 2023

Ownership	**State forests (m³)**	**Private forests (m³)**
Sub-total	84,908.49 m³.	192,000.00 m³
Total	**145,705.65**	

A total of 857,500 forest seedlings have been cultivated in the nursery of the Peja Institute, of which 450,000 pieces are classic conifers and 407,500 are classic deciduous.

4. Environmental impact on public health

Numerous scientific studies and health care practices have found that environmental pollution has a detrimental effect on health condition and increases premature mortality rates. Pollution indicators, such as PM10 and PM2.5 dust particles, have a significant impact on health because they can penetrate deep into the lungs, leading to a cascade of health issues in humans. The number of cases of diseases in Kosovo directly or indirectly related to environmental pollution is decreasing despite trends from previous years. According to data from the NIPHK for the period of January to December 2023, a total of 245,754 cases of infectious diseases were reported with an incidence rate of 13,790.02 per 100,000 inhabitants. This number of infectious diseases is significantly lower compared to the same period in 2022, with 331,545 reported cases and an incidence rate of 18,604.02 per 100,000 inhabitants. During the period of January-December 2023, 191 deaths from infectious diseases were reported. This decrease in the number of reported cases and deaths is undoubtedly influenced by the lower number of reported COVID-19 cases presented in table 29.

Table 29: Number of cases and incidence of infectious diseases reported in the period of January-December 2022 and 2023

Diseases	January to December, 2022		January to December, 2023	
	No.	Incidence/100.000	No.	Incidence/100.000
COVID-19	110755	6214.81	2153	120.81
ITPR - Pneumonia/ARI	16179	907.85	16950	951.12
SARI (Severe form of pneumonia)	280	15.71	262	14.70
Influenza-like illness (ILI)	100478	5638.13	129315	7256.27
Influenza A	58	3.25	235	13.19
Influenza AH1N1			47	2.64
Influenza A H3			1	0.06
Influenza B			179	10.04
Influenza B/Victoria			29	1.63
RSV	68	3.82	68	3.82
Human Adenovirus			4	0.22
Acute diarrhea	91247	5120.15	82884	4650.88
Varicella	10972	615.67	10999	617.19
Meningeal syndrome	112	6.28	232	13.02
EHSV	1	0.06	2	0.11
Campylobacter	1	0.06	1	0.06
Food poisoning	504	28.28	936	52.52
Salmonella enteritidis	31	1.74	76	4.26
Shigellosis	1	0.06	2	0.11
Clostridium difficile			2	0.11
E.coli (O 157)	1			0.00
Pathogenic E coli			2	0.11
Rotavirus	162	9.09	73	4.10
Gastroenterocolitis	253	14.20	398	22.33
Adenovirus	32	1.80		0.00
Acute hepatitis A	23	1.29	3	0.17
Acute hepatitis B	25	1.40	37	2.08
Acute hepatitis c	4	0.22	4	0.22
Typhoid fever		0.00		0.00
Morbilli	1	0.06	1	0.06
Epidemic parotitis	25	1.40	30	1.68

Pertussis	1	0.06	2	0.11
TBC		0.00		0.00
Tularemia	2	0.11	4	0.22
Brucellosis	22	1.23	33	1.85
Leptospirosis	8	0.45	5	0.28
Toxoplasmosis	3	0.17	8	0.45
Malaria**	1	0.06	3	0.17
Echinoccocosis		0.00	2	0.11
Leishmaniasis	1	0.06	7	0.39
Lyme disease	16	0.90	12	0.67
West Nile Virus			1	0.06
HIV/AIDS	21	1.18	20	1.12
STIs	178	9.99	480	26.93
Parasitic	16	0.90	20	1.12
Giardiasis		0.00	46	2.58
Ascariasis			7	0.39
Entameba Hystolitica		0.00	1	0.06
*Other contagious diseases	63	3.54	178	9.99
Total	**331545**	**18604.02**	**245754**	**13790.02**
*Other contagious diseases: Scariatina, Herpes zoster, Erysipella, Mycoses, Mononucieosis				
**Imported Malaria				

The number of diseases reported in the Annual Bulletin Report for 2023 in Kosovo is lower compared to the same period in 2022. A higher number of reported cases is seen in aggregated diseases such as: Pneumonia, Seasonal Influenza, Acute Diarrhea and Varicella. Zoonoses (human brucellosis, tularemia, toxoplasmosis) show an increasing trend in reported cases compared to 2022, especially with Brucellosis. Transmissive diseases like Leishmaniasis and Malaria are reported in higher numbers compared to the same period in 2022, as well as one case of WNF. Additionally, water and foodborne diseases such as food poisoning are reported in higher numbers compared to the same period of the previous year, while Hepatitis A, Rota and Aenoviruses are reported in lower numbers. Vaccine-preventable diseases (Epidemic Parotitis, Pertussis) are reported in higher numbers compared to the previous period. STIs this year show an increase in the number of reported cases, while HIV/AIDS is reported in approximately the same number as in 2022.

5. The state of endangered environments

5.1. Environmental state in KEK operating area

The Republic of Kosovo heavily relies on lignite as the main source for electricity production and heating of homes and businesses. Although the Republic of Kosovo has potential for other energy sources such as hydro, wind, and solar power, access to renewable energy in the total energy production is still limited. These sources are considered supplementary in meeting the electricity demand in the country.

The Energy Corporation of Kosovo (KEK) did not adhere to the standards set in environmental legislation during the year 2023. This lack of compliance with environmental standards is concerning and poses a challenge to environmental protection in Kosovo. The lack of monitoring of environmental impacts in the Energy Corporation of Kosovo (KEK) includes important aspects of the environment such as water, air, soil, noise, vibrations, flora, fauna, and waste (oils). This situation raises concerns regarding environmental protection in KEK and in the country. It is important that the procedures for selecting an environmental monitoring operator are carried out in a reasonable timeframe and that the monitoring of environmental impacts plays a significant role in KEK's policies and actions to protect and preserve the environment. The table below presents some key indicators of KEK's operation.

Table 30: Some of the main indicators of KEK's operation in 2023

Indicators	2023
Annual electricity production from PP Kosova A	2290512 (MWh)
Production of electricity from PP Kosova B	3243685 (MWh)
Total consumption of lignite	7,437,452 (t)
Total amount of ash produced	1086754 (t)
Consumption of decarbonized and demineralized water `PPA` and `PPB`	19.373.762 (m3)

In addition to ash as a by-product (waste) of coal combustion in the technological process, there are also other forms of waste generated at KEK as presented in the table below.

Table 31: Metal scrap/waste, oils, conveyor belts

PP	Metal scrap/waste (kg)	Copper waste (kg)	Oils (lit.)	Conveyor belts (kg)
PP A	400 000	2 500	**0**	7 000
PP B	161 000	4 000	10,288.00	0
Total	**561 000**	**6 500**	**10,288.00**	**7 000**

Asbestos-containing waste - The Energy Corporation of Kosovo (KEK) is required to take all necessary measures in accordance with specific legal provisions to ensure that its activities, including the use of asbestos-containing products during various activities, do not cause environmental pollution with fibers.

Although the inventory of asbestos-containing materials has been completed, KEK is currently in the process of preparing the storage spaces for this material. It is crucial that this preparation is done in full compliance with the law and environmental standards to ensure the safe and appropriate storage of asbestos-containing materials and prevent environmental pollution with asbestos fibers.

Table 32 presents the annual air emissions for pollutants SO2, NOx, and total dust in both Power Plants ``Kosova A'' and ``B''.

