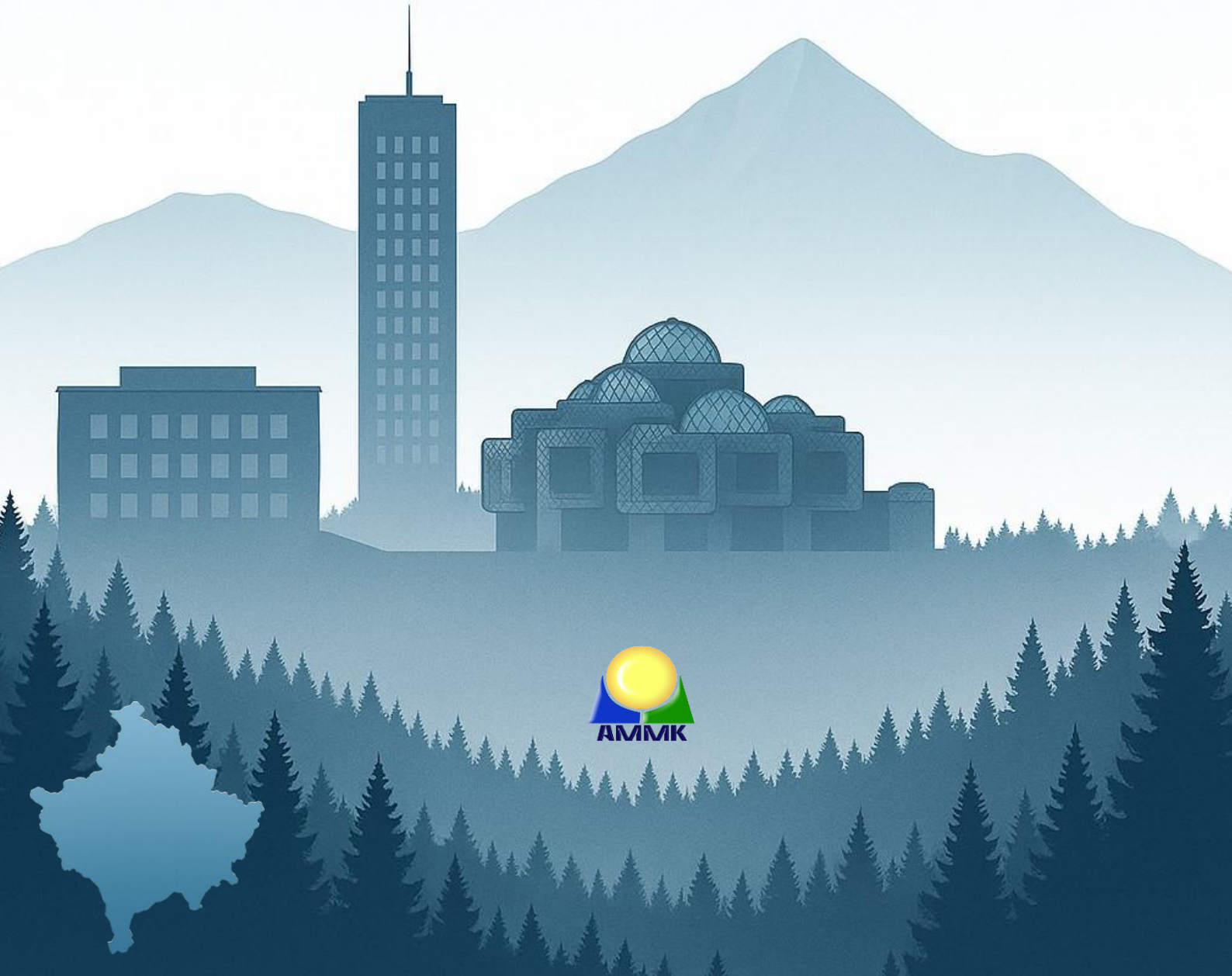
Republic of Kosovo
Ministry of Environment, Spatial Planning and Infrastructure
Kosovo Environmental Protection Agency

ANNUAL REPORT ON THE STATE OF AIR 2024



Introduction

This report presents air quality data for the calendar year 2024, collected from 12 static measuring stations and one mobile station, distributed throughout the territory of the Republic of Kosovo.

The report summarizes information on the state of air and emissions, investments in the air sector, as well as the existing legal framework. It also provides recommendations for improving air quality in Kosovo.

The data are collected by the Hydro-meteorological Institute of Kosovo. The data collected from these stations are processed and help in assessing compliance with national and European standards for air quality. Informing the public about pollution levels and potential health risks, drafting policies and measures to improve air quality.

The air quality parameters that have been assessed include:

- Carbon monoxide (CO);
- Ozone (O_3);
- Sulfur dioxide (SO_2);
- Nitrogen dioxide (NO_2);
- Dust particles smaller than 10 and 2.5 microns (PM_{10} and $PM_{2.5}$).

While the data on emissions from industries include estimates of emissions of nitrogen oxides (NOx), sulfur dioxide (SO2) and total dust, from the economic operators: TCA, TCB, New Co Feronikel and Sharr Cem.

The data analysis was carried out by the Division for Environmental Assessment, within the Directorate for Environmental Assessment, at the Kosovo Environmental Protection Agency.

Contents

1. Legal air infrastructure

1.1. Legal framework

Law on the Protection of Air from Pollution LAW NO. 08/L-025, 2022 is the basic law on the protection of air from pollution.

The legal infrastructure for the protection of air from pollution is also supplemented by AI (sub-legal acts), such as:

- ✓ MESPI Administrative Instruction No. 09/2023 on the method of air quality monitoring, data collection, criteria and methodology;
- ✓ Administrative Instruction (MESPI) No. 16 /2024 on limit values, target values, alarm thresholds for arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in the air;
- ✓ Administrative Instruction (GRK)–No.07/2021) on the rules and norms of air emissions from stationary sources of pollution;
- ✓ Administrative Instruction (GRK) No.04/2009) on the control of emissions of volatile organic compounds during the storage, emptying, filling and transportation of fuels;
- ✓ Administrative Instruction (GRK) No.16/2013 on substances that damage the ozone layer and fluorinated greenhouse gases;
- ✓ Administrative Instruction (GRK)-No.19/2013 on access to information on fuel economy and CO2 emissions of new personal vehicles;
- ✓ Administrative Instruction (GRK)-No.01/2016 on the mechanism for monitoring greenhouse gas emissions.

1.2. Information on air quality alert limits

Information and alert limits for air quality are determined according to the Law on Air Protection from Pollution No. 08/L-025 and AI 02/2011 on air quality norms (*Table 1).*

Table 1. Alert threshold values for PM_{10}, O_3, NO_2, SO_2

Pollutant	Alert	Alert Threshold
PM_{10}	100 µg/m³ (in 24 hours)	100 µg/m³ (in 24 hours for 3 consecutive days)
O_3	180 µg/m³ (in 1 hour)	240 µg/m³ (in 1 hour)
NO_2	—	400 µg/m³ (in 1 hour)
SO_2	—	500 µg/m³ (in 1 hour)

1.2. Air pollutants

Air pollutants pose a significant environmental and health challenge, directly and indirectly affecting air quality and the well-being of the population. Identifying and monitoring the main air pollutants at the local level is essential for assessing health risks and ecological impacts, as well as for developing effective policies for pollution control and reduction. The table below presents the main air pollutants monitored at the national level, as well as their impacts on human health and the environment. *(Table 2.)*

Table 2. Air pollutants and their effects on the environment and health

Polluter	Effects on the environment	Effects on health
PM_{10}	They negatively affect land, water and vegetation, causing degradation of ecosystems and pollution of natural resources.	They irritate the respiratory tract, cause coughing, bronchitis, and worsening of asthma.
$PM_{2.5}$	It lowers air quality and impairs visibility by causing atmospheric fogging, with an impact on local ecosystems.	They penetrate deep into the lungs and bloodstream, increasing the risk of cardiovascular and pulmonary diseases.
CO	The direct impact on the environment is limited, but it contributes to general air pollution and the formation of tropospheric ozone.	It binds to hemoglobin and reduces the blood's ability to transport oxygen, causing fatigue, dizziness, and in severe cases, death.
O_3	It damages plants and reduces agricultural productivity, by negatively impacting natural ecosystems..	It irritates the eyes, throat, and lungs, worsening respiratory diseases.
SO_2	It causes acid rain that damages forests, soil, and water, leading to the degradation of natural habitat.	It causes respiratory irritation, asthma, and chronic pulmonary disease.
NO_2	It helps in the formation of ozone and acid rain, by damaging ecosystems, water and soil quality.	It damages the respiratory system and increases the sensitivity to respiratory infections.

2. Air Quality

2.1. Air Quality Monitoring

Air quality monitoring is an essential component for assessing the impact of pollution on public health and the environment. Within the national monitoring system, the territory is divided into two main monitoring units: **Agglomeration AKS1** and **Zone ZKS1**.

