KOSOVO ENVIRONMENTAL
PROTECTION AGENCY

ANNUAL REPORT
on the State of the Environment
2022

July, 2023
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

AGJENCIA PËR MBROJTJEN E MJEDISIT TË KOSOVËS | **KOSOVSKA AGENCIJA ZA ZAŠTITU SREDINE** | **KOSOVO ENVIRONMENTAL PROTECTION AGENCY**

AMMK

Annual Report on the State of the Environment 2022

Prishtina,
July 2023

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

Legjislatura VIII
Sesioni pranveror

Kuvendi i Republikës së Kosovës, në mbështetje të nenit 65 (1) Kushtetutës së Republikës së Kosovës, nenit 98 të Rregullores së Kuvendit, si dhe të nenit 25 të Ligjit Nr. 03/L-025 për mbrojtjen e mjedisit, në Seancën plenare të mbajtur më 28 mars 2024, pasi e shqyrtoi Raportin vjetor për gjendjen e mjedisit në Kosovë për vitin 2022, miori këtë:

VENDIM

Miratohet Raporti vjetor për gjendjen e mjedisit në Kosovë për vitin 2022.

Nr. 08-V- 705

Prishtinë, 28.03.2024

Glauk Konjufca
Kryetar i Kuvendit

Kopja e Vendimit i dërgohet:

- Qeverisë së Republikës së Kosovës,
- Ministrisë së Mjedisit, Planifikimit Hapësinor dhe Infrastrukturës,
- Drejtorisë për Mbështetjen e Komisioneve Parlamentare dhe
- Arkivit të Kuvendit.

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

Nr. 12/169
Datë: 27.10.2023

Në mbështetje të nenit 92 paragrafi 4. dhe të nenit 93 paragrafi 4 të Kushtetutës së Republikës së Kosovës, të nenit 8 të Ligjit Nr. 08/L-117 për Qeverinë e Republikës së Kosovës, nenit 25 të Ligjit Nr. 03/L-025 për Mbrojtjen e Mjedisit, në pajtim me nenin 19 të Rregullores së Punës së Qeverisë së Republikës së Kosovës Nr. 09/2011, Qeveria e Republikës së Kosovës, në mbledhjen e mbajtur më 27 tetor 2023, merr këtë:

V E N D I M

1. Aprovohet Raporti vjetor për Gjendjen e Mjedisit në Kosovë për vitin 2022.

2. Obligohet Sekretari i Përgjithshëm i Zyrës së Kryeministrit që Raportin nga pika 1. e këtij Vendimi t'ia procedoj Kuvendit të Kosovës.

3. Vendimi hyn në fuqi ditën e publikimit në Gazetën Zyrtare të Republikës së Kosovës.

Albin KURTI
Kryeministër i Republikës së Kosovës

Iu dërgohet:

- Zëvendëskryeministrave
- Të gjitha ministrive (ministrave)
- Sekretarit të Përgjithshëm të ZKM-së
- Arkivit të Qeverisë

Contents

1. Introduction **13**
2. Summary of key findings of the report **14**
3. State of environment and trend **19**
3.1. Air 19
3.1.1. Air quality 19
3.1.2. Air emissions 25
3.1.3. Greenhouse gas emissions (GHG) 27
3.2. Water 29
3.2.1. Surface water quality 29
3.2.2. Surface water amount 33
3.2.3. Wastewater treatment 35
3.3. Land/soil 36
3.3.1. Agricultural land use 36
3.3.2. Land monitoring 37
3.3.3. Land pollution 38
3.4. Waste Management 40
3.4.1. Municipal waste generation 41
3.4.2. Analysis of the composition of municipal waste 43
3.4.3. Municipal waste disposal in sanitary landfills 45
3.4.4. Hospital waste 46
3.4.5. Waste treatment 47
3.4.6. Industrial waste 47
3.4.7. Import and export of plastic sacks and bags 49
3.5. Protection of nature and biodiversity 50
3.5.1. Protected areas 50
3.5.2. Flora and vegetation 52
3.5.3. Fauna 54
4. Use of natural resources 56
4.1. Use of mining resources 56
4.2. Utilization of inerts from river beds 57
4.3. Use of water resources 58
4.4. Use of forest resources 59
5. Environmental impacts on public health **61**
5.1. Public health 61
5.2. Drinking water quality 64
6. The state of endangered environments **66**
6.1. Environmental situation in KEK's area of operation 66
6.2. Environmental situation in the area of operation of Feronikel 68

6.3. Environmental state in Sharrcem operating area 69
6.4. Other endangered areas (environmental hotspots) 71
7. Measures taken for environmental protection 73
7.1. Alignment of national environmental legislation with EU Directives 73
7.2. Implementation of environmental strategies and plans 75
7.3. Inspection and control of law enforcement 77
7.4. Granting permissions 79
7.5. Institutional developments and setbacks 80
7.6. Investments in environmental protection 82
8. Recommendations 86
9. References 89
10. Annexes 90

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
RRBA	Regional River Basin Authority
WSRA	Water Services Regulatory Authority
KAS	Kosovo Agency of Statistics
WB	World Bank
EU	European Union
EBRD	European Bank for Reconstruction and Development
CH_4	Methane
CLC	Coverage of Land according to the CORINE Methodology
CPD	Coal Production Department
ECRAN	Environment and Climate Regional Accession Network
EIONET	European Environment Information and Observation Network
ELV	Emission Level Values
EQ	Equivalent
ESS L.L.C	Environmental Sustainable Solution
FLII	The Forest Landscape Integrity Index
KSF	Kosovo Security Force
Gg	Giga gram
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
IPCC	Integrated Environmental Permit.
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
MF	Ministry of Finance
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
TSM	Total Suspended Matter
MED	Ministry of Economic Development
WHO	World Health Organization
EO	Economic Operator
NGO	Non-Governmental 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
AI	Administrative Instruction
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
MAV	Maximum Allowed Values
EIA	Environmental Impact Assessment
SEA	Strategic Environmental Assessment
ZKS1	Kosovo Monitoring Area 1
ERO	Energy Regulatory Office

List of Figures

Figure 1. Location of air quality monitoring stations 19
Figure 2. Agglomerations for air quality monitoring 20
Figure 3. Concentration of monitored air quality parameters in AKS 1 21
Figure 4. Annual concentration of air quality parameters in ZKS 1 22
Figure 5. The trend of annual PM_{10} averages for 2013-2022 23
Figure 6. The trend of annual $PM_{2.5}$ averages for 2013-2022 23
Figure 7. The trend of O3 averages for 2013-2022 24
Figure 8. The trend of annual SO_2 averages 2013-2022 24
Figure 9. The trend of annual NO_2 averages for 2013-2022 25
Figure 10. The trend of annual CO averages for 2013-2022 25
Figure 11. The trend of emissions in the air 2014-2021 (tons/year) 27
Figure 12. Emitted gases (%) 29
Figure 13. Indicators selected by river water quality monitoring - KHMI 2022 (Drini i Bardhë Basin) 30
Figure 14. Indicators selected by river water quality monitoring - KHMI 2022 (Iber River Basin) 31
Figure 15. Indicators selected by river water quality monitoring - KHMI 2022 (Morava e Binçës and Lepenci Basin) 31
Figure 16. The trend of average values of water level H (cm) 2021- 2022 by measuring stations. 34
Figure 17. Composition of waste in Kosovo 44
Figure 18. Municipal waste disposal in sanitary landfills in Kosovo, 2017-2021 45
Figure 19. The trend of municipal waste disposal in Kosovo, 2017-2021 45
Figure 20. Waste treatment in Kosovo, 2021 47
Figure 21. Industrial waste generation and treatment in Kosovo, 2021 48
Figure 22. The trend of industrial waste generation in Kosovo 2017-2021 48
Figure 23. Amount of imported plastic sacks and bags, 2017-2022 and Figure 24. Amount of exported plastic sacks and bags, 2017-2022 49
Figure 25. Number of protected nature areas 1950-2022 50
Figura 26. Albanian tulip (Tulipa albanica) (Photo: Xh. Mala)) 52
Figura 27. Map of the Kosovo Forest Impermeability Index 54
Figura 28. Trend of NOx and SOx emissions for 2020-2022 70
Figura 29. Options for hazardous waste deposits in the area of Thermal Power Plant A 72

List of Tables

Table 1. Air quality data by parameters and monitoring stations in the KS1 agglomeration for 2022....21
Table 2. Air quality data by parameters and monitoring stations ZKS1 for 2022....22
Table 3. Air emissions for the main pollutants by emission sources (tons/year)....26
Table 4. Total greenhouse gas emissions in Kosovo by sector for the year 2021....28
Tabela 5. Key categories of emissions for 2021 according to IPCC....28
Table 6. River water quality trend for 2021-2022....32
Table 7. Average annual values of the water level H (cm) by measuring stations for 2022 and the trend in relation 2021....33
Table 8. Utilization of agricultural land by category....37
Table 9. Land pollution sources in Kosovo....39
Table 10. Generation of municipal waste kg \per capita\year (2021 & 2022)....42
Table 11. Composition of waste....44
Table 12. Amount of sterilized hospital waste in 8 regional hospital centres....46
Table 13. Protected Nature Areas by category (2022)....51
Table 14. Number of moss species in Kosovo and threat status....53
Table 15. Number of mushroom species in Kosovo....53
Table 16. Inviolability index of Kosovo's forests....54
Table 17. Estimation of the number of fauna species according to groups in Kosovo and number three on the IUCN Red List....55
Table 18. Average population density for some species of wild mammals....55
Table 19. The amount of exploited mining reserves for the year 2022....56
Table 20. Degraded surfaces of some rivers in Kosovo....57
Table 21. Water use 2021-2022 by large industrial enterprises....58
Table 22. Water production (mil.m³/year) 2019-2022....58
Table 23. Irrigation in agriculture 2019 -2022 mil.m/years....59
Table 24. Amount of wood mass (m³) used by regions and sectors in 2022....60
Table 25. Correlation of premature deaths with the concentration level of air pollution....61
Table 26. Diseases related to environmental influences....63
Table 27. Rate (%) of bacteriological and physicochemical tests in accordance with water quality standards according to RWC 2022....65
Table 28. Some of the main indicators of KEK's operation in 2022....66
Table 29. Metal waste, oils, conveyor belt....67
Table 30. Annual air emissions for pollutants SO2, NOx and total dust from TPPA and TPPB 2021-2022....67
Table 31. Total annual amount of dust emitted by Ferronickel for the year 2022....68

Table 32. Total annual amount of CO, NOx and SO2 pollutants for 2022 from Feronikel....69
Table 33. Generation of industrial waste from Feronikeli in 2022....69
Table 34. Annual concentration of air quality parameters in the factory area 2021-2022....70
Table 35. Waste generation by categories from Sharcem in 2022....71
Table 36. The level of transposition of European Union environmental legislation into national environmental legislation....73
Table 37. Level of implementation of strategies and action plans for the environment sector....75
Table 38. Environmental plans at the local level 2022....76
Table 39. Inspections and other legal procedures 2020-2022....78
Table 40. Criminal charges filed with the Basic Prosecution Offices for damaging the NP natural resources in 2022....78
Table 41. Inspections and other legal procedures at the local level 2022....79
Table 42. Permission-granting activities in 2022....80
Table 43. MMPHI budget for 2021-2022....82
Table 44. Some of the environmental capital projects supported by the MESPI 2022 budget....83
Table 45. Some of the donor projects in the environment and water sector in 2022...84

1. Introduction

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

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

In accordance with the duties and responsibilities of government institutions, the Kosovo Environmental Protection Agency is the institution for drafting this document. This Annual Report presents the state of the environment for 2022, but even previous data occupy a considerable place for comparison purposes.

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

The presentation of the situation for some environmental sectors is less covered due to lack of data, lack of monitoring, insufficient legal basis or other institutional and managerial aspects. Therefore, the content and quality of this report, to some extent, is also a reflection of the quality of monitoring implemented nationwide and the level of organization of the environmental information system.

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

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

2. Summary of key findings of the report

Air - The monitoring data contain data on exceeding the maximum allowed values for some parameters, in particular for PM10 and PM2.5, and this is mainly reflected during the winter season. The largest number of days where values have been exceeded was recorded at the measuring stations in Prishtina Rilindja (59), Obiliq (40), Peja (41) and Gjilan (52). The highest concentration of the annual average for PM10 was recorded in the 'Rilindja-Prishtina' stations at 32.5 µg/m^3 and in Gjilan at 30.2 µg/m^3. As regards the trend of the annual concentration of the monitored parameters, based on the annual data for the period 2013-2022, a significant decrease in the concentration of pollutants can be observed, which can also be related to the measures taken to reduce pollution. Regarding air emissions, according to the fuel consumption-based assessment, the main source of emissions for NO2 and SO2 pollutants is energy and heating generation, while as regards the 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 power 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 2021 are estimated at 10266 Gg (Giga grams) CO2 eq, (equivalent) or about 10.6 million tons of CO2 eq. The main source of greenhouse gas emissions is the energy sector with a share of 87% of the total emissions.

The second sector is agriculture, forestry and land use with 7%, while the waste sector represents 4% of total emissions. The main emitted gas is CO_2 which makes up 88%, Methane (CH_4) participates with around 10% of the total emissions, while N_2O and HFCs participate with around 1% of the emissions. The enforcement of laws, by-laws and policies on the air sector, as is the case with policies on the control of emissions from mobile sources and those for the control of oil quality, is considered to be at an unsatisfactory level. The low level of implementation of legal requirements is also noted at the local level.

Water - Surface water quality in Kosovo continues to be affected by pollution resulting from urban and industrial water discharges, uncontrolled dumping of waste into rivers, use of pesticides and fertilizers in agriculture as well as damage to river beds from the use of aggregates and illegal construction. In 2022, surface water quality monitoring was carried out at 54 monitoring points in rivers. The water quality indicators presented in this report indicate the presence of organic pollutants in river waters, although it can be concluded that surface waters are not endangered

by eutrophication. Water quantity monitoring was carried out at 25 measuring stations, in terms of H level (cm) and 8 measuring stations in terms of Q feed. (m^3/sec). Kosovo still has no regular monitoring of the water quality of lakes and underground water, and there is no biological monitoring of surface water either. Kosovo has not yet fully developed a wastewater treatment system, even though there has been some progress made in this area in 2022. Wastewater treatment still remains at a low level with only 25% of the total amount of waste water. Donor support for the water resources integrated management in 2022 has been one of the positive developments in this sector.

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 at 248 kg/per capita/year. Currently, at the national level, around 90% of the generated waste is collected. Most of them are disposed of in sanitary landfills, while there is still no organized system of waste separation at the source and recycling of waste. In 2022, an increase in waste disposal was recorded in the amount of 43,623 tons, or 9.77% more compared to the previous year 2021. The management of sanitary landfills in Kosovo is not good with the major problems being the non-functioning of landfill water pumping systems, poor compression of landfilled waste and 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 2022, there has been an increase of 157,970 kg of treated-sterilised hospital waste, respectively 920,780.25 kg or 20% more waste compared to 2021. Despite the continued commitment of central institutions, municipalities and donors, illegal landfills continue to be a challenge for this sector. Activities for separation at source, waste treatment, waste recycling and other aspects related to the circular economy are yet at a low scale.

Protected areas and biodiversity - In 2022, 12 new areas were added to the national register of protected areas, thus increasing the number of protected areas to 260 areas, with an area of 126,115.8 ha or 11.6% of the territory of Kosovo. 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 be a problem for Kosovo institutions. There are still protected areas that enjoy protection status which do not have yet relevant management bodies. The lack of management and regulatory plans for protected areas is also considered to be a problem. By the monitoring of fauna through trap cameras information was obtained on the presence of some rare and endangered species of fauna in Kosovo and their state is assessed as satisfactory. There is a lack of specific programs for monitoring biodiversity in general or specific species in particular. The implementation of several initiatives and projects for the cross-border management of natural areas is considered a positive and important activity.

Utilization of natural resources - Exploitation of stone and other mineral resources is realized through quarries, which is one of the most frequent forms of exploitation of natural resources in Kosovo. In 2022, 232 licenses for stone exploitation and 170 licenses for the exploration of stone reserves were issued.
The data indicate that there are also illegal operators involved in this activity. Based on the assessments carried out, the degraded surfaces of the rivers due to the exploitation of aggregates are increasing.
The total production of water distributed by regional companies in 2022 was 156.8 million m^3, whereas the amount of water used for agriculture irrigation in 2022 was 93.34 million m^3 of water. Regarding the participation of the types of water sources distributed by regional companies for 2022, 58% of them are obtained from accumulation lakes, 28% from rivers, 5% from springs and 10% from wells.

It is estimated that in 2022, according to the plan, around 145,705 m^3 of wood was used from public forests. Illegal logging remains one of the main challenges of the forest management sector. In 2022, the Municipal Forestry Units confiscated 1,789.86 m^3 of wood mass, of which 151.92 m^3 was technical wood and 1,637.94 m^3 was firewood. While the KFA Central Forestry and Hunting Inspection confiscated a total of 225.64 m^3 of wood (of which 194.67 m^3 were firewood and 30.97 m^3 were technical wood).
In 2022, 1,596.98 ha of forests and forest land caught fire, of which 976.12 ha were public forests and 620.86 ha were private forests. 111.04 ha of the forested area were reforested by the KFA budget.

Public health - The number of registered environmental diseases recorded an increase in 2022. According to the assessments carried out based on the analyzed data, it was found that there were 105,491 more cases of environmental diseases in 2022 compared to 2021, or about 46.5% more.
Based on the assessments, exposure to PM2.5 concentration was associated with 359 premature deaths. Exposure to NO2 concentration is associated with 264 premature deaths, while exposure to O3 concentration is associated with 135 premature deaths.
Based on the results of water quality monitoring carried out by RWCs, the overall quality of drinking water in Kosovo provided to consumers in the service areas of seven RWCs during 2022 has been compatible with drinking water standards, with a compliance rate of 98.5% for bacteriological tests and 94.7% for chemical tests. Compared to the previous year, the overall quality of drinking water in Kosovo provided to consumers in the service areas covered by the seven RWCs was better in 2022 in terms of bacteriological compatibility and poorer in terms of physicochemical compatibility.
RWCs, as licensed providers of water supply services for 2021, have provided water supply services to 79% of the population. Expressed in terms of settlements, out of a total of 1,240 there are only 672 settlements that have access to public water supply systems managed by RWCs. In 2022, 6 rural water supply systems were added under the management of all RWCs compared to 2021.

Endangered areas - The report specifically deals with the environmental state in KEK, Ferronikel and Sharrcem operating areas, where the general aspects of environmental management are dealt with, including air emissions, water discharges, industrial waste management, as well as other environmental aspects. The report also presents general data for 17 other locations which are considered environmental hotspots, and which were created mainly as a result of past industrial activity, triggered 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 approved for all environmental sectors, both at the central and local levels, but the extent of their implementation is partial. Although inspection and surveillance activities in the nature protection sector increased in 2022, illegal activities that degrade and damage the environment are still in alarming numbers. 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 donor projects 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

Air quality is described according to the Air Quality Index (AQI), which is based on the concentration of pollutants present in the air at a given location. This report presents the tables with data on annual averages and the number of days where such averages are exceeded. The measurements that were conducted by the air quality real-time monitoring stations (Figure 1).

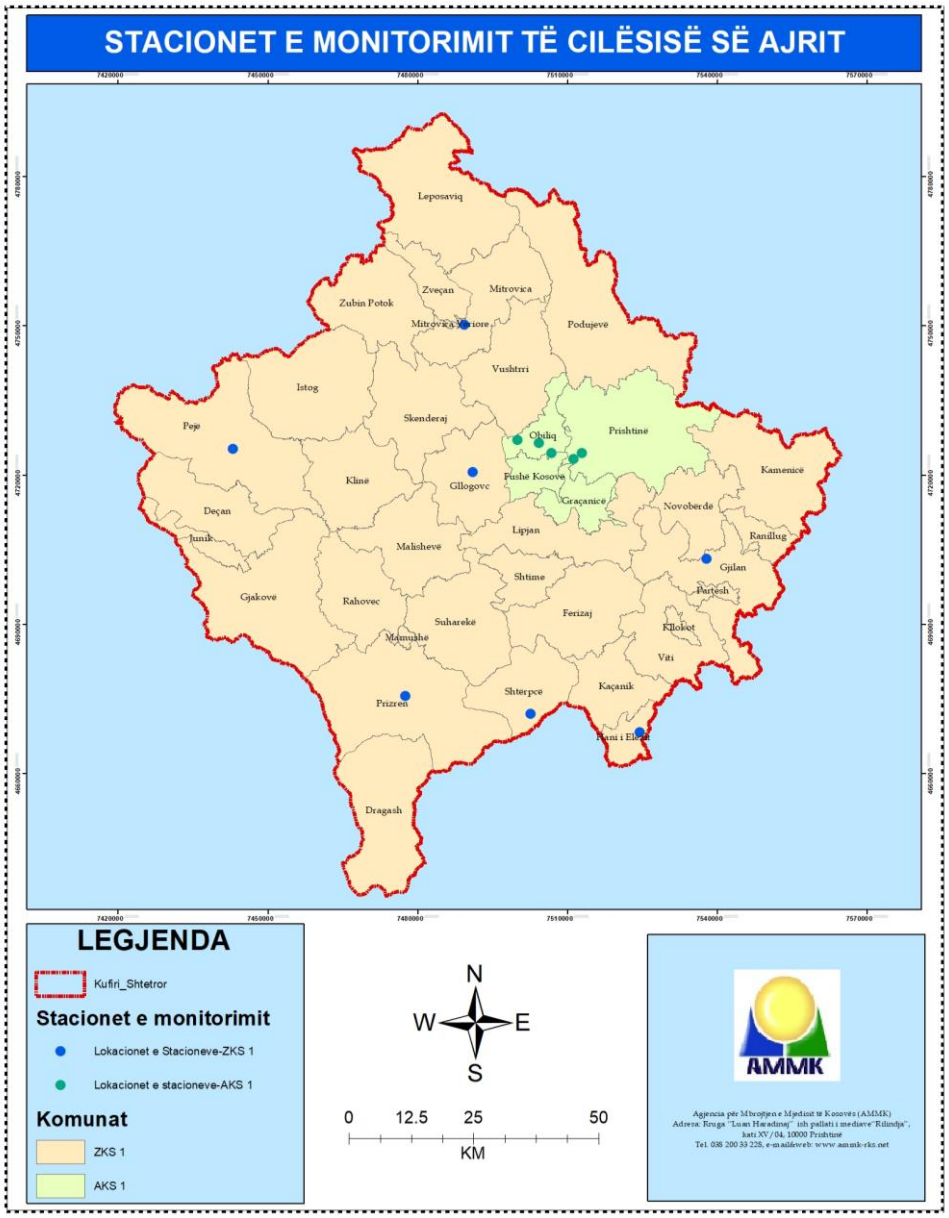


Figure 1. *Location of air quality monitoring stations*

Air quality monitoring - Air quality monitoring is a systematic and long-term assessment of pollutant levels by measuring the air quality in certain surroundings. Air quality monitoring is done for dust particles (PM10 and PM2.5) as well as four types of gases (NO2, SO2, O3 and CO). The table with data on monitoring stations and monitored parameters is presented in Annex 1 of the Report.

The air quality norms applicable for air quality monitoring in Kosovo are defined in Administrative Instruction No. 02/2011 on Air Quality Norms, which are presented in Annex 2 of this Report, while the Air Quality Index is presented in Annex 3. The online system provides the opportunity for citizens to be informed of the real situation and forecast of air quality in the territory of the Republic of Kosovo. Air quality reporting from the monitoring network is administered by the Kosovo Hydrometeorological Institute.

Air quality monitoring in Kosovo is divided into two areas: Agglomerate - AKS1, with KHMI stations, Rilindja, Obiliq, Dardhishte and Palaj, and ZKS1 Area, with stations in Gjilan, Peja, Prizren, Drenas, Brezovica, Mitrovica and Hani i Elezit(Figure 2).

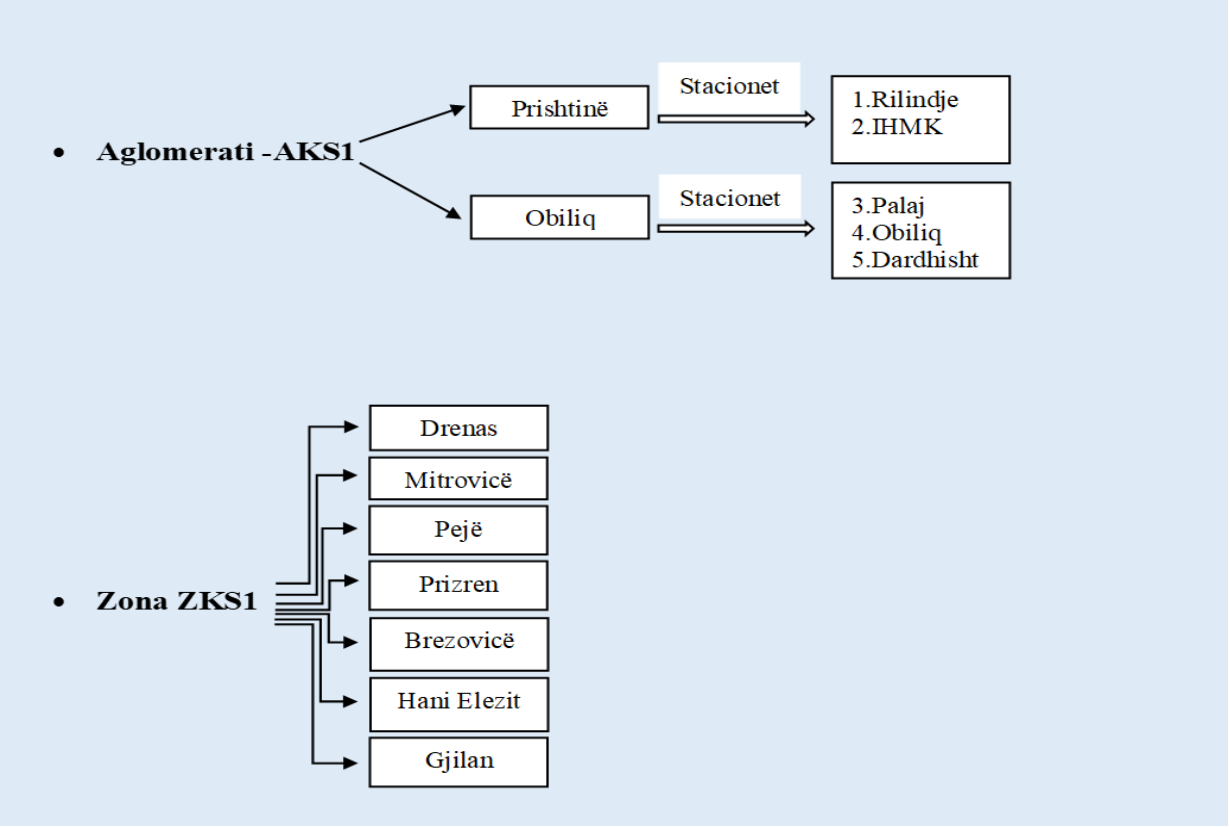


Figure 2. Agglomerations for air quality monitoring

The data show that in the AKS1 area, there have been no exceedances of the annual average limit values according to the standard 40 µg/m^3 for the PM10 parameter; also in other monitored parameters, no exceedances of the annual average limit values were recorded in any of the monitoring stations. While the number of days with exceedances per 24 hours for the PM10 parameter, indicates that there have been exceedances of the daily limit values of the 50 µg/m^3 standard for this parameter at the Rilindja-Prishtina station (59 days) and at the Obiliq station (40 days).