Table 32: Annual air emissions for pollutants SO2, NOx, and total dust from `PPA' and `PPB in 2022-2023

PP	SO2 (t/year)		NOx (t/year)		Total dust (t/year)	
	2022	2023	2022	2023	2022	2023
PP A3	1823	1710.4	2318	2280.59	2271	225.19
PP A4	2610	2236.6	3060	615.41	2713	269.20
PP A5	1185	1491	1491	600.96	1380	195.0
PP B1	4329	2209	5347	4090.1	2606	2135.8
PP B2	3344	2848	4347	3797.64	2158	1917.8
Total	13292 (t/year)	10,495(t/year)	16564(t/year)	11,384.7(t/year)	5401(t/year)	4,742.99 (t/year)

Power Plants "Kosova A": Emissions of the pollutant SO2 have decreased in all units (PP A3, PP A4, PP A5) from 2022 to 2023 indicating an improvement in the containment performance of these power plants. As for the pollutant NOx, there is an increase in emissions in PP A3 and PP A4, while a decrease in PP A5 from 2022 to 2023. Total dust emissions have decreased in all units except PP A5.

Power Plants "Kosova B": Emissions of the pollutant SO2 have decreased in both units (PP B1 and PP B2) from 2022 to 2023. Similarly, there has been a reduction in emissions of the pollutant NOx in both units. Total dust emissions have also decreased in both units. Overall, there is a downward trend in air pollutant emissions in both power plants. It is important to continue monitoring and implementing measures to reduce pollutant emissions in order to meet environmental standards and protect air quality.

5.2. Environmental state in Feronikel operating area

The Ferronikel factory was in production from June to October 2023 (a total of 5 months of production in 2023). Environmental monitoring throughout 2023 included monitoring key environmental parameters such as air, water and soil, as well as implementing necessary interventions to minimize environmental impact. Due to the high electricity consumption required for production of the final product at the Ferronikel factory, which comes at a relatively high price, and the rising costs of raw

materials and auxiliary materials for the production process, it is making operations difficult for the company as production costs are significantly higher compared to the selling price of nickel in the market, making it difficult for the company to operate normally in 2023.

Some of the planned measurements to assess air quality in the slag landfill and Gllavica mine were not carried out according to the plan due to mandatory production stoppages. For instance, air quality in the slag landfill was only measured once every two times as planned. While in the Gllavica mine it was measured once every two times as planned.

Monitoring of deposited dust (Aerosediment) in 2023 was carried out at 9 monitoring points, 6 within the factory and 3 outside the factory. The results presented from June to October show that the company has not exceeded the standard for aerosediment (according to WHO) of 300 mg/m²/day (figure 27).

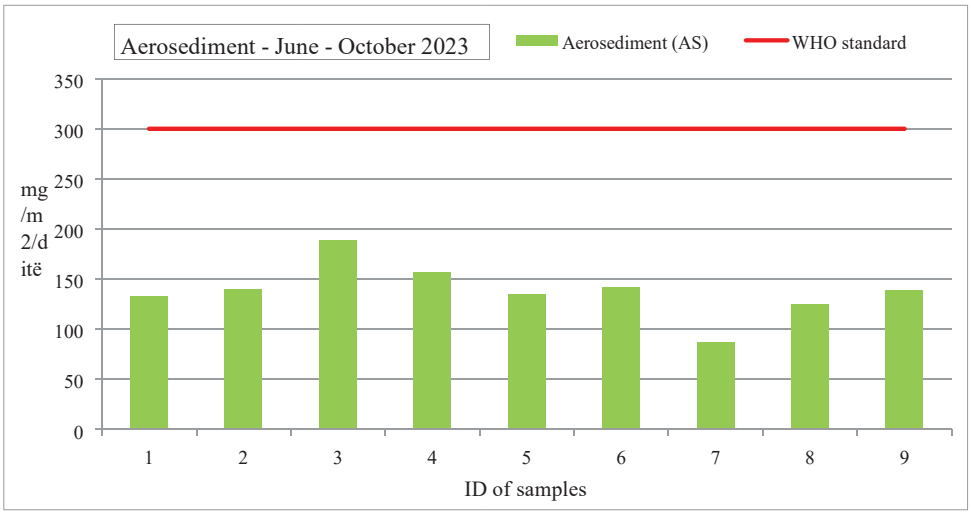

Figure 27: *Presentation of average aerosediment value for June - October 2023 (during work period)*

Rotary Kilns: the discharge of dust and gases from rotary kilns is below the Emission Limit Value (ELV). This means that their operations are in compliance with the standards set for environmental protection.

Electric Kilns: electric kilns are equipped with cleaning systems designed to meet environmental criteria, making them efficient and modernized. It is important to mention that only electric kiln FE1 was in operation, as FE2 has not been in operation during 2023. This may have impacted the factory's production capacity and the overall process sensitivity.

Converters: the emissions of dust and gas discharges from converters are currently at a satisfactory level, with no exceedances of the Emission Limit Value (ELV) reported. This may be due to the fact that the converter operates in cycles (phases), resulting in no continuous discharge of dust and gases.

Table 33 shows the total amount of dust emissions released into the air in 2022 and 2023, measured in tons. In 2023, approximately 48.45 tons of dust were emitted, compared to around 11.51 tons in 2022. The highest discharge were recorded from the electric kilns.

Table 33: Summary of measured annual results of the dust emissions by Ferronikelil for the year 2023

Year	Dust Electric kiln mg/Nm3	Dust Converter mg/Nm3	Dust Rotary kiln mg/Nm3	Total dust mg/Nm3
2022	0.09	1.67	9.75	11.51
2023	17.87	13.18	17.4	48.45

This table shows the increase in the total amount of emitted dust from 2022 to 2023. In 2023, all units (Electric kiln, Converter, and Rotary kiln) showed a significant increase in the amounts of emitted dust compared to 2022.

This increase could be caused by various factors such as increased production, lack of use of dust cleaning technologies, or other technical issues in the production processes. It is crucial to conduct a thorough analysis to identify the cause of this increase and take necessary measures to reduce dust emissions and protect the environment.

Table 34 presents data on the total amount of CO, NOx and SO2 emissions discharged (released) into the air for the years 2022 and 2023, expressed in mg/Nm3.

Table 34: Total annual amount of CO, NOx and SO2 pollutants for 2023 from Feronikeli

Gases	Convertor A2.2		Rotary kiln A2.1		Total	
	2022	2023	2022	2023	2022	2023
CO mg/Nm3	/	669.5	/	684.60	/	1,354.1
NOx mg/Nm3	7,38	229.73	10.53	384.62	17.91	614.35
SO_2 mg/Nm3	3,24	354.74	36,53	341.76	39.77	696.5

Carbon Monoxide (CO) (mg/Nm3): there is no data available for 2022 for CO; in 2023, Converter A2.2 showed an emission of 669.5 mg/Nm3.
Nitrogen Oxides (NOx) (mg/Nm3): in 2022, NOx emission levels were reported at 7.38 mg/Nm3 for Converter A2.2, and 10.53 mg/Nm3 for Rotary Kiln A2.1. In 2023, there was a significant increase in NOx levels for both units, with Converter A2.2 reaching values of 229.73 mg/Nm3, and 384.62 mg/Nm3 for Rotary Kiln A2.1.
Sulfur Dioxide (SO2) (mg/Nm3): in 2022, SO2 emission levels was reported at 3.24 mg/Nm3 for Converter A2.2, and 36.53 mg/Nm3 for Rotary Kiln A2.1. In 2023, the emission of SO2 has decreased in both units, reaching values of 354.74 mg/Nm3 for Converter A2.2 and 341.76 mg/Nm3 for Rotary Kiln A2.1.