- **Agglomeration AKS1** includes the densest urban and industrial areas, where air pollution poses the highest risk to the population. In this area, air quality is continuously monitored at **6 monitoring stations (IHMK, Rilindja – Prishtina, Palaj, Obiliq, Dardhishtë, Kodra e Trimave**), equipped with advanced technology for measuring particulate matter (PM_{10}, $PM_{2.5}$), and polluting gases (CO, NO_2, SO_2, O_3).
- **Zone ZKS1** includes other parts of the territory that are not classified as large urban agglomerations, but where monitoring remains equally important to assess regional pollution trends. **7 monitoring stations have been located in this area (Drenas, Mitrovica, Peja, Prizren, Brezovica, Hani Elezit, Gjilan**), strategically distributed to best cover the geographical area and to provide reliable data for comparative analyses. (*See Map).*

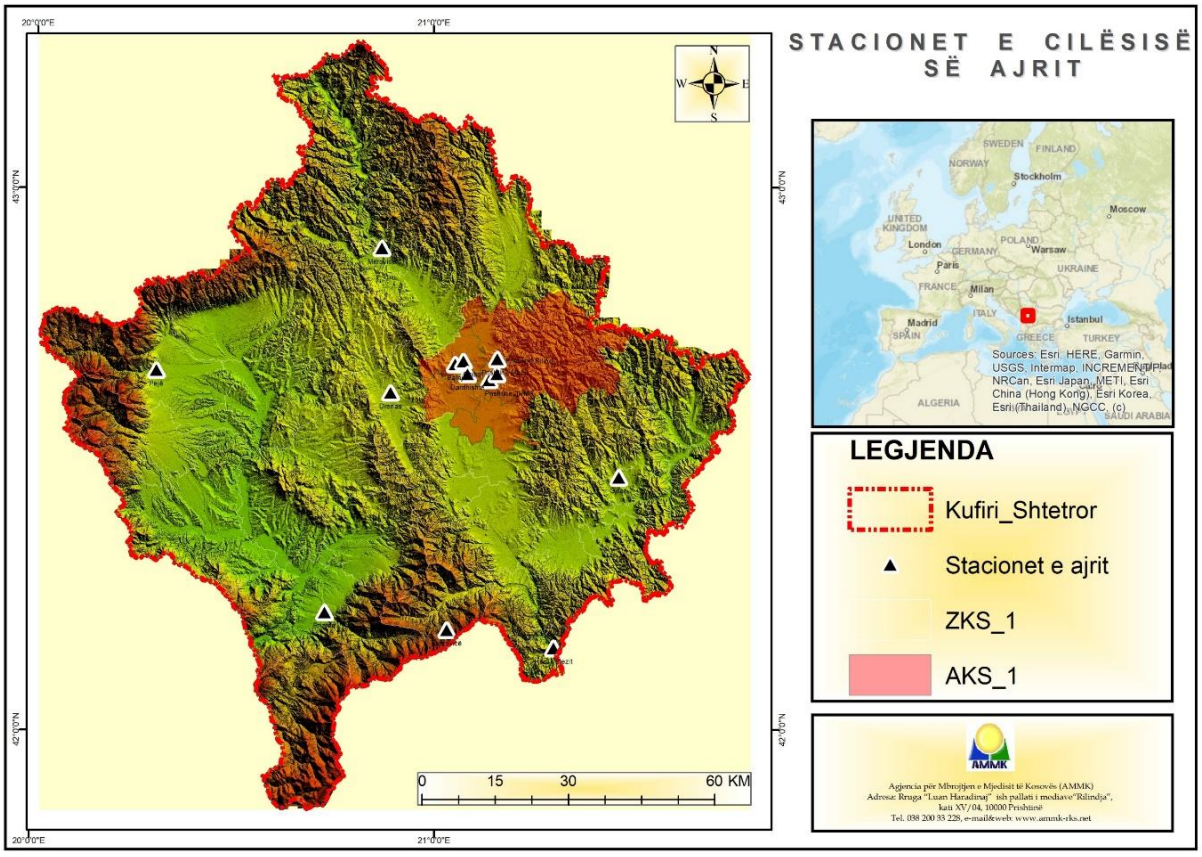


Fig.1. Locations of air quality monitoring stations

2.2. Agglomeration AKS1 - Air quality

PM_{10}

This parameter has been monitored in all localities of the AKS1 Agglomeration. Analysis of PM10 data from all monitoring stations shows that the exceedance of the annual standard of 40 µg/m³ was recorded only at the Rilindja station during January, where the monthly average reached 44 µg/m³. *(See Table 3).*

Table 3. Average monthly PM10 values in AKS1, 2024

Month	IHMK	Rilindja	Palaj	Obiliq	Dardhishte	Kodra e Trimave
January	30	44	20	36	20	38
February	23	35	21	30	22	29
March	16	26	14	19	13	20
April	15	23	13	17	14	17
May	10	17	8	9	8	10
June	14	23	12	12	12	11
July	12	23	14	14	18	12
August	13	23	16	13	18	18
September	12	22	12	17	13	17
October	18	13	14	23	20	23
November	26	35	21	27	28	34
December	33	38	17	32	19	36
Average 2024	**18.5**	**26.83**	**15.17**	**20.75**	**17.08**	**22.08**

While the annual average for the PM10 parameter has resulted within the annual standard of 40 µg/m³. (*See Fig. 2.)*

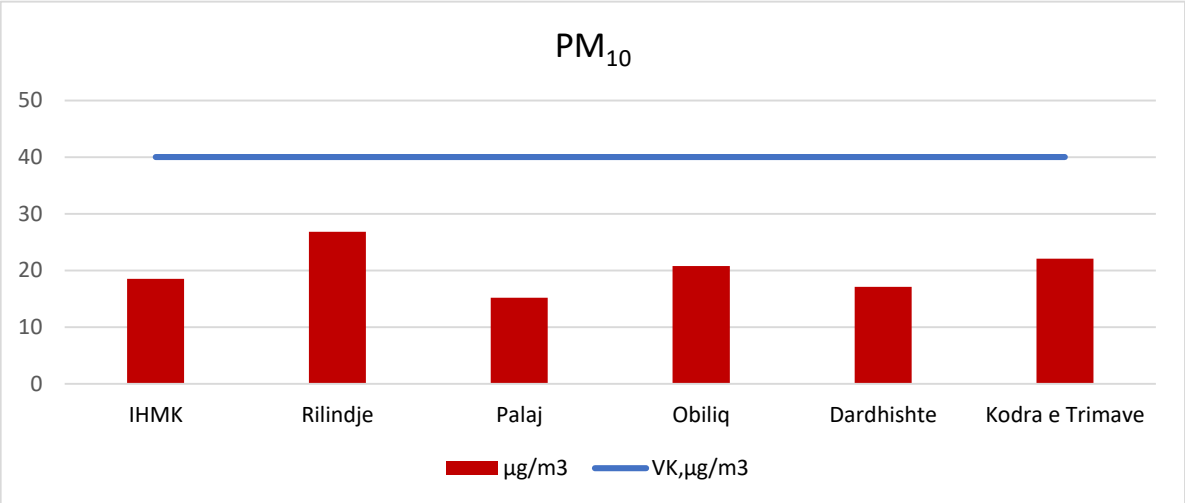
Fig. 2. Annual averages of PM10 in AKS1, 2024

$PM_{2.5}$

The highest values of this parameter were recorded at the following monitoring stations:

- IHMK in Prishtina (December),
- Rilindja in Prishtina (January, November, December),
- Obiliq (January, November, December), and
- Kodra e Trimave (January, November, December). (*See Table 4).*

Table 4. Average monthly PM2.5 values in AKS1, 2024



Month	IHMK	Rilindje	Palaj	Obiliq	Dardhishte	Kodra e Trimave
January	24	34	16	32	22	32

February	17	24	13	25	16	22
March	11	17	9	13	10	15
April	8	12	6	10	7	9
May	6	10	5	6	5	7
June	8	11	6	7	6	7
July	8	12	8	8	8	7
August	8	12	8	8	8	10
September	8	12	7	9	7	10
October	13	18	10	16	13	16
November	21	27	17	26	23	27
December	25	29	14	25	18	29
Average 2024	**13.08**	**18.17**	**9.92**	**15.42**	**11.92**	**15.92**

PM2.5 values during the year were within the annual standard of 25 µg/m3. *(See Fig. 3).*

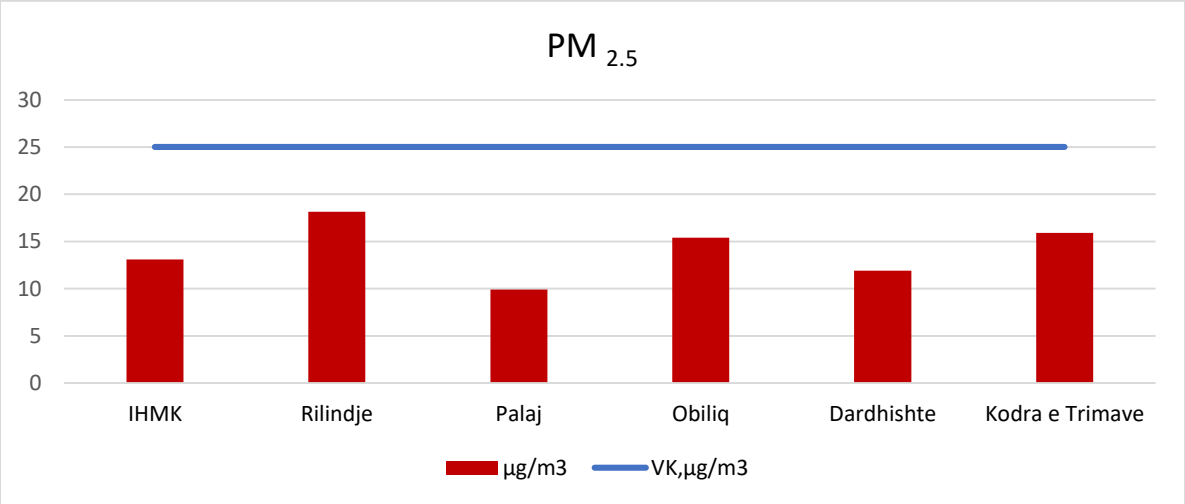


Fig. 3. Annual averages of PM2.5, in AKS1, 2024

Ozone (O3)

During the year, monitoring of the O3 parameter was also carried out. The values in the table below represent the monthly and annual average of this parameter.