Table 1. Air quality data by parameters and monitoring stations in the KS1 agglomeration for 2022

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	No.of days with exceedances for PM10
Prishtina/KHMI	22.46	15.88	36.2	10.48	26.91	1.48	25
Prishtina/Rilindja	32.52	21.18	46.03	9.88	16.83	0.83	59
Palaj	18.41	12.05	48.02	11.3	9.78	0.09	6
Obiliq	23.68	17.73	15.22	9.38	16.03	0.83	40
Dardhishta	22.17	15.44	32.09	8.82	11.27	1.3	22

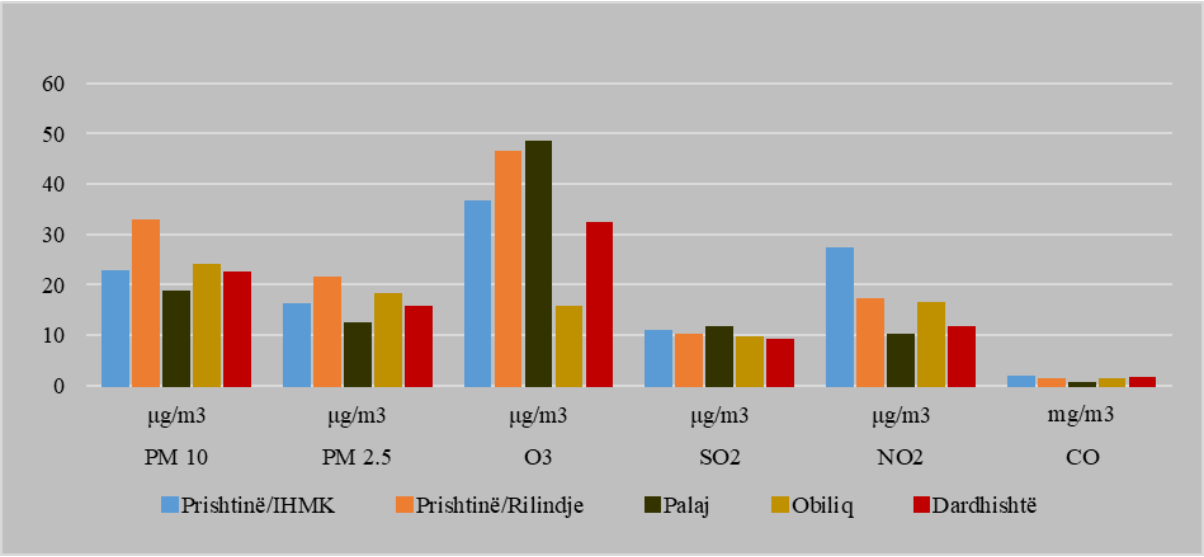


Figure 3. *Concentration of monitored air quality parameters in AKS 1*

Air quality data for the seven monitoring stations of ZKS1 indicate that there have been no exceedances of the annual average limit values according to the standard 40 µg/m3 for the PM10 parameter; as well as in other monitored parameters, no exceedances of the annual average limit values were recorded in any of the monitoring stations.

While the number of days with exceedances per 24 hours for the PM10 parameter, indicated that there have been exceedances of the daily limit values of the 50 µg/m^3 standard for this parameter at the Gjilan station, where 52 days with exceedances were recorded (table 2 and figure 4).

Table 2. Air quality data by parameters and monitoring stations ZKS1 for 2022

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	No.of days with exceedances for PM10
Drenas	18.49	14.61	51.1	8.86	14.13	0.63	7
Mitrovica	25.46	18.48	29.01	20.57	11.65	0.41	30
Peja	23.56	17.25	58.22	9.33	15.48	0.63	27
Prizren	19.44	14.12	59.16	9.58	17.08	0.63	22
Brezovica	10.51	7.32	78.4	5.52	5.68	0.66	2
Hani Elezit	19.62	14.46	59.2	5.41	15.4	0.33	7
Gjilan	30.25	24.17	51.97	3.72	21.21	0.65	52

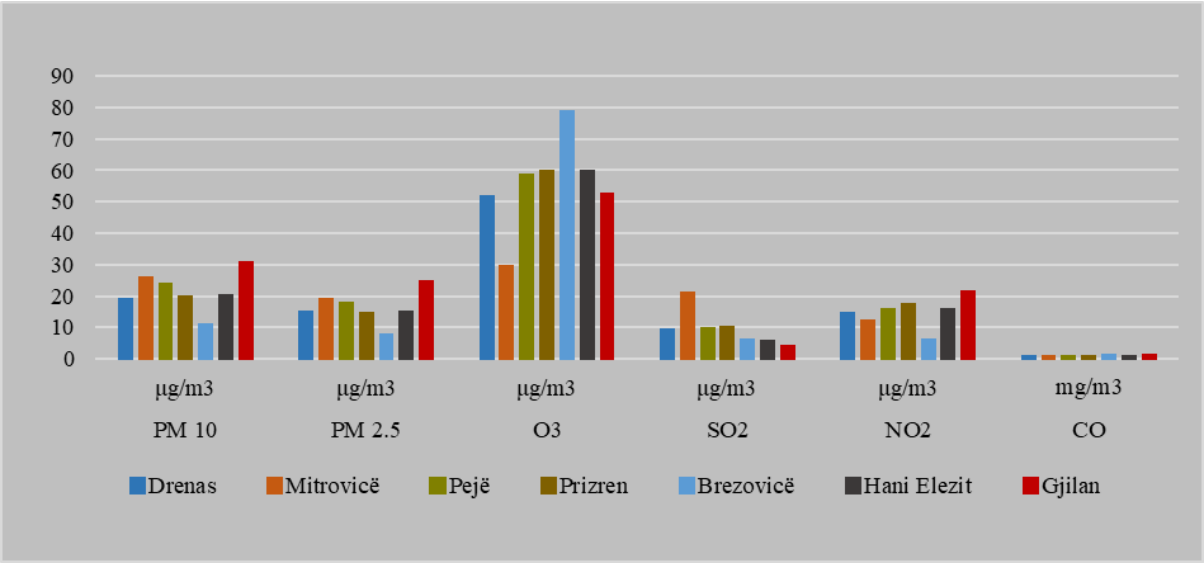


Figure 4. *Annual concentration of air quality parameters in ZKS 1*

Air quality trend – Regarding the annual concentration trend of the monitored parameters, based on the annual data for the period 2013-2022, a significant decrease in the concentration of pollutants is observed in recent years, which can also be associated with the measures taken to reduce pollution.

The decreasing concentration trend is evident, especially in the case of the parameters PM10, PM2.5 and NO_2 (Figures 5, 6 and 9) and for the last three years, while for the other parameters O_3, SO_2 and CO (Figures 7, 8 and 10), a more linear trend can be observed in the last three years.

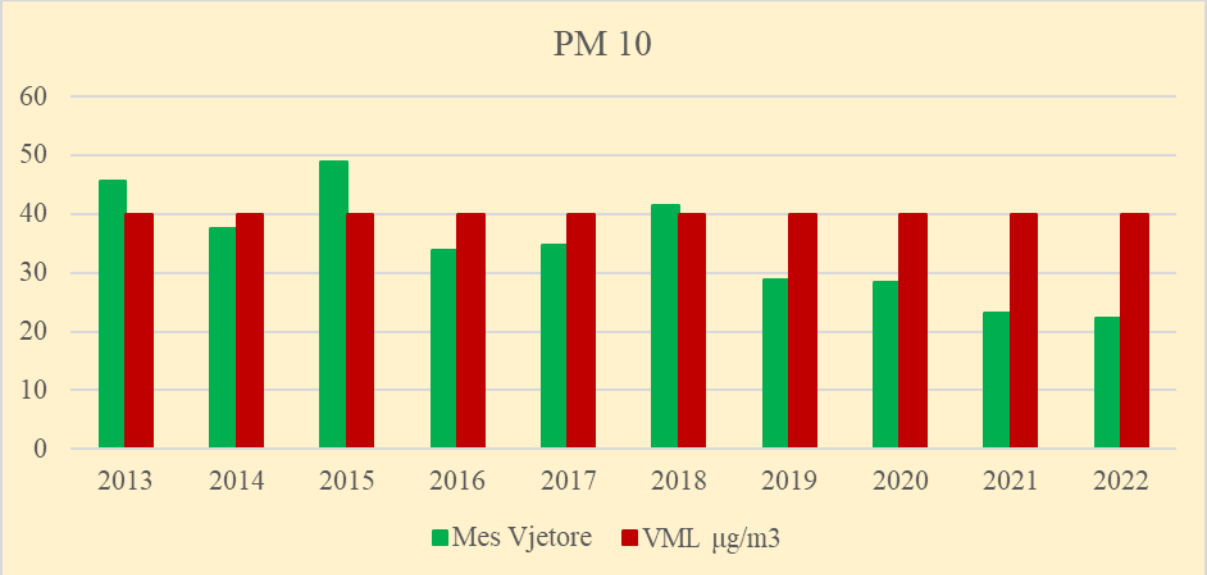


Figure 5. *The trend of annual PM_{10} averages for 2013-2022*

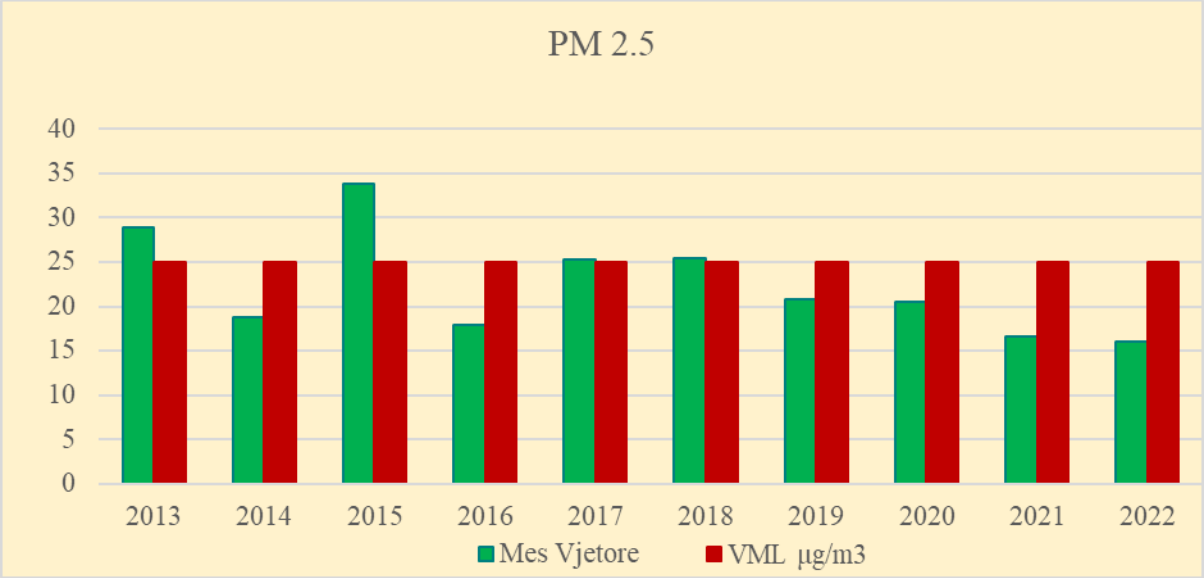


Figure 6. *The trend of annual $PM_{2.5}$ averages for 2013-2022*

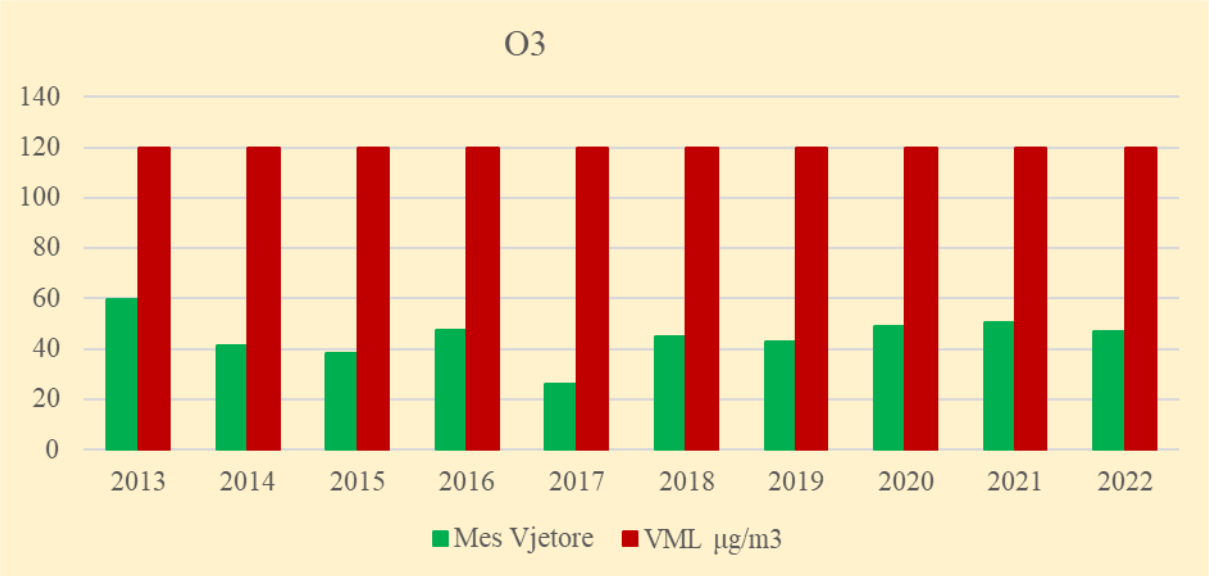


Figure 7. *The trend of O3 averages for 2013-2022*

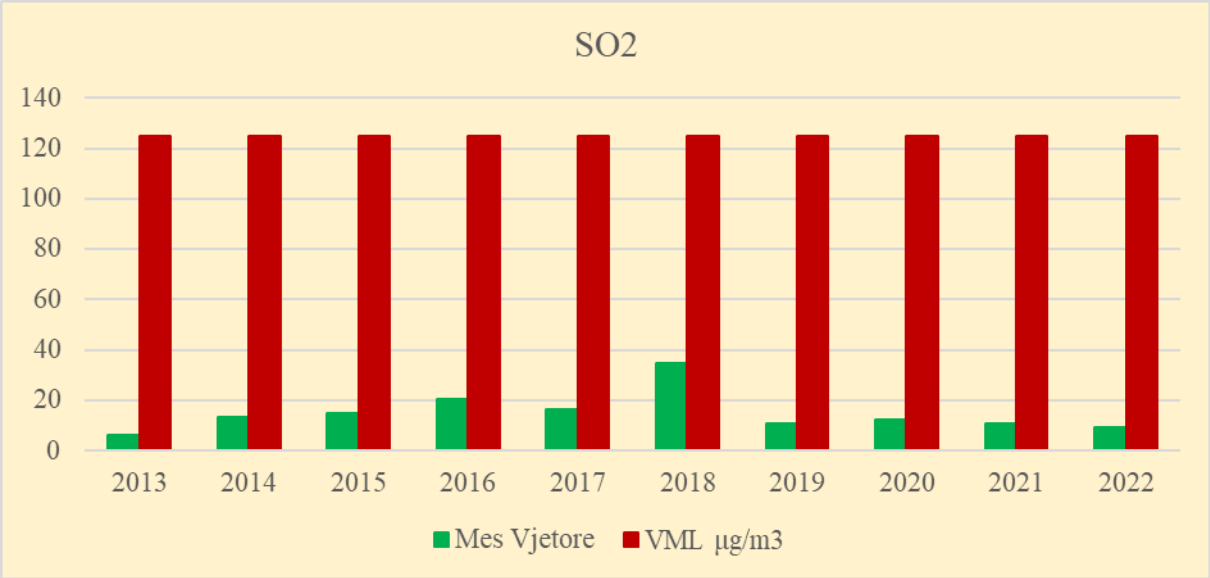


Figure 8. *The trend of annual SO_2 averages 2013-2022*

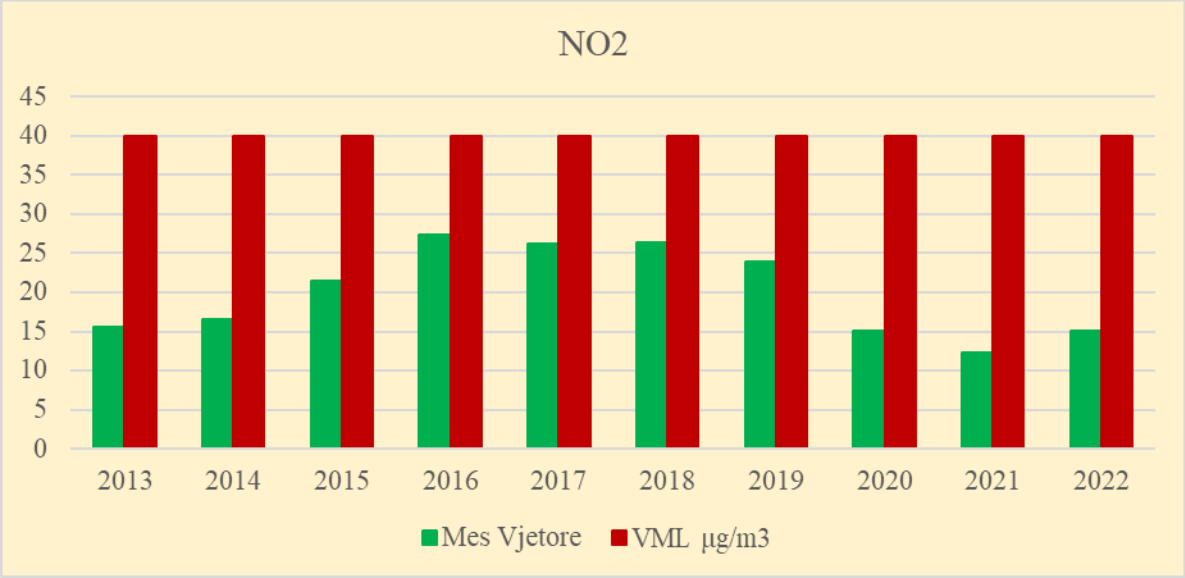


Figure 9. *The trend of annual NO_2 averages for 2013-2022*

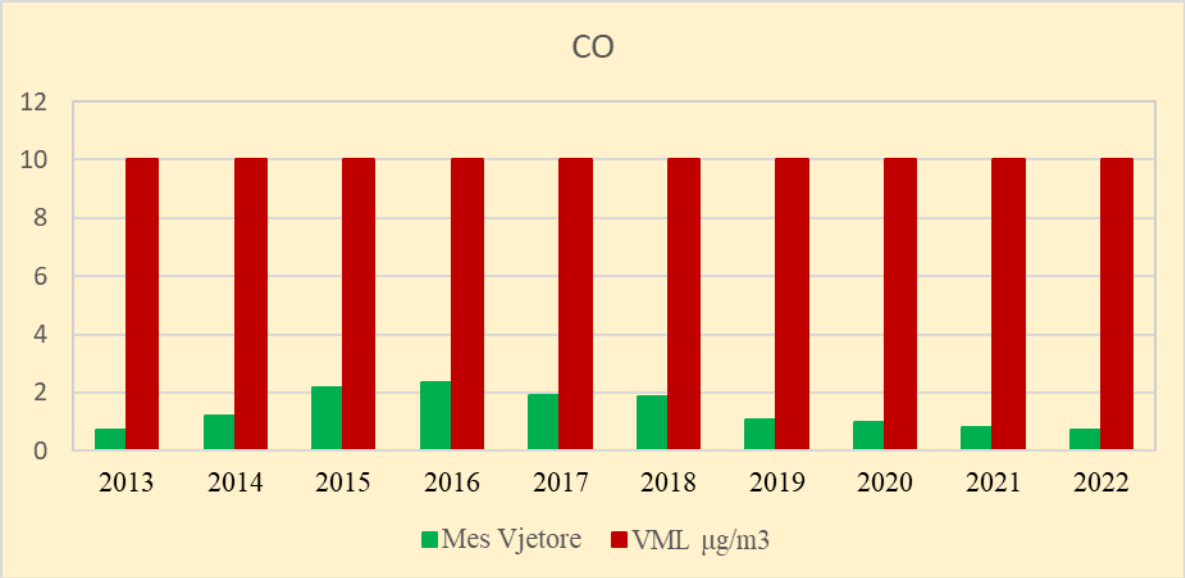


Figure 10. *The trend of annual CO averages for 2013-2022*

3.1.2. Air emissions

Emission inventory (measurement equipment) provides an estimate of the location and amount of pollutants released into the air from various sources. Inventory is one of the main tools used in air quality management as it provides information through which we understand who are the relative contributors by activities and resources, thus enabling effective action to reduce emissions and improve the environmental air quality.

Kosovo Environmental Protection Agency conducts an assessment of air emissions on an annual basis, based on the consumption of fuels. In 2023, the air emission assessment was conducted based on the consumption of fuels for 2021.

Table 3 presents data on the main pollutants by pollution sources.

Table 3. Air emissions for the main pollutants by emission sources (tons/year)[2]

Emission sources	NO_2	SO2	PM2.5	PM10	PT[3]	NMVOC	CO
Energy industry (Energy and heat generation)	16,046	107,735	210	507	751	90	564
Manufacturing and construction industry	3,702	775	476	492	334	833	2,072
Transport (Aviation, vehicles and railways)	9,776	895	381	381	381	476	1,257
Small combustions (Commercial, residential and agricultural)	2,315	686	10,726	11,018	11,598	8,840	58,237
Total (tons/year)	**31,839**	**110,091**	**11,793**	**12,398**	**13,064**	**10,239**	**62,130**

As it can be seen from the data presented in the table, the main source of emissions for NO_2 and SO_2 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 power generation sector, while the manufacturing industry is the second sector for CO pollution after small combustion.

Compared to the 2020 emissions, a slight increase in emissions was recorded for most pollutants in 2021. While during the period 2014-2021, 2016 is the year with the highest emissions (Figure 11).

[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*

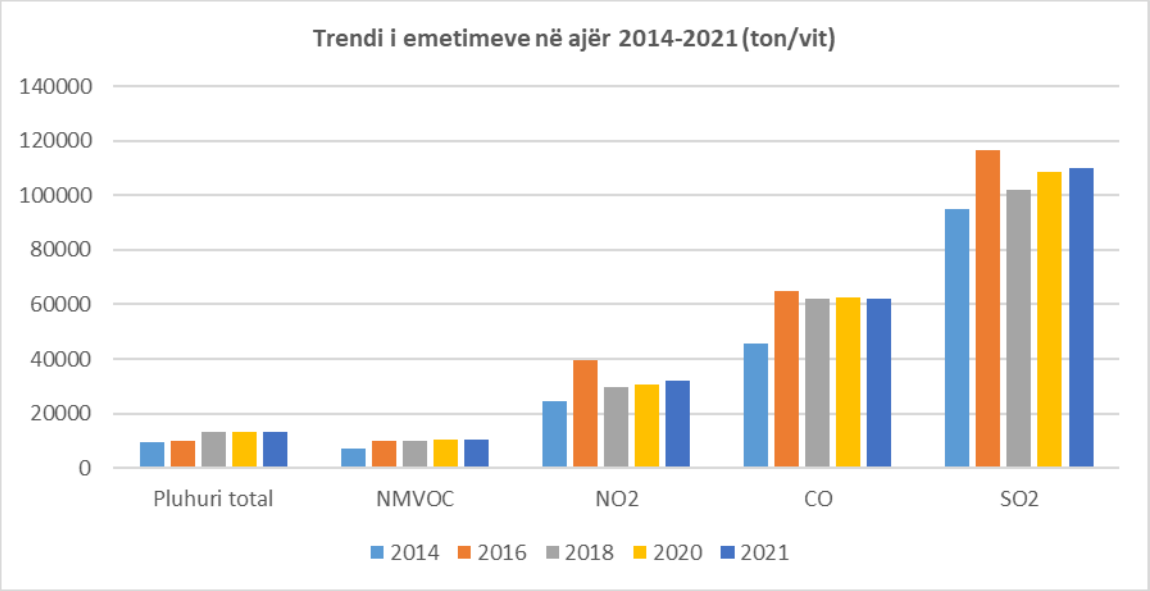


Figure 11. *The trend of emissions in the air 2014-2021 (tons/year)*

To reduce pollution and reduce emissions from different sources, it is required to draw up favourable 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 favour the use of alternative transport that has lower emissions into the air and apply the timelimit 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)

As part of the activities for 2023, KEPA carried out the assessment of greenhouse gas emissions for 2021 as well.
Annual greenhouse gas emissions in Kosovo for 2021 are estimated at 10617 Gg (Giga grams) CO2 eq, (equivalent) or about 10.6 million tons of CO2 eq. The main source of greenhouse gas emissions is the energy sector with a share of 87% of the total emissions.
The second sector is agriculture, forestry and land use with 7%. The waste sector represents 4% of the total emissions, while the industrial processes and product use sector represents about 2% (Table 4).

Table 4. Total greenhouse gas emissions in Kosovo by sector for the year 2021

Category (sector)	Gg CO_2 eq.	%
Energy	9223	87
Industrial processes and use of products	178	2
Agriculture, forestry and land use	746	7
Waste	470	4
Total emissions	**10617**	**100%**

2021, with 10617 CO_2 Gg eq., recorded an increasing trend of emissions compared to 2020, where 10266 CO_2 Gg eq. were calculated, and to 2019, where 9995 Gg CO_2 eq. were calculated.

The total greenhouse gas emissions in Kosovo are highly dependent on the amount of energy generated from coal, which is the main source of greenhouse gas emissions in our country.

The key categories of greenhouse gas emissions according to the IPCC are the energy industry, road transport, manufacturing and construction industry, enteric fermentation, solid waste disposal, cement production, urban waters, direct emissions from land management, management of fertilizer etc. For more details table 5.

Tabela 5. Key categories of emissions for 2021 according to IPCC

Category code according to the IPCC	Category according to the IPCC	Emitted greenhouse gas
1.A.1	Energy industries	CO_2
1.A.3	Road transport	CO_2
1.A.2	Manufacturing and construction industry	CO_2
3.A.1	Enteric fermentation	CH_4
1.A.4	Other energy sectors	CO_2
4.A	Solid waste disposal	CH_4
2.A.1	Cement production	CO_2
4.D	Urban waters and discharges into waters	CH_4, N_2O
3.C.4	Direct emissions of N2O from land management	N_2O
3.A.2	Management of fertilizer	CH_4
1.B.1	Solid fuels	CH_4
3.C.5	Indirect emissions of N2O from land management	N_2O

The main emitted gas is CO_2 making up 88%, Methane (CH_4) which makes up around 10% of the total emissions, while N_2O and HFC make up around 1% of the emissions (Figure 12).