The monitored gases (CO, NOx, SO2) all showed a significant increase in emissions in 2023 compared to 2022.

Water Quality – The partial operation in 2023 may have impacted the data and results of environmental reports, showing reduced or limited activity compared to a full operational year. From the annual results of parameters measured in surface and groundwater, if these values are compared with the values allowed in accordance with Administrative Instruction (AI/MESPI 02/2022 for limit values of wastewater discharge into public sewerage network water and water body), it is observed that there is no exceeding of the allowable values for the measured parameters. According to the data presented in the monthly reports and in the annual report, the measured groundwater parameters are also below the limit values, and the heavy metals in surface and groundwater do not exceed the allowable values. These positive results demonstrate good compliance with established water quality standards.

Waste management - In 2023, waste management involved a significant amount of industrial waste, particularly slag, which was deposited in the Dushkaja 1 slag landfill near the Çikatova mine. The amount of slag waste deposited was 230,042 tons, compared to 46,195 tons in 2022.

This difference indicates a notable rise in production and waste generation in 2023. It is crucial to note that converter slag has been recycled in the process, demonstrating efforts to reduce the environmental impact of waste and promote more sustainable resource usage.

This situation underscores the importance of maintaining a constant focus on waste management. Prioritizing the development of more efficient methods for treating and recycling slag waste in an environmentally friendly manner is essential.

Table 35 displays the various types of this waste and their respective annual amounts in 2023.

Table 35: Generation of industrial waste from Feronikeli in 2023

Indicators	2022	2023
Slag generated by the electric kiln, deposited in the slag landfill `Dushkaja 1`.	46,195 t	230, 042t
Slag generated by the converter deposited within the facility	3316 t	16 179 t
Refractory materials used	0 t	0 t
Sludge from cleaning systems	1493 t	52 t

5.3. Environmental state in Sharrcem operating area

Continuous monitoring of emissions from the main sources helps the Sharrcem operator to identify and assess the level of environmental pollution caused by their activities. This also offers competent authorities and the public important transparency regarding the environmental impact of Sharrcem's operations.

Air emissions – In 2023, total NOx emissions at Sharrcem were below the threshold limit (ELV – emission limit value) set by local legislation and IPPC requirements. However, the need for higher quantities of fuel has caused an increase in NOx

emissions. This situation presents a challenge in managing changes in Sharrcem's production process to ensure compliance with environmental standards. It is important for Sharrcem to take necessary steps to understand and reduce the impact of increased NOx emissions by using the best available technologies and practices for environmental pollution control. This includes investments in clean technology and the use of innovative processes to reduce the impact of NOx emissions on the environment.

Based on the results of measurements from the continuous monitoring system, a trend of the average annual concentration of emissions of sulfur oxides (SOx) and nitrogen oxides (NOx) emissions from the rotary kiln has been presented in recent years (figure 38).

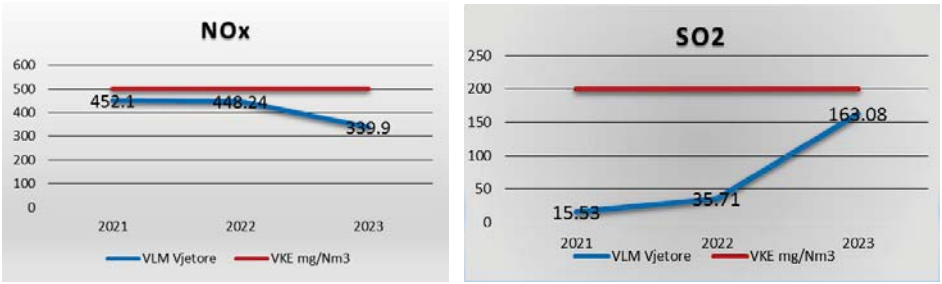

***Figure 28**: NOx and SOx emissions trend for 2021-2023*

The results of air quality monitoring in Hani i Elezit, conducted through the system installed by the Ministry of Environment and monitored by the Hydrometerological Institute of Kosovo during the calendar year 2023, have provided data on key air quality parameters. Based on this data, it is observed that there have been no significant exceedances of air quality parameters during this year.

Air quality in the factory area - Through self-monitoring of air quality in the factory and mine perimeter, it has been observed that there have been no exceedances of key air quality parameters. This indicates a meticulous adherence of environmental standards and a strong dedication to preserving air quality in this industrial zone.

Water management - The water management system has enabled improved monitoring of water usage in order to identify and implement measures for more sustainable and efficient use of water resources. This ensures a more responsible approach to water resource usage and helps achieve environmental and sustainable development goals.

In 2023, the overall water usage for cement production decreased by 31,594 m3 compared to 2022. This reduction in water usage for cement production suggests a shift in industrial activity between the two years.

Quality of used and discharged water - The monitoring parameters for the discharged treated water have consistently been below the permitted values, indicating that Sharrcem is on the right track to ensure that the discharge of treated

water into the environment complies with environmental standards and does not have a negative impact on water resources or the ecosystem. In 2023, the overall water discharge decreased by 21,054 m3 compared to 2022. This reduction in overall water discharge suggests a shift in the volume of water being discharged from Sharrcem between the two years.

Waste management - In 2023, significant investments have been made in waste management. One investment of particular important is the reconstruction of the old clinker hall, which has been transformed into a facility for storing bottom ash and pyrite. Additionally, the former steam boiler room has been renovated for the purpose of storage of electronic waste, toners, and oil, carrying out all necessary interventions to ensure safe storage. Major interventions have also been made in the waste area, separating them into specific zones depending on the type of waste and categorizing them with special tables.

The use of renovated facilities for specific storage purposes is a great way to enhance efficiency and minimize the negative impact of waste on the environment. This also signifies Sharrcem's dedication to achieving sustainable and environmentally responsible objectives.

Table 36: Waste generation by categories from Sharcem in 2023

Year	Mixed municipal waste (t/v)	Scrap (t/v)	Bricks for the oven wall (t/v)	Ripped cement sacks (t/v)	Paper and cardboard (t/v)	Demolition waste (t/v)	Wooden pallets (m3/v)	Used oils (t/v)
2022	47.79	211.82	233.2	15.4	2.5	466.4	3.86	0.5
2023	59.8	211.8	274.0	22.7	2.7	506.8	30.8	0.3

Compared to 2022, Sharrcem generated more mixed municipal waste in 2023 by 12.01 tons, ripped cement bags by 7.5 tons, and demolition waste by 40.4 tons. These changes in waste generation indicate a shift in the volume and nature of the company's activity between the two years. Efforts to reduce waste generation and promote reuse, recycling, and waste recovery into new resources are important to reduce pollution and progress towards a more sustainable and cleaner economy.

It is worth noting that other economic operators holding an Integrated Environmental Permit do not have accurate data on the environmental status due to the lack of an annual environmental status report.

5.4. Other endangered environmental forms

Sanitary landfills in Kosovo are also considered endangered environmental forms, as they are still not managed according to permitted environmental standards. There

has been an improvement in the situation with illegal waste, specifically in reducing illegal landfills, where the number has decreased by 400 across the country.

There has been no improvement in the environmental situation of industrial landfills, which are a potential source of heavy metal pollution or discharge of acidic waters.