Higher levels of O3 were observed in several localities during different months: Rilindja, Palaj, Obiliq, Dardhisht and Kodra e Trimave, especially during April, May, June, July, August and September. *(See Table 5).*

Table 5. Average monthly O3 values in AKS1, 2024

Month	IHMK	Rilindje	Palaj	Obiliq	Dardhishte	Kodra e Trimave
January	30	19	65	34	41	34
February	40	35	48	38	29	54
March	48	55	52	50	50	58
April	54	63	55	58	54	69
May	51	60	49	56	54	68
June	50	63	52	60	60	71
July	57	76	67	70	70	82
August	51	75	66	70	67	88
September	36	50	42	43	47	65
October	23	31	27	25	29	43
November	16	26	24	20	24	43
December	14	20	21	20	19	26
Average 2024	**39.17**	**47.75**	**47.33**	**45.33**	**45.33**	**58.42**

Vlera standarde e O_3 për vitë është 120 µg/m^3, ndërsa gjatë gjithë vitit në AKS1 kjo vlerë ishte nën normën e lejuara standarde. *(Shiko Fig. 4.)*

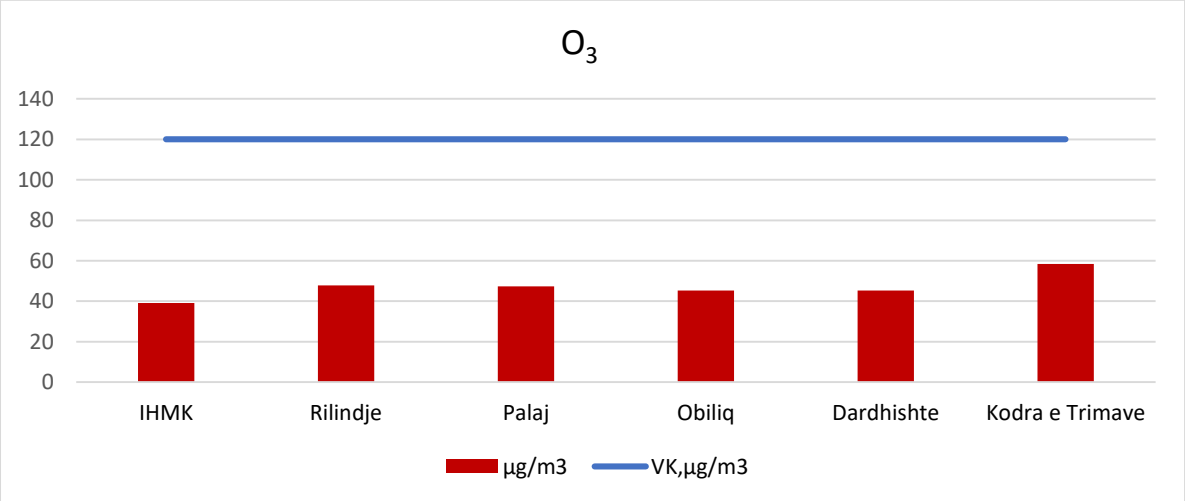


Fig. 4. Annual averages of O_3, in AKS1, 2024

Sulfur Dioxide (SO_2)

The SO_2 parameter has been monitored and according to data collected from monitoring stations, no exceedance of the standard value of 125 µg/m³ has been recorded during this year.

Table 6. Average monthly values of SO_2 in AKS1, 2024

Month	IHMK	Rilindje	Palaj	Obiliq	Dardhishte	Kodra e Trimave
January	17	3	19	22	11	10
February	17	15	16	9	10	9
March	15	15	8	6	7	6
April	14	17	12	8	5	6
May	15	18	15	12	5	4
June	20	23	20	14	5	10
July	25	24	24	18	7	10
August	13	4	5	12	10	9
September	4	5	1	6	4	7
October	13	6	2	10	4	9
November	8	8	1	12	6	10
December	26	10	2	11	9	9
Average 2024	**15.58**	**12.33**	**10.42**	**11.67**	**6.92**	**8.25**

The amount of SO_2 monitored within the annual standard value is shown in the figure 5.

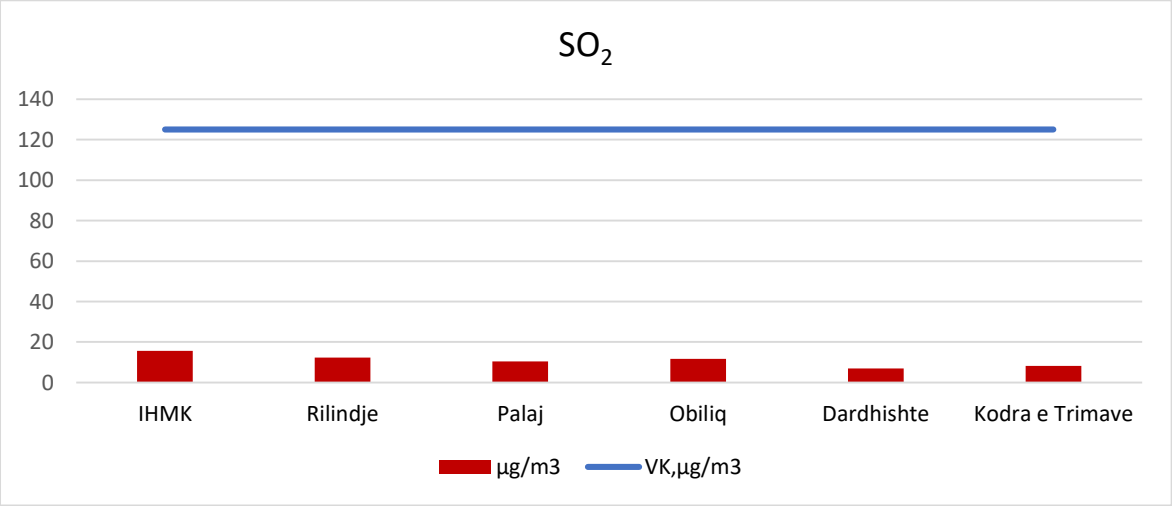


Fig. 5. Annual average of SO_2, in AKS1, 2024

Nitrogen Dioxide (NO_2)

The presence of NO_2 in air quality has not shown problematic values, from the data at the monitoring stations it has been established that there has been no exceedance of the allowed values of this parameter.

Table 7 presents the monthly and annual averages of NO_2. Higher levels of NO_2 were recorded at the monitoring stations at IHMK, Rilindja and Kodra e Trimave. *(See Table 7).*

Table 7. Average monthly values of NO_2, in AKS1, 2024

Month	IHMK	Rilindje	Palaj	Obiliq	Dardhishte	Kodra e Trimave
January	31	16	13	14	13	27
February	28	15	10	12	9	22
March	22	13	8	9	5	19
April	24	14	8	8	4	18
May	18	10	6	5	3	14
June	23	10	6	6	3	15
July	28	11	7	8	4	25
August	35	13	9	9	5	10
September	29	11	8	8	4	9
October	32	10	9	10	5	12
November	33	27	11	11	5	19
December	34	28	11	11	5	18
Average 2024	**28.08**	**14.83**	**8.83**	**9.25**	**5.42**	**17.33**

While the annual average of NO_2, was below the permitted standard value of 40 µg/m3. (See fig.6).