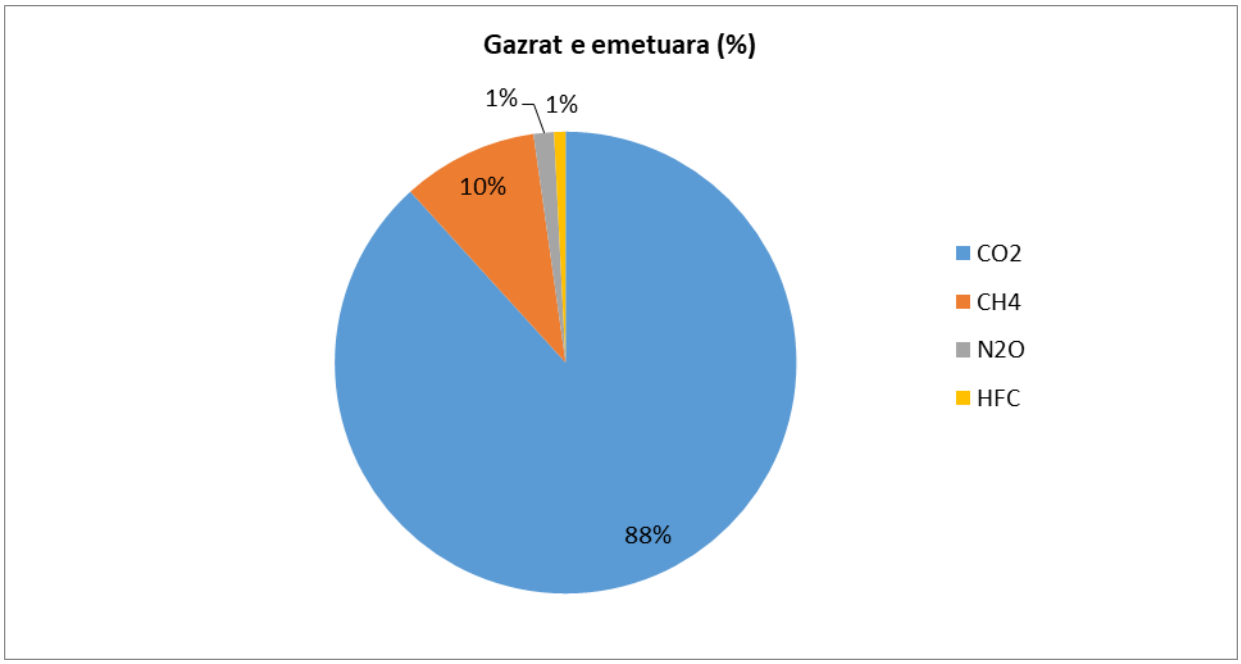


Figure 12. *Emitted gases (%)*

3.2. Water

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).

River monitoring stations monitored parameters and frequency of measurements are presented in Annex 4 and 5 of the Report.

In this report, the state of water is reflected through indicators (parameters): Dissolved oxygen (mg/l O_2), Biochemical Oxygen Demand – BOD_5 (mg/l O2), Chemical Oxygen Demand - COD (mg/l O_2), Total Organic Carbon-C (mg/l); Total Phosphorus – P (mg/l), and Total Suspended Matter-MTS (mg/L).

The values presented in the charts are average values for 2022.

Parameters such as Dissolved Oxygen (O2), Biochemical Oxygen Demand for 5 days (BOD_5), Chemical Oxygen Demand (COD), indicate the level of organic and

bacteriological pollution of water and belong to the set of parameters expected to be impacted from the above-mentioned phenomena, while the presence of phosphorus (P_{tot}) causes eutrophication in the waters.

Drini i Bardhë Basin – In this basin, the selection of monitoring points is made for two rivers, namely the Drini i Bardhë and Ereniku rivers (Figure 13), where the total suspended matter /mg/l (MTS) specifically in the monitoring stations along the river flow are presented as annual average values, by excluding the reference stations (sources).

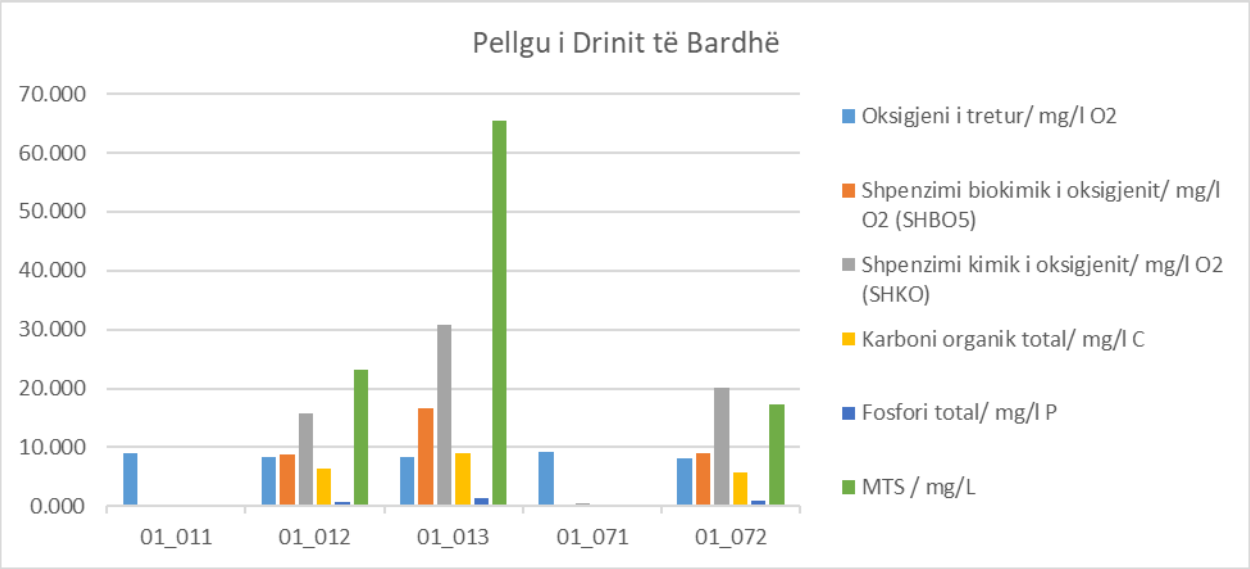


Figure 13. *Indicators selected by river water quality monitoring - KHMI 2022 (Drini i Bardhë Basin)*

Iber River Basin – In this basin, the selection of monitoring points have been made for these rivers: Ibri, Sitnica, Prishtevka, Graqanka and Drenica (Figure 14), where it can be seen that the river Prishtevka/Bresje, with almost all the presented parameters, shows higher values, because the stretch of the river itself is along the most populated area and it also includes industrial areas.

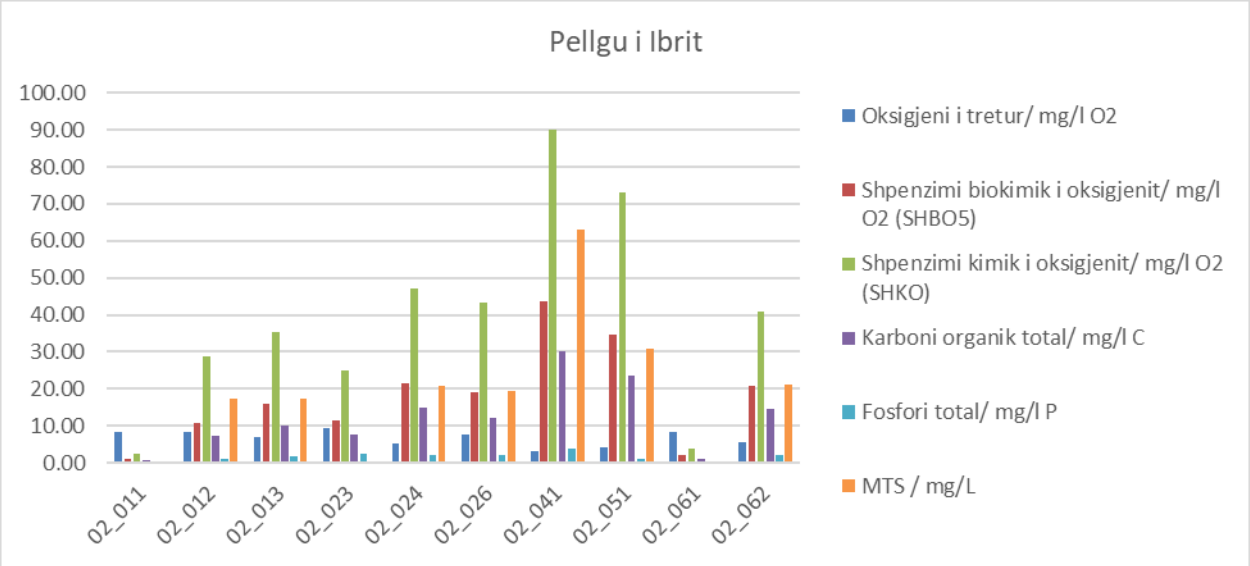


Figure 14. *Indicators selected by river water quality monitoring - KHMI 2022 (Iber River Basin)*

Morava e Binçes and Lepenci Basin - In the Morava e Binçes Basin, the Morava e Binçes River has been selected with four monitoring stations in total (Figure 15), where a notable increase of Chemical Oxygen Demand parameter is recorded. While in the Lepenci Basin, two rivers were selected, namely Lepenci and Nerodimja, where an increase in the Chemical Oxygen Demand along the river flow is indicated as well.

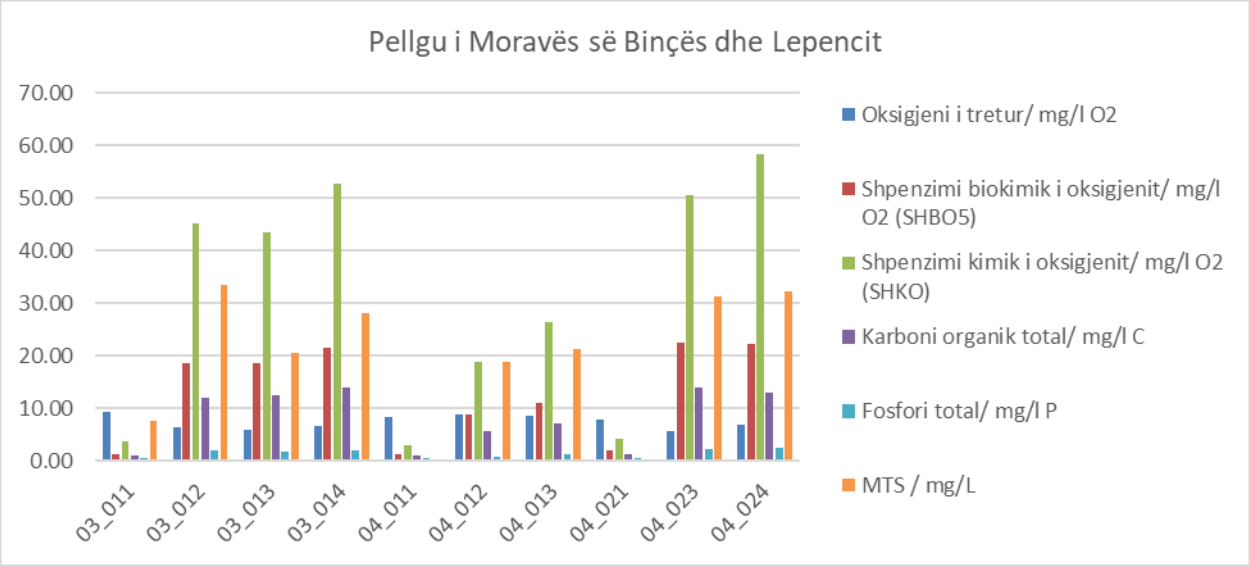


Figure 15. *Indicators selected by river water quality monitoring - KHMI 2022 (Morava e Binçës and Lepenci Basin)*

Based on these three charts (territorial stretches of all basins), indicating the presence of the amount of total phosphorus/ mg/l P, based on the analyses performed, 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 2022 chart range between 0.19 mg/l P (Ibër/Kushtove) and 3.88 mg/l P (Prishtevka/Bresje).

Also, the Biochemical Oxygen Demand (BOD_5) indicator during the monitoring period in 2022 shows that the calculated values range between 0.15 mg O_2/l Drini i Bardhë/Radavc and 43.65 mg O_2/l in the Prishtevka/Bresje River. This year as well, the Prishtevka/Bresje River is the river with the highest pollution in terms of the average annual value.

Although in natural conditions clean waters do not have at all BOD_5, this pollution is justified by the fact that surface waters are exposed to polluted water discharges through which optimal conditions are created for an increase of BOD_5 values.

Industrial development, urbanization and intensive agriculture are only some of the factors that affect surface water quality. The pressures in the waters come mainly as a result of 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, NH_4^+, etc.) and organic matter (PCB, Herbicides, etc.). Among the largest pressures on water bodies are the industrial discharges of various activities.

The indicators of the trend of the changing water status for 2021 and 2022 at the relevant monitoring stations that are included in this assessment are presented in Table 6.

Table 6. River water quality trend for 2021-2022

Monitoring stations	Dissolved Oxygen/mg /l O_2	Biochemical Oxygen Demand/ mg/l O_2 (BOD_5	Chemical Oxygen Demand/ mg/l O_2 (COD)	Total Organic Carbon/ mg/l C	Total Phosphorus /mg/l P	Total Suspended Matter/ mg/L (MTS)
RV01_011	↓	↔	↔	↓	↑	↔
RV01_012	↑	↓	↓	↓	↓	↑
RV01_013	↑	↑	↑	↑	↑	↑
RV01_071	↑	↑	↑	↑	↑	↔
RV01_072	↑	↓	↓	↓	↓	↑
RV02_011	↓	↓	↓	↓	↓	↓
RV02_012	↑	↓	↑	↓	↑	↑
RV02_013	↓	↓	↓	↓	↑	↑
RV02_023	↔	↔	↔	↔	No measurements	↔
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	↑	↓	↓	↓	↑	↑

Despite the continuous commitment, uncontrolled use of water resources and damage to river beds still remains one of the forms of degradation of our water resources.

3.2.2. Surface water amount

In addition to water quality, KHMI also monitors the water amount. The water amount is monitored through the hydrometric network, which consists of several measuring stations in the rivers where the measurements for the amount of water are performed. These stations measure the Level (H) and Feed (Q).
In Table 7, the data for water Level H (cm) and Feed (Q) obtained at hydrometric stations during 2022 are presented.

Table 7. Average annual values of the water level H (cm) by measuring stations for 2022 and the trend in relation 2021

Measuring station	Avg. (cm) 2021	Avg. (cm) 2022
Gjonaj	241	213
Këpuz	132	114
Deqan	No measurements	49
Grykë	76	72
Drelaj	60	67
Prizren	44	No measurements
Mirushë	62	58
Klinë	49	39
Leposaviç	180	164
Vragoli	89	No measurements
Nedakovc	186	174
Drenas	78	No measurements
Lluzhan	105	88
Lipjan	40	46

Mitrovicë	63	72
Orllan	No measurements	22
Mramor	No measurements	13
Lupç i Epërm	No measurements	27
Konçul	217	231
Viti	37	35
Domorovc	107	102
Hani i Elezit	78	71
Brod	41	37
Kaçanik	41	43
Mlikë	No measurements	68

Figure 16 presents the trend of the average annual values of the water Level H (cm) by measuring stations for the time period 2021-2022. Based on the figure we note that there has been a negative trend in 2022 in terms of the annual water level averages in most of the measuring stations. A positive trend or increase in the water level has been noted at the measuring stations in Drelaj, Mitrovicë and Konçul.

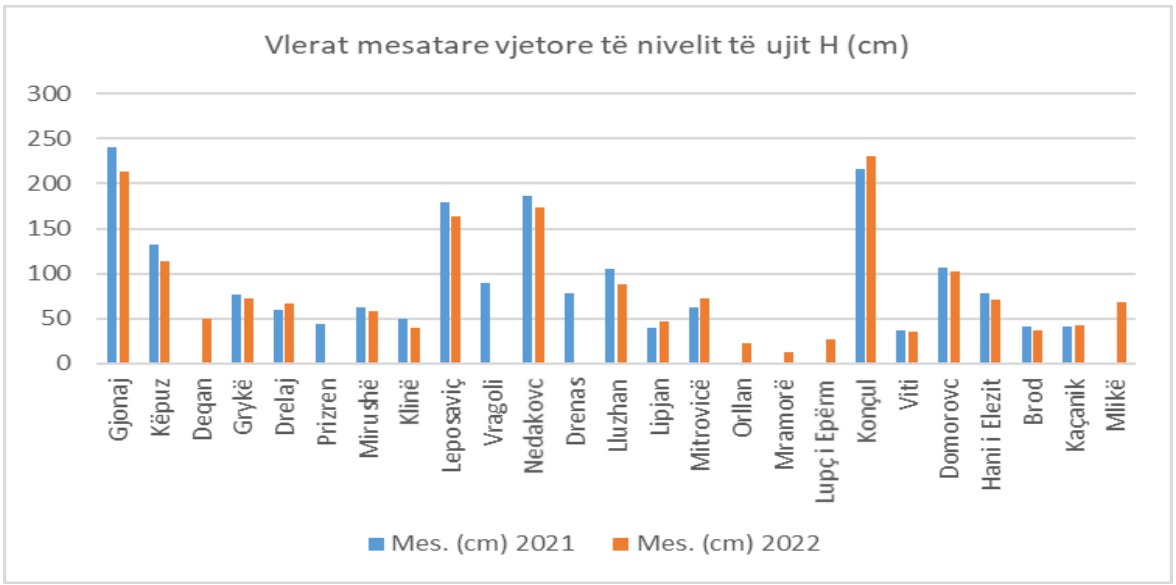


Figure 16. *The trend of average values of water level H (cm) 2021- 2022 by measuring stations.*

Table 8 presents the trend of the average annual values of Feed Q (m^3/sec) by measuring stations for the time period 2021-2022. Based on the table we note that there was a negative trend in 2022 in terms of the annual averages of feed in the stations: Gjonaj, Grykë, Lluzhan and Brod, while a positive trend in the measuring stations in Kaçanik.

Table 8: Average annual values of Feed Q (m^3/sec) by measuring stations 2021-2022

Station	Avg.(m^3/sec) 2021	Avg.(m3/sec) 2022
Gjonaj	89.649	61.209
Deqan	No measurements	1.74
Grykë	4.842	4.221
Prizren	1.943	No measurements
Lluzhan	3.819	2.088
Brod	1.394	1.282
Kaçanik	0.975	1.045
Mlikë	No measurements	1.367

3.2.3. Wastewater treatment

Kosovo has not yet developed a wastewater treatment system, as it is in the construction phase of wastewater treatment plants. According to the WSRA data, the service for the collection of polluted water within the RWC service area in 2022 was provided to 65% of the population [4].

Collected waste water is discharged into about 25 water bodies in a mostly untreated state, although the Kosovo legislation on the urban and industrial wastewater treatment regulated by Administrative Instruction No.30/2014 requires all polluters to apply a preliminary treatment of polluted waters before discharging them into water bodies.

Wastewater treatment by RWCs still remains at a low level with only 25% of the total amount of wastewater billed to consumers by all RWCs. This percentage is expected to increase, as a result of investments in wastewater plants. So far, there are 8 wastewater treatment plants in operation. These seven plants/systems treat residential wastewater in Skenderaj, Prekaz i Epërm, Prekaz i Poshtëm, Tërnavc (managed by RWC Mitrovica), Mramor and Harilaç (managed by RWC Prishtina), a part of the urban area of the city of Prizren (managed by RWC Hydroregion South), the urban area of the city of Peja, the settlement Qyshk (managed by RWC Hidrodrini) and a part of the urban area of the city of Gjakova (managed by RWC Gjakova).

According to the reported data, in all these treatment systems, the tests performed have shown that the treated water was 100% in compliance with the standards of biochemical oxygen demand and chemical oxygen demand.

[4] *Level of services provided by licensed providers- Compliance with license terms, WSRA 2022*

The wastewater treatment plants in Gjilan, Prishtina, Fushë-Kosovo, Obiliq, and Mitrovica are also at the stage of completion of works and operationalization. The wastewater treatment plants in Podujevë and Ferizaj are in the planning process, too.

There are also several other wastewater treatment plants with a small capacity in rural areas, namely in settlements of Skivjan (Gjakova), Kuk/Kosavë (Dragash), Vrellë/Medvec (Lipjan), Hallaq i Madh (Lipjan), Kramovik (Rahovec), Volljak (Klina), Marmull (Gjakova), Banja e Pejes (Istog) and Orllan (Podujeva).

3.3. Land/soil

Soil is one of the essential components of land, playing a crucial role in nature's cycles, particularly water and nutrients cycles. Soil is the source of 90% of all food, feed, fibre, and fuel production, and it also provides valuable raw material for the horticulture and construction sectors.[5]

The EU Soil Strategy for 2030 sets out a framework and concrete measures to protect and restore soils and ensure that they are used sustainably. It sets a vision and objectives for (transformation into healthy soil) to achieve healthy soils by 2050, with concrete actions by 2030.[6]

The implementation of policies for the protection of lands and for having them used in a sustainable manner must also be implemented by the Government of the Republic of Kosovo since we are part of the Stabilisation and Association Agreement with the EU and we aspire to be an integrated part of the Union.

The Strategy for Agriculture and Rural Development 2022-2028, drawn up by MAFRD, is oriented towards the development of agriculture and rural areas of Kosovo, the transformation of the agro-rural economy, and to a lesser extent the development and sustainable use of land in general.

3.3.1. Agricultural land use

The use of agricultural land for economic and infrastructural purposes in Kosovo is not in compliance with the concepts of sustainable development. The occupation of agricultural lands with solid concrete infrastructure, be it for residential or business purposes, and the opening of new roads, especially the expansion or opening of new highway lines, are continuously affecting the reduction of agricultural lands. The

[5] *https://www.eea.europa.eu/en/topics/in-depth/soil*
[6] *https://environment.ec.europa.eu/topics/soil-and-land/soil-strategy_en*

process of changing the destination of agricultural lands is preceded without hindrance by the use of these lands for construction purposes. On the other hand, the multiple fragmentation of agricultural lands into small plots is another form of reducing the use of agricultural lands for the cultivation of agro-economic plants.

In general, the use of agricultural lands, as well as pastures, has changed gradually with the fact that migration from rural areas to urban areas and permanent migration to western countries has been going on continuously.

According to the Green Report published by MAFRD, the utilized area of agricultural land is 420,326.60 ha. The largest area of land consists of meadows and pastures (constituting 51% of the utilized area of agricultural land). The category of arable land has a share of 44% of the total agricultural land. The area of tree plantations constitutes 2% of the total land, with vineyards making up 1% and gardens making up 1.8% of the area of tree plantations (Table 9).

Table 8. Utilization of agricultural land by category [7]

Agricultural land use	**Area (ha)**	**Area (%)**
Arable land – fields	188.375	44%
Garden	8.491	1.8%
Tree plantations	10.144	2.4%
Vineyard plantations	3.471	0.8%
Plant nursery	140	0.2%
Meadows and pastures	217.107	51%
Total utilized agricultural land area	**427.728**	**100%**

The privatization of agricultural lands by the Privatization Agency of Kosovo has continued in recent years too. The sale of agricultural lands and their privatization in 2021 recorded an increase of 0.4% compared to the previous year. The total area of agricultural land sold by 2021 was 30,823 ha. The largest area of land was sold in the regions of Peja with 11,687 ha, Prizren with 667,159 ha, Mitrovica with 634,911 ha, Gjilan with 326,317 ha, and the Prishtina Region with 285,159 ha.[8]

3.3.2. Land monitoring

Land monitoring should be part of the environmental monitoring program. Land monitoring is currently not included in the integrated system of general environmental monitoring.

Two main institutions responsible for land monitoring are MAFRD through the Agriculture Institute and MESPI through the Hydrometeorological Institute. The

[7] *Green Report 2022, MAFRD*
[8] *Green Report 2022, MAFRD*

Kosovo Agriculture Institute (KAI) is responsible for monitoring agricultural lands, while the Hydrometeorological Institute (KHMI) is responsible for monitoring polluted industrial soils and other polluting factors in public areas. Currently, KHMI is short of staff for land monitoring and lacks laboratory tools for this purpose, even though there are some technical equipment for XRF-type analysis (with radioactive rays) for heavy metals and a mill for grinding the soil—tools that are a donation from an EU project.

Monitoring of land pollution in industrial, mineral, and other potentially polluting areas is of specific importance in order to record and determine the level of pollution. This monitoring would help in the identification of land pollution indicators by providing information on areas with polluted land, the variability of the land ecosystem, the risk of possible land pollution, and relevant information to prepare policies about rehabilitation, land use, and solving land management problems.

3.3.3. Land pollution

Due to the lack of continuous monitoring of the state of the land, it is difficult to collect data and assess the state of the land. However, on the basis of data from various projects and the sectoral impacts on the state of the land, it can be concluded that there are several different sources of land pollution (Table 10).

Land pollution is mainly caused by polluting economic operators and the mineral industry, chemical preparations used in agriculture, transport, waste, untreated urban and industrial wastewater, etc.

Industrial pollution, particularly from the generation of hazardous substances, is the most frequent form encountered throughout the country. Currently, 17 locations with waste and hazardous chemicals located in various industrial areas[9] are considered sources of land pollution. On the other corner, the forms of physical degradation of the land, especially the lands around the rivers, are under constant pressure of degradation and pollution from the use of aggregates. The degraded surface of the land around the rivers throughout Kosovo is estimated to be over 1762 ha[10]. The extent of land pollution around these industrial locations with hazardous waste and chemicals yet remains unknown. Also, we do not have information on the degree of pollution in certain agricultural areas as a result of the use of chemical preparations for the protection of plants from pests. According to MAFRD, during 2019–2022, around 220,785,538.02kg of chemical preparations and fertilizers were imported. We do not have accurate information from MAFRD indicating how much of this quantity of chemical preparations or chemical fertilisers was used.

[9] *Report on hazardous industrial waste in Kosovo 2019, MESP/KEPA*
[10] *Report on the environmental condition of rivers caused by the use of sand and gravel, 2022, KEPA*

Table 9. Land pollution sources in Kosovo

Agriculture	Municipal waste	Sanitary landfills	Chemicals and hazardous waste	Industry	Mines	Other sources
Agricultural malpractices. Indiscriminate use of pesticides and fertilizers	Inefficient solid waste management. Waste disposal without criteria and standards	Wastewater runoff and waste disposal from poorly managed landfills	Unsafe storage of chemicals and hazardous waste	Mismanagement of industrial waste and its disposal on land surfaces without criteria and standards	Leakages of harmful substances from mines and mining waste landfills	Old car yards and auto repair shops
78,976,185 kg of different types of fertilizers were used, while 122,138 ha of land were treated with pesticides.	763 illegal unmanaged landfills have been identified	There are 8 sanitary landfills which are not managed according to standards and criteria	About 17 locations with hazardous chemicals and waste have been identified	There are several large industrial operators generating industrial waste that operate	There are dozens of mines and mine waste dumps that have not been rehabilitated	Used oils and other car waste

According to the assessments of the state of the environment, the factors impacting the deterioration of the land condition are;

- Inefficient implementation of the legal infrastructure on land and the lack of a strategy for the protection of land from pollution;
- Change of land destination and use for construction infrastructure, transport, economic activities, land fragmentation, and lack of land consolidation;
- Discharges of pollutant emissions from heavy industries and mines, economic operators, untreated urban and industrial waters, agricultural and urban waste, etc.
- Lack of a land monitoring system and determination of pollution level,
- Lack of a program for the rehabilitation and treatment of contaminated industrial and mining land

3.4. Waste Management

Municipal waste management continues to be a path with many challenges, both at the local and central levels. 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 drafted 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. Nonetheless, despite the commitments to improve the state of waste management, difficulties of various natures are still being encountered. (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 in 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 foreseen under the Strategy and Action Plan, such as feasibility studies for sanitary landfills, non-use or application of a tax for plastic bags, research of the situation regarding the commencement of the implementation of the 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 assesses that it is the time for stakeholders who are responsible for municipal waste management to start initiatives that lead to integrated waste management, first of all, the application of the **3R** model (reduction of waste generation, its reuse, as well as recycling), since only this form of waste management consists of sustainability and other benefits, be they environmental but also economic and social.