Hazardous waste and chemicals are another problem inherited from previous years and still without proper preliminary treatment. Depots with chemical waste are monitored throughout the year by KFOR, KSF, and the Environmental Inspectorate of the Ministry of Environment and Spatial Planning.

6. Measures taken for environmental protection

6.1. Implementation of environmental strategies and plans

Kosovo has satisfactorily developed the strategic and programmatic framework for the environment and its sectors, but the level of implementation is still at a low level. The following table presents the main strategic and programmatic documents of the environment sector and the level of their implementation.

Table 37: Level of implementation of strategies and action plans for the environment sector

Strategy/Plan	Validity period	Document status	Level of implementation
Strategy for Environmental Protection and Sustainable Development The Strategy for Air Quality and the Strategy for Biodiversity are also part of the strategy.	2023-2033	In the process of drafting	In the process of drafting - revision
Strategy for Integrated Waste Management	2021-2030	Approved by the Government of the Republic of Kosovo	Ongoing implementation
Plan of the Republic of Kosovo for Waste Management	2021-2023	Approved by the Government of the Republic of Kosovo	Ongoing implementation
Climate Change Strategy and Action Plan for Kosovo	2018-2027	Approved by the Government of the Republic of Kosovo Decision No. 05/90 of 19/02/2019	Ongoing implementation
State Water Strategy of Kosovo - revision for the period 2023-2027 Action Plan 2023-2025	2017-2036	Approved by the Government of the Republic of Kosovo and the Assembly of Kosovo Decision No. 16/20 of 20/12/2017	Ongoing implementation
National Energy and Climate Plan of the Republic of Kosovo (First Draft)	2023-2025	In the process of drafting	In the process of drafting
Spatial Plan of Kosovo - Strategy for the Spatial Development of Kosovo (Revision of the plan 2010-2020+)	2023-2028	Under review	Under review
Spatial Plan for "Sharri" National Park	2013-2022 (under review)	Under review	Partially
Spatial Plan for "Bjeshket e	2023-2033	Approved by the	In the initial stage

Nemuna" National Park		Assembly of the Republic of Kosovo. Published in the Official Gazette dated 07.05.2023	
Spatial Plan for the Nature Monument of Special Importance "Mirusha Waterfalls"	2014-2023	Approved by the Assembly of the Republic of Kosovo	The implementation has not started in the absence of the management body
Management Plan for "Sharri" National Park	2015-2024 (under review)	Approved by the Ministry of Environment and Spatial Planning	partially
National Construction and Demolition Waste Management Plan	2023	Approved by the Ministry of Environment and Spatial Planning	In the initial stage
Circular Economy Guide	2023	Approved by the Ministry of Environment and Spatial Planning	In the initial stage

Table 38 presents data on the actual state of local level plans for the environment sector. In addition to the non-acceptance of answers from the mayors of the municipalities for the submission of data, in 26 municipalities out of 38 that have reported, it can be seen from the table that most of the municipalities have drawn up local plans for waste management, while the local plans are maximally absent or have been drafted of action in the environment, those for biodiversity, air quality or even mobility.

Table 38. Environmental plans at the local level 202 3

Municipality	**Local Environmental Action Plan**	**Local Waste Action Plan**	**Local Biodiversity Action Plan**	**Local Air Quality Action Plan**	**Local Mobility Plan**
Prishtina	-	+	-	+	+
Obilic	*Draft*	+	-	+	-
Glogovac	+	+	-	+	-
Shtime	+	+	+	-	-
Han i Elezit	+	+	-	*Draft*	-
Prizren	-	+	-	-	*Draft*
South Mitrovica	+	+	*Draft*	*Draft*	+
Decan	+	+	-	*Draft*	-
Gjakova	+	+	+	*Draft*	-
Orahovac	+	+	+	+	+

Skenderaj	-	+	-	-	+
Kacanik	*Draft*	+	-	-	-
Dredger	-	+	-	-	-
Klina	-	+	-	*Draft*	-
Peja	*Draft*	+	-	*Draft*	-
Klina	-	+	-	-	-
Kamenica	-	+	-	-	-
Malishevė	*Draft*	+	-	-	-
Lipjan	-	*Draft*	-	-	+
Ferizaj	*Draft*	+	-	-	*Draft*
Mamusha	-	-	-	-	-
Gracanica	-	*Draft*	-	-	*Draft*
Ranilug	-	+	-	-	-
Partes	+	+	+	+	+

6.2. Inspection and control of law enforcement

To ensure implementation of legislation on environment, water, nature, spatial planning and construction at the central level, during 2013 the Inspectorate of Environment, Water, Nature, Spatial Planning and Construction within the Ministry of Environment, Spatial Planning and Infrastructure, acting ex officio, conducted 674 inspection supervisions with minutes and issued 242 decisions and 306 misdemeanor fines.

Compared to the years 2020-2022, it is observed that in 2023 the Central Inspectorate was more active in inspection supervision and the imposition of fines, while less so in issuing decisions.

Table 39. Inspections and other legal procedures 2020-2020 3

Type of inspection activity in the field of environmental protection	**Number of activities 2020**	**Number of activities 2021**	**Number of activities 2022**	**Number of activities 2023**
Inspection supervision with minutes	81	291	317	355
Decisions	39	95	124	141
Violation fines	9	104	95	153
Type of inspection activities in the field of water protection				
Inspection supervision with minutes	95	172	176	240
Decision	10	88	89	91
Violation fines	66	118	99	133
Type of inspection activity in the field of nature protection				

Inspection supervision with minutes	25	17	23	30
Decisions	7	7	11	1
Violation fines	-	6	4	12
Type of inspection activities in the field of spatial planning and construction				
Inspection supervision with minutes	74	98	112	49
Decisions	15	28	33	9
Violation fines	2	8	-	8
Total:				
Inspection supervision with minutes	275	578	628	674
Decisions	71	218	257	242
Violation fines	77	236	198	306

During 2023, the directorates of the national parks Sharri and Bjeshket e Nemuna submitted 588 criminal reports to basic courts and prosecution offices for damages caused to natural resources (50 to the Basic Prosecution Office in Ferizaj, 22 to the Basic Prosecution Office in Prizren and 516 to the Basic Prosecution Office in Peja). As a result, 523 more cases were submitted with the claim that illegal acts were committed and the criminal code and environmental legislation were violated.
Compared to 2022, 5 more requests were submitted in 2023 for the initiation of criminal proceedings to the basic courts in Prizren and Ferizaj.
The total value of the claimed damage for 2023 is EUR 1,797,907.15.

Table 40: Criminal reports to basic prosecution offices for damage to natural resources within NPs, 2023

Type of activity	Number of cases	Amount of damage	Number of cases	Amount of damage
Criminal reports to the Basic Prosecution Office in Ferizaj	21	€ 28,844.50	50	€166,613.00
Criminal reports to the Basic Prosecution Office in Prizren	33	€ 41,951.50	22	€ 30,755.50
Criminal reports to the Basic Prosecution Office in Peja	11	€9,798.00	516	€1,589,447.65
Requests for initiation of criminal proceedings to the Basic Court in Prizren	-	-	4	€10,000.00
Requests for initiation of criminal proceedings to the Basic Court in Ferizaj	-	-	1	1,071.00
	65	€80,594.00	588	€1,797,907.15

However, at the local level, out of the 38 municipalities of the Republic of Kosovo, only 23 municipalities have reported with regards to the implementation of legislation in the field of environment, water, nature, spatial planning and construction,.