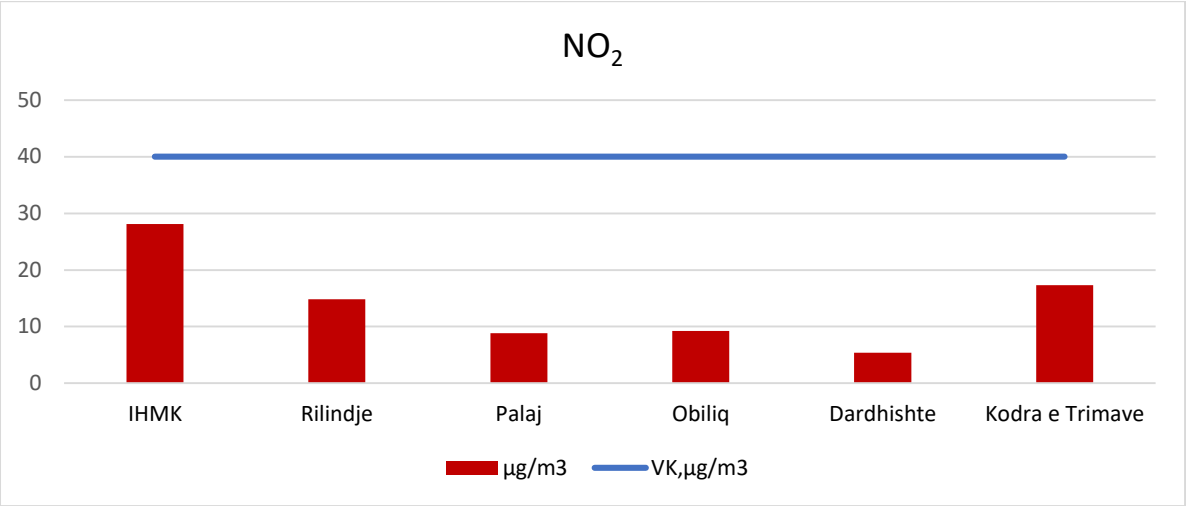


Fig. 6. Annual averages of NO_2, në AKS1, 2024

Carbon Monoxide (CO)

Carbon Monoxide (CO) based on the estimated data, has not exceeded the permitted limit values for the year. However, based on the monthly values, higher levels of CO were observed at the monitoring stations of IHMK, Obiliq and Dardhishte. *(See Table 8.).*

Table 8. Average monthly values of CO, in AKS1, 2024

Month	IHMK	Rilindje	Palaj	Obiliq	Dardhishte	Kodra e Trimave
January	1.8	0.8	0.1	1.4	2	0.7
February	1	0.3	0.1	1.2	2.3	0.4
March	0.8	0.2	0.1	1	0.7	0.3
April	0.5	0.3	0.2	0.9	0.6	0.2
May	0.5	0.3	0.5	0.8	0.8	0.1
June	0.5	0.3	0.8	0.8	0.7	0.1
July	0.6	0.4	0.4	0.8	0.3	0.1
August	0.3	0.4	0.5	0.5	0.6	0.2
September	0.5	0.4	0.5	0.6	0.8	0.1
October	0.2	0.5	0.4	0.7	1.1	0.3
November	0.8	0.7	0.7	1.4	1.8	0.5
December	1	0.8	0.8	1.5	2	0.9
Average 2024	**0.71**	**0.45**	**0.43**	**0.97**	**1.14**	**0.33**

The amount of CO within the year has been below the standard allowed value of 10 mg /m^3. (*See Fig).*

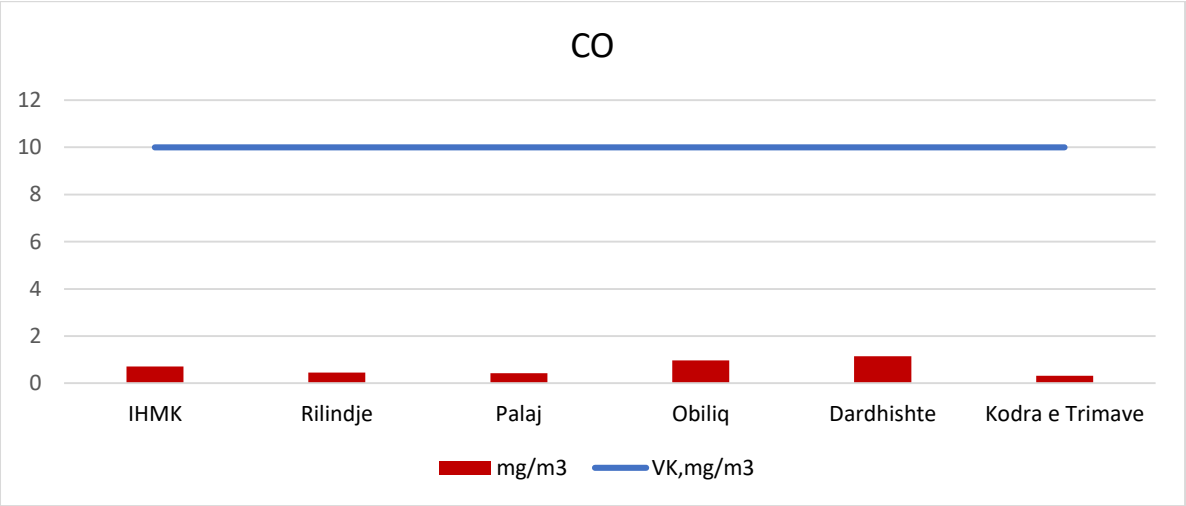


Fig. 7. Annual averages of CO, in AKS1, 2024

2.3 ZONE ZKS1 - Air quality

PM_{10}

The table below presents data on the average monthly and annual values of the PM_{10} parameter, based on data from monitoring stations, it was found that there was no exceedance of the limit values based on the standard value.

Higher levels of PM_{10} were recorded at the Gjilan monitoring station during the months of January and February. *(See Table 9).*

Month	Drenas	Mitrovicë	Pejë	Prizren	Brezovicë	Hani Elezit	Gjilan
January	18	31	36	21	2	26	42
February	19	32	33	18	6	25	42
March	12	21	19	12	9	14	21
April	12	19	15	13	8	12	13
May	9	12	12	8	9	9	8
June	11	14	14	11	16	13	12
July	16	10	17	10	17	12	12
August	18	14	11	10	19	12	13

September	11	14	8	9	9	10	11
October	15	23	28	14	6	12	16
November	22	28	25	24	5	21	30
December	19	28	29	24	-	18	30
Average 2024	**15.17**	**20.50**	**20.58**	**14.50**	**9.64**	**15.33**	**20.83**

Table 9. Average monthly values of PM_{10} in ZKS1, 2024

The PM_{10} parameter, which was below the allowed values according to the annual standard which is 40 µg/m3. (See Fig.8).

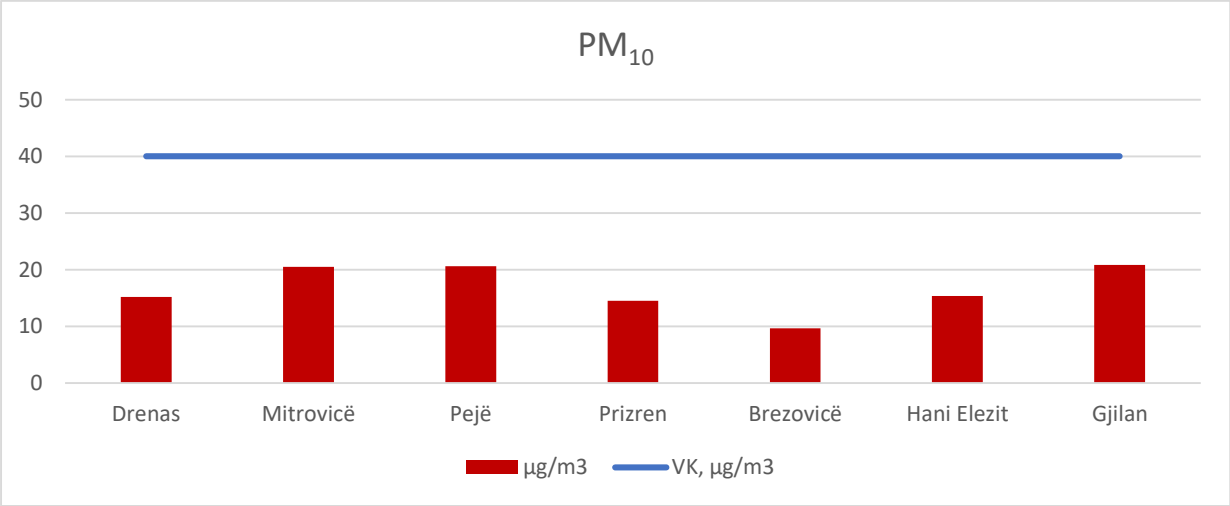


Fig. 8. Annual averages of $PM_{10,}$ in ZKS1, 2024

$PM_{2.5}$

Based on the estimated $PM_{2.5}$ data, higher levels of $PM_{2.5}$ were recorded at several monitoring stations during different months such as:

- Mitrovica (January, December);
- Peja (January, December);
- Gjilan (January, February, November, December). See Table 10.