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

Of course, concrete analyses and research are required for these types of waste in the first place to have a clearer picture of their state as well as specific investments in order to bring their management under full control in order to improve their state and consequently eliminate the negative impact on health and the environment.

The state of sanitary landfills for the disposal of municipal waste continues to deteriorate from year to year as a result of many factors, with special emphasis on their inadequate management, lack of investment, exceeding planning capacities for waste disposal, etc.

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

It must 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 presents 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 appropriate way to know and correctly 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.

3.4.1. Municipal waste generation

The data on the amount of waste generated at the municipal level are obtained from the municipalities reporting to KEPA. In order to facilitate reporting, KEPA has developed an electronic reporting system with the support of GIZ. For 2022, reporting was done for the first time through the web application, where 33 municipalities reported. Since this reporting format was used for the first time, of course, there were also challenges in understanding the way the web application operates, and consequently, the reported data is still under the process of

verification, while the data presented in this report are preliminary data.

Table 11 shows the municipal waste generation data for municipalities in 2021 and 2022.

It should be mentioned that this waste generation result is based solely on the amount of waste collected by waste collection and transport operators, and consequently, it does not include the entire amount of waste that is in reality generated in the municipalities.

Table 10. Generation of municipal waste kg \per capita\year (2021 & 2022)

Municipality	Collection of waste tons/year	Generation kg/per capita/year	Collection of waste tons/year	Generation kg/per capita/year [11]
	2021	2021	2022	2022
Prishtina	76,339.00	212.13	71,515.00	197.06
Drenas	7,458.10	150.33	7,209.77	143.61
Fushe-Kosove	17,626.83	253.81	17,972.20	241.75
Graçanica	4,503.26	252.80	5,453.49	0.00
Lipjan	13,053.12	243.47	13,279.00	239.47
Obiliq	7,152.62	390.52	7,138.20	381.58
Podujeva	18,139.50	300.22	17,090.00	284.15
Mitrovica	21,967.00	306.06	25,995.00	364.82
Skenderaj	7,464.06	208.55	7,098.00	179.50
Vushtri	19,596.85	209.53	19,456.00	278.46
North Mitrovica	0.00	0.00	0.00	0.00
Zveçan	2,430.00	363.15	0.00	0.00
Zubin-Potok	0.00	0.00	0.00	0.00
Leposaviq	0.00	0.00	0.00	0.00
Peja	36,063.00	391.97	36,164.00	376.12
Istog	16,256.30	459.88	11,892.00	374.20
Klina	9,758.70	258.90	9,173.00	242.81
Prizren	49,839.86	235.31	49,409.00	259.41
Suhareka	15,181.54	265.98	13,776.00	230.67
Malisheva	10,596.00	180.38	10,243.70	169.15
Rahovec	14,426.90	200.35	14,611.00	199.78
Dragash	7,952.00	313.77	7,490.00	246.00
Mamusha	1,080.00	243.96	1,080.00	229.81
Ferizaj	23,476.48	283.74	27,995.50	281.13
Kaçanik	3,942.74	170.70	5,859.00	181.39
Shtime	4,486.51	224.51	4,621.00	225.31
Hani i Elezit	2,313.31	257.36	2,300.00	241.77
Shtërpcë	1,827.34	289.26	0.00	0.00

[11] *The data for 2022 are preliminary data, since we are still in the process of assessing the received reports.*

Gjilan	25,124.14	298.79	25,398.00	328.11
Kamenica	5,493.55	225.01	5,297.50	205.75
Viti	6,351.20	209.63	6,366.00	192.31
Novobërdë	2,181.15	444.77	2,149.00	406.64
Partesh	563.36	138.42	0.00	0.00
Kllokot	925.48	232.28	0.00	0.00
Ranillug	1,118.33	301.58	0.00	0.00
Gjakova	25,585.22	322.61	24,801.00	305.02
Deçan	8,298.40	176.69	8,316.00	160.88
Junik	818.09	107.41	920.00	126.84
Country level	**469,389.94**	**240.10**	**460,068.36**	**248.72**

3.4.2. Analysis of the composition of municipal waste

The analysis of the composition of municipal waste is of particular importance since it provides for both the central level and the local level better knowledge of the state 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 those that concern recycling and composting by aiming for the minimization (maximum) of waste generation.

This analysis is quite important because it reflects a database of the types of waste that are generated during a year in terms of quantity and quality, based on the total amount of waste generated within the year.

The analysis of the composition of municipal waste was carried out for 1 year, from October 2021 to November 2022, in the 7 regions of Kosovo, in the municipalities of Prishtina, Prizren, Ferizaj, Gjakova, South Mitrovica, Gjilan, and Peja. The samples were taken in 4 areas of the cities, including collective, individual residential premises, 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 “Pastertia”, 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 11. Composition of waste [12]

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%
Plastic	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%
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%

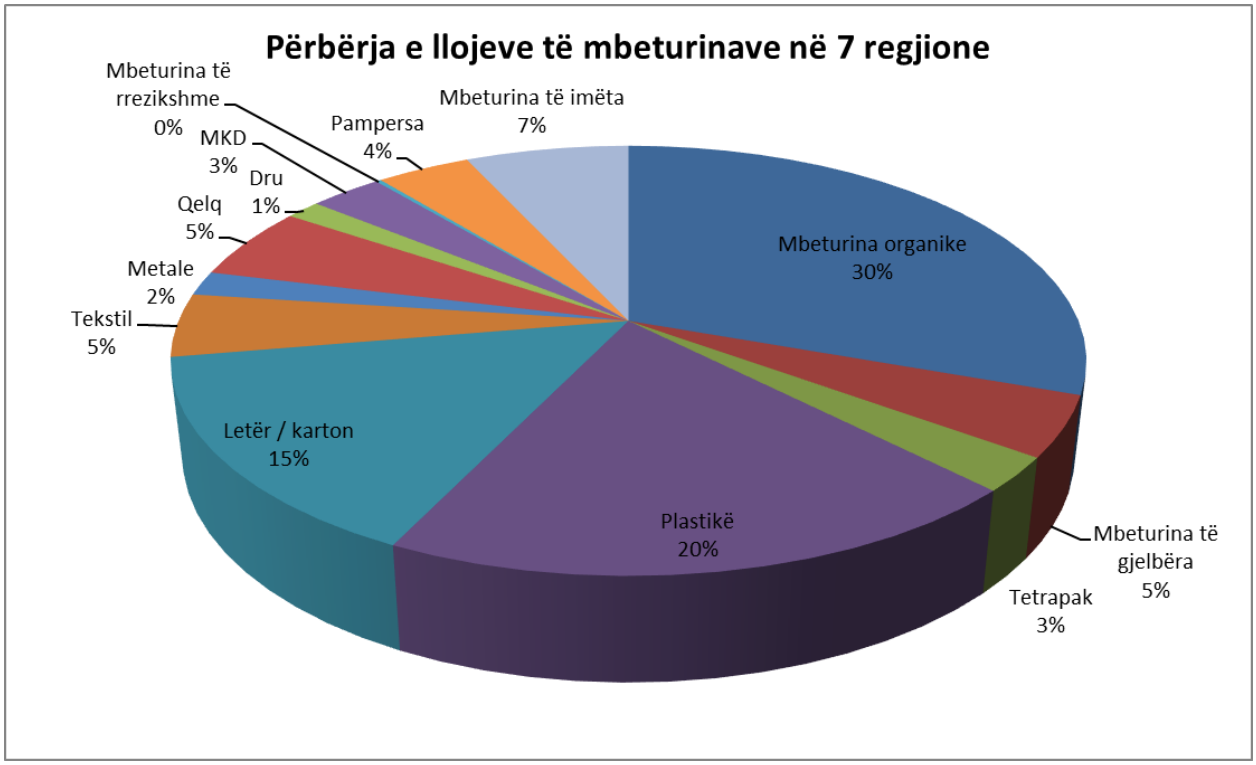


Figure 17. *Composition of waste in Kosovo*

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

3.4.3. Municipal waste disposal in sanitary landfills

The amount of municipal waste that is generated at the country level, as seen in the following charts, has a trend of continuous growth. Over 90% of the amount of waste generated ends up in controlled landfills, while the rest ends up in illegal landfills, and a part is collected by the informal sector for trading purposes. In 2022, an increase was recorded in waste disposal in the amount of 43,623 tons, or 9.77% more compared to the previous year 2021 (Figures 18 and 19).

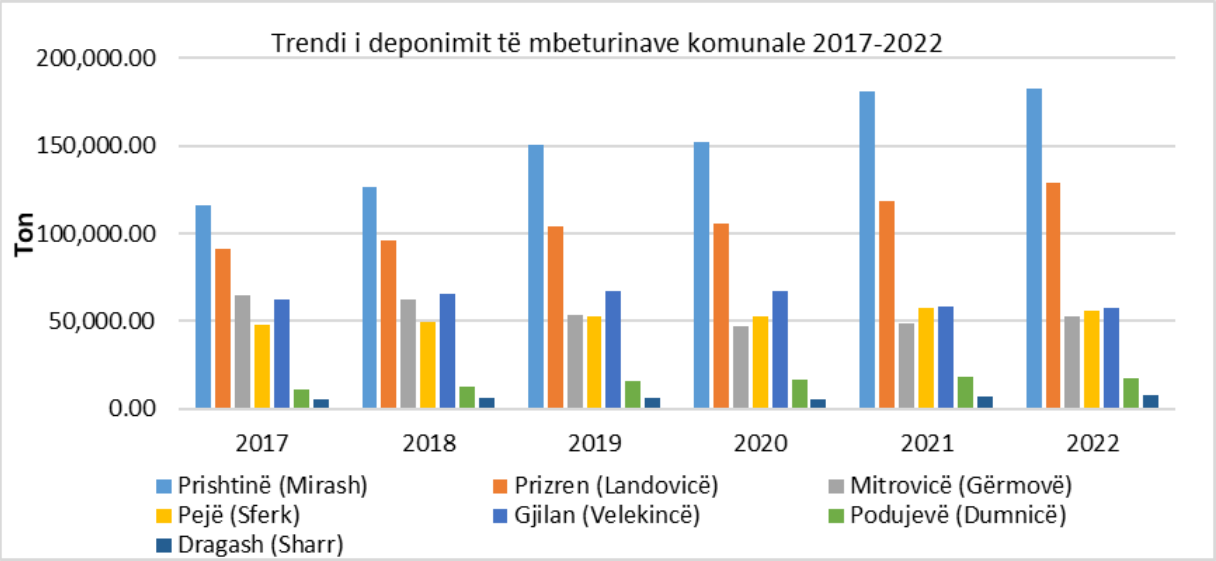


Figure 18. *Municipal waste disposal in sanitary landfills in Kosovo, 2017-2021*

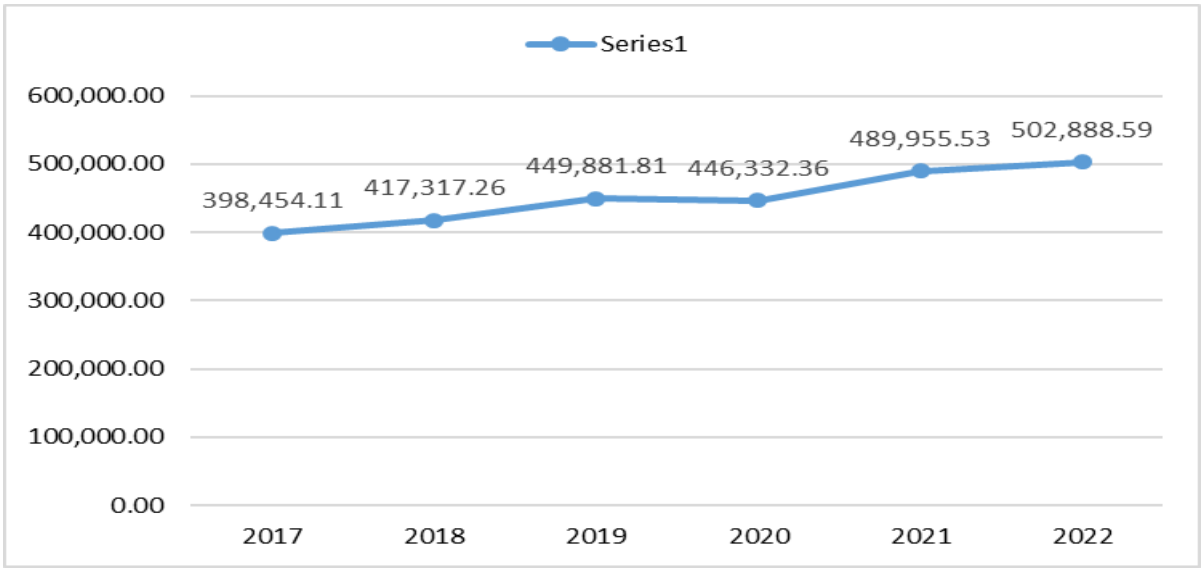


Figure 19. *The trend of municipal waste disposal in Kosovo, 2017-2021*

The largest amount of waste in 2022 was deposited in the sanitary landfill in Mirash

(Prishtina) with 182,701.42 tons, while the smallest amount was in the sanitary landfill in Dragash with 7,490.00 tons.

Waste disposal in the sanitary landfills managed by KLMC: Mirash (Prishtina), Dumnica (Podujeva), Velekinca (Gjilan), and Landovice (Prizren) recorded an increase of 10,550.3 tons or 2.8% in 2022 compared to 2021.

Whereas in the regional sanitary landfill in Mitrovica (Gërmovë), 52,857.9 tons or 7.8% more waste was disposed of in 2022 compared to 2021, while in the sanitary landfill in Peja in 2022, 5,6007.4 tons or 3.02% less waste was disposed of compared to 2021.

In the sanitary landfills of Dragash and Podujeva, only the waste generated in the respective municipalities is disposed of.

Thus, in the landfill of Podujeva, in 2022 we have a decrease of 341 tons in disposal of waste compared to 2021, so we have 17,451 tons of waste that have been disposed of, while in the sanitary landfill of Dragash, we have an increase of 297 tons of waste disposed of compared to 2021, namely a total of 7,490 tons of waste disposed of.

3.4.4. Hospital waste

A spectrum of hospital waste generated in hospital centres and other health care institutions in Kosovo is subjected to treatment through the sterilization process using sterilizers, which are located within 8 hospital centres.

Based on the data reported and estimated by these hospital waste treatment centres, in 2022 we see an increase of 157,970 kg of more waste that has been treated and sterilized, respectively 920,780.25 kg of waste, or 20% more compared to 2021.

The largest amount of this waste in 2022, as in previous years, was treated in the plant operating in UCCK, namely the amount of 610,564.2 kg, followed by the plant in Prizren with an amount of 106,782.7 kg, while the smallest amount was treated in the plant in the Hospital Center in Gjakova with only 1,288.0 kg of treated waste (table 13).

Another spectrum of hospital wastes such as pathological waste and expired drugs, undergo the process of their disposal pursuant to the applicable legislation.

Table 12. Amount of sterilized hospital waste in 8 regional hospital centres

Plant	2017	2018	2019	2020	2021	2022
Unit	kg	kg	kg	Kg	kg	kg
Prishtina	246,587	360,819	487,169	766,34740	465,335	610,564
Prizren	110,541	100,175	97,195	96,227	96,290	106,782
Peja	49,351	49,215	45,720	50,4800	47,560	44,678
Ferizaj	8,901	35,465	39,215	37,664	39,934	38,914
Gjilan	36,791	26,460	29,859	40,748	42,046	39,689
Gjakova	2,171	2,951	3,357	3,159	3,284	1,288

Mitrovica	79,359	72,323	85,149	68,214	67,174	76,250
Vushtrri	1,6475	2,504	2,580	632.61	1,185	2,613
Total	**535,349**	**649,914**	**790,245**	**1,063,472**	**762,809**	**920,780**

3.4.5. Waste treatment

Based on the data published by the Kosovo Agency of Statistics, in the regular surveys conducted in relation to the treatment of municipal waste[13], which include the actors dealing with waste treatment for 2021. The following chart reflects the percentage of each category of waste treated.

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 classic disposal, followed by paper and cardboard waste, plastic, etc. The forms of treatment have been disposal, sterilization, recycling, respectively their separation and classification.

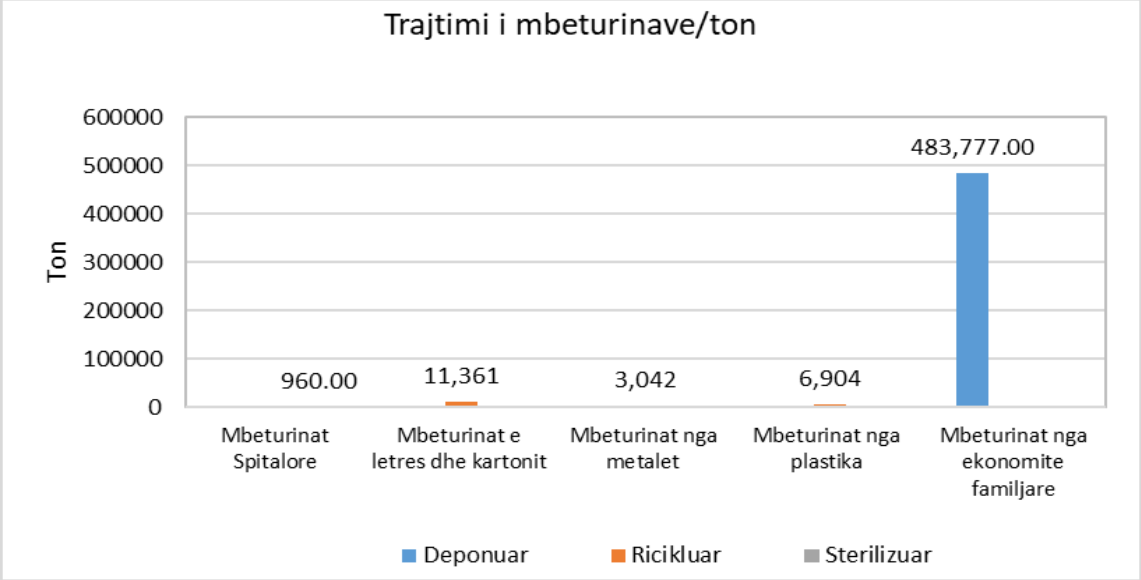


Figure 20. *Waste treatment in Kosovo, 2021*

3.4.6. Industrial waste

The results from the industrial waste survey[14] show a progressive growth trend in industrial waste generation since 2019 (see the chart below). Thus, in 2021 there was an increase of 3.6% compared to 2020 when 2,137,928.00 tons of industrial waste were generated, respectively 5.6% more compared to 2019.

[13] *KAS, Waste Treatment Survey, 2021*
[14] *KAS, Industrial Waste Survey for 2021*

In 2021, a total of 2,212,927.00 tons of industrial waste were processed. The forms of processing have been: disposal, burning, and recycling.

Specifically, 1,220,962.00 tons of industrial waste were disposed of, 1,446.00 tons were burned, 159,602.00 tons were recycled, and 830,917.00 tons were sent elsewhere (Figure 21).

The data for 2021 indicate that the largest amount of waste generated by industry sectors was in: Sector D (Electricity, gas, steam and air conditioning supply) with 1,267,879 tons and Sector B (Ores and Quarries) with 562 343 tons (Figure 22).

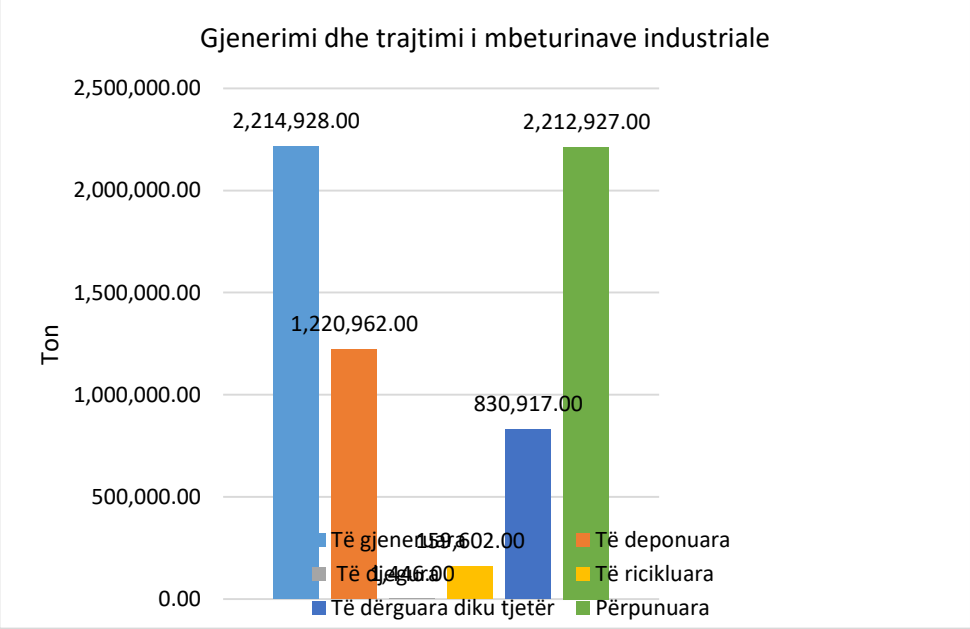


***Figure 21**. Industrial waste generation and treatment in Kosovo, 2021*

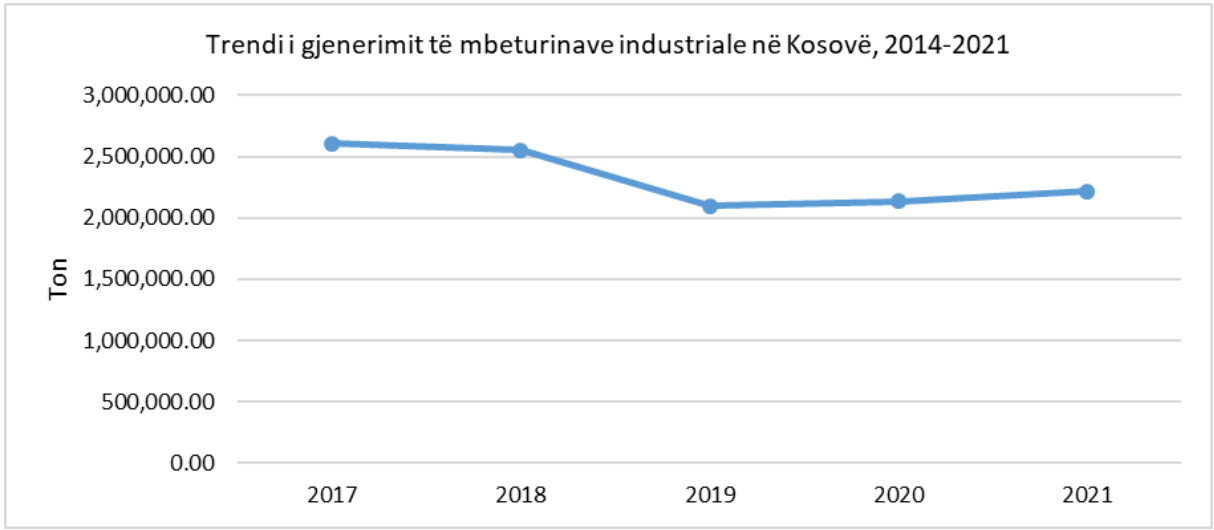


***Figure 22.** The trend of industrial waste generation in Kosovo 2017-2021*

3.4.7. Import and export of plastic sacks and bags

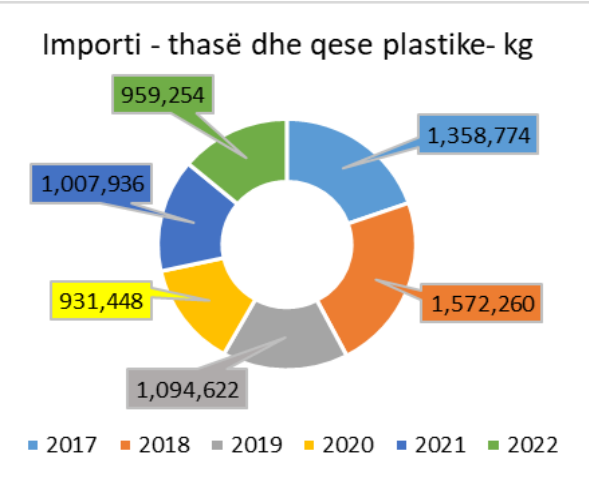
The pollution of the environment with plastic waste is a very disturbing phenomenon that our country is constantly facing. The extensive use, especially of single-use plastic bags, contributes a lot to the pollution of the environment with plastic waste.

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

A large part of the total amount of municipal waste generated by households, as well as by economic and industrial activities, consists of plastic bags and sacks.

Based on the data obtained from Kosovo Customs, the amount of plastic bags and sacks imported in 2022 is 959,254 kg, thus recording a decrease of 5% compared to 2021. On the other hand, in 2022, 140,736 kg of plastic sacks and bags were exported, recording a large drop of 95% in exports compared to 2021, when the amount exported was 2,724,243 kg (Figures 23 and 24).

It is worth mentioning that MESPI is in the process of drafting the Administrative Instruction for packaging, wrapping and packaging wastes, whereby the issue of the use of plastic bags is also being regulated, by imposing a tax on their use.



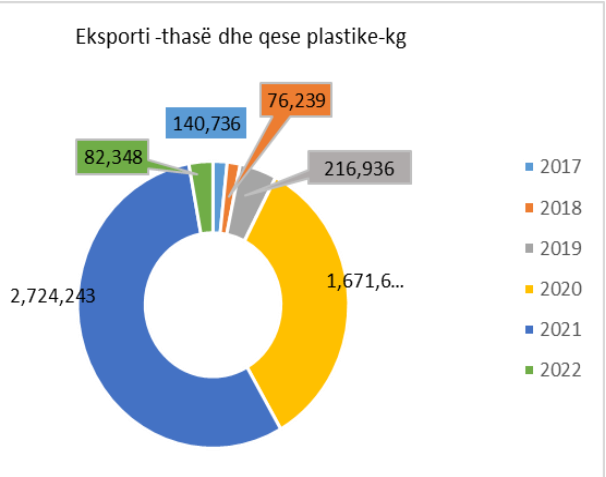


Figure 23. *Amount of imported plastic sacks and bags, 2017-2022 and* ***Figure 24.*** *Amount of exported plastic sacks and bags, 2017-2022*

3.5. Protection of nature and biodiversity

3.5.1. Protected areas

In the chronology of the announcement of protected nature areas, four time periods can be distinguished which are related to the general developments in Kosovo. After the 1999 war, significant results were recorded in the increase of the total number of protected areas as well as in the expansion of protected nature surfaces of all categories (figure 25).