During 2023, at the local level, 1089 inspection supervisions with minutes were conducted, 5,632.00; 1,004.00 assistance in inspections in figures, except for some municipalities that also reported daily assistance without specific figures; 342 decisions; 324 mandatory fines; 40 administrative fines; 809 recommendations, ordinances and remarks; as well as 70 case initiations in courts.

Table 41 : Inspections and other legal procedures at the local level, 2023

Inspection activities for 2022	Inspections with minutes	Assistance in inspections	Decisions	Mandatory fines	Administrative fines	Recommendations, ordinances and remarks	Case initiations in the court
Prishtina	50	*Daily*	-	43	-	-	-
Klina	125	*Daily*	-	20	5	125	3
Obilic	47	31	-	-	-	26	-
Glogovac	89	5	-	10	-	68	-
Mamusha	2	7	2	-	-	5	-
Dragash	20	-	11	-	-	20	4
Decan	30	-	-	-	-	-	-
Ferizaj	42	60	-	122	-	85	-
Kacanik	22	45	9	9	-	22	-
Skenderaj	350	70	12	10	-	210	11
Gracanica	80	3	-	13	-	-	-
Orahovac	275	150	25	41	5	25	-
Han i Elezit	35	12	9	9	-	-	-
Junik	6	6	3	1	1	6	-
Gjakova	590	-	7	-	7	114	-
Shtime	189	1	46	26	-	-	8
Lipjan	189	160	-	19	-	35	1
Ranilug	29	4	2	1	-	-	1
South Mitrovica	1875	5	165	9	-	-	20
Partesh	11	*daily*	-	-	2	-	-
Peja	125	*42*	33	-	20	67	2
Prizren	124	*124*	18	-	-	1	18
Malisheva	179	*126*	-	11	-	-	2
Total	**5,632.00**	**1,004.00**	**342.00**	**326.00**	**40.00**	**809.00**	**70.00**

6.3. Permissions

According to data from the MESPI, during 2023, activities were carried out in all relevant fields. Based on the authorizations and environmental legislation, during the year 2023, the Ministry issued 29 environmental consents for EIA, 4 environmental consents for SEA, 108 environmental permits, 6 permits for traders

and brokers for non-hazardous waste, 25 water consents, 56 water permits for exploitation, 53 water permits for discharge and 10 continuations of water permits. More detailed data on permit-granting activities in the environment, waste, and water sectors are presented in table 42.

Table 42. Permission activities during 2023

Activities for Environmental Consents		
Years	**2022**	**2023**
Received applications for EIA environmental consents	78	127
Approved applications for EIA environmental consents	73	29
Refused applications for EIA environmental consents	5	7
Received applications for SEA environmental consents	3	13
Approved applications for SEA environmental consents	3	4
Refused applications for SEA environmental consents	-	1
Activities for Environmental Permits		
Accepted applications for Environmental Permits	149	171
Approved applications for Environmental Permits	80	108
Refused applications for Environmental Permits	49	45
Completion of administrative procedures	16	60
In procedure	4	-
Activities for Integrated Environmental Permits		
Received applications for Integrated Environmental Permits	11	-
Approved applications for Integrated Environmental Permits	5	-
Refused applications for Integrated Environmental Permits	9	-
In procedure	15	-
Activities for Environmental Authorizations		
Received applications for Environmental Authorizations	6	3
Approved applications for Environmental Authorizations	5	-
Refused applications for Environmental Authorizations	1	-
In procedure	-	3
Permission activities in the field of waste		
Applications for Permits for traders and brokers of non-hazardous waste	9	7
Licensing of non-hazardous waste traders and brokers	9	6
Refusal of Permit for non-hazardous waste traders and brokers	-	1
Application for License for waste management	12	-
Issuance of License for waste management	11	-
Refusal of Application for License for waste management	1	-

Application for Permit for import of plastic bags	16	-
Issuance of Permit for import of plastic bags	14	-
Licensing activities in the field of water		
Water conditions	3	0
Water consents	19	25
Water permits for use	74	56
Water permits for discharge	66	53
Continuation of water permits	7	10

6.4. Institutional developments and setbacks

During the year 2023, there was no significant development within the process for strengthening, affirming and raising the technical capacities of environmental institutions.

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

- Continuation of the implementation of several important projects with donors within environmental institutions. The example of the project for the Integrated Management of Water Resources supported by the Swiss Government, which also included the aspects of raising professional and organizational capacities, the beginning of the second phase of the project for raising the institutional capacities for air quality management supported from JICA, as well as the continuation of the project for the participation of KEPA in the work of the European Environment Agency for a period of 3 years;

- Increasing the representation and membership of Kosovo's environmental institutions in regional organizations, initiatives and projects. An example is the data collection for the European Environment Information and Observation Network (EIONET) by the Kosovo Environmental Protection Agency, where 100% of the reporting obligations have been fulfilled during the year 2022;

- Implementation of important infrastructural projects in the environment sector, such as the operationalization of 3 new waste water treatment facilities (Prizren, Gjakova and Peja);

- Advancing the process of assessing the state of municipal waste through the development of indicators, for reporting and monitoring the performance of Kosovo's municipalities for the waste sector. The functionalization and putting into use of the web-application that enables online reporting as well as the training of municipalities and waste management companies for their reporting;

- Raising the capacities of environmental institutions through trainings and programs at the national, regional and international level;

- The National Council for Climate Change, which was re-established by decision of the Government of the Republic of Kosovo, has been very active and has implemented several activities, including the drafting of the Law on Climate Change;

- The beginning of the process for the reorganization of environmental institutions and the definition of institutional responsibilities, where the working groups were founded and the drafts of the relevant regulations were prepared;

On the other hand, in terms of the setbacks and obstacles in the strengthening of environmental institutions during this period, the following are noteworthy:

- Lack of network for underground water monitoring as well as lack of monitoring of biological/ecological aspects of surface water;

- Lack of a special sector for climate change in the MESPI;

- Lack of a special institution at the central level for monitoring chemicals;

- Removal of trained and more experienced staff from the responsible institutions of the environment sector;

- Limited capacities of municipalities in the environmental sector, with special emphasis on the small number of inspectors;

- Small number of environmental inspectors at the central level, the lack of coordination of environmental inspectors at the central and local levels and the lack of coordination of environmental inspectors with the ICMM inspectorate;

- Small number of officials in some directorates and sectors of the KEPA, such as: Institute of Nature Protection, directorate for administration of the national parks "Sharri" and "Bjeshket e Nemuna", Directorate for Administration of Natural Monuments of Special Importance, and the reporting and information sector;

- Non-certification of officials (nature guards) and the limited number of professional staff (nature supervisors) in the directorates for administration of national Parks, as well as the limited number of regular staff;

- Non-functioning of the Advisory Board for the Environment. The board is still out of order and there are no initiatives for its establishment even though it is foreseen according to the provisions of the Environmental Protection Law;

- Failure to operationalize the Ecofund or a special program for the environment. The revenues collected in the name of environmental protection are poured into the budget of Kosovo, but are not used for environmental projects.

6.5. Investment in environmental protection

Environmental protection is an important factor that directly affects our health and well-being. The continuous increase of the budget by the Government of Kosovo for the environmental protection sector is a factor that shows the commitment to improve the environmental situation.