Table 10. Average monthly values of $PM_{2.5,}$ in ZKS1, 2024

Month	Drenas	Mitrovicë	Pejë	Prizren	Brezovicë	Hani Elezit	Gjilan
January	16	26	30	19	2	23	38
February	15	22	22	13	5	18	34

March	9	13	12	8	6	10	17
April	6	9	8	5	5	6	9
May	5	7	7	5	7	6	6
June	6	8	7	5	11	7	7
July	8	7	7	6	14	7	8
August	9	9	7	6	14	8	9
September	7	10	6	6	7	6	8
October	11	16	10	11	5	9	12
November	18	22	22	19	4	17	26
December	17	25	26	21	-	16	28
Average 2024	**10.58**	**14.50**	**13.67**	**10.33**	**7.27**	**11.08**	**16.83**

In the monitoring stations of the ZKS1 area, the annual average of the $PM_{2.5}$ parameter has been below the permitted values according to the standard, which is 25 µg/m^3. (*See Fig. 9).*

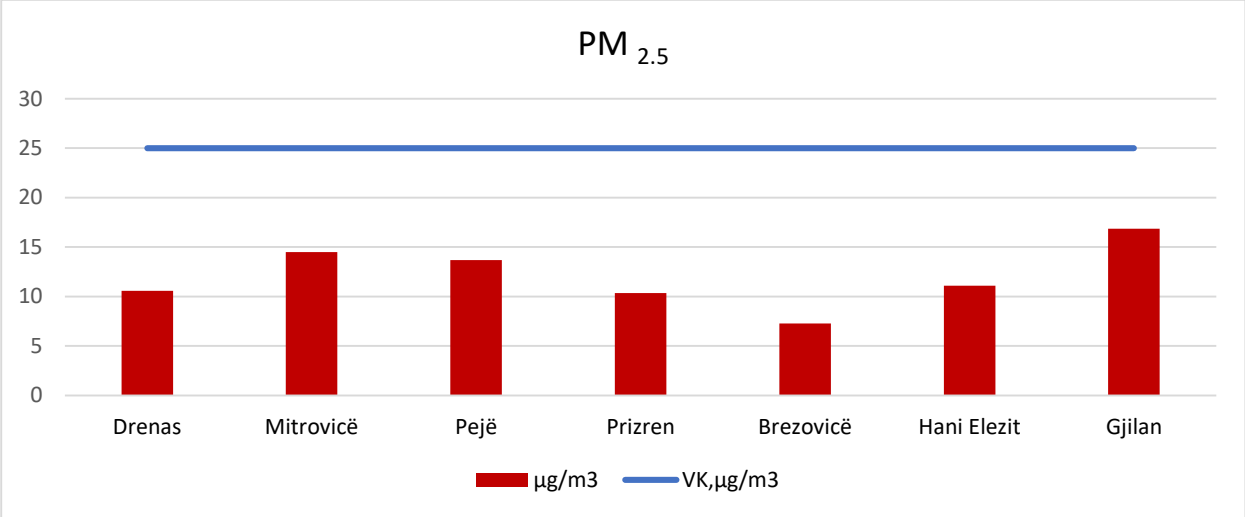


Fig. 9. Annual averages of $PM_{2.5,}$ in ZKS1, 2024

Ozone (O_3)

The highest monthly average O_3 values were recorded at the monitoring station in: Brezovica (throughout the year), as well as in other locations such as Drenas, Peja, Prizren, Hani Elezit, Gjilan mainly during the Spring and Summer seasons.

Table 11 presents the values for the monthly average O_3, in which it is estimated that there were no exceedances of the limit values during 2024. *(See Table 11).*

Table 11. Average monthly values of O_3, in ZKS1, 2024

Month	Drenas	Mitrovica	Peja	Prizren	Brezovica	Hani Elezit	Gjilan
January	45	25	35	24	75	35	36
February	49	27	46	47	82	48	41
March	56	36	57	56	86	52	52
April	61	37	70	71	94	61	60
May	63	28	65	65	89	57	62
June	69	24	73	70	95	66	69
July	78	38	91	65	106	81	79
August	76	41	86	91	111	81	78
September	59	24	62	38	90	52	37
October	35	12	38	17	78	38	15
November	29	16	27	28	72	31	16
December	29	15	19	22	-	28	15
Average 2024	**54.08**	**26.92**	**55.75**	**49.50**	**88.91**	**52.50**	**46.67**

The annual average of O_3 during 2024 was below the standard allowed values of 120 µg/m^3.

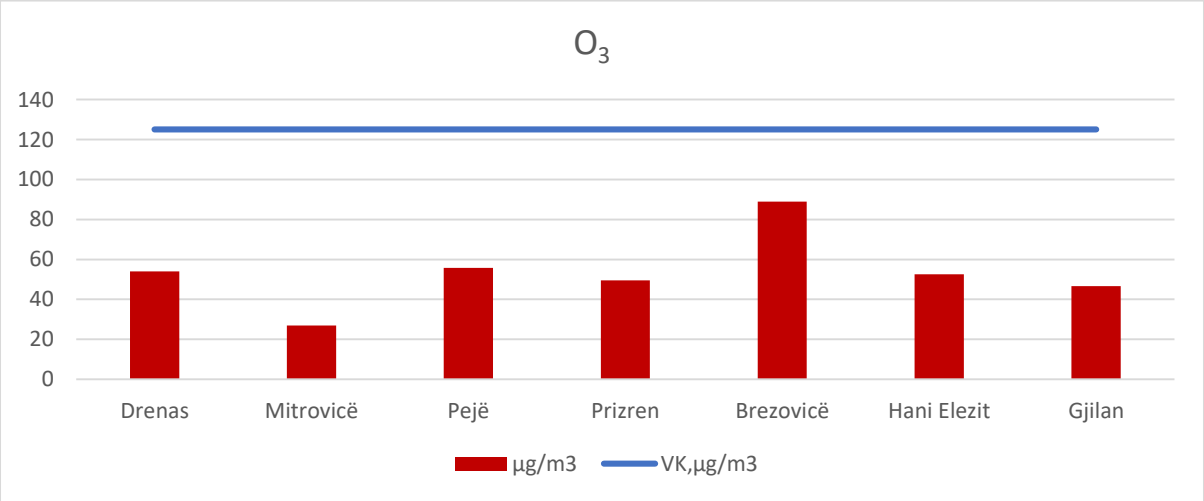


Fig. 10. Annual averages of O_3, in ZKS1,2024

Sulfur Dioxide (SO_2)

The values of the SO_2 parameter monitored at the air quality stations in the ZKS1 area show that there were no exceedances of the permitted limit values. (*See Table 12).*

Table 12. Average monthly values of SO_2, in ZKS1, 2024

Month	Drenas	Mitrovicë	Pejë	Prizren	Brezovicë	Hani Elezit	Gjilan
January	8	22	6	5	3	9	21
February	8	25	6	10	3	11	16
March	7	18	5	7	2	12	5
April	8	12	5	6	2	12	3
May	9	6	5	8	1	15	4
June	3	4	3	9	2	22	2
July	4	4	4	10	2	22	1
August	7	3	4	14	4	5	2
September	6	3	3	2	2	3	2
October	8	3	3	2	2	3	4
November	10	4	5	3	3	3	10
December	12	6	8	4	-	3	7
Average 2024	**7.50**	**9.17**	**4.75**	**6.67**	**2.36**	**10.00**	**6.42**

In addition to the data on monthly SO_2values, which did not exceed any limit, the amount of SO2 in annual averages was also below the allowed standard value of 125 µg/m^3. (*See Fig. 11).*

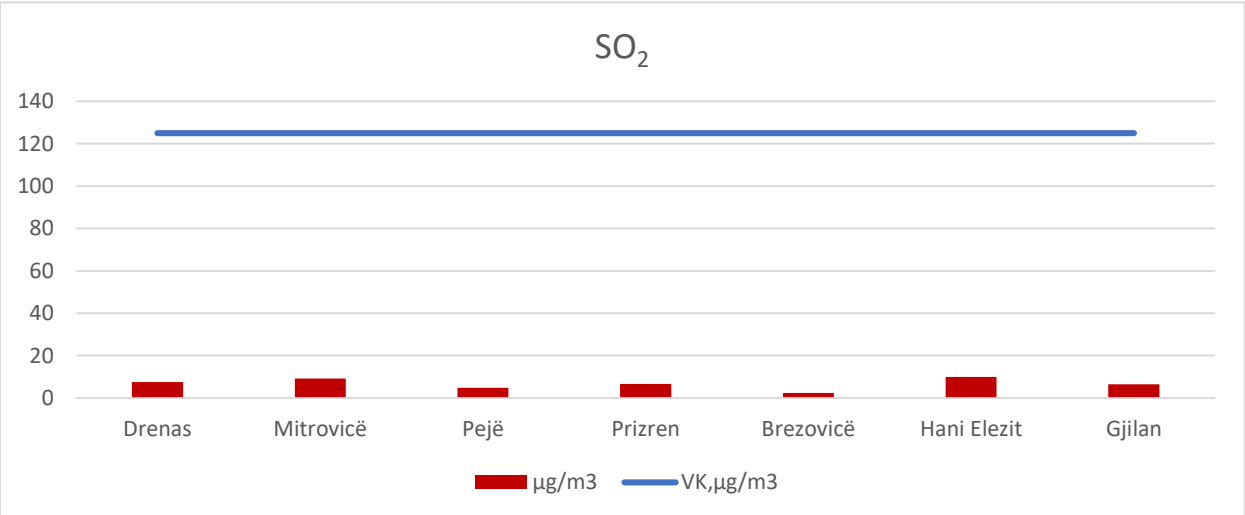


Fig. 11. Annual averages of SO_2, in ZKS1, 2024

Nitrogen Dioxide (NO_2)

Based on the data of the monitoring stations throughout 2024, the NO_2 parameter was not observed to have exceeded the permitted limit values.

The highest NO_2 values were observed at the monitoring stations in: Mitrovica, Peja, Prizren, Gjilan. (*See Table 13).*

Table 13. Average monthly values of NO_2 in ZKS1, 2024

Month	Drenas	Mitrovicë	Pejë	Prizren	Brezovicë	Hani Elezit	Gjilan
January	18	31	27	33	1	15	30
February	15	17	22	22	1	19	30
March	12	10	14	16	1	12	20
April	11	12	10	13	1	9	16
May	8	10	7	10	1	10	12
June	7	12	7	10	1	12	11
July	11	14	8	12	1	11	16
August	16	12	11	13	2	13	19
September	11	12	10	20	1	15	12
October	15	16	16	24	1	17	9
November	18	19	25	26	1	20	12
December	18	19	26	23	-	18	12
Average 2024	**13.33**	**15.33**	**15.25**	**18.50**	**1.09**	**14.25**	**16.58**

Also, Annual averages of the NO_2, parameter have been below the standard allowed value of 40 $\mu g/m^3$.