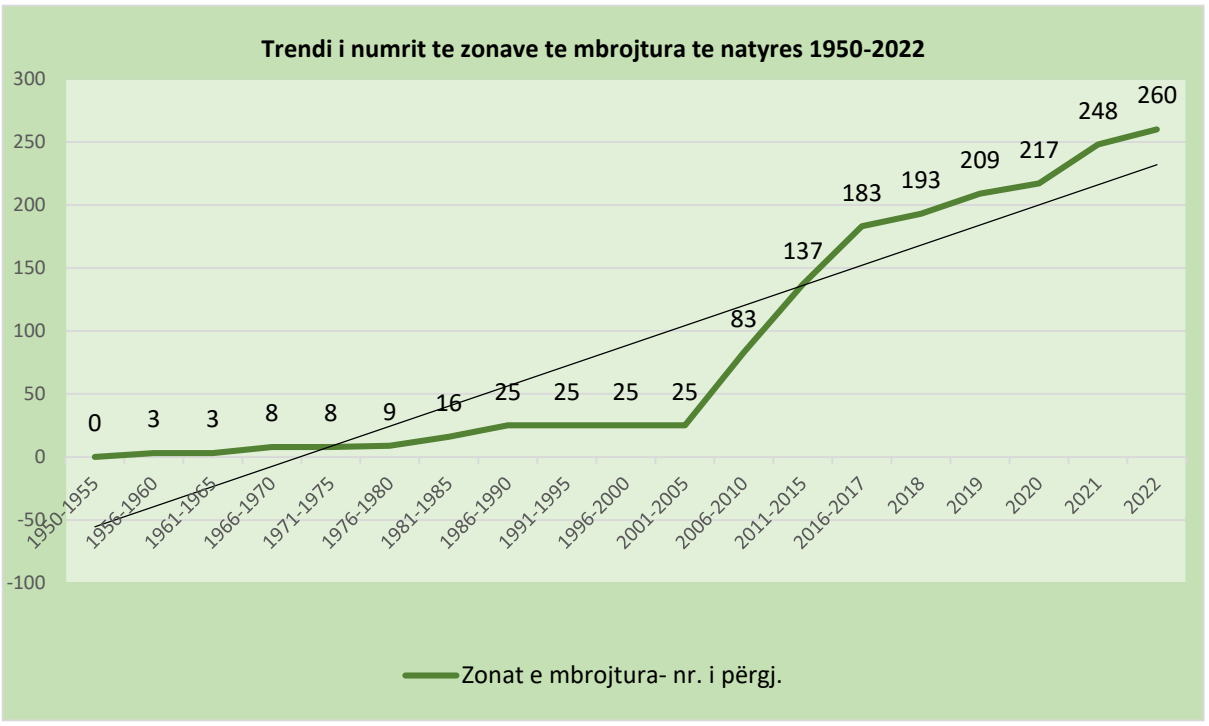


Figure 25. *Number of protected nature areas 1950-2022*

The period 1950 - 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. Until the beginning of the 70s, the number of protected areas had reached 19 (nineteen).

The period between 1970-1988 is characterized by the announcement of a significant number of protected areas, which is related to the establishment of the Kosovo Nature Protection Agency in 1974. In this period, a total of 32 areas were placed under protection.

In the period 1989-1999, there was complete stagnation regarding the declaration of protected areas.

The period after 2000 is characterized 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, about 200 different areas have been

taken under legal protection and more than 30 other areas have been proposed for protection. Among the protected areas, the following should be singled out: "Bjeshkët e Nemuna" National Park (2013), NP "Sharri" (expanded), Mount Pashtrik and Lake Vërmica, Wetland of Henc - Radeva, etc. Most of the areas are natural monuments with a botanical, hydrological, geomorphological, speleological character, etc.

The total number of nature-protected areas in Kosovo (2022) is 260, which includes an area of 126,115.8 ha, or 11.6% of the area of Kosovo. These areas include 19 Strict Nature Reserves ("Arnen Reserve", "Maja e Ropsit", "Rusenica", "Kamilja", etc.), 2 National Parks (NP "Sharri", NP "Bjeshket e Nemuna"), 230 Natural Monuments ("The Source of the White Drin with the Radavci Cave", "The Gadima Cave", "Mirusha Waterfalls", "The Rugova Gorge", "The White Drin Canyon of Ura e Fshejte", "Trungu i Rapit in Marash", etc.), one (1) Nature Park ("Pashtrik Mountain and Lake Vërmica"), seven (7) Protected Landscapes ("Shkugeza" and "Pishat e Deçani", etc.) and one (1) Special Protected Area of Birds ("Henci-Radeve Wetlands").

Table 13. Protected Nature Areas by category (2022)

Cat. of the IUCN	Title	No.	Surface/ha	Part. in the total surf. of the PA	Part of the PA in the surf. of Kosovo
I	Strict Reservations of	19	10,882.96	7.7	0.99
II	National Parks	2	115,957	82.1	10.6
III	Natural Monuments	230	6,173.90	4.4	0.5
V	Nature Park	1	5,934	4.2	0.5
V	Protected Landscape	7	2,319.85	1.6	0.3
V	Special Protected Bird Area	1	109.5	0.08	0.01
	Total	**260**	**126115.75**[15]	**100**[16]	**11.56 %**

The largest area of protected areas is made up of the National Parks: "Bjeshket e Nemuna" and "Sharri", the Nature Park "Mali Pashtrik and Lake Vërmicë", the Protected Landscape "Germia" and "Ushton lumi", etc., MNRV "Mirusha Waterfalls" and MN "Boshtre Locality in Goleshi area", etc.

[15] *Clarification: this surface of protected areas does not include the protected areas located within the "Sharri" and "Bjeshket e Nemuna" National Parks.*
[16] *Clarification: the percentage is derived from the total area, including the surface of protected areas within national parks.*

In 2022, 12 new natural values were taken under legal protection, of which 11 natural monuments and 1 protected landscape (in the territory of the municipalities: Lipjan 9 natural monuments, Podujeva 1 natural monument and a protected landscape and Ferizaj 1 monument nature).

3.5.2. Flora and vegetation

The geographical position, climate and ecological conditions have enabled our country to be a very rich region in terms of biodiversity. This is based on the fact of the presence of different types of vegetation, flora and fauna, including local endemic species. It is also notable for its high diversity of genetic resources, species and ecosystems. According to the notes of various authors, it is thought that in Kosovo there are approximately 2800 - 3000 types of vascular flora.[17]

In the number of taxa included in the Red Book of the Vascular Flora of Kosovo according to Raunkier, Hemicryptophytes dominate with 155 taxa, then Geophytes with 32 and Kamephites with 27. In smaller numbers are Phanerophytes with 19 taxa and the least Therophytes with only 4 taxa. While the number of species according to their danger based on the IUCN categories is: 1 species extinct in the wild, 62 critically endangered species, 86 endangered species, 19 endangered species, 34 near endangered species and 35 less endangered species



Figura 26. *Albanian tulip (Tulipa albanica) (Photo: Xh. Mala))*

Moss - According to research, 359 species of moss have been identified in the territory of Kosovo, mainly in the "Sharri" and "Bjeshket e Nemuna" National Parks.

[17] *The red book of the vascular flora of the Republic of Kosovo*

Within this number, 21 species are part of the list of threatened species for Europe, while 164 are threatened for South-Eastern Europe (Table 15).

Table 14. Number of moss species in Kosovo and threat status[18]

	Total Kosovo	NP 'Sharri'	NP 'Bjeshkët e Nemuna'	PM Gërmia	Region of Mitrovica
Number of species identified	359	255	239	76	25
Type in 1000 km	33	654	379	1226	76
Threatened to Europe	21	9	11	1	1
Threatened to SE Europe	164	123	127	25	3

Mushrooms - According to research, 223 types of mushrooms have been identified in the territory of Kosovo, represented by 143 genera and 43 families (Table 16). According to the risk status, 57% of the species belong to species with rare status, 40% belong to species with very rare status, and 3% belong to species with extremely rare status. According to the available data, in Kosovo (Sharr Mountain) there is an extremely rare type of mushroom (Zeus Olympius) that, in addition to Kosovo, also spreads on Mount Olympus in Greece and Mount Pirin in Bulgaria.

Table 15. Number of mushroom species in Kosovo [19]

Types of mushrooms	Number of families	Number of genders	Number of species
Ascomycota	10	13	16
Basidiomycota	46	126	202
Mixomycota	2	4	5
Total	**43**	**143**	**223**

Vegetation - The vegetation of our country is classified into: 139 associations or phyrocenoses, 63 alliances, 35 orders and 20 classes, which present characteristic ecosystems, which are also habitats for many animal species. The vegetation of lowland meadows is classified into 4 associations belonging to 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.

Forest Index - The Forest Landscape Integrity Index (FLII) is an annual global forest condition index that measures forest modification as a result of anthropogenic impacts.

[18] *The study of mosses within the territory of Kosovo, taxonomic and ecological view, Zenel Krasniqi, PhD Thesis, University of Tirana, 2021*

[19] *Fungi in Kosovo – the Preliminary Data of their Diversity and Ecology, Mitko Karadelev, Ss. Cyril and Methodius University Faculty of Natural Science and Mathematics, Skopje, Macedoni*

Kosovo is also included in this index realized. According to this assessment, the Index of Kosovo's forests is 5.19, compared to the highest value of the index, which is 10. Only 1% of Kosovo's forests are categorized with high vulnerability, while 59% with low vulnerability and 41% with medium vulnerability.

Table 16. Inviolability index of Kosovo's forests[20]

The surface with low impermeability (km²)	2,628	59 %
Surface with medium impermeability (km²)	1,775	41 %
Surface with high impermeability (km²)	47	1%
Total forest area (km²)	4,450	100%
Forest index value for Kosovo	5.19	10

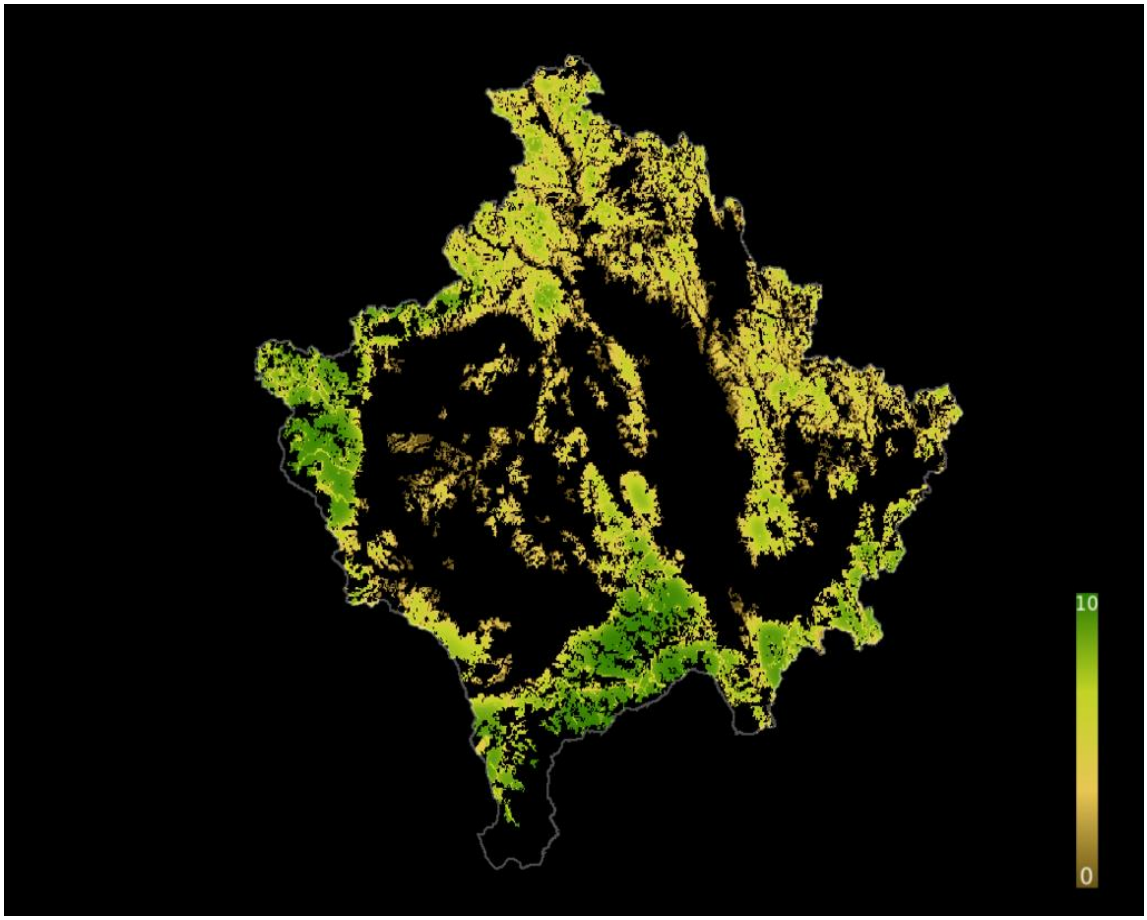


Figura 27. *Map of the Kosovo Forest Impermeability Index*

3.5.3. Fauna

Kosovo falls among the countries with the richest and most heterogeneous fauna of the Balkans Peninsula. This faunal richness is a result of the numerous influences of the Mediterranean, Euro-Siberian and Nordic-Alpine regions, as well as frequent changes in ecological conditions from the past.

[20] *https://www.forestintegrity.com/*

In our country, there are species of mammals and birds that are quite rare for the Balkans region and wider. Some of them are relics threatened with extinction and are therefore on the lists of international conventions.

Based on current research and literature notes, over 300 wild species of vertebrates live in Kosovo, of which over 30 species of fish, over 20 species of water species, over 25 species of reptiles, over 200 species of birds and over 100 species of mammals (Table 17).

Table 17. Estimation of the number of fauna species according to groups in Kosovo and number three on the IUCN Red List

Group	Estimation of the number of species	Number of species on the IUCN Red List
Invertebrates	>600	65
Insects	>130	140
Fishes	>30	15
Amphibians	>20	13
Reptiles	>25	20
Poultry	>200	24
Mammals	>100	39

Table 18 presents the data on the average density of some populations of wild mammals in Kosovo.

Table 18. Average population density for some species of wild mammals21

Species	Density/compactness (individual/km)		Size of forest populations	
	Mesatar	Shtrirja	Mesatar	Vargu
Red fox (*Vulpes vulpes*)	1.03	0.58-1.55	4935	2778-7433
Grey wolf (*Canis lupus*)	0.08	0.04-0.12	374	202-584
Wild boar (*Sus scrofa*)	1.34	0.78-1.97	6469	3754-9460
Deer (*Capreolus capreolus*)	3.19	1.90-5.00	15334	9126-24059
Dadger (*Meles meles*)	0.08	0.03-0.14	364	146-656
Wild rabbit (*Lepus europeus*)	1.81	0.94-2.82	8728	4524-13572
Squirt (*Martes foina*)	0.36	0.16-0.59	1720	789-2831
Wild cat (*Felis sylvestris*)	0.08	0.03-0.13	381	152-648
Brown bear (*Ursus arctos*)	0.25	0.12-0.41	1190	596-1966

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

4. Use of natural resources

4.1. Use of mining resources

Another frequent form of exploitation of natural resources is the exploitation of stone and other mining resources carried out through quarries (separations), where according to the data of the Independent Commission for Mines and Minerals in Kosovo, 232 licenses for the exploitation of stone and 170 licenses for research of stone reserves have been issued.

Data on the utilized amount of mining reserves for 2022 are presented in Table 19.

Table 19. The amount of exploited mining reserves for the year 2022[22]

Mineral materials	No. of licenses	Utilized reserves	Unit
Lignite	2	8,535,435.00	T
Andesite	7	150,191.05	m3
Clay	15	495,161.20	T
Calcareous	190	6,730,525.97	m3
Basalt	1	40,322.69	m3
Sand and gravel	47	136,000.93	m3
Quartz sand	5	17,594.00	m3
Marl	5	182,020.32	m3
Schist	2	0	m3
Marble	8	2,925.00	m3
Fabbro	2	0	m3
Tuff (t)	1	351	t
Dunne	1	0	m3

The municipalities in the regions in which there have been the most applications for licensing in the quarry activities and, in addition, have been provided with such licenses are the municipalities of Malisheva, Klina, Kaçanik and Lipjan. Meanwhile, those with the most applications and licensing for sand and gravel are Peja, Gjakova and Kamenica.

Economic operators holding licenses do not comply with the environmental criteria defined in the license, by not recultivating or revitalizing the area after the use of construction and industrial minerals. In addition, the illegal activities performed by many operators increase environmental pollution and degradation and simultaneously increase the risk to citizens and animals.

[22] *Independent Commission for Mines and Minerals*

4.2. Utilization of inerts from river beds

The physical degradation of the beds, the discharge of used urban and industrial water, erosion and land use without criteria along their beds have triggered the deterioration of their environmental condition.

In every river basin of Kosovo, we have degradation of river beds, with special emphasis on the Drini Bardhë Basin. Our rivers, without excluding the previous past, have been subjected to relentless pressure of exploitation and utilization by natural and legal persons (economic operators). Many rivers of the country have been transformed not only as collectors of used urban and industrial waters but also for the merciless exploitation of inerts.

The degraded surfaces from the exploitation of sand and gravel by 2018 are estimated to be 1762.71 ha (Table 21).

From 2009 to 2018, the degrading area of rivers has increased by 757.94 ha. The way and method of evaluating the degraded parts was made on the basis of the comparative models of satellite images of orthophotos 2009/2012/2018, as well as images from the field. It is expected that an aerial photogrammetry survey will be conducted by the end of 2023 and after re-evaluation of the new images, there will be a change in the surface of the river degradation.

Table 20. Degraded surfaces of some rivers in Kosovo[23]

River	2009 ha	2012 ha	2018 ha
Drini i Bardh	861.1	1011.75	1393.04
Ibri	2.64	4.5	8.48
Morava e Binqës	4.29	4.79	8.29
Lumbardhi i Pejës	93.36	136.34	257.12
Ereniku	16.28	19.48	39.78
Kremenadë (Krivareka)	19.37	25.26	25.68
Desivojcë	7.76	18.95	18.91
Shipashnica	-	-	11.41
Total	**1004.77**	**1221.07**	**1762.71**

The widening of the river beds by these activities has been preceded by the further widening by the natural process of erosion, as a result of erosion and removal of woody plants and shrubs. By this human or natural activity, the width of the banks and beds in some parts of the country's rivers has increased.

[23] *The environmental condition of rivers caused by the use of sand and gravel, 2022, MESPI/KEPA*

Erosion appears in different forms, such as surface erosion of soil, riverbanks, streams, transport of solid deposits of sand, gravel, silt, etc. Erosion in Kosovo with its erosive power, within one year creates ~12mil/m³/year of transport products. From this material eroded for transport, it is possible to transport about 5 mil/m³ per year, or about 460m³/km², or about 5m³/ha.

4.3. Use of water resources

Another category and at the same time the largest user of water resources is the use for industrial needs. The largest consumers are large industrial enterprises, such as "KEK", "NewCoFERRONIKEL", "Sharrcem", etc. Most of them are supplied with water from surface accumulative lakes (Table 21).

Table 21. Water use 2021-2022 by large industrial enterprises[24]

Users	Amount of water used (m³/year) 2021	Amount of water used (m³/year) 2022
Kosovo Energy Corporation - KEK	17047390	18389642
New Co FERRONIKEL	1430948	882986
SHARRCEM	70415	139061
Total	**18548753**	**19411689**

Regarding the use of drinking and household water, there are seven regional water companies (RWC) licensed by the Water Services Regulatory Authority (WSRA) that provide such services, as well as 32 municipalities that benefit from the services of these companies. The total production of water distributed by regional companies for 2022 was 156,835,378 million m³, compared to 2021 it is 434,437 m³ higher (Table 22).

Table 22. Water production (mil.m³/year) 2019-2022[25]

Years	2019	2020	2021	2022
Total	**155.8**	**152.3**	**156.4**	**156.8**

Regarding the participation of the types of water sources distributed by regional companies for 2022, 58% of them are obtained from accumulative lakes, 28% from rivers, 5% from springs and 10% from wells.

[24] *Annual reports on the state of the environment, NewCo Feronikel*
[25] *Level of services provided by licensed providers - Compliance with license conditions, WSRA 2022*

Table 24 presents data on the amount of water used for irrigation in agriculture for the period 2019-2022. The amount of water used for irrigation in agriculture in 2022 was 93.34 million m³ of water, which was mostly provided through irrigation systems. Compared to 2021, there has been an increase in water used for irrigation.

Table 23. Irrigation in agriculture 2019 -2022 mil.m/years[26]

Years	2019	2020	2021	2022
Formal irrigation – from Public Irrigation Enterprises	52.6	55	56.89	44.04
Informal irrigation – from rivers, wells, streams, etc..	18.44	27.5	20.8	49.31
Total	**71.04**	**82.5**	**77.69**	**93.34**

4.4. The use of forest resources

According to the assessments, reports and analyses prepared by the Kosovo Forestry Agency and the competent bodies, it is concluded that the situation in the forest areas is stable. According to the KFA data, forests cover about 481,000 hectares or 44.7% of the total area of Kosovo. Of this total area of forests and forest lands, 62% is state-owned, while 38% of forests are privately owned. Kosovo's forests are a source of timber that is used as firewood and various forest products used for industry and other activities.

In 2022, forest fires covered 1,596.98 ha of forests and forest land, of which 976.12 ha were public forests and 620.86 ha were private forests.

In 2022, 111.04 ha of forest area was afforested the KFA budget. About 145,705 m³ of wood were used from public and private forests in 2022. The region of Gjilan used the largest amount of wood. Illegal logging remains one of the main challenges of the forestry sector. In 2022, 1,789.86 m³ of wood was confiscated by the Municipal Forestry Units, of which 151.92 m³ of technical wood and 1,637.94 m³ of firewood. Meanwhile, the KFA Central Forestry and Hunting Inspection confiscated a total of 225.64 m³ of wood (of which 194.67 m³ of firewood and 30.97 m³ of technical wood).

[26] *Ministry of Agriculture, Forestry and Rural Development*

Table 24. Amount of wood mass (m³) used by regions and sectors in 2022[27]

No.	Regional Coordinating Directorate	State forests (m³)	Private forests (m³)
1	Prishtina	1,329.06	20,945.40
2	Mitrovica	63.80	31,864.51
3	Peja	3,860.30	4,594.50
4	Prizren	3,482.63	3,990.95
5	Ferizaj	7,229.73	2,298.04
6	Gjilan	4,193.10	59,435.35
7	DMKE	2,037.02	384.26
Subtotal		**22,192.64**	**123,513.01**
Total		**145,705.65**	

[27] *Kosovo Forestry Agency*

5. Environmental impacts on public health

5.1. Public health

The air we breathe contains emissions from motor vehicles, industry, heating and commercial sources, tobacco smoke and household combustion. Air pollution harms human health, especially those already vulnerable due to age or existing health problems. Data show that air pollution at current levels in European cities is responsible for a significant burden of deaths, hospitalizations and worsening symptoms, particularly for cardiorespiratory disease.[28]

WHO estimates that globally in 2019 there were 4.2 million premature deaths due to environmental air pollution, with premature deaths mostly attributed to low- and middle-income countries. The burden of disease attributable to environmental air pollution in the WHO European Region alone suggests that hundreds of thousands of healthy life years have been lost.[29]

In 2022, the European Environment Agency (EEA) published the report "Air Quality in Europe 2022, Health Impact of Air Pollution". The report also refers to air quality monitoring data from the national network managed by KHMI and has also made an assessment of the health impact of air pollution in Kosovo. According to the report, exposure to PM2.5 concentrations was associated with 359 premature deaths. Exposure to NO2 concentration was associated with 264 premature deaths, while exposure to O3 concentration was associated with 135 premature deaths.

Table 25. Correlation of premature deaths with the concentration level of air pollution[30]

Indicator	Kosovo	EU 27	Europe total
Population (x1000)	1.782	442.650	530.892
Annual average µg/m^3 (PM2.5)	19.40	11.20	11.40
Untimely death (PM2.5)	3,059	237,810	274,673
Annual average µg/m3 (NO2)	14.40	14.10	15.70
Untimely death (NO2)	264	48,555	64,312
Annual average µg/m3 (O3)	3,901	4,182	4,229
Untimely death (O3)	135	24,109	28,337

Also, indoor environments can often be an influential factor in people's health. Children, the elderly, the sick or even pregnant women spend most of their time

[28] *https://www.who.int/europe/health-topics/air-pollution#tab=tab_1*
[29] *https://www.who.int/europe/publications/i/item/WHO-EURO-2023-6898-46664-67857*
[30] *"Air quality in Europe 2022, Health Impact of Air Pollution", EEA 2022 (https://www.eea.europa.eu/publications/air-quality-in-europe-2022/health-impacts-of-air-pollution*

inside habitable or rehabilitative facilities. Hazardous chemicals in construction and building materials, furniture, smoking, household cleaning and other products can pollute the air they breathe and be under the pressure of this influence. Even when concentrations of hazardous chemicals are below guideline values, combined exposure to them can have adverse health effects[31]. These impacts are higher for children, pregnant women and the chronically ill and should be addressed as precautionary measures.

Effects on health also come from the consumption of polluted water, high noise levels, consumption of unhealthy food, stress, lack of physical activity, lack of appropriate level of rest, etc.

NIPHK prepares a report on an annual basis from the monitoring of sick patients and those originating from environmental impacts. Table 27 presents the cases of diseases for 2021 and 2022, diseases that are related to environmental pollution, either as a direct or indirect impact.

[31] *https://www.who.int/europe/news/item/13-06-2023-who-europe-releases-a-toolbox-to-protect-children-s-health-from-chemical-pollution-of-indoor-air-in-schools-and-day-care-centres*

Table 26. Diseases related to environmental influences[32]

Diseases	2021		2022	
	Cases	Over 100,000/b	Cases	Over 100,000/b
ITPR-Pneumonia/ARI	8897	499.24	16179	907.85
SARI (Severe form of pneumonia)	108	6.06	280	15.71
Flu-like illness (ILI)	55720	3126.62	100478	5638.13
Influenca A	367	20.59	58	3.25
RSV	-	-	68	3.82
Acute diarrhea	47621	2672.16	91247	5120.15
COVID-19	110029	6174.07	110755	6214.81
Varicella	2494	139.95	10972	615.67
Bloody diarrhea syndrome	4	0.22	0	0
Meningeal syndrome	61	3.42	112	6.28
Food poisoning	189	10.61	504	28.28
EHSV	2	0.11	1	0.06
Petusis	-	-	1	0.6
Lyme disease	0	0	16	0.90
Leishmaniasis	0	0	1	0.06
Imported Malaria	0	0	1	0.060
Pertussis	-	-	0	0
Epidemic parotitis	16	0.90	25	1.40
Acute jaundice A	8	0.45	23	1.29
Jaundice B	19	1.07	25	1.40
Jaundice C	-	-	4	0.22
Campylobacter	-	-	1	0.06
Adenovirosis			32	1.80
Salmonella eneteritidis	14	0.79	31	1.74
Shigellosis	-	-	1	0.6
Rota virus	-	-	162	9.09
Tularemia	2	0.11	2	0.11
Lymphadenitis	-	-	-	-
Leptospirosis	2	0.11	8	0.45
Measles	-	-	1	0.6
E.coli (O 157)	-	-	1	0.6
Brucellosis	6	0.34	22	1.23
Toxoplasmosis	2	0.11	3	0.17
Gastroenterocolitis	22	1.23	253	14.20
Lymphadenitis ac coli	2	0.11	-	-
IST	419	23.51	178	9.99
Parasitic	6	0.34	16	0.90
HIV	-	-	21	1.18
Status post ictus ixodes	3	0.17	0	0
Status post morsum viperi	1	0.06	0	0
Other contagious diseases	42	2.36	63	3.54
Total	226054	12684.71	331545	18604.02

During the period January-December 2022, in Kosovo, a significant number of contagious diseases, including COVID-19, have been reported in higher numbers

[32] *National Institute of Public Health of Kosovo*

compared to the same period of 2021. The highest number of reported cases is seen in diseases of the form aggregated as *Pneumonia, seasonal influenza, acute diarrhea and Varicella. Zoonoses* (human brucellosis, tularemia, leptospirosis, toxoplasmosis): except *Tularemia*, which is reported in the same number for the period of 2021, other zoonoses in 2022 are reported in higher numbers compared to the previous year.