The Ministry of Environment, Spatial Planning and Infrastructure marked an increase in 2023 by spending € 177,860,044.00 compared to €163,524,148 investments in new and existing projects during the previous year, based on the Medium-Term Expenditure Framework with funding from the Kosovo Budget. The total budget for 2023 was **€ 213,484,838.00,** compared to €191,281,296.00 in 2022. As can be seen in the following table, during the last three years the Ministry has had a trend of growth in the total budget.

Table 43: MESPI Budget for 2021-202 3

Budget lines	2021	2022	2023
Wages and salaries	€ 4,110,561.00	€ 4,002,423.00	€ 4,083,931.00
Goods and services	€ 15,603,628.00	€ 21,930,855.00	€ 29,415,559.00
Subsidies and transfers	€ 1,793,813.00	€ 1,643,814.00	€ 1,643,814.00
Capital expenditure	€ 123,521,738.00	€ 163,524,148.00	€ 177,860,044.00
Utilities	€ 314,620.00	€ 481,490.00	€ 481,490.00
Total budget	**€ 145,043,995.00**	**€ 191,281,296.00**	**€ 213,484,838.00**

The environmental projects supported by the MESPI budget, unlike donor projects, especially the part of new investments during 2023, are concentrated in the field of water. While the implementation of projects from 2022 also continued in the field of water with constructions and adjustments of riverbeds, adjustment and construction of water supply systems, construction of sewage systems, integrated management of water resources, and construction of dam alarm systems for existing dams. With little investment, they continue in the field of building municipal landfills and waste support schemes. Most of these projects are priority capital projects and are included in the National Development Strategy (NDS).

Environmental projects also include those projects which are financed by the Budget of Kosovo through the MESPI and are implemented by the municipalities through relevant memoranda. A list of some of these capital projects of importance in the field of environment and water is presented in Table 44.

Table 44: Some of the environmental capital projects supported by the MESPI budget, 2023

No.	Project Name	Budget 2022	Budget 2023
1.	Construction of the municipal landfill in the region of Peja	1,100,000.00 €	2,000,000.00 €
2.	Waste support scheme in Kosovo	3,000,000.00 €	2,000,000.00 €
3.	Regulation of the Sitnica river bed in Vushtrri	250,000.00 €	€ 200,000.00
4.	Regulation of the Drenica river bed in Drenas	150,000. 00 €	€ 78,994.00
5.	Construction of the water supply system in the village of Orllan – Podujeva	€ 100,000.00	€ 100,000.00
6.	Construction of sewage system in the villages of Novosellë, Radac, Jabllanicë e Madhe, Dubovë e Madhe and Ozdrim	€ 100,000.00	€ 100,000.00
7.	Construction of the sewage system connecting the villages of Pllacicë - Bubli / municipality of Malisheva	€ 10,000.00	€ 10,000.00
8.	Integrated management of water resources in Kosovo (MESPI contribution)	650,000.00 €	650,000.00 €
9.	Construction of dams	1,500,000.00 €	1,500,000.00 €
10.	Alarm system for existing dams	-	€ 500,000.00
11.	Bathymetry (Water volume measurement), sediment analysis for 6 dams	-	€ 300,000.00
12.	Construction of the Lumbardhi river bed in Peja	-	400,000.00 €
13.	Adjustment of the Shtime river bed	-	500,000.00 €
14.	Regulation of the water supply network in the municipality of Fushë Kosova in units 028 and 029 - Bardhi i Madh and Sllatina e Madhe village	-	1,500,000.00 €
15.	Adjustment of the Sazli river bed in Ferizaj	321,735.00 €	€ 50,000.00

Support from donors was not lacking even during 2023, where some new projects started to be implemented and at the same time projects from previous years continued to be implemented. The following table presents data on some of the largest donor-supported projects for the water and environment sector. From the table it can be concluded that area of airhas been the biggest priority of interest in investments in the Republic of Kosovo, followed by water, waste, etc.

Table 45: Some of the projects with donors in the environment and water sector, 2023

No.	Project name	donor	Project value	Implementation period
1.	"Air quality program for the Balkan countries" (regional project)	AIDS and UNICEF	Project fund for all Balkan countries	September 2022 December 2024
2.	Project "Development of capacities for air pollution control" Phase 2	JICA-Japanese Government	About € 3,000,000.00	2021–2026

3.	Japanese Economic and Social Development Aid Grant – Phase 2	JICA-Japanese Government	357.000.000.00 JPY (Japanese Yen)	2020-2023
4.	Promoting and increasing opportunities for water security (FLOËS)	ÚBIF, IDA	€1,000,000 €25,100,000 (Loan)	2021-2025
5.	Firaja Dam	WBIF	1.8 M EUR	2022 2024
6.	Clean Environment Performance Grant	EU, GIZ & BK	€ 3,500,000.00 3.500.000.00 € BK	2020-2023
7.	Integrated Water Resources Management in Kosovo (IWRM-K)	SDC-Swiss Government	8.7 M CHF + 1.5 M EUR co-financing	2020-2031
8.	Capacity building for the use of environmental data. Cooperation project between KEPA and the Swedish Environmental Protection Agency	AIDS	SEK 2,262,400.00 (Swedish Krona)	2022-2025
9.	Promoting and increasing opportunities for water security (FLOWS)	ÚBIF, IDA	€1,000,000 €25,100,000 (Loan)	2021-2025
10.	Hazard Maps and Flood Hazard Maps	ÚBIF, EIB & CEB	€25,100,000 Donation and credit	2022-2024
11.	Protection of the Ibri canal	WBIF The World Bank Kosovo budget	€500,000.00 grant €25,000,000.00 loan 1.5000.000.00 €	2016-2023
12.	Construction and Demolition Waste Management Plan for Kosovo	WBIF EBRD & EIB	€312.00.00 grant €200,000.00 loan	2020-2023
13.	Participation in the work and program of the European Environment Agency (Regional Project)	EU-IPA	EU IPA – IPA Fund	2019-2022 Continuation 2023-2027 is expected
14.	Strengthening the register of environmental pollutants PRTR in the Balkan countries and in Moldova.	German government	€ 355,301.00	2021-2023
15.	EU4Green	EU and ADA	€ 10,000,000.00 ADA € 1,000,000.00	2022-2025
16.	Healthy Kosovo II	Embassy of Luxembourg, implemented by UNDP and WHO	$1,064,750	2021-2023

7. Recommendations

Air quality and air emissions

- Draft and approve the Air Quality Strategy and Action Plan;
- Increase the efficiency of the implementation of environmental legislation through additional mechanisms and instruments;
- Design favorable policies for the use of fuels that have lower emissions in the environment and for the implementation of clean technologies in production processes;
- Favor the use of alternative transport that has lower emissions into the air and to apply the time limit for the use of old vehicles and those without catalysts;
- Apply the by-laws on the permitted rates of discharge into the air from mobile sources and from stationary sources;
- Promote and implement clean technologies in industrial processes in order to reduce air emissions;
- Increase the energy efficiency of buildings and increasing green spaces.

GHG emissions

- Increase the use of renewable energy sources, reducing the use of coal for energy production and increasing energy efficiency;
- Remove old cars from circulation and the implementation of vehicle control standards and the promotion of sustainable transport with less motor traffic;
- Improve the management of animal manure and the controlled use of fertilizers in agricultural lands;
- Improve waste management, through the reduction of waste in landfills and the implementation of recycling, separation and waste treatment systems;
- Improve wastewater management through water treatment in water treatment and sludge management plants;
- Reduce illegal forest cuttings and the conservation of the destination of land use according to categories, as well as the reduction of burned areas according to land categories.