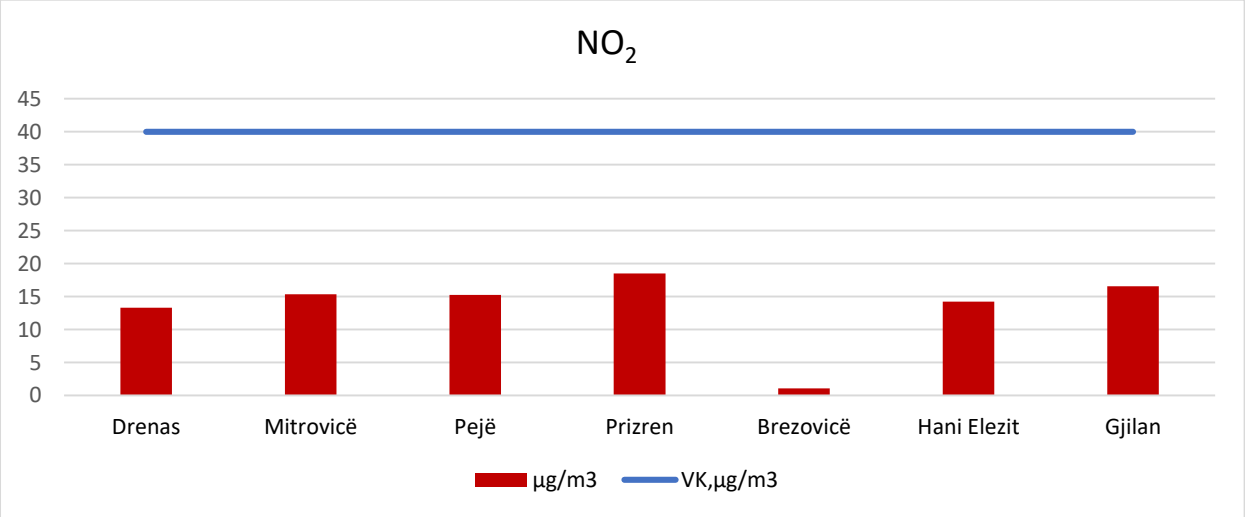


Fig.12. Annual averages of NO_2 in ZKS1, 2024

Carbon Monoxide (CO)

The table presents air quality data for the monthly and annual average of 2024, of the CO parameter, in the ZKS1 area, and based on these data it is estimated that there were no exceedances of the permitted limit values.

The highest value in the monthly average was observed at the monitoring station in Peja, in the Month December, 2024. *(See Table 14).*

Table 14. Average monthly values of CO in ZKS1, 2024

Month	Drenas	Mitrovicë	Pejë	Prizren	Brezovicë	Hani Elezit	Gjilan
January	0.8	1	1.3	1.2	0.7	1	1
February	0.5	0.9	1	1.1	0.3	0.6	0.8
March	0.5	0.3	0.8	0.8	0.2	0.4	0.4
April	0.5	0.3	0.8	0.4	0.2	0.2	0.1
May	0.6	0.3	0.2	0.4	0.2	0.3	0.2
June	0.6	0.4	0.4	0.4	0.1	0.4	0.2
July	0.8	0.4	0.7	0.7	0.1	0.4	0.2
August	0.4	0.5	0.8	0.6	0.2	0.4	0.2
September	0.5	0.6	0.5	0.4	0.2	0.4	0.2
October	0.7	0.7	0.7	0.6	0.3	0.5	0.3
November	0.7	0.9	1.6	1.2	0.3	0.7	0.7
December	0.8	0.7	2	1.6	-	0.8	1
Average 2024	**0.62**	**0.58**	**0.90**	**0.78**	**0.25**	**0.51**	**0.44**

In the ZKS1 area, CO was below the standard allowed value which is 10 mg/ $m^{3.}$ *(See Fig. 13).*

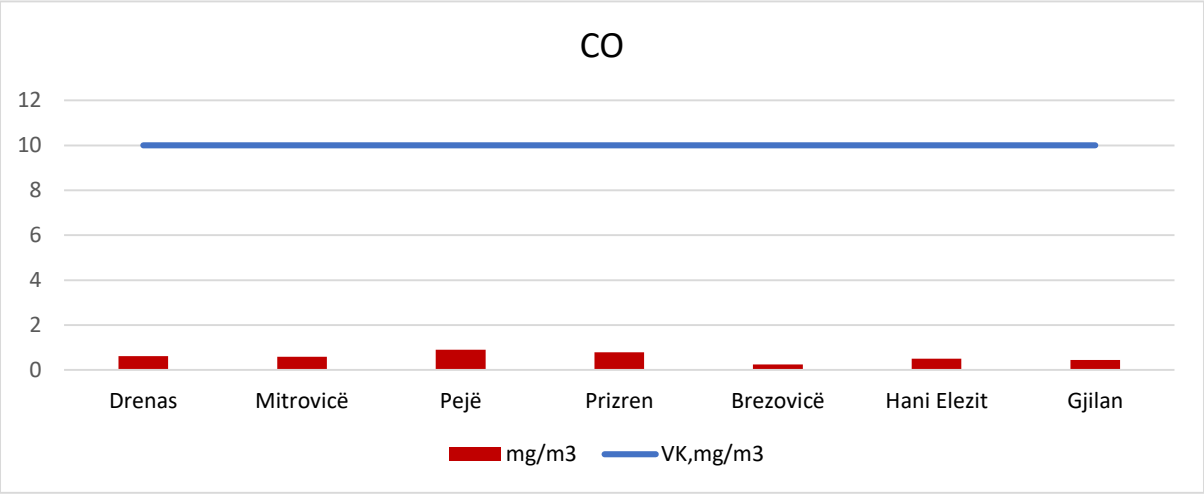


Fig.13. Annual averages of CO in ZKS1, 2024

2.4. Days with PM_{10} exceedances during the year 2024

Based on the data on days with PM_{10} exceedances during 2024, it results that there was no exceedance of the annual standard value of 35 days, with the exception of the monitoring station in Rilindja (AKS1 Zone), where an increase in the number of days with exceedances close to the standard value (33 days) was observed.).

Meanwhile, from the comparison between 2023 and 2024 for the number of days with PM_{10} parameter exceedance, the data shows that this parameter was higher in 2023. Meanwhile, in 2024, a decrease in this parameter was observed. Specifically, during 2024, the number of days with exceedance was 47 days lower compared to 2023, indicating an improvement in air quality for this parameter.

Table 15. The values of days with excesses for PM_{10} during the year 2024

	January	February	March	April	May	June	July	August	September	October	Novemb
	5	1	0	0	0	0	0	0	0	0	3
	10	4	0	1	0	1	0	0	0	0	10
	0	1	0	0	0	0	0	0	0	0	0
	6	2	0	1	0	0	0	0	0	0	1
	9	4	0	0	0	0	0	0	0	0	1
	2	0	0	0	0	0	0	0	0	0	1
	0	0	1	1	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	9	8	0	0	0	0	0	0	0	0	4
	8	2	0	0	0	0	0	0	0	0	4
	3	1	0	0	0	0	0	0	0	0	3
	1	0	0	0	0	0	0	0	0	0	0
	6	2	0	0	0	0	0	0	0	0	7
	59	25	1	3	0	1	0	0	0	0	34

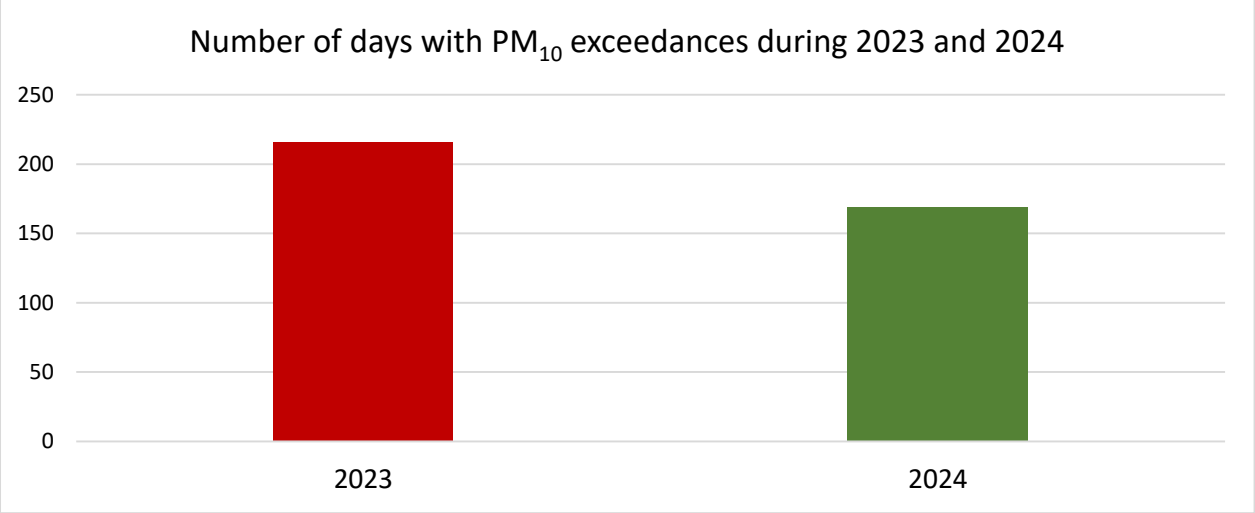


Fig.14. Number of days with PM_{10} exceedances during 2023 and 2024

2.5. Air quality trend 2013-2024

The air quality trend represents the monthly measurement of air quality throughout the territory of the Republic of Kosovo, including monitoring of the main parameters (PM_{10}, $PM_{2.5}$, O_3, SO_2, NO_2 dhe CO) during the period 2013–2024.