From the group of transmissible diseases, except for the *Nile Virus*, which is not reported in any case, other diseases such as *Lyme, Leishmania, Malaria* are reported in 2022 in higher numbers compared to the same period of 2021. Also, diseases that spread through water and food: *food poisoning, Hepatitis A*, *Rota* and *adenoviruses* are reported in 2022 in higher numbers compared to the same period of the previous year. Vaccine-preventable diseases (*Epidemic Parotitis, Pertussis, Measles*), in addition to Parotitis which is reported in lower numbers this year, a case of *Measles* and *Petusis* has been reported. *STI* cases this year show a decrease in the number of reported cases, while *HIV* infection shows exponential growth during 2022. According to the estimates made from the analyzed data, it was found that there were 105,491 more cases of environmental diseases in 2022 compared to 2021, or about 46.5% more.

5.2. Drinking water quality

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

RWSs have the responsibility to supply quality water to their consumers, they also have the obligation to do internal water quality monitoring/testing. On the other hand, NIPHK is the institution with the legal responsibility to control and monitor drinking water throughout the country. NIPHK ensures that the water distributed by RWCs is in accordance with the values according to the local standard on microbiological and physicochemical parameters. In this report, the quality assessment is based on the data reported by QU to WSRA.

Based on the results of water quality monitoring carried out by RWCs, the overall quality of drinking water in Kosovo, which is provided to consumers in the service areas of the seven RWCs in 2022 was in accordance with the standards of drinking water with compliance of 98.5% for bacteriological tests and 94.7% for chemical tests. As presented in Table 26, in 2022, the highest compliance in terms of microbiological parameter values was in Hidroregjioni Jugor and Hidrodrini with 99.6%, respectively 99.4%, while the

lowest compliance was in Gjakova with 95.6% and Bifurcation with 97.5%. Regarding the physicochemical parameters, the highest compatibility was in Hidromorave with 100%, while the lowest compatibility was in Hidrodrini with 87.1%.

Table 27. Rate (%) of bacteriological and physicochemical tests in accordance with water quality standards according to RWC 2022[33]

Regional Companies	Bacteriological	Physico-chemical	Average for RWC
Prishtina	98.7%	100%	99.3%
Southern Hydroregion	99.6%	99.1%	99.3%
Hidrodrini	99.4%	87.1%	93.3%
Mitrovica	98.8%	98.2%	98.4%
Gjakova	95.6%	95.6%	95.6%
Bifurkacioni	97.5%	97.8%	97.6%
Hidromorava	99.3%	100%	99.6%
Overall average	98.5%	94.7%	96.6%

Compared to the previous year, the overall quality of drinking water in Kosovo that is provided to consumers in the service areas of seven RWCs in 2022 was better for bacteriological compatibility and weaker for physicochemical compatibility. The overall average microbiological compatibility in 2021 was 98.3%, compared to 98.5% in 2022, while the average physicochemical compatibility in 2021 was 98.6% compared to 94.7% in 2022.

Water supply service coverage - RWCs, as licensed providers of water supply services in 2022, provided water supply services to 79% of the population. This indicator represents the percentage of the population supplied by the systems managed by RWC, in relation to the general population within the licensed service area. Expressed in terms of settlements, out of a total of 1,240 there are only 672 settlements that have access to public water supply systems managed by RWC. In 2022, 6 rural water supply systems were added under the management of all RWCs compared to 2021. While, according to the information provided by WSRA, there are also 87 water supply systems already built in rural areas, which meet the infrastructural conditions to be managed by the respective RWCs.

With the entry into operation of these systems, about 89,274 inhabitants will be supplied with water, while the percentage of the population with access to public water supply systems managed by RWC will increase to 84%[34]. In 2022, the number of new connections to water supply services, in the entire territory served by 7 RWCs, increased by 1,464 compared to 2021.

[33] *Level of services provided by licensed providers - Compliance with license conditions, WSRA 2022*
[34] *Level of services provided by licensed providers - Compliance with license conditions, WSRA 2022*

6. The state of endangered environments

Environmentally endangered areas in Kosovo are found in all regions of Kosovo. Environmentally endangered areas would have to be regulated by a special law and in general for the whole country, depending on the degree of environmental hazard. The law would have to regulate the general conditions for defining the environmentally endangered area and its surroundings, the way of financing, as well as the institutional mechanisms for remedying environmentally endangered areas. Only the Municipality of Obiliq has such a Law, as a municipality that is seriously exposed to hazards from the pollution of power plants.

6.1. Environmental situation in KEK's area of operation

Kosovo Energy Corporation is the main company for the generation of electricity in Kosovo. The KEK assets are owned by the Government of the Republic of Kosovo. The Corporation's functions are regulated through policies approved by the Energy Regulatory Office of the Republic of Kosovo.
According to environmental legislation, all entities that cause pollution are obliged to organize a monitoring system in order to monitor the level of pollution and to report regularly to the central institutions. In 2022, KEK did not comply with the standards at the level determined by the relevant environmental legislation.
In addition, in 2022, there was no monitoring of environmental impacts in the CPD (Coal Production Division); monitoring of water, air, soil, noise, vibrations, flora, fauna and waste (oils). The monitoring of these environmental impacts has not been carried out in the absence of the selection of the operator for the environmental monitoring services in KEK and the extension of the procedures for the selection of the operator for the monitoring of water, air, soil and noise quality. Some main indicators of KEK's operation are presented in table 28.

Table 28. Some of the main indicators of KEK's operation in 2022

Indicators	2022
The annual production of electricity from TC Kosova A `	2295488 (MWh)
Production of electricity from TC Kosova B `	4050908 (MWh)
Total spending on lignite	8, 404,120 (t)
The total amount of ash produced	1216333 (t)
Consumption of decarbonized and demineralized water `TCA' and `TCB'	19.373.762 (m3)

The waste generated in KEK, in addition to ash as waste after burning coal in the technological process, is also another form of generated waste which is presented in Table 29.

Table 29. Metal waste, oils, conveyor belt

TC	Iron scrap (kg)	Copper waste (kg)	Oils (lit.)	Conveyor belt (kg)
TC A	350000-400000	2 500	0	7 000
TC B	2 327 000	4 000	20 000	0
Total	**2 677000-2 727000**	**6 500**	**20 000**	**7 000**

Transformers containing oil with PCBs are also found as waste in KEK. Currently, there are 21 transformers with PCB oil composition which are located in Block A2 close to "Kosova B" TPP, while 5 transformers are in the localities of "Kosova-A" TPP.

Radioactive waste is located in the warehouse of the former Gasification space built in the late 60s. The spent radioactive sources which are placed in the warehouse are registered in the list of radioactive sources of the Republic of Kosovo. This waste is continuously monitored and any changes are reported to the responsible authorities.

Table 31 presents the annual air emissions for the pollutants SO2, NOx and total dust in both Power Plants of ``Kosova A'' and ``B''. During the year 2022, there was a reduction in total dust emissions, SO_2 and NOx emissions, compared to 2021. Higher emissions were measured in the "Kosova B" Power Plant (Blocks B1 and B2) compared to the "Kosova A" Power Plant (Blocks A3, A4 and A5).

Table 30. Annual air emissions for pollutants SO2, NOx and total dust from TPPA and TPPB 2021-2022

TPP	SO2 (t)		NOx (t)		Total dust (t)	
	2021	**2022**	**2021**	**2022**	**2021**	**2022**
TPP A3	2366	1823	2867	2318	235	2271
TPP A4	1147	2610	1180	3060	96	2713
TPP A5	2764	1185	3097	1491	222	1380
TPP B1	4956	4329	5378	5347	2801	2606
TPP B2	3398	3344	4925	4347	2639	2158
Total	**14631**	**13292**	**17447**	**16564**	**5993**	**5401**

6.2. Environmental situation in the area of operation of Feronikel

In 2022, partial production (with interruptions) resumed from half of May to half of July, and then it did not operate. Most of the measurements foreseen according to the obligations arising from the Integrated Environmental Permit, mainly external measurements, have not been carried out, since the economic crisis has affected the interruption of production, the enormous price increase of energy in the European market (from where Ferronickel is supplied with energy), has forced the company to stop production indefinitely from October 2021.

Due to the lack of reporting data, the assessment of the environmental condition for the operator NewCo Feronikel is a result of the work that the factory was in production May-July 2022. In the middle of July, the factory stopped production indefinitely and there was no more production during 2022.

Monitoring of deposited dust (Aerosediment) and the results presented throughout the months the company has operated in 2022 indicate that there are no exceedances based on the standard for aerosediment (according to WHO) of 300 mg/m²/day in any case. Based on the measurements carried out, the dust emissions during the work that the factory operated in 2022, were recorded with values lower than the allowed limit in all three monitoring points (electric furnace, rotary furnace and converter).

Table 32 shows the total amount of dust emissions emitted into the air for 2021 and 2022, expressed in tons. The total amount of dust emitted in 2022 was about 11.51 tons, while in 2021 about 70 tons. The greatest discharge was measured in the rotary kiln.

Table 31. Total annual amount of dust emitted by Ferronickel for the year 2022

Year	Electric furnace	Converter	Rotary kiln	Total
2021	0.6t	9.8t	59.6t	70.12t
2022	0.09t	1.67t	9.75t	11.51t

The monitored gases (CO, NOx, SO_2) during the months in operation were recorded with lower values than the allowed limit at both monitoring points (rotary furnace and converter). Table 32 presents data on the total amount of CO, NOx and SO_2 emissions discharged into the air for the years 2021 and 2022, expressed in tons.
There is no data on the total amount of CO emitted in 2022, while in 2021 it was about 1667 tons, the total amount of NOx emitted during 2022 was about 17.91t tons, while in 2021 it was about 166 tons, while the total amount of SO2 emitted in 2022 was about 39.77 tons, while in 2021 it was about 1097 tons.

Table 32. Total annual amount of CO, NOx and SO2 pollutants for 2022 from Feronikel

Gases	Convertor A2.2		Rotary kiln A2.1		Total	
	2021	2022	2021	2022	2021	2022
CO	46.3t	/	1,621.1t	/	1,667.4t	/
NOx	35.2t	7,38	130.9t	10.53t	166.2t	17.91t
SO_2	10.1t	3,24	1,087.3t	36,53	1,097.4t	39.77t

Water quality - Based on the monthly reports and the annual report sent to MESPI by the industrial operator "NewCo Feronikel", it partially operated in 2022. Only the averages of some parameters measured for surface and underground water during the months of May, June and July are reported. All the parameters measured at the monitoring points for surface and underground water are within the allowed values according to Administrative Instruction AI/MESPI 02/2022, with the exception of total phosphorus, which was exceeded at sample sites M1 and M6.

Waste management – Various wastes are produced during factory opeartion. Some of this waste is deposited in certain landfills, such as industrial waste (FE slag) that is deposited in the Dushkaja 1 slag dump, Çikatova mine area (46195 tons), while the converter slag is recycled in the process. Hazardous waste is stored in the temporary landfill for this purpose, intended only for this type of waste. The non-hazardous waste is temporarily deposited in the temporary landfill for this type of waste, the metal ones are sold as scrap metal, while for the collection and transportation of ordinary municipal waste, Ferronikeli has engaged a private company "MSS". Table 33 shows the types of this waste and the annual amount during 2022.

Table 33. Generation of industrial waste from Feronikeli in 2022

Indicators	2022
The slag generated by the electric furnace, deposited in the slag dump `Dushkaja 1`.	46195 ton
Slag generated by the converter deposited within the facility	3316 ton
Refractory materials used	0 t/vit.
Sludge from cleaning systems	1493 t/year.

6.3. Environmental state in Sharrcem operating area

Sharrcem operator does continuous monitoring of emissions from the main sources.

Air emissions - Based on the measurements carried out, dust emissions in 2022 were recorded with lower values compared to the allowed limit. SOx emissions are very low, due to the low sulfur concentration in the fuel and raw materials. Based on the results of measurements from the continuous monitoring system, the annual average concentration of SOx and NOx from the rotary kiln for the last years is presented. NOx emissions are below the threshold limit (ELV) set by local legislation and IPPC

requirements. Due to the limited raw material (Mergele) in the Dimce mine, the current quality of this material has a higher silicate modulus which requires a higher temperature to create the liquid phase in the rotary kiln, correspondingly a higher amount of fuel, resulting in increased NOx emissions (Figure 28).

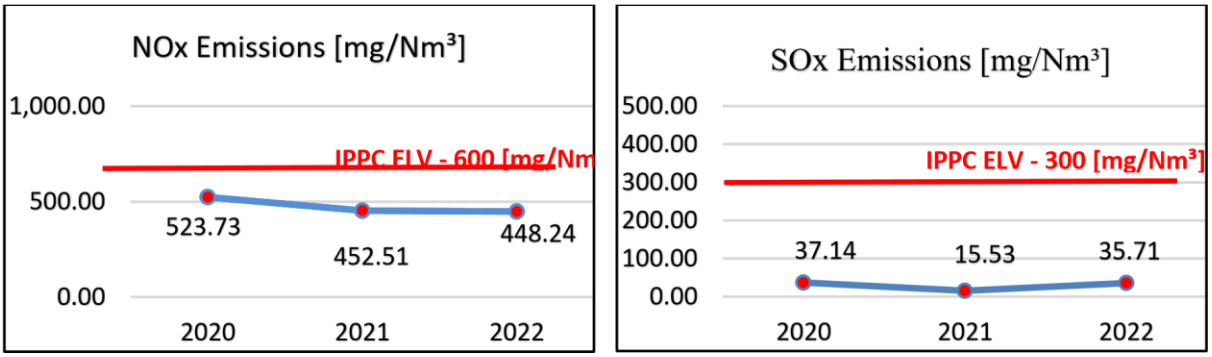


Figura 28. *Trend of NOx and SOx emissions for 2020-2022*[35]

Air quality in the factory area - The values monitored by the factory's own system show that the annual concentrations for air quality parameters in the factory area are significantly below the limit values and there were no exceedances of the main air quality parameters (Table 34).

Table 34. Annual concentration of air quality parameters in the factory area 2021-2022

Parameter	2021	2022	Allowed values
PM_{10} (mg/m³)	0.043	0.040	0.05
$PM_{2.5}$ (mg/m³)	0.021	0.020	0.025
NO_2 (mg/m³)	0.020	0.019	0.04
SO_2 (mg/m³)	0.011	0.010	0.125
O_3 (mg/m³)	0.027	0.024	0.12
Noise (dB)	63	63.5	70

Water management - Water management investments in the water recycling system and the improvement of existing water networks have led to more efficient use of water, while the development and implementation of water management systems have improved the overall monitoring and enabled reporting on the use and utilization of water on a sustainable basis.

Quality of used and discharged water - The sewage treatment plant has been in operation throughout 2022 and there have been no problems in its operation. The monitoring parameters of treated water discharge were below the allowed values in

[35] *Annual environmental report in Sharrcem for 2022*

accordance with Administrative Instruction No. 02/2022 on the conditions, parameters and limiting values of the discharge of polluted water into the public sewage network and into the water body.

Waste management - Solid waste is temporarily stored in designated special places near the places where it is generated within the factory. Such storage is carried out in special boxes in containers or places designated and marked/labelled specifically for each waste, depending on the type of solid waste in special spaces which are limited for the purpose of protection from leaks that can cause water and soil. Waste is transported and removed from the factory by licensed subcontractors/third parties. These subcontractors provide services related to waste collection and transportation. Table 35 presents the annual amount of different categories of waste generated by the Sharcem factory.

Table 35. Waste generation by categories from Sharcem in 2022

Mixed municipal waste (t/v)	Scrap (t/v)	Bricks for the wall of the oven (t/v)	Torn sacks of cement. (t/v)	Paper and cardboard (t/v)	Demolition debris (t/v)	Wooden pallets (m3/v)	Used oils (t/v)
47.79	211.82	233.2	15.4	2.5	466.4	3.86	0.5

6.4. Other endangered areas (environmental hotspots)

Environmentally endangered areas in Kosovo were classified into two categories: Environmentally endangered areas inherited from the past known as landfills of industrial and mining waste, agricultural and urban waste and Environmentally endangered areas from waste and discharges of economic operators in operation. Environmentally endangered areas can be found in all regions of Kosovo. The most significant ones are the ash dump in Obiliq, the industrial and mining dump with heavy metals in Mitrovica, Zveçan, Graçanica, Novo Bërdo, Stantergu, Leposaviq, the waste from hazardous waste in 17 different places in the country, etc.[36] The form of waste that poses an environmental risk are landfills for urban waste disposal (7 landfills, 3 transfers) and illegal landfills.

No solution has been found since 1999 for hazardous waste and chemicals as waste. The process and attempts for collection and storage in a single point have not been successful to date. A project funded by the EU Office in Prishtina and in cooperation with MESPI, the Municipality of Obiliq and KEK, are well on their way to making the problem of temporary collection of hazardous waste come to life. This project, as a support for the decommissioning process of Kosovo A, an utilized area of land in this area is in the successful process of preparation and implementation of the

[36] *Report, Hazardous Industrial Waste in Kosovo, KEPA 2019*

temporary storage of hazardous waste. They are currently in the process of defining two areas: the existing hangar and the construction of a new facility, which will be the best and long-term solution.

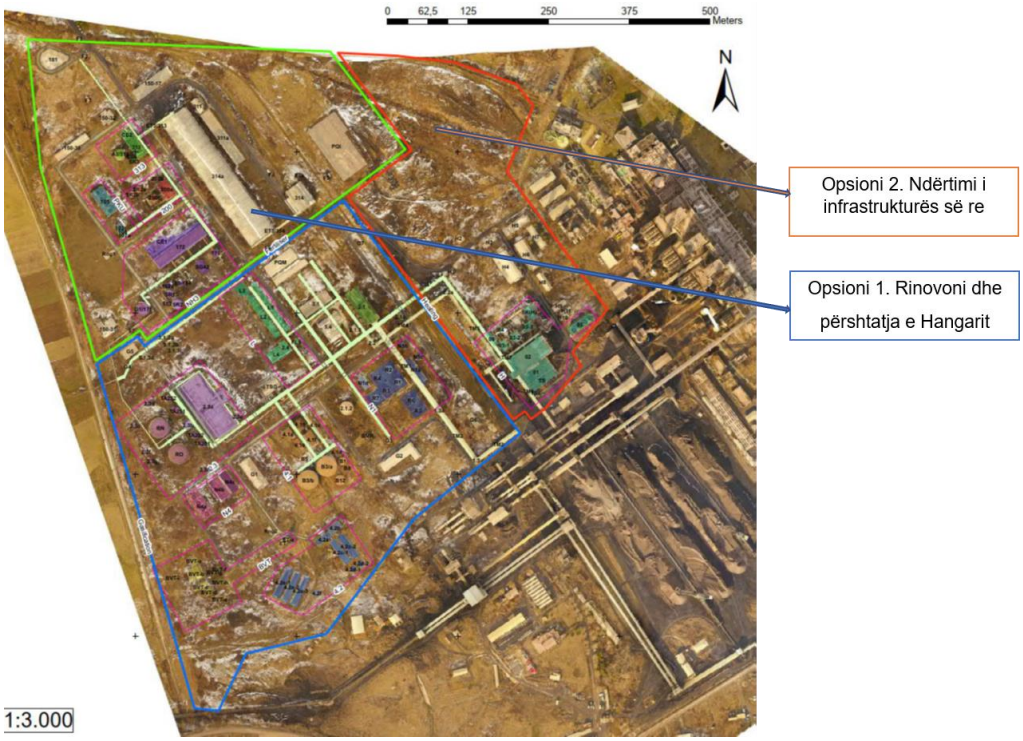


Figura 29. *Options for hazardous waste deposits in the area of Thermal Power Plant A*[37]

The existing state of hazardous waste is outside the environmental standards of its preservation and storage. They are kept and stored without any preliminary treatment, without complying with the standards and legislation on storage, not environmentally friendly at all. Hazardous waste is monitored and inspected by the Environmental Inspectorate of MESPI, KFOR and KSF.

[37] *Report on Task 02: Concept of Hazardous Waste Storage and Disposal Infrastructure. Contract No 397-715 Add. 08Identification number EuropeAid/136614/DH/SER/XK- 23 February, 2023 , SWECO*

7. Measures taken for environmental protection

7.1. Alignment of national environmental legislation with EU Directives

The general national policy of Kosovo also includes the European integration process. Among the main challenges in this process is the environment, meeting the European environmental standards and aligning the national environmental legislation with the European one.

The European Commission has monitored the progress of aligning Kosovo's environmental legislation with that of the EU and its implementation. The following table presents a summary of the main EU environmental directives and the level of their transposition into national environmental legislation (Table 36).

Table 36. The level of transposition of European Union environmental legislation into national environmental legislation

Area	EU directive	Transposition level
Horizontal legislation	EIA Directive (85/337/EEC)	90%
	Directive on SEA (2001/42/EC)	100%
	Directive on environmental information (2003/4/EC)	65%
	Direktiva për pjesëmarrjen e publikut (2003/35/EC)	100%
	INSPIRE Directive (2007/2/EC)	18%
	Environmental Crime Directive (2008/99/EC)	71%
	Directive on environmental responsibility (2004/35/EC)	80%
Air quality	Directive on ambient air quality (2008/50/EC)	98%
	Directive on Arsenic, Cadmium, Mercury, Nickel and Polycyclic Aromatic Hydrocarbons in Air (2004/107/EC 4)	98%
	NEC Directive, National Air Emission Thresholds (2001/81/EC)	0%
	Directive on the sulfur content of liquid derivatives (1999/32/EC)	40%
	Directive for petrol stations on Volatile Organic Substances/VOC (94/63/EC)	98%
	Stage II Directive on petrol stations Volatile Organic Substances/VOC (2009/126/EU)	30%
Waste management	Waste Framework Directive (2008/98/EC)	61%
	Directive on waste batteries (2006/66/EC)	77%
	Directive on packaging waste (94/62/EC)	99%
	Directive on Polychlorinated Biphenyls and Polychlorinated Triphenyls (96/59/EC PCB/PCT)	83%
	Directive on waste vehicles (2000/53/EC)	100%
	Directive on sanitary landfills (99/31/EC)	89%

	Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (2011/65/EU RoHS)	92%
	Directive on waste electrical and electronic equipment (2012/19/EU WEEE)	89%
	Directive on the management of mining waste (2006/21/EC)	100%
	Sewage Sludge Directive (86/278/EEC)	75%
	Single-use plastics directive (EU 2019/904)	0%
Chemicals	Asbestos Directive (87/217/EEC)	88%
	Biocides Regulation (528/2012/EU)	No assessment
	Regulation on Persistent Organic Pollutants/POPs (EU 2019/1021)	No assessment
	Regulation on the export and import of dangerous chemicals (EU/649/2012)	No assessment
	Regulation on the Registration, Evaluation, Authorization and Restriction of Chemicals/REACH (EC/1907/2006)	No assessment
	Regulation on the classification, labeling and packaging of chemical substances/CLP (EC/1272/2008)	No assessment
Water quality	Water Framework Directive (2000/60/EC)	76%
	Urban Wastewater Directive (91/271/EEC)	76%
	Groundwater Directive (2006/118/EC)	64%
	Drinking water directive (98/83/EC)	94%
	Nitrates Directive (91/676/EEC)	37%
	Washing Water Directive (2006/7/EC)	92%
	Directive on water quality standards (2008/105/EC)	31%
	Flood Risk Assessment and Management Directive (2007/60/EC)	100%
	Directive on the technical specification for chemical analysis of water status monitoring (2009/90/EC)	0%
Nature protection	Wild Birds Directive (79/409/EEC)	97%
	Natural Habitats Directive (92/43/EC)	100%
	Directive on the rules for keeping wild animals in zoos (1999/22/EC)	92%
	CITIES Regulation on International Trade in Endangered Species of Flora and Fauna (EC/338/97)	No assessment
	Invasive Alien Species Regulation (EU, 1143/2014)	No assessment
	Animal Experimentation Directive (2010/63/EU)	No assessment
Industrial pollution control	Industrial Emissions Directive (2010/75/EU)	69%
	Seveso III Directive on the Control of Major Industrial Accidents (2012/18/EU)	98%
	Directive on the Control of Volatile Organic Compounds from Paints, Varnishes and Vehicle Refinishing Products (2004/42/EC -VOCs)	88%

	Eco-labelling Regulation (EC/66/2010)	No assessment
	EMAS Regulation/Eco-Management and Audit Scheme (EC/1221/2009)	No assessment
	Mercury Regulation (EU, 2017/852)	No assessment
Noise	Environmental Noise Directive (2002/49/EC)	59%

7.2. 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. Table 38 presents the key 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	Implementation level
Environmental Protection and Sustainable Development Strategy (first draft) Air Quality Strategy and Biodiversity Strategy are also part of the Strategy.	2023-2033	In the process of drafting	In the process of drafting
Integrated Waste Management Strategy	2021-2030	Approved by the Government of the Republic of Kosovo	It is applied continuously
Waste Management Plan of the Republic of Kosovo	2021-2023	Approved by the Government of the Republic of Kosovo	
Climate Change Strategy and Action Plan for Kosovo	2018-2027	Approved by the Government of the Republic of Kosovo	It is applied continuously
State Water Strategy of Kosovo	2017-2036	Decision, No. 05/90, dated 19.02.2019	
National Energy and Climate Plan of the Republic of Kosovo (First Draft)	2025-2023	Approved by the Government of the Republic of Kosovo and the Assembly of Kosovo Decision No. 16/20 dt. 20.12.2017	Continuous implementation
Kosovo Spatial Plan - for the Kosovo Spatial Development Strategy (Revision of the plan 2010-2020+)	2023-2028	In the process of drafting	

Spatial Plan for "Sharri" National Park	2013-2022 (under review)	Under review	Continuous implementation
Spatial Plan for "Bjeshket e Nemuna" National Park	2023-2033	Under review	
Spatial Plan for the Natural Monument of Special Importance "Mirusha Waterfalls"	2014-2023	Approved by the Assembly of the Republic of Kosovo. Published in the Official Gazette dated 07.05.2023	In the process of drafting
Management Plan for "Sharri" National Park	2015-2024 (under review)	Approved by the Ministry of Environment and Spatial Planning	Under review

In Annexes 6, 7 and 8, more detailed data are presented from the evaluation of the implementation of the Integrated Waste Management Strategy, the evaluation of the implementation of the Biodiversity Strategy and Action Plan and the evaluation of the implementation of the State Water Strategy.

Table 38 presents data on the process of completion of local-level plans for the environment sector. As the table indicates, most of the municipalities have drawn up local waste management plans, some of the municipalities also have local environmental action plans, while other plans are in the process of being drafted or are missing.