Water

- Monitor the biological parameters of surface waters to determine the quality index of surface waters;
- Continue investments in the development of water infrastructure with special emphasis on the construction of plants for the treatment of polluted water;
- Address with priority issues related to adaptation to climate change in the water sector;
- Build mechanisms and instruments that help implement the strategic objectives and projects planned in the National Water Strategy;

- Draft and approve Management Plans for Water Basins and monitor their implementation.

Earth/soil

- Develop a program for the permanent monitoring of agricultural and industrial land;
- Design the most favorable policies for sustainable development and land management;
- Strengthen the implementation of the legal and programmatic framework for the sector of land protection from pollution and from changing its destination;
- Design programs and projects for the rehabilitation of land identified as environmental hot-spots;
- Monitor the use of pesticides and fertilizers on agricultural lands.

Protected areas and biodiversity

- Implement projects for research, evidence and monitoring of natural areas and the inventory of plant and animal species and natural habitats (toxic or water areas with special characteristics - living environment);
- Establish and operationalize management bodies for protected areas according to the legislation in force;
- Strengthen the monitoring of the condition of rare and endangered animal species and to take measures for the protection of endangered species of fauna according to the recommendations and findings from the `Red Book of Fauna of the Republic of Kosovo;
- Review the endangerment status of plant species through the revision of the Red Book of Flora of Kosovo;
- Initiate the process for drafting the study for the declaration of protected areas of birds and habitats according to the ``Nature 2000'' ecological network;
- Strengthen the inspection and control of the implementation of the law on the protection of nature;
- Increase the number of staff in the nature and biodiversity protection sector;
- Prepare and approve Management Plans and Regulatory Plans for protected areas according to the legislation in force;
- Conducts research for the inventory of geo-heritage and the protection of these values.

Waste

- Improve the management of the sanitary landfills of Kosovo and to implement the monitoring of discharges into the environment from the landfills;
- Increase the service for the collection of municipal waste in the entire territory of Kosovo;
- The municipalities of Kosovo should continuously commit to the elimination of illegal landfills in their territory;
- Municipalities should designate locations for the treatment and disposal of waste from construction and demolition;
- Design programs and systems at the national level for the separation of waste at source and their recycling.

Public health

- Conduct studies on the impact on health from short-term exposure to air pollution, focusing on exposure to PM2.5, SO_2 and NO_2 during the winter period;
- Monitor indoor air quality in schools and public institutions;
- Invest in improving the quality of drinking water and its regular monitoring;
- Increase the coverage percentage of the population with the water supply service and with the discharge service of dirty water (sewage);
- Improve the health information system with verified data;
- Improve cooperation between researchers working on Health Impact Assessment studies, the cause of air pollution, at the national level and at least at the local level.

Endangered areas

- Develop specific policies and strategies for the administration of environmental hotspots;
- Develop plans, programs and projects, which are primarily aimed at the rehabilitation of hotspots , and especially landfills with heavy metals, which release high toxicity in the environment that negatively affect the balance ecological and endanger the existence of the living world;
- Raise citizens' knowledge about environmental hotspots and the risk that comes from them;
- Deepen cooperation between governmental and non-governmental institutions, local and international universities, local and international environmental experts to solve the problem of environmental hotspots.

General

- Proceed for approval in the Government of Kosovo and in the Assembly of Kosovo the Strategy and Action Plan for Environmental Protection and Sustainable Development;
- Increase the budget of the Government of Kosovo for the environment sector, in particular for environmental capital projects;
- Establish the eco-fund (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 physical persons who choose the best possible techniques and clean manufacturing;
- Strengthen the implementation of horizontal legislation and with special emphasis on the legal requirements from the Law on Environmental Impact Assessment and the Law on Strategic Environmental Assessment.

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9. Annexes

Annex 1: Air quality monitoring stations - KAS 1 agglomerate and ZKS 1 area

Agglomerate	Name of monitoring station	Station Sign (Code)	Location	Parameters to be measured	Station type	Date of functionalization
Agglomerate – AKS 1	KHMI	KS0101	Pristina	PM10, PM2.5, SO2, NOx, O3, CO.	Urban background	09.01.2009
	Rilindja	KS0102	The courtyard of the Rilindja facility	PM10, PM2.5, O3, SO2, CO, NO2.	Urban background	06.05.2010
	Obilic	KS0110	FMC	PM10, PM2.5, SO2, NOx, O3, CO.	Urban background	01.03.2013
	Dardhishte	KS0111	MU "Abdurrahmon Gërguri"	PM10, PM2.5, O3, SO2, CO, NOx.	Urban / industrial background	01.03.2013
	Palaj	KS0112	Kosova Montim building	PM10, PM2.5, SO2, NOx, O3, CO.	Urban/ industrial background	01.03.2013
AREA – ZKS 1	Peja	KS0305	LSS "Lidhja e Prizrenit"	PM2.5, PM10, NOx, O3, SO2, CO.	Urban background	04.04.2012
	Prizren	KS0406	LSS "Abdyl Frashëri"	PM2.5, PM10, NOx, O3, SO2, CO.	Urban background	01.04.2012
	Elez's inn	KS0508	LSS "Ilaz Hallaqi"	PM2.5, PM10, NOx, O3, SO2, CO.	Urban / industrial background	04/05/2012
	Gjilan	KS0609	LSS "Selami Hallaqi"	PM2.5, PM10, NOx, O3, SO2, CO.	Urban background	01.04.2012
	Drenas	KS0103	Str "Beqir Sinani"	PM2.5, PM10, NOx, O3, SO2, CO.	Urban background	04/05/2011
	Mitrovica	KS0204	LSS "Eqrem Qabej"	PM2.5, PM10, NOx, O3, SO2, CO	Urban background	06.2013
	Brezovica	KS0507	Skiing center	PM2.5, PM10, NOx, O3, SO2, CO.	Rural	

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

parameter	Limit values	Unit of measurement	Limit value (limit) µg/m ^{3}	Overages allowed 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 the 8-hour maximum, 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	The long-term objective is to protect human health	µg/ m^3	120	Not foreseen

Annex 3 : Air Quality Index

Quality	Good	Acceptable	Average	Weak	Very weak	Extremely weak
Dust particles smaller than 2.5 µm ($PM_{2.5}$)	0-10	10-20	20-25	25-50	50-75	75-800
Dust particles smaller than 10 µm (PM_{10})	0-20	20-40	40-50	50-100	100-150	150-1200
Nitrogen dioxide (NO_2)	0-40	40-90	90-120	120-230	230-340	340-1000
Ozone (O_3)	0-50	50-100	100-130	130-240	240-380	380-800
Sulfur dioxide (SO_2)	0-100	100-200	200-350	350-500	500-750	750-1250
The level of the Air Quality Index (based on the concentration of pollutants, expressed in µg/m ^{3})						

Annex 4: Physical, chemical parameters and heavy metals monitored by the KHMI[21]