Based on the analyzed data, a significant improvement in air quality is observed over the last four years (2021, 2022, 2023, 2024), especially for the parameters PM_{10}, $PM_{2.5}$, Among these parameters, the most pronounced decrease was observed in PM_{10}. On the other hand, unlike these parameters, the O_3 level has shown an increasing trend. However, this increase remains within the permitted limits according to the standard value (120 µg/m³). The year 2024 marks a further improvement in air quality compared to the previous year, as well as an expansion of the monitoring network. In conclusion, it is found that the values of all parameters, despite some fluctuations, remain within the permitted limits, in accordance with Directive 2008/50 and Law no. 08/L-025 on the Protection of Air from Pollution.

Table 16. Air quality data from 2013 to 2024

Years	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
PM_{10}	42.3	34.69	43.77	39.46	33.13	41.57	29.96	27.6	22.29	22.21	18.97	18.23
$PM_{2.5}$	28.86	18.73	33.87	17.91	25.36	25.43	20.75	20.58	16.66	16.06	14.11	12.98
O_3	59.9	41.37	38.09	47.66	26.22	45.18	43.02	48.99	50.57	47.05	47.81	50.59
SO_2	6.37	13.6	14.7	20.63	16.19	34.65	11.05	12.55	10.64	9.4	8.53	8.62
NO_2	15.57	16.56	21.45	27.35	26.22	26.45	23.91	15.04	12.25	15.12	13.52	13.7
CO	0.72	1.2	2.18	2.36	1.93	1.87	1.05	0.98	0.8	0.7	0.61	0.62

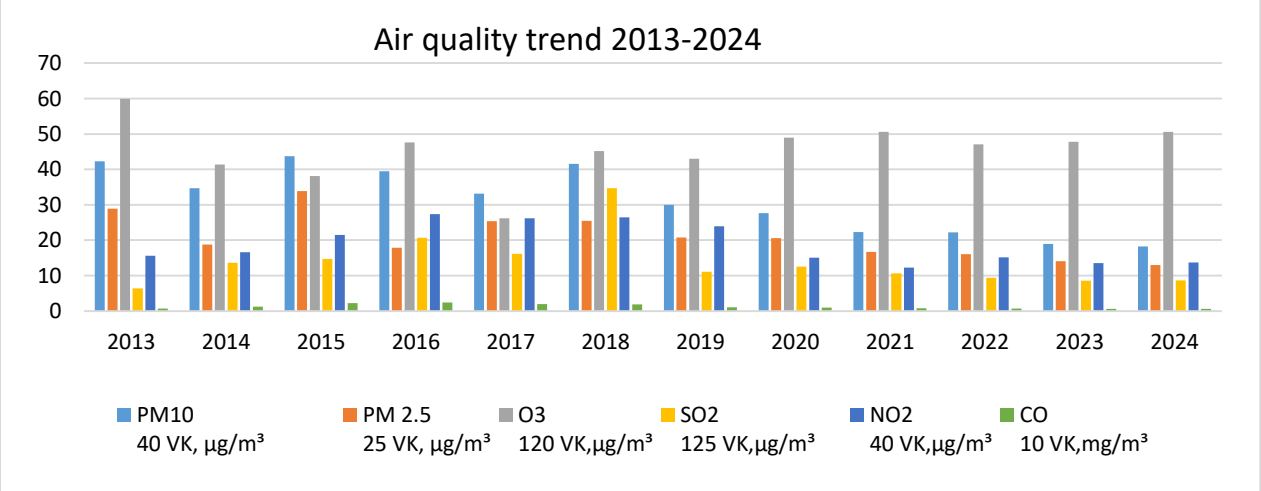


Fig. 15. Air Quality from 2013 to 2024

3. Assessment of pollutant emissions by operators for the year 2024

3.1. Air emissions from Kosovo A and B Power Plants

According to Administrative Instruction (GRK) No. 07/2021 on Rules and Norms for Air Discharges from Stationary Pollutant Sources, the limit values for emissions are:

- Dust ..... 20 mg/Nm³
- SO_2 ..... 400 mg/Nm³
- NO_x ..... 400 mg/Nm³

At the "Kosova A" Power Plant, the parameters for SO_2 and NO_x are calculated (with the exception of dust emissions which are measured), while at the "Kosova B" Power Plant all parameters are calculated.

In units A3, A4 and A5 of TC "Kosova A" devices for continuous monitoring of dust (particulate) emissions have been installed. However, the validity of the measurements is questionable due to irregular maintenance of the devices.

In TC "Kosova B" devices for continuous measurement of dust, SO_2 and NO_x emissions have been installed, which are currently not functional. Consequently, emissions of these pollutants are calculated and not directly measured.

Dust Emissions in TCA and TCB

From the data on dust emissions for TCA and TCB, it is noted that in both power plants there were exceedances of the permitted limit values (VKE) for dust. (See Fig. 16). It should be noted that in TC "Kosova B" these exceedances are significantly higher compared to TC "Kosova A".

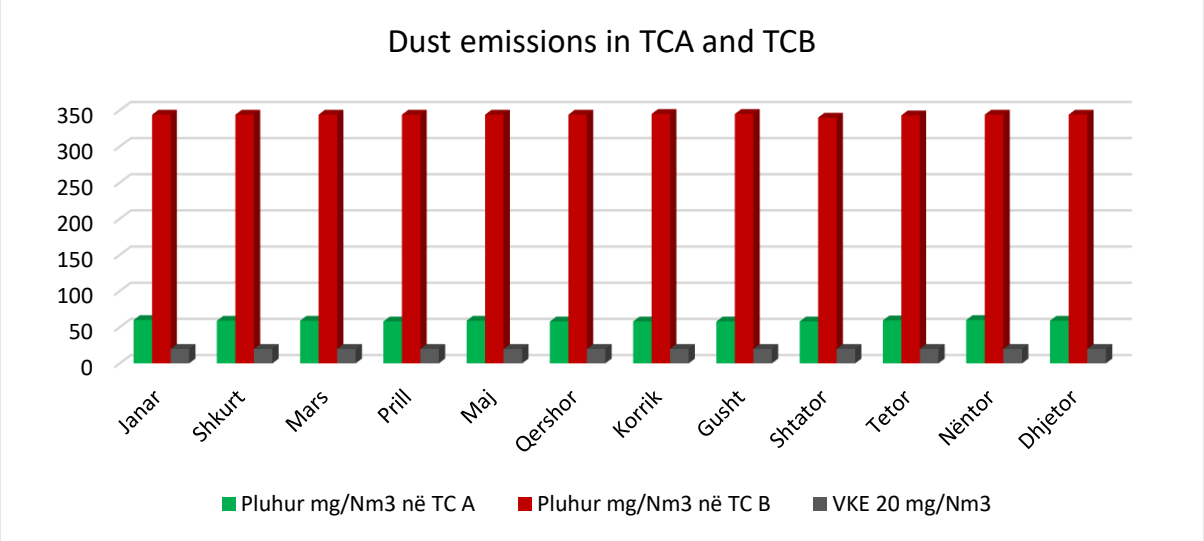


Fig.16. Monthly averages for dust emissions in TCA and TCB, 2024

SO_2 emissions in TCA and TCB

Analysis of data on SO_2 emissions in TCA and TCB showed that in TCA there were exceedances of the emission limit value (ELV), while in TCB no exceedance was observed. (See Fig. 17)*).*