Table 38. Environmental plans at the local level 2022

Municipality	Local Environmental Action Plan	Local Waste Action Plan	Local Biodiversity Action Plan	Local Air Quality Action Plan	Local Mobility Plan	Local Energy and Climate Plan
Prishtina	-	+	-	*Draft*	+	*Draft*
Obiliq	+	+	-	+	-	-
Drenas	+	+	+	+	-	*Draft*
Shtime	+	+	*Draft*	-	+	-
Hani i Elezit	-	+	-	-	-	-
Prizren	-	+	-	-	-	*Draft*
South Mitrovica	+	+	-	-	+	-
Deçan	+	+	-	-	-	+
Gjakova	+	+	+	+	*Draft*	-
Rahovec	+	+	*Draft*	*Draft*	+	*Draft*
Skënderaj	-	+	-	-	-	-
Kaçanik	*Daft*	+	-	-	-	-
Dragash	-	+	+	-	-	-
Klina	-	+	-	*Draft*	-	-

Gjilan	+	-	-	+	-	-
Fushë Kosova	-	+	-	-	-	-
Vushtrri	-	+	-	-	-	-
Peja	*Review*	+	-	+	*Draft*	-
Podujeva	-	+	-	-	-	-
Junik	+	-	-	-	+	-
Kamenica						-
Istog	-	+	-	*Draft*	-	*Draft*
Malisheva	-	-	-	-	-	
Lipjan	-	+	-	-	+	
Suhareka	-	+	-	-	+	-
Ferizaj	-	+	-	-	-	
Viti	+	+	+	-	+	
Mamusha	+	+	-	-	-	
Zveçan	-	+	-	-	-	-
Leposavic	-	+	-	-	-	-
Gracanica	-	+	-	-	+	
Ranillug	-	+	-	-	-	-
Partesh	-	+	-	-	-	-
Kllokot	-	+	-	-	-	
Zubin Potok	-	+	-	-	-	-
Shterpce	-	+	-	-	-	-
North Mitrovicë	-	+	-	-	+	

7.3. Inspection and control of law enforcement

In the course of the implementation of environmental legislation in the area of environment, water, nature, spatial planning and construction, at the central level the Inspectorate of Environment, Water, Nature, Spatial Planning and Construction/Ministry of Environment, Spatial Planning and Infrastructure, conducted ex officio in 2022: 628 inspection supervisions with minutes, 257 decisions, 198 minor offence fines.

Compared to 2020-2021, it is observed that the Central Inspectorate in 2022 was more proactive in the inspection (does it mean the supervision of the performed inspection) supervision and in issuing decisions, while less active in imposing minor offence fines. Specific details are presented in Table 39.

Table 39. Inspections and other legal procedures 2020-2022

Type of inspection activities in the field of environmental protection	Number of activities 2020	Number of activities 2021	Number of activities 2022
Inspection supervision with minutes	81	291	317
Decisions	39	95	124
Minor offence fines	9	104	95
Type of inspection activities in the area of water protection			
Inspection supervision with minutes	95	172	176
Decisions	10	88	89
Minor offence fines	66	118	99
Type of inspection activity in the field of nature protection			
Inspection supervision with minutes	25	17	23
Decisions	7	7	11
Minor offence fines	-	6	4
Type of inspection activities in the area of spatial planning and construction			
Inspection supervision with minutes	74	98	112
Decisions	15	28	33
Minor offence fines	2	8	-
Total			
Inspection supervision with minutes	275	578	628
Decisions	71	218	257
Minor offence fines	77	236	198

In 2022, for the damage caused to natural resources, the Directorates of Sharri and Bjeshket e Nemuna National Parks filed 66 criminal charges with the Basic Prosecution Offices (21 with the Basic Prosecution Office in Feriza, 33 with the Basic Prosecution Office in Prizren and 11 with the Basic Prosecution Office in Peja). More details in Table 40.

Table 40. Criminal charges filed with the Basic Prosecution Offices for damaging the NP natural resources in 2022

Type of activity	Number of subjects	Amount of damage
Criminal charges with the Basic Prosecution Office in Ferizaj	21	€ 28.844.50
Criminal charges with the Basic Prosecution Office in Prizren	33	€ 41.951.50
Criminal charges with the Basic Prosecution Office in Peja	11	€ 9.798,00

However, at the local level, out of the 38 municipalities of the Republic of Kosovo, concerning the implementation of environmental legislation in the area of

environment, water, nature, spatial planning and construction, only 12 municipalities have reported.

In 2022, at the local level, 1089 inspections were carried out with records, 407 assistance in inspections, 134 decisions, 79 mandatory fines, 83 administrative fines, 667 recommendations, orders and remarks, as well as 22 initiations in courts (Table 41).

Table 41. Inspections and other legal procedures at the local level 2022

Inspection activities for 2022	Inspections with minutes	Assistance in inspections	Decisions	Mandatory fine	Administrative fine	Recommendations, ordinances and remarks	Initiations in Court
Mamusha	16	12	3	/	/	28	/
Istog	20	19	12	/	/	19	/
Skenderaj	240	57	20	10	0	300	11
Gracanica	58	/	/	14	/	58	/
Rahovec	108	185	34	15	0	10	7
Hani i Elezit	12	7	8	1	0	2	0
Gjilan	67	92	0	14	0	92	0
Junik	46	17	1	1	0	5	0
Gjakova	235	/	9	/		77	/
Shtime	50	/	10	10	/	/	/
Obiliq	38	18	7	7	22	45	/
Peja	199	-	30	7	61	31	4
Total	**1089**	**407**	**134**	**79**	**83**	**667**	**22**

7.4. Granting permissions

According to data from MESPI, in 2022, activities were carried out in all relevant areas. Based on the authorizations and environmental legislation, in 2022, 73 environmental consents for EIA, 80 environmental permits, 5 integrated environmental permits, 5 environmental authorizations, 11 licenses, 19 water consents, 66 water discharge permits and 74 water use permits were issued. More detailed data on activities related to granting permissions in the environment, waste, and water sectors are presented in the following table.

Table 42. Permission-granting activities in 2022

Activities for environmental consents	
Applications for EIA environmental consents received	78
Applications for EIA environmental consents approved	73
Applications for Eia environmental consents rejected	5
Applications for SEA environmental consents received and approved	3
Activities for environmental permit	
Applications for environmental permits received	149
Applications for environmental permits approved	80
Applications for environmental permits rejected	49
Completion of administrative procedures	16
In the AP procedure	4
Activities for integrated environmental permits	
Applications integrated environmental permits received	11
Applications integrated environmental permits approved	5
Applications integrated environmental permits rejected	9
Under review	15
Activities for environmental authorizations	
Applications for environmental authorizations received	6
Allowed	5
Cases rejected	1
Activities for permit issuance in the area of waste	
Applications for waste management license	12
Waste management licenses issued	11
Applications for waste management license rejected	1
Applications for permit for import of plastic bags	16
Permits for import of plastic bags issued	14
Application for permit for non-hazardous waste dealers and brokers	9
Licensing of non-hazardous waste dealers and brokers	9
Activities for permit issuance in the area of water	
Water conditions	3
Water consents	19
Water permit for use	74
Water permit for discharge	66
Extension of water permits	7

7.5. Institutional developments and setbacks

In 2022, there was no significant development within the process of strengthening, affirming and raising the technical capacities of environmental institutions.

The following other activities related to institutional development should be noted:

- Continuation of the implementation of several important donor projects within environmental institutions. The example of the project for the Integrated Water Resources Management supported by the Swiss Government, which also

included the aspects of building professional and organizational capacities, the initiation of the second phase of the project for building institutional capacities on air quality management supported by 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 organizations, initiatives and regional projects. Example of the performance of the Kosovo Environment Protection Agency in the course of data collection in the 'European Environment Information and Observation Network EIONET', where 100% of reporting obligations have been fulfilled in 2022;
- Implementation of important infrastructural projects in the environment sector, such as the operationalization of 3 new wastewater training 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 municipalities in the waste sector. Functionalization and implementation of a web application that enables online reporting, as well as training municipalities and waste management companies on their reporting.
- Capacity building of environmental institutions through training and programs at the national, regional and international levels.
- The National Council for climate change, which was re-established by the decision of the Government of the Republic of Kosovo, has been quite proactive and has conducted several activities, including the drafting of the Law on Climate Change.
- Initiation of the process for the reorganization of environmental institutions and the definition of institutional responsibilities, with the working groups, established and the drafts of the relevant regulations drawn up;

The following setbacks and obstacles in strengthening the environmental institutions during this period can be singled out:

- 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 MESP;
- Lack of a special institution at the central level for monitoring chemicals;
- Trained and more experienced staff leaving the responsible institutions within the environmental 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, 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 officers in some KEPA directorates and sectors such as 'Institute of Nature Protection', 'Directorate for the Administration of the National Park' "Sharri" and "Bjeshket e Nemuna", 'Directorate for the Administration of Natural Monuments of Special Importance' and the reporting and information sector;

- Non-certification of officers (nature guards) and the limited number of professional staff (nature supervisors) in the 'Directorates for the Administration of National Parks' as well as the limited number of regular staff;
- Failure to make operational the 'Environmental Advisory Board'. The board is still not operational and there are no initiatives for its establishment even though it is foreseen according to the provisions of the Law on Environmental Protection;
- Failure to operationalize the 'Ecofund' or a special environmental program. The revenues collected in the name of environmental protection are allocated to the Kosovo budget, but are not used for environmental projects;

7.6. Investments in environmental protection

Environmental protection is an important factor that directly affects our well-being. Therefore, here too, the increase in the budget by the Government of Kosovo for the environmental protection sector is a factor showing the commitment to improve the environmental situation. The Ministry of Environment, Spatial Planning and Infrastructure spent €163,524,148 in 2022 compared to €124,975,779.01 investments in new and existing projects, based on the 'Medium-Term Expenditure Framework' with funding from the Kosovo Budget. The total budget for 2022 was €191,281,296, compared to €145,043,995 in 2021. In 2022, there was an increase in the budget in all MESPI budget lines, except for the wages and salaries line.

Table 43. MMPHI budget for 2021-2022

Budget lines	**2021**	**2022**
Wages and salaries	4,110,561	4,002,423
Goods and services	15,603,628	21,930,855
Subsidies and transfers	1,793,813	1,643,814
Capital expenditures	123,521,738	163,524,148
Public utilities	314,620	481,490
Total budget	**145,043,995**	**191,281,296**

The environmental projects supported by the MESPI budget are mainly projects aimed at the regulation and cleaning of river beds, the creation of green spaces and recreational parks, the construction of bridges, overpasses and underpasses, the construction of water supply systems, construction and expansion of sewerage networks, construction of plants, sanitary landfills, etc. All these projects have a direct impact on improving the state of the environment and public health. Most of these projects are priority capital projects and are included in the National Development Strategy (NDS).

Part of the environmental projects are also those projects funded by Kosovo Budget

through MESPI and are implemented by the municipalities through the relevant memorandums. Most of them are ongoing projects from previous years. Within these projects, those focused on improving the condition of rivers, drinking water supply, and the regulation of green spaces are singled out. A list of some of these capital projects of importance in the area of environment and water is presented in Table 44.

Table 44. Some of the environmental capital projects supported by the MESPI 2022 budget

No.	Project Name	Expenditure 2022/€
1.	Construction of the municipal landfill in the region of Peja	1,100,000
2.	Waste support scheme in Kosovo	3,000,000
3.	Regulating the bed of the river Sitnica Vushtrri	250,000
4.	Adjustment of the bed of the Drenica River in Drenas	150,000
5.	Study, repair and monitoring equipment of existing dams in Kosovo	221,400
6.	Renovation and construction of protective infrastructure along the river Drini i Bardhe and Sitnice	172,853
7.	Adjustment of the Drini i Bardhë - Klinë river bed	100,000
8.	The adjustment of the bed of Lumbardhi in Deçan	718,374
9.	Regulation of river beds in the villages, Hoqe e Madhe, Brestoc, Hoqe e Madhe, Nagavc, Krushe e Madhe-Rahovec	60,000
10.	Adjustment of the bed of the river Iber - Mitrovica	500,000
11.	Adjustment of the bed of the river Sitnica - Mitrovica	568,048
12.	Adjustment of the Sitnica River bed in Lipjan	290,515
13.	Adjusting the bed of Përrocke in Hajvali	79,871
14.	Adjustment of the bed of the river Krivareka	300,000
15.	Adjustment of the bed and degraded areas of the river Desivojce	279,277
16.	Adjustment of the Sazli River bed in Ferizaj	321,735
17.	Integrated water resources management in Kosovo (contribution of MESPI)	650,000

Donor support has not been lacking even in 2022, where some new projects have started to be implemented and at the same time projects from previous years have continued to be implemented. The following table presents data on some of the largest donor-supported projects for the water and environment sector.

Table 45. Some of the donor projects in the environment and water sector in 2022

Project name	Donor	Project value	Implementation period
Improving the environmental performance of the "Kosova B" Thermal Power Plant	EU-IPA	76.400.000.00 €	2019-2022
Environmental Program for Kosovo	SIDA-Swedish Government	6.810.000.00 €	2016 – 2022
Project "Development of capacities for air pollution control" Phase 2	JICA- Japanese government	About 3.000.000.00 €	2021– 2026
Japanese Economic and Social Development Aid Grant – Phase 2	JICA- Japanese government	357.000.000.00 JPY (Japanese Yen)	2020-2023
Construction of the urban water treatment plant for Southwest Kosovo-Gjakova	SDC, KFW, KB	SDC- 7.600.000.00 € KFW- 8.000.000.00 € Municipality of Gjakova- 6.800.000.00 €	2019-2022
Construction of the urban water treatment plant for Southwest Kosovo-Peja	KFW, KB	KFW- 8.000.000.00 € BK- 3.800.000.00 €	2019-2022
Construction of the urban water treatment plant for Southwest Kosovo-Prizreni	KFË, KB	KFW- 12.000.000.00 € Municipality of Prizren – 3.500.000.00 € KB- 5.000.000.00 €	2017-2022
Construction of the urban water treatment plant for Pristina	French Government KB	French Government (loan) 66.000.000.00 € KB- 20.000.000.00 €	2018-2022
Sustainable development of waste management - Peja Landfill	European Commission -IPA	EU 10.900.000.00 € KB 1.100.000.00 €	2019-2022
Clean Environment Performance Grant	BE, GIZ &BK	3.500.000.00 € 3.500.000.00 € KB	2020-2023
Integrated Water Resources Management in Kosovo (IWRM-K)	SDC-Swiss Government	24.000.000 €	2020-2024
Drini Dialogue - Enabling cross-border cooperation and integrated management of water resources in the extended basin of the Drin River	GEF, GËP-Med	1.000.000.00 $	2016-2022

Capacity building for the use of environmental data. Cooperation project between KEPA and the Swedish Environmental Protection Agency	SIDA	2.262.400.00 SEK (Swedish Krona)	2022-2025
Promoting and increasing opportunities for water security (FLOWS)	WBIF, IDA	1,000,000 € 25,100,000 € (Loan)	2021-2025
Hazard Maps and Flood Hazard Maps	WBIF, EIB & CEB	25,100,000 € Donation and loan	2022-2024
Protection of the Ibri Canal	WBIF World Bank Kosovo budget	500.000.00 € grant 25.000.000.00 € loan 1.5000.000.00 €	2016-2023
Construction and Demolition Waste Management Plan for Kosovo	WBIF EBRD & EIB	312.00.00 € grant 200,000.00 € loan	2020-2023
Participation in the work and program of the European Environment Agency (Regional Project)	EU-IPA	BE IPA –IPA fund with many beneficiaries 2.480.202.00 €	2019-2022
Nature-based solutions for sustainable communities in the Western Balkans	SIDA/IUCN	BE IPA – IPA fund with many beneficiaries	2019-2022
EPPA Membership Environmental Partnership Program	EU-IPA	BE IPA – IPA fund with many beneficiaries	2020-2022
Transition to a low-emission and climate-resilient economy in the Western Balkans (TRATOLOW)	EU-IPA	BE IPA IPA fund with many beneficiaries	2021-2022
Strengthening the register of environmental pollutants PRTR in the Balkan countries and in Moldova.	German Government	355.301.00 €	2021-2023
EU4Green	EU and ADA	BE 10.000.000.00 € ADA 1.000.000.00 €	2022-2025
Healthy Kosovo II	Embassy of Luxembourg, implemented by UNDP and WHO	1,064,750 $	2021-2023

8. Recommendations

Air quality and air emissions

- Draft and approve the Air Quality Strategy and Action Plan;
- Enhance the efficiency of the implementation of environmental legislation, through complementary mechanisms and instruments;
- Draft favourable policies on the use of combustibles that have lower emissions in the environment and for the implementation of clean technologies in production processes;
- Give preference to the use of alternative transport that has lower emissions into the air and apply the time limit on the use of obsolete vehicles and those without catalysts;
- Apply by-laws on the allowable discharge rate into the air from mobile sources and from stationary sources;
- Promote and implement clean technologies in industrial processes, in order to reduce air emissions;
- Enhance the energy efficiency of buildings and 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 traffic and implement vehicle control standards and promote sustainable transport with less motor traffic;
- Improve the management of animal manure and the controlled use of fertilizers on 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 logging and preservation of land use destinations according to categories, as well as reduction of burnt areas according to land categories.

Water

- Monitor the biological parameters of surface waters to determine the quality index of surface waters;
- Extend investments in the development of water infrastructure with special emphasis on the construction of plants for the treatment of polluted water;
- Treat 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.

Land/soil

- Draw up a program for the permanent monitoring of agricultural and industrial land;
- Design the most favourable policies on 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

- Conduct research projects for the identification and monitoring of nature areas and the inventory of plant and animal species and natural habitats (toxic or water areas with special characteristics - living environment);
- Establish and operationalize the management bodies for the protected areas according to the legislation in force
- Strengthen the monitoring of the condition of rare and endangered animal species and take measures for the protection of endangered species of fauna according to the recommendations and findings from the 'Book of Fauna of Kosovo'
- Review the vulnerability status of plant species through the revision of the Red Book of Flora of Kosovo;
- Initiate a process of 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 Nature Protection;
- Increase the number of staff in the nature protection and biodiversity sector.
- Prepare and approve Management Plans and Regulatory Plans for protected areas according to the applicable legislation
- Conduct research on the inventory of geo-heritage and the protection of these values;

Waste

- Improve the management of the sanitary landfills of Kosovo and implement the monitoring of discharges into the environment from the landfills;
- Enhance the municipal waste collection services in the entire territory of Kosovo;
- Municipalities of Kosovo should continuously engage in the elimination of illegal landfills in their territory;
- Municipalities designate locations for the treatment and disposal of waste from construction and demolition;
- Draw up programs and systems at the national level for the separation of waste at source and their recycling.

Public health

- Conduct studies on the health impact of short-term exposure to air pollution, focusing on exposure to PM2.5, SO2 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 wastewater discharge service;
- Improve the health information system with verified or validated data;
- Enhance cooperation between researchers working on Health Impact Assessment studies, cause of air pollution, at the national level and at least at the local level.

Vulnerable areas

- Develop specific policies and strategies for the administration of environmental hotspots;
- Develop plans, programs and projects, which have the primary objective of rehabilitating hotspots, and especially dumps with heavy metals, which release high toxicities into the environment that negatively affect the ecological balance and endanger the existence of the living world;
- Raise citizen awareness about environmental hotspots and the threat resulting thereof;
- 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

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

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10. Annexes

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

Agglomeration	Title of monitoring station	Station Sign (Code)	Location	Measurable parameters	Station type	Date of functionalization
Agglomeration – AKS 1	HMIK	KS0101	Prishtina	PM_{10}, $PM_{2.5}$, SO_2, NOx, O_3, CO.	Urban background	09.01.2009
	Rilindja	KS0102	Yard of the Rilindja building	PM_{10}, $PM_{2.5}$, O_3, SO_2, CO, NO_2.	Urban background	06.05.2010
	Obiliq	KS0110	MCFM	PM_{10}, $PM_{2.5}$, SO_2, NOx, O_3, CO.	Urban background	01.03.2013
	Dardhishte	KS0111	HSCH "Abdurrahmon Gërguri"	PM_{10}, $PM_{2.5}$, O_3, SO_2, CO, NO_x.	Sfondi urban /industrial	01.03.2013
	Palaj	KS0112	Objekti Kosova Montim	PM_{10}, $PM_{2.5}$, SO_2, NOx, O_3, CO.	Sfondi urban/ industrial	01.03.2013
ZONE – ZKS 1	Peja	KS0305	HSCH. "Lidhja e Prizrenit"	$PM_{2.5}$, PM_{10}, NOx, O_3, SO_2, CO.	Urban background	04.04.2012
	Prizren	KS0406	HSCH. "Abdyl Frashëri"	$PM_{2.5}$, PM_{10}, NOx, O3, SO_2, CO.	Urban background	01.04.2012
	Hani i Elezit	KS0508	HSCH. "Ilaz Hallaqi"	$PM_{2.5}$, PM_{10}, NOx, O_3, SO_2, CO.	Sfondi urban /industrial	05.04.2012
	Gjilan	KS0609	HSCH. "Selami Hallaqi"	$PM_{2.5}$, PM_{10}, NOx, O_3, SO_2, CO.	Urban background	01.04.2012
	Drenas	KS0103	Adress Str. "Beqir Sinan"	$PM_{2.5}$, PM_{10}, NOx, O_3, SO_2, CO.	Urban background	05.04.2011
	Mitrovica	KS0204	HSCH. "Eqrem Qabej"	$PM_{2.5}$, PM_{10}, NOx, O_3, SO_2, CO	Urban background	06.2013
	Brezovica	KS0507	Ski center	$PM_{2.5}$, PM_{10}, NOx, O_3, SO_2, CO.	Rural	

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

Parameter	Limit values	Measuring unit	Limit value µg/m³	Allowed exceedances within the year
NO2	Limit value for 1 hour, for the protection of human health	µg/m³	200	18
	Annual limit value, protection of human health	µg/m³	40	Not foreseen
	Annual limit value, protection of vegetation	µg/m³	30	Not foreseen
SO2	Limit value for 1 hour, protection of human health	µg/m³	350	24
	Limit value for 24 hours, protection of human health	µg/m³	125	3
CO	Limit value for the daily average of 8-hour maximum, protection of human health	mg/m³	10	Not foreseen
PM10	Limit value for 24 hours, protection of human health	µg/m³	50	35
	Annual limit value, protection of human health	µg/m³	40	Not foreseen
PM2.5	Annual limit value, protection of human health	µg/m³	25	Not foreseen
O3	Long-term objective, protection of human health	µg/m³	120	Not foreseen

Annex 3: Air Quality Index

Quality	Good	Acceptable	Average	Poor	Very poor	Extremely poor
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
Air Quality Index level (based on the concentration of pollutants, expressed in µg/m³)						

Annex 4: Physical, chemical parameters and heavy metals monitored by KHMI[38]

Indicators	Symbol	Unit	Frequency of measurements/ annually
PHYSICAL PARAMETERS			
Time	h	0:00	11
Weather	W	Observation	11
Water temperature	Wt	0C	11
Air temperature	At	0C	11
Aroma	Ar	Sniff	11
Colour	Col	Co/Pt	11
Turbidity	Tur	NTU	11
Electrical conductivity	χ	µScm-1	11
Water soluble substances	SS.	mg/l	11
Hydrogen ion concentration	pH	0-14	11
CHEMICAL PARAMETERS			
Dissolved oxygen	OT	mg/l O2	11
Oxygen saturation	NgO	%	11
Biochemical Oxygen Demand	BOD	mg/l O2	11
Chemical consumption of oxygen with dichromate	BOD-Cr	mg/l O2	11
Biochemical Oxygen Demand	BOD5	mg/l O2	11
Biochemical Oxygen Demand	BOD7	mg/l O2	11
Total organic carbon	TOK	mg/l C	11
Total suspended solids	TSM	mg/l	11
Detergents	DET	mg/l	11
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	ATI	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	AT	mg/l N	11
Total organic nitrogen	ATO	mg/l N	11
Ortho phosphates	PO43-	mg/l	11
Phosphorus of orthophosphates	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
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

[38] *Only the parameters highlighted in blue are assessed and presented in this report.*

P-Alkalinity	Pa	ml 0.1 e HCl	11
M-Alkalinity	Ma	ml 0.1 e HCl	11
Total alkalinity	AT	mmol/l HCl	11
Bicarbonates	HCO3-	mg/l	11
Free chlorine	Cl2	mg/l	11
Chlorides	Cl-	mg/l	11
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 5: Codes of stations for monitoring the physicochemical quality of surface waters - rivers

Code	Location	River	Pouring place
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	Black sea
RV02_012	Mitrovicë	Ibri	Black sea
RV02_013	Kelmend	Ibri	Black sea
RV02_021	Bablak	Sitnica	Black sea
RV02_022	Lipjan	Sitnica	Black sea
RV02_023	Vragoli	Sitnica	Black sea
RV02_024	Plemetin	Sitnica	Black sea
RV02_025	Nedakovc	Sitnica	Black sea
RV02_026	Mitrovicë	Sitnica	Black sea
RV02_031	Marincë	Llapi	Black sea
RV02_032	Podujevë	Llapi	Black sea
RV02_033	Milloshevë	Llapi	Black sea
RV02_041	Bresje	Prishtevka	Black sea
RV02_051	Vragoli	Graqanka	Black sea
RV02_061	Pjetërshticë	Drenica	Black sea
RV02_062	Vragoli	Drenica	Black sea
RV02_062B	Drenicë	Çikatovë e Vjetër	Black sea
RV02_071	Devetak	Shtime	Mediterranean Sea/Adriatic Sea
RV02_072	Vojnovc	Shtime	Black sea
RV03_011	Korbuliq	Morava e Binçës	Black sea
RV03_012	Kllokot	Morava e Binçës	Black sea
RV03_013	Ranillugë	Morava e Binçës	Black sea
RV03_014	Domoroc	Morava e Binçës	Black sea
RV03_021	Marec	Kriva reka	Black sea
RV03_022	Domoroc	Kriva reka	Black sea
RV04_011	Prevallë Subain	Lepenci	Mediterranean Sea / Aegean Sea
RV04_012	Kaçanik	Lepenci	Mediterranean Sea / Aegean Sea
RV04_013	Hani i Elezit	Lepenci	Mediterranean Sea / Aegean Sea
RV04_021	Jezerc	Nerodimja	Mediterranean Sea / Aegean Sea
RV04_022	Bifurkacioni	Nerodimja	Mediterranean Sea / Aegean Sea
RV04_023	Gërlicë	Nerodimja	Mediterranean Sea / Aegean Sea
RV04_024	Kaçanik	Nerodimja	Mediterranean Sea / Aegean Sea

Annex 6: Assessment of the implementation of the Integrated Waste Management Strategy[39]

№	Objectives	Indicator of achievements	Baseline in 2020	Target	Status in 2022
I.	**Strategic Objective 1: Develop a new generation of integrated waste management services and infrastructure**				
I.1.	Specific Objective: Provision of regular and reliable municipal solid waste collection services for the entire population	Indicator: Percentage of the general population with access to adequate and regular municipal waste collection services	74%	80% in 2023	95%
I.2.	Specific Objective: Develope an integrated network of waste management centers	Indicator: Percentage of total municipal solid waste produced that is managed in controlled centers	40%	60% in 2023	78%
I.3.	Specific Objective: Develope systems for control and management of other waste.	Indicator: Percentage of MSW deposited in designated landfills and recycled	0	3 NMSI centers in 2024	0
		Indicator: availability of sector waste management plans	No PMM for the sector	2 plans in 2023	0
II.	**Strategic Objective 2: Professionalization of the waste management and recycling sector**				
II.1.	Specific Objective: Continue building professional capacities in the public and private sector	Indicator: Professional capacity in the public and private sector	Provided by development partners	Monitoring reports	Ongoing support for capacity building
II.2.	Specific Objective: Assign an industrial code for the waste management and recycling sector in national statistics	Indicator: Inclusion of professions and businesses by 2023	There is no recognition	Inclusion of professions until 2023	0
		Indicator: Industry body established by 2023	There is no established body	Industry body is established until 2023	0
II.3.	Specific Objective: Promote research and development in universities	Indicator: The MIMN course or module is created at the university by 2025	No MIMN-specific course available	1 approved course until 2025	0
III.	**Strategic Objective 3: Strengthen regulation and control in the waste management sector by filling gaps and clarifying enforcement mechanisms**				
III.1.	Specific Objective: Establish a functional information system for	Indicator: SIM is operational in 2021 and accessible to the public in 2023	KEPA publishes an annual report for MMN	SIM exists and is accessible in 2023	0