Indicators	Symbol	Unit	Frequency of measurements/year
PHYSICAL PARAMETERS			
Time	h	0:00	11
Weather	M	SURVEY	11
Water temperature	Tu	0C	11
Air temperature	TA	0C	11
Aroma	gold	Sniffing	11
Color	CL	Co/Pt	11
Turbidity	Tour	NTU	11
Electrical conductivity	X	µScm-1	11
Water soluble substances	M. tert.	mg/l	11
Hydrogen ion concentration	pH	0-14	11
CHEMICAL PARAMETERS			
Dissolved oxygen	OT	mg/l O2	11
Oxygen saturation	NgO	%	11
Chemical expenditure of oxygen	Go	mg/l O2	11
Chemical consumption of oxygen with dichromate	GO-Cr	mg/l O2	11
Biochemical expenditure of oxygen	BOD5	mg/l O2	11
Biochemical expenditure of oxygen	SHBO7	mg/l O2	11
Total organic carbon	KOT	mg/l C	11
Total suspended matter	MTS	mg/l	11
Detergents	Sea	mg/l	11
The nitrate ion	NO3-	mg/l	11
Nitrate nitrogen	N-NO3-	mg/l N	11
Nitric ion	NO2-	mg/l	11
Nitrate nitrogen	N-NO2-	mg/l N	11
Ammonium ion	NH4+	mg/l	11
Ammonium nitrogen	N-NH4+	mg/l N	11
Total inorganic nitrogen	father	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	Fr.	mg/l N	11
Total organic nitrogen	THEM	mg/l N	11
Ortho phosphates	PO43-	mg/l	11
Phosphorus of ortho phosphates	P - PO43-	mg/l P	11
Total phosphorus (poly + ortho)	Ptot.	mg/l	11
Sulfate ion	SO42-	mg/l	11
Overall strength	Fp	0dH	11

[21] *Only the parameters shaded in blue are evaluated and presented in this report.*

Calcium hardness	Fca	mg/l	11
Strength of Magnesium	FMg	mg/l	11
Calcium ions	Ca+	mg/l	11
Magnesium ions	Mg+	mg/l	11
P-Alkalinity	Pa	0.1 ml of HCl	11
M-Alkalinity	Me	0.1 ml of HCl	11
Total alkalinity	Fr.	mmol/l HCl	11
Bicarbonates	HCO3-	mg/l	11
Free chlorine	Cl2	mg/l	11
chlorides	Cl-	mg/l	11
Silicates	SiO32-	mg/l	11
Silicon in Silicates	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 6: Codes of stations for monitoring the physico-chemical quality of surface waters - rivers

Code	Location	river	Location
RV01_011	Radavc	Drini i Bardhë	Mediterranean Sea/Adriatic Sea
RV01_012	Klinë	Drini i Bardhë	Mediterranean Sea/Adriatic Sea
RV01_013	Gjonaj	Drini i Bardhë	Mediterranean Sea/Adriatic Sea
RV01_014	Vermicë	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	Klinë	Klina	Mediterranean Sea/Adriatic Sea
RV01_041	Drelaj	Lumbardhi i Pejës	Mediterranean Sea/Adriatic Sea
RV01_042	Pejë dalje	Lumbardhi i Pejës	Mediterranean Sea/Adriatic Sea
RV01_043	Grabanicë	Lumbardhi i Pejës	Mediterranean Sea/Adriatic Sea
RV01_051	Banjë e Malishevës	Mirusha	Mediterranean Sea/Adriatic Sea
RV01_052	Volljakë	Mirusha	Mediterranean Sea/Adriatic Sea
RV01_061	Deçan Hyrje	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	Zhdrellë	Rimniku	Mediterranean Sea/Adriatic Sea
RV01_082	Xërxë	Rimniku	Mediterranean Sea/Adriatic Sea
RV01_091	Buqallë	Toplluha	Mediterranean Sea/Adriatic Sea
RV01_092	Piranë	Toplluha	Mediterranean Sea/Adriatic Sea
RV01_101	Prevallë	Lumbardhi i Prizrenit	Mediterranean Sea/Adriatic Sea
RV01_102	Vllashnje	Lumbardhi i Prizrenit	Mediterranean Sea/Adriatic Sea
RV02_011	Kushtovë	Ibri	The Black Sea
RV02_012	Mitrovicë	Ibri	The Black Sea
RV02_013	Kelmend	Ibri	The Black Sea
RV02_021	Bablak	Sitnica	The Black Sea
RV02_022	Lipjan	Sitnica	The Black Sea
RV02_023	Vragoli	Sitnica	The Black Sea
RV02_024	Plemetin	Sitnica	The Black Sea
RV02_025	Nedakovc	Sitnica	The Black Sea
RV02_026	Mitrovicë	Sitnica	The Black Sea
RV02_031	Marincë	Llapi	The Black Sea
RV02_032	Podujevë	Llapi	The Black Sea
RV02_033	Milloshevë	Llapi	The Black Sea
RV02_041	Bresje	Prishtevka	The Black Sea
RV02_051	Vragoli	Graqanka	The Black Sea
RV02_061	Pjetërshticë	Drenica	The Black Sea
RV02_062	Vragoli	Drenica	The Black Sea
RV02_062B	Drenicë	Çikatovë e Vjetër	The Black Sea
RV02_071	Devetak	Shtime	Mediterranean Sea/Adriatic Sea
RV02_072	Vojnovc	Shtime	The Black Sea
RV03_011	Korbuliq	Morava e Binçës	The Black Sea
RV03_012	Kllokot	Morava e Binçës	The Black Sea
RV03_013	Ranillugë	Morava e Binçës	The Black Sea
RV03_014	Domoroc	Morava e Binçës	The Black Sea
RV03_021	Marec	Kriva reka	The Black Sea
RV03_022	Domoroc	Kriva reka	The 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	Gërlicë	Nerodimja	Mediterranean Sea / Aegean Sea
RV04_024	Kaçanik	Nerodimja	Mediterranean Sea / Aegean Sea

Annex 6: Codes of monitoring points of the physico-chemical quality of groundwater

Groundwater Code	Location	Depth (m)	Diameter (m)
UN01_101	Kovrag/Istog	3.68	200
UN01_102	Kovrag/Istog	4.2	200
UN01_103	Kovrag/Istog	12.5	200
UN01_104	Buqan/Pejë	1.94	200
UN01_105	Buroj/Skenderaj	2.6	200
UN01_106	Prapaqan/Deçan	6.13	200
UN01_107	Moglice/Shkugë	4.65	200
UN01_108	Moglicë/Gjakovë	6.27	200
UN01_109	PrizrenB.Curr	14.3	200
UN01_110	Jellovc/Klinë	1.7	200
UN01_110	Gjinovc/Suharekë	3.1	200
UN01_111	Dejn/Rahovec	6.31	200
UN01_112	Zoqisht/Rahovec	13.5	200
UN01_113	Qyshk/Pejë	6.3	200
UN01_114	Tërstenik	1.35	200
UN01_115	Vitomiricë	13	200
UN01_116	Çitak	8.9	200
UN02_100	Konjuh	8.65	200
UN02_101	Obiliq	0.3	200
UN02_102	Obiliq	1.3	200
UN02_103	Vragoli	2.6	200
UN02_104	KEK/Obiliq	1.93	200
UN02_105	Lismir	2.3	200
UN02_106	Kuzmin	3.1	200
UN02_107	Serbovec	25.3	200
UN03_100	Pasjan	3.5	200
UN03_101	Pasjan	5	200
UN03_102	Pasjan	1.1	200
UN03_103	Pasjan	2	200
UN03_104	Lladove	2.3	200
UN03_105	Lladove	2.3	200
UN04_100	Nerodime	1.39	200
UN04_101	Nerodime	2.36	200
UN04_102	Talinovc	6.3	200
UN04_103	Nekodin	4.2	200
UN04_104	Gerlicë	0.6	200
UN04_105	Lumi Madh	5.5	200

Annual Report on the State of the Environment in Kosovo 2023

has been prepared by the KEPA Directorate for the Assessment of the State of the Environment,

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