[39] *Report of the Working Group on Monitoring the Implementation of the Integrated Waste Management Strategy*

	waste management				
III.2.	Specific Objective: Extend the waste management licensing and permitting system to cover all waste operators and management waste centres.	Indicator: Full coverage of the granting of licenses and permits by 2027	Partial coverage of MM licensing and permits	50% of centres are covered in 2023	0
		Indicator: The Industrial Waste Management Plan is published until 2022	No plan	1 plan	0
III.3.		Indicator: Enforcement mechanisms and procedures are reviewed by 2022, while for at least 75% of reported violations, there are relevant enforcement mechanisms and procedures used by competent authorities by 2024	Implementation and realization mechanisms are not in place	1 review report in 2023	0
IV.	**Strategic Objective 4: Promote the values and practices of a circular economy**				
IV.1.	Specific Objective: Raise awareness of the importance and benefits of waste management and recycling.	Indicator: Campaign results are published in 2024, 2027 and 2030	No special awareness campaign conducted	1 campaign impact assessment	0
IV.2.	Specific Objective: Stimulation of innovations in waste prevention	Indicator: The first round of applications for grants for innovative ideas ends in 2023	No grant system has been established	Innovation grants scheme in 2023	0
IV.3.	Specific Objective: Establish reuse and recycling systems based on the concept of extended producer responsibility.	Indicator: By 2024 – PZP mechanisms are applied to 4 product categories/waste fractions (packaging, electrical and electronic equipment, batteries, and end-of-life vehicles)	No PZP mechanism applies	1 PZP scheme	0

Annex 7: Assessment of the implementation of the Biodiversity Strategy and Action Plan[40]

No.	Activity	Responsible institutions	Current state of implementation
1.	Draft and approve by-laws derived from the Law on Nature Protection.	MESP, GRK	This activity has been fully implemented.
2.	Extend the promotion of the legislation on the protection of nature to the community.	MESP, Municipalities	This activity has been partially implemented.
3.	Approve the nature protection programs for each municipality.	Municipalities, MESP	Partially implemented, only three municipalities have approved Biodiversity Conservation Programs.
4.	Lobbying for the ratification of relevant conventions and treaties.	MFA, MESP, Assembly of Kosovo	This activity was not carried out due to the status of Kosovo, only acceptance by the IUCN was achieved.
5.	Align and strengthen legislation and clarification of competencies for the management of National Parks.	MESP, MAFRD Assembly of Kosovo	It has not been implemented, the Draft Law on Forests is in the approval procedure.
6	Empower competent institutions and bodies for the protection and conservation of biodiversity.	MESP, Donors	The activity is ongoing and has been partially implemented.
7.	Capacity building for access to international funds.	KIPA, Donors	The activity is ongoing and has been partially implemented.
8.	Announcement of Pashtrik transboundary protected area.	Government, MESP	The activity was partially implemented because by GRK decision, the area has been declared a Natural Park while the Republic of Albania still did not announce it as PZ.
9.	Identify and declare the important bird areas.	MESP, Government	Partially achieved, due to the lack of institutional capacities.
10.	Inventory and mapping of rare species of flora and fauna in Bjeshket e Nemuna.	MESP, Donors	Partially implemented, this activity takes place in continuity.
11.	Update the inventory of birds in Bjeshket e Nemuna.	MESP, Donors, NGO	The activity was not carried out, due to the lack of financial means and institutional capacities.
12.	Inventory and mapping of rare species of flora and fauna in "Sharri".	MESP, Donors	Partially implemented, this activity is conducted continuously.
13.	Update the inventory of birds in Sharri.	MESP, Donors, NGO	The activity was not carried out due to the lack of funds and institutional capacities.
14.	Inventory of invasive and alien plant species.	MESP, MAFRD	The activity was not carried out, due to the lack of funds and institutional capacities.
15.	Preparation and publish the Red Book of Fauna.	MESP, Donors	The activity is fully implemented, and the Fauna Book published.
16.	Provide equipment for research and monitoring of natural resources.	MESP	The activity has been partially implemented, monitoring equipment has been provided (GPS trap camera, Camera, etc.).

[40] *State of Nature Report 2018-2021, KEPA 2022*

17.	Strengthen the Genetic Resources Bank for plants and Establishing the Genetic Resources Bank for animals.	MEST, UP, MESP	The activity has not been carried out, there are some actions that have been carried out by the Faculty of Veterinary and Agriculture of UP, especially for plants.
18.	Prepare the manual for the interpretation of types of settlements in accordance with the Directive on Settlements.	MESP, Donors, UP,	The activity was not carried out, due to the lack of financial means and institutional capacities.
19.	Develop the Central Information System (CIS) for biodiversity.	MESP, Donors	The activity has been partially implemented. The CIS is organized within the Environmental Information System (EIS).
20.	Human and technical capacity building for the cartographic presentation of settlements and the inventory of types (training).	MESP, Donors	The activity has been partially implemented, the staff has been trained on the inventory of species
21.	Collect data on settlement types and types (including distribution, representation, etc.) including fieldwork.	MESP,	The activity has been partially carried out, preliminary research of the natural settlements present in the Republic of Kosovo has been implemented, and it needs to be continued in the future.
22.	Produce of distribute maps for all settlement types and species, based on existing data.	MESP, Donors	The activity has been partially realized, some preliminary maps have been created (definition of biogeographically regions), and in the future we must continue with the preparation of maps according to the requirements for the "Nature 2000" ecological network.
23.	Continuation of the effective implementation of EIA and EIA procedures.	MESP, Donors	The activity is continuously implemented in accordance with the EIA and EIA laws.
24.	Prepare and approve the regulatory plans and Management Plan for "Bjeshket e Nemuna" NP.	MESP, Donors, Assembly of Kosovo	With the support of the Environmental Program for Kosovo (SIDA), these plans have been prepared but have not yet been approved.
25.	Prepare and approve management plans for other large protected areas (over 500 ha).	MESP, MAFRD, Donors	This activity has not been carried out.
26.	Prepare the Management Plans for large mammal species.	MESP, MAFRD, UP, NGO, Donors	There are no tangible results, even though consultations have been held with the responsible actors, this action is expected to be implemented in the documents.
27.	Support the development and implementation of the Drini i Bardhë River Basin Management Plan.	MESP, Donors	With the support of the Environmental Program for Kosovo (SIDA), the Drini i Bardhë Basin Management Plan has been prepared but has not yet been approved.

28.	Develop incentive measures for the promotion of biodiversity conservation in other sectors, to continue with the implementation of measures in the forestry-agriculture sector.	MESP, MAFRD	This activity was partially implemented with the participation of the WG in the drafting of policies in other influential sectors.
29.	To continue with the policy of reviewing the legislation of other relevant sectors in relation to objectives, practices and regulations. that potentially has a negative impact on biodiversity.	MESP, MED, MTI, MAFRD	This activity takes place continuously with the participation of the WG in the drafting of legislation in other sectors with an impact on biodiversity.
30.	Capacity building for the implementation of the "Assessment of Acceptability" (AA)	MESP, Donors	The activity was not carried out due to a lack of support from donors, while MESP does not have the capacity to offer such training.
31.	Continue with the determination of the conditions for the protection of nature during the preparation of legislation	MED, MTI, MI, MAFRD	The activity is developed continuously and can currently be assessed as partially fulfilled.
32.	Implement additional training programs for teachers regarding nature protection and curriculum implementation at all levels.	MEST, MESP, Municipal Directorates	This activity has been carried out continuously.
33.	Continue with the Green Package Junior Project, training of lower cycle teachers.	MEST, MESP, Municipal Directorates	The activity was carried out in some of the municipalities for the selected topics.
34.	Raise awareness of local residents living in or near protected areas.	MESP, Donors	The activity has been partially implemented, for example, the project financed by JICA in Suhareka.
35.	Strengthen cooperation between MESP and NGOs for non-formal education activities.	MESP, NGO	The activity was carried out through activities marking the environmental holidays, the green week for sustainable development.
36.	Develop the Eco Trail Project in the "Gërmia" Regional Park as well as the management plan with a focus on education.	Municipality of Prishtina, Donors	The activity is fully realized, and the path is functional.
37.	Develop and implement the Botanical Garden Project.	MESP, Donors	The activity was not carried out due to lack of funds.
38.	Develop and implement awareness campaigns at the national level.	MESP, MAFRD, MED, MTI, MI, Media	The activity has been partially realized and should continue in the future.

39.	Increase the number of university staff for taxonomy, cartography, biodiversity management and protection.	MEST, UP	The activity was partially implemented with the engagement of staff for a specific campaign.
40.	Support scientific research and projects in the area of biodiversity protection.	MEST, UP, MESP	The activity has been partially implemented, such activities are carried out continuously.
Explanatory legend:			
Fully implemented		**Partially implemented**	**Not Implemented**

Annex 8: Assessment of the implementation of the National Water Strategy [41]

Measure	Actions planned	Implementation	Actions undertaken	Progress assessed
STRATEGIC OBJECTIVE 1: USE OF WATER "Distribute and sustainably use Kosovo's water resources to its users in order to guarantee access to safe drinking water for health for all and maximize economic benefits from the use of water for other purposes"				
Measure 1.1: Increasing the capacities for the accumulation and conservation of water resources.	• Drafting feasibility study for increasing water storage capacity: All basins. • Implementation support (drafting of design and tender documentation for priority projects) – increasing water storage capacity: All basins. • Construction – increasing the capacity for water accumulation: All basins.	Partially Partially NO	• Feasibility study for the Lepenc hydrosystem has been drawn up (2020). • Feasibility studies are planned for the year 2023 for the reservoirs: Dragaqinë, Pollatë and Drelaj. • Drafting conceptual project ("preliminary design") and the EIA study for the Lepenc system is in progress. • • In the framework of the FLOWS project, PIU was established for the accumulation of Desivojca. • The construction of the reservoirs has not yet started.	Partial progress.
Measure 1.2: Increasing efficiency in water use.	• Reduction of leaks from bulk water supply systems. • Development of programs for the detection and reduction of leaks from water supply networks. • Development of programs for the detection and reduction of leaks from irrigation networks. • Increasing efficiency in the use of water for irrigation.	No information YES NO NO	• All RWCs have drawn up Water Loss Reduction Strategies: 2018-2022. • Water losses at the level of the water services sector, in the period 2017-2021, have decreased by 3 percentage points (from 58% to 55%). • For Irrigation Companies and wholesale water suppliers, there is no information on whether they have drawn up strategies for	Partial progress by RWCs.

[41] *Monitoring report on the implementation of Kosovo Water Strategy 2017-203, PUACW Project, LDIP 2023*

			reducing losses and how much progress there is in reducing water losses.	
Measure 1.3: Ensuring the exercise of control over all water resources.	• Campaign for the implementation of permits for the use of water. • Reduction of illegal use of drinking water. • Reduction of illegal use of water for irrigation.	YES Partially No information	• Water Inspectorate has drawn up: 806 minutes, 143 initiations for minor offences, 287 decisions and 218 administrative fines. • RRBA has raised the efficiency of control over water use, especially in 2021 with 116 water permits issued (compared to 2020 with 68 water permits issued, and to 2019 with 9 water permits issued). • RWCs have reduced the UPF by 3 percentage points.	Partial progress.
Measure 1.4: Reducing the rate of non-payment for water use below 5%.	• Increasing the level of payments for the use of water. • Raising the rate of payments for water supply. • Raising the rate of payments for irrigation.	YES YES YES	• Collection for water payments increased substantially in 2021 when revenues of 1.5 million EUR were collected, compared to 2020 when 0.6 million EUR were collected and especially compared to 2019 when 0.2 million EUR were collected. • Bill collection rate for water services has increased to 96% in 2021. • Collection rate of WC "Radoniqi-Dukagjini": 90-98%, RWC "Drini i Bardhë": 79%.	Substantial progress
Measure 1.5: Integrate local and rural water supply systems into RWC.	• Development of the action plan for the integration of local and rural systems. • Implementation of the action plan for the integration of local and rural systems.	NO NO	• Action plans have not been drawn up by RWCs and municipalities for the integration of rural systems in RWCs. • In the framework of the RWSSP-VI project financed by the Swiss government and the Government of Kosovo in the amount of EUR 15.75 million, a number of rural and municipal water supply systems have been rehabilitated and integrated. • By 2021, a total of 184 rural systems have been integrated into the RWCs. More than 100 rural systems have not been integrated.	Partial progress

Measure 1.6: Achieving compliance with the European Drinking Water Directive.	• Modernization of the laboratories of the Regional Water Supply Companies. • Improvement of drinking water treatment plants. • Improvements in resource protection. • Improving the performance of existing supply networks. Repair of outdated networks, Installation of zonal flow meters, and Installation of water meters for consumers.	YES Partially YES Partially	• Two out of seven RWCs have accredited laboratories, the others have laboratories but are in the process of accreditation. • Administrative Instruction on Sanitary Protected Resource Areas was approved by MESPI in 20217. • In 2021, the Government of Kosovo approved the Administrative Instruction on the Quality of Drinking Water, which transposed the relevant EU directives. • A decision was taken by MESPI to prohibit the transport of dangerous substances on the road near Badovci Lake. • Compliance rate of tested samples for the quality of drinking water supplied by public water supply systems managed by RWCs is over 98%.	Substantial progress
Measure 1.7: Investment program for the water supply system (24.7 million EUR for the period 2017-2021)	• Renovation of water supply systems, with the aim to achieve by 2024: Increase the coverage rate with public water supply systems to 100% in urban areas, and Increase coverage with public water supply systems to 90% in rural areas. - Water treatment is improved to achieve compliance with EU standards.	Partly urban area 99.15% rural areas: 66.7%	• A total of around 129 million EUR has been invested as follows: • Phase VI of the RWSSP program for rural systems has been implemented in the co-financing of the Government of Kosovo with the Swiss Government in the amount of EUR 15.75 million. • EUR 88.5 million has been invested through RWCs (from own revenues and grants). • About 20 million EUR have been invested through the municipalities. • About 5 million EUR have been invested through MESPI.	Substantial progress.
Measure 1.8: Optimization of irrigation system coverage.	• Preparation of investment plans by Irrigation Companies. • Implementation of business development plans for Irrigation Companies. • Investments in the Irrigation System (2017-2022: 23.21 million EUR)	YES YES NO	• The Irrigation Master Plan has been drawn up, where irrigation needs and projects have been identified. • Realized investments (around EUR 3.5 million): - RWC "Radoniqi-Dukagjini": 2021-2022 - 3,176,629 EUR and WC "Drini i Bardh" 2017-2018 - 313,000 EUR	Partial progress.

Measure 1.9: Promotion of sustainable use of water by other users.	• Preparation of the long-term plan for the use of water for tourism and recreation. • Preparation of the long-term plan for the use of water for fish farms. • Preparation of a strategy for sustainable use of inerts from river basins. • Issuance of water use permits for hydropower plants respecting the needs and rights of downstream users	NO NO NO NO	• A long-term plan for the use of water for fish farms has not been drawn up by MAFRD and MESPI. • A long-term plan for water use for tourism and recreation has not been drawn up by MIET and MESPI. • A strategy for sustainable use of river alluvium has not been drawn up by MED and MESPI. • MESPI has conducted a review of permits issued for small hydropower plants and recommendations for the future have been given.	No progress.
Measure 1.10: Drought management plan.	• Legal and Institutional Measures for Drought Management (Administrative Instruction on drought monitoring and management); • Determination of institutional responsibilities (Measures for international coordination) Drought Management Plans. • Drought Warning System.	Partially PO PO	• RWCs have drawn up their own drought management plans. • MESPI has not yet drafted a national drought management plan.	Partial progress.
STRATEGIC OBJECTIVE 2: WATER PROTECTION "The regulation and supervision of activities that put pressure on the aquatic environment in a proportionate, efficient and effective manner to achieve environmental objectives in a reasonably economic manner for bodies of surface and underground water and at the same time respect the principles of sustainable management."				

Measure 2.1: Controlling polluting emissions.	• Campaign for the implementation of water discharge rules. • Permits for direct discharges from large industrial plants. Register of large plants • Characteristics of downloads • Application and processing of permits • Licensing of indirect downloaders. • Water Discharge Permit Evaluation Program.	NO Partially NO NO	• MESPI has not yet created a complete register of wastewater discharges to water bodies from large industrial facilities with discharge characteristics. • Of the 6 large industrial entities, 3 do not have a permit, 2 have an integrated permit and only 1 has a water permit: (Trepça - SH.A, No permit, New Co - Ferronikeli Has an integrated permit, KEK - JSC has applied for a water permit, Sharrcem - LLC has an integrated permit, F.P.K - Deve has a water permit, Birra Peja - JSC has applied • RWCs have not completed the registers for the discharge of industrial wastewater into the public sewer. • New Administrative Instruction No. 02/2022 on Limiting Values of Polluted Water Discharges into Water Bodies and Public Sewers was adopted by MESPI, which transposed Directive No. 91/271/EEC on the Treatment of Urban Wastewater.	Small progress.
Measure 2.2: Expansion of coverage with the wastewater collection system.	• Investments by the Government and donors in the construction of wastewater collection systems. • *Note: Planned actions are not specified in the Strategy document.*	Partially	• Coverage of public wastewater collection systems has reached 75% of the population - of which 65% are managed by RWCs (in urban areas 97% while in rural areas 46%) • In the period 2018-2020, 8 projects were implemented through MESPI, with which sewage systems were built for 30 villages.	Partial progress.
Measure 2.3: Improving and maintaining the functionality of existing wastewater collection systems.	• Investments by the Government and donors in the construction of wastewater collection systems. • *Note: Planned actions are not specified in the Strategy document.*	Partially	• Projects supported by KfW in Prizren, Peja and Gjakova have been implemented with a total value of 17.5 million EUR; • Feasibility study for the sewerage system of the Prishtina region, supported by KfW, has been completed. • Project for the improvement of the sewerage system in the region of Pristina (municipalities: Prishtina, Fushe Kosova, Obiliq and Podujeva) is being prepared, supported by KfW in the amount of about 70 million EUR.	Partial progress.

Measure 2.4: Implementation of wastewater treatment.	• Investments by the Government and donors in the construction of wastewater collection systems. • *Note: Planned actions are not specified in the Strategy document.*	YES	• Percentage of treated wastewater has increased from 1% to 11%. • Wastewater treatment plants for Prizren, Peja and Gjakova have been finalized and put into operation. • Wastewater treatment plants for Prishtina, Gjilan and Mitrovica are in the planning and design phase (these plants are planned to be completed by 2026). • Waste water treatment plant was built in the village of Orllan in order to protect the accumulation of Batllava.	Substantial progress.
Measure 2.5: Investment program for wastewater management (46.2 million EUR, 2017-2021)	• Planned investments 2017-2021: EUR 46 million.	YES	• Investments have been made in wastewater treatment plants worth over 60 million EUR (ITUN for Prizren, Peja and Gjakova). • Investment modalities have been resolved for the implementation of investments in the treatment of polluted waters worth about 150 million. EUR (ITUN for Prishtina, Mitrovica and Gjilan).	Substantial progress.
Measure 2.6: Management of sludge from wastewater treatment.	• Preparation of the state strategy for the management and removal of sludge from the treatment of polluted waters. • Investments related to the sludge strategy from wastewater treatment.	Partially NO	• Drafting of plans for the management of sludge from the treatment of polluted waters has been initiated by the decision of the Interministerial Council for Water • Wastewater plant operators (SWTPs) must design them by the end of 2022.	Small progress.
Measure 2.7: Management of diffuse pollution from agriculture.	• Guidelines for agricultural producers – use of organic fertilizers. • Guidelines for Agricultural Producers – Use of Biocides.	NO NO	• There has been no progress: neither the guidelines for the use of fertilizers in agriculture nor the guidelines for the use of biocides have been drawn up by the MAFRD.	No progress.
Measure 2.8: Reduction of diffuse pollution from non-agricultural sources	• Register of contaminated lands: • Identification of the most contaminated areas • Preparation of maps • Plan and Strategy for the Rehabilitation of Contaminated Lands. • Municipal solid waste management – immediate.	NO	• There has been no progress: MESPI has not prepared the register of contaminated lands, nor the strategy for the rehabilitation of contaminated lands.	No progress.

STRATEGIC OBJECTIVE 3: WATER PROTECTION "Achieve the acceptable level of protection of the population and property from the negative effects of water including flooding, erosion and flooding in a balanced economic and cost-effective manner."				
Measure 3.1: Flood risk management planning.	• Creation of a system of data collection, verification and publication. • Preparation of the first Flood Risk Management Plans (this includes hazard maps and flood vulnerability maps). • Support for the implementation of Flood Risk Management Plans. • System for the maintenance and management of infrastructure for flood prevention.	Partially NO NO NO	• In 2021, the project for the preparation of flood risk maps for all river basins of Kosovo was initiated, which was completed in 2022. The value of the project is 2.5 mil. EUR. • In 2020, the preliminary flood risk assessment was carried out, a project financed by donors in the amount of 0.6 million. EUR. • Flood risk management plans have not yet been completed (according to the Strategy they were supposed to be completed in 2019). • There is no system for regular and preventive maintenance of flood protection infrastructure.	Minor progress.
Measure 3.2: Flood warning and emergency management.	• Flood risk monitoring and warning system. [The system includes: (i) preparing the state flood warning system based on ISR (ii) monitoring the regional flood warning system based on MeteoAlarm (iii) monitoring the flood status and issuing warnings as needed (iv) registration on the EFAS forum and monitoring regularly.] • Flood emergency management. [(i) Emergency Procedures, (ii) Equipment Procurement, (iii) Training]	Partially Partially	• Hydrometeorological Institute of Kosovo has created the flood early warning system through SPI. This system should be advanced and connected to MeteoAlarm. • Procedures for action in case of floods are determined by UA no. 19/2015 on Protection from Harmful Water Actions.	Partial progress.
Measure 3.3: Infrastructure for flood prevention and protection.	• Investments in Flood Protection Infrastructure – Phase 1 [Rehabilitation of existing flood protection structures. Implementation of investment-ready projects for new flood prevention infrastructure] • Urban Drainage System (Atmospheric water channelling in urban areas). • Investments in flood protection infrastructure – Phase 2 [Implementation of measures and projects prioritized by the Flood Risk Management Plan]	YES NO NO	• In the period 2017-2021, significant investments were made through MMPHI and in co-financing with municipalities in the regulation of rivers - 33 projects. These investments exceed the investments foreseen by the Strategy for this purpose in the period 2017-2021 in the amount of 4.3 million. EUR. • No municipality has a plan for urban drainage - atmospheric sewage system. • Phase 2 investments based on the Flood Risk Management Plan could not be implemented considering that this plan has not yet been completed.	Minor progress.

Measure 3.4: Ensuring that all existing storage structures are safe.	• Dam safety management system. • Renovation of existing dams and reservoirs	YES Partially	• MESPI has implemented a project for dam safety assessment and seismic risk which was implemented in 2021-2022. In the framework of this project, the personnel of RWC have been trained for the safety of dams. • In 2018, the Prëlepnica dam was rehabilitated. • MESPI drafted Administrative Instruction No. 09/2017 on the Design, Construction and Use of Dams, which defines the institutional responsibilities for the operation and maintenance of dams, as well as the design and construction standards.	Partial progress.
Measure 3.5: Erosion and stream management.	• Preparation of Plans for the management of rivers and erosion. • Implementation of Streams and Erosion Management Plans.	JO JO	• There has been no progress.	No progress.
STRATEGIC OBJECTIVE 4: GOVERNANCE "Establishing and maintaining a water governance system that is fair, transparent, efficient, coordinated and with such professional and technical capacities as to be able to efficiently support the achievement of strategic objectives"				
Measure 4.1: Legislation for environmental water management.	• Estimating the compliance cost of the proposed legislation. Initial Implementation Cost Assessment (simplified) Determining the significance of costs Detailed assessment of whether costs are found to be significant Sensitivity analysis: benchmarks versus cost • Assessment of the regulatory impact of the proposed legislation. • Support for the implementation of water management legislation: [(i) Publication of legislation – complete online database, (ii) Dissemination procedure – advertisements, notices, (iii) Explanatory texts for all legal instruments, (iv) Guidance and technical advice for all stakeholders]	Partially NO NO	• Approval of each by-law is followed by an assessment of the costs for implementation. • A significant number of by-laws required under the Law on Kosovo Waters have been drawn up and approved - six in the period 2017-2021. • A full assessment of the costs for the implementation of the water legislation and the transposition of the water directives has not been prepared. • A system for supporting the implementation of legislation that would include guidelines for the implementation of all normative acts has not been completed.	Minor progress.

Measure 4.2: Transition towards the transposition of EU legislation.	• Transposition of the water management planning process. • Transposition of long-term objectives for water management. • Determination of Transient Objectives.	YES YES Partially	• With the Law on Water and the by-laws approved by MMPHI during the period 2017-2019, the planning process of water resources management (PMPL, Flood Plans, terms and content, etc.) has been transposed. • Through the River Basin Management Plans that are in the process of being drafted, the principles of river basin management planning are being implemented, including the definition of environmental objectives, the classification of surface and underground water bodies, the analysis of pressures and the program of measures.	Partial progress
Measure 4.3: Institutional strengthening.	• Establishment and full functionalization of the River Basin Management Authority. • Strengthening the Environmental Inspectorate of the Water Division in the Ministry of Environment and Spatial Planning. • Substantial strengthening of the Hydro-Meteorological Institute of Kosovo. • Establishment of the Water Institute • Strengthening of ARRU for regulation of wastewater treatment [4 new positions]	Partially NO NO NO NO	• River Basin Regional Authority (ARPL) has been established and since 2017 has been operating as a department within MMPHI. • Personnel of ARPL have not yet been completed according to its organizational structure. • There has been no proper progress in the institutional strengthening of the Kosovo Hydrometeorological Institute (HMIK): the laboratory has remained unaccredited, and the staff has not been increased. • Environmental Inspectorate has not been completed according to SSHUK – the number of inspectors has not been increased by 5 additional inspectors as planned. • Water Institute has not been established.	Minor progress
Measure 4.4: Information management.	• Water information system. • Agreement and procedure of inter-institutional exchange of data. • Publication of all data for the water sector through an online portal.	YES NO Partially	• A water management information system was created in 2021, which should be further developed and supplemented with data.	Partial progress.

Measure 4.5: Education in water management.	• Public awareness campaign on water issues. • Ensure that the school curriculum includes appropriate content related to water including Water Cycle, Water Use, Water Pollution, Water Saving, Water Pollution Prevention, and Flood Risk. • Implementation of TFU study recommendations for academic development.	YES Partially Partially	• Through the project Integrated Management of Water Resources (IMWR) funded by the Government of Switzerland, the newsletter "Kosovo Water" is published, which provides information for the purpose of raising awareness of water issues. • Through the IMWR project, the Master's program in water resources management within the University of Prishtina "Hasan Prishtina" is planned and expected to start in 2023.	Partial progress.
Measure 4.6: Planning for integrated management of river basins	• First plans for the management of river basins. • Preparation of the Second Plan for the Management of River Basins. • Second interaction with Plans for the management of river basins.	Partially NO NO	• Drini i Bardhë River Basin Management Plan is in the finalization phase, with financial support from the Government of Sweden (SIDA). • Plans for the management of three other river basins (Lepenci, Ibri and Morava e Binça) are in the initial planning phase, with the financial support of the Government of Switzerland through the IMWR program.	Minor progress.

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