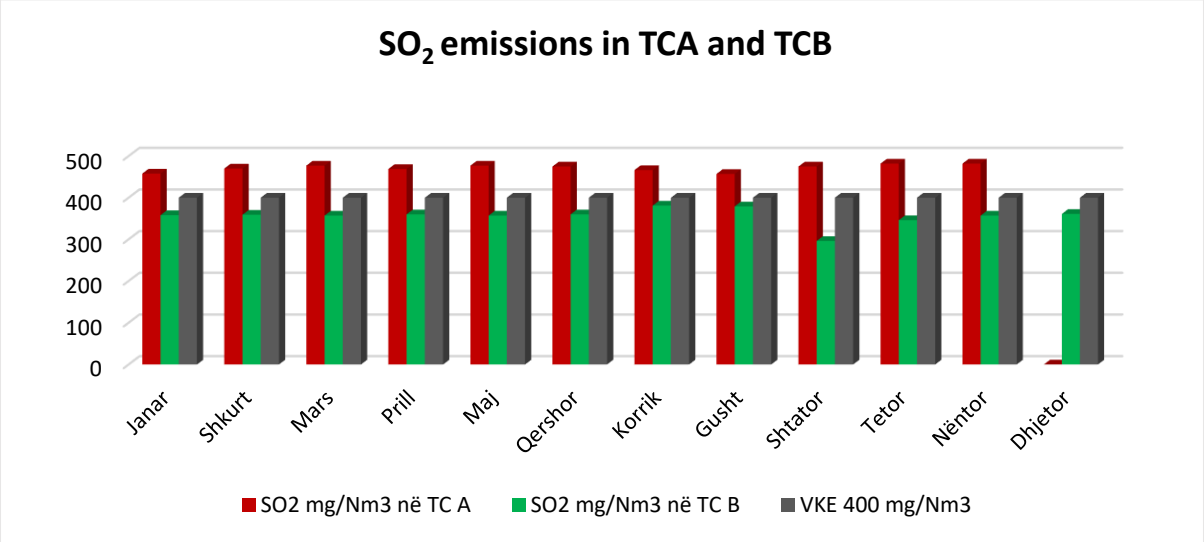


Fig.17. Monthly averages for SO_2 emissions in TCA and TCB, 2024

NO_x emissions in TCA and TCB

Based on the calculation of data for NO_x emissions in TCA and TCB, in both TCA and TCB power plants there were exceedances of the emission limit value (ELV 400 mg/Nm3). (See Fig. 18*).*

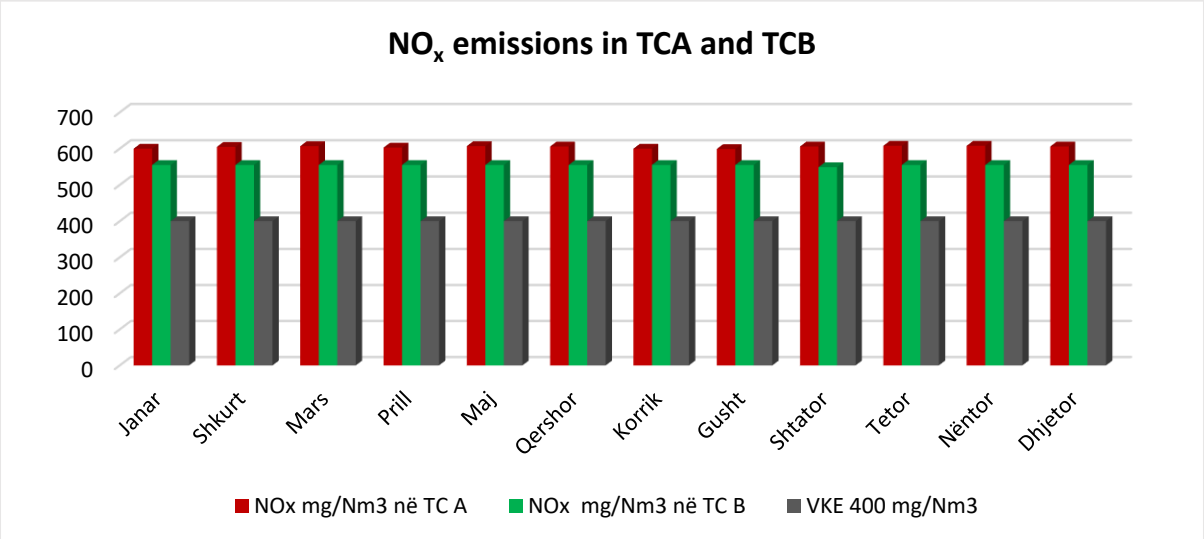


Fig.18. Monthly averages for NO_x emissions in TCA and TCB, 2024

3.2 Air emissions from Sharrcem

The norms for pollutant emissions from the Sharrcem industry are determined based on Administrative Instruction (GRK) No. 07/2021, which regulates the rules and restrictions for air emissions from stationary sources of pollution.

Below are graphically presented data on dust, SO_2 and NO_x emissions in Sharrcem.

Dust Emissions:

- Dust emissions from the kiln - raw material mill;
- Dust emissions from the clinker cooler and cement mill.

Dust emissions from kilns - raw material milling

In Figure 19, the Average monthly values of dust emissions from the raw material kiln - mill in Sharrcem are presented, from which it can be seen that the values are much lower compared to the emission limit value ELV 30 mg/Nm^3.

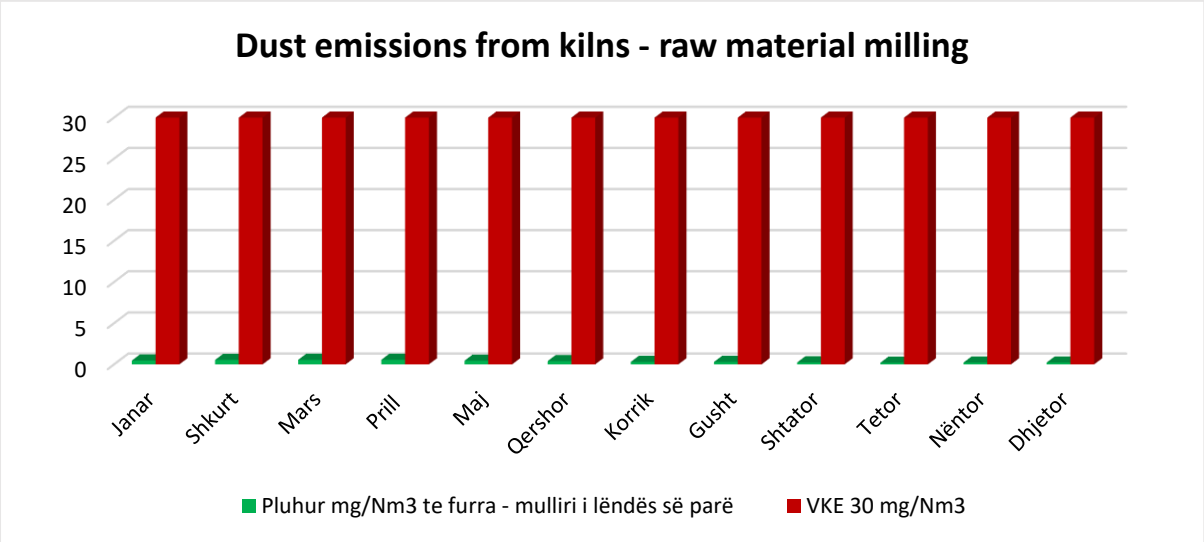


Fig.19. Monthly averages for dust emissions from the kiln - raw material mill, 2024

Dust emissions from clinker cooler and cement mill

In the case of the clinker cooler and cement mill, it is worth noting that the emission limit value (ELV) is 20 mg/Nm^3.

Average monthly values of dust emissions from the clinker cooler and cement mill in Sharrcem for the year 2024 are much lower than the emission limit value (ELV). (See Fig. 20.).

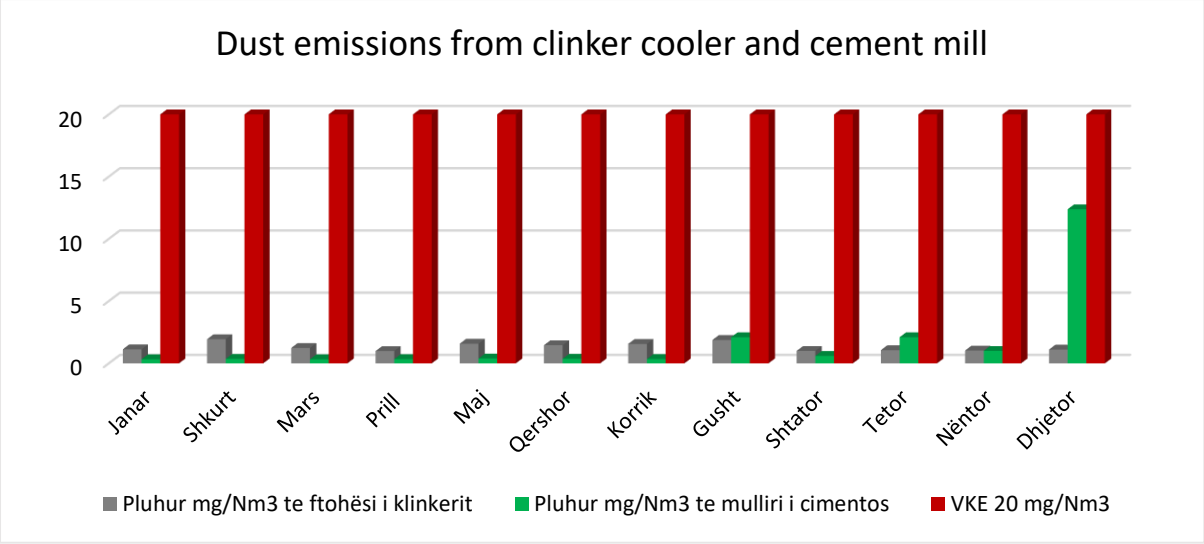


Fig.20. Monthly averages for dust emissions from the clinker cooler and cement mill, 2024

- **SO_2 emissions from the kiln – raw material mill**

SO_2 emissions from the raw material mill-furnace at the Sharrcem operator during 2024 show that they are much lower compared to the emission limit value (ELV). *(See Fig. 21).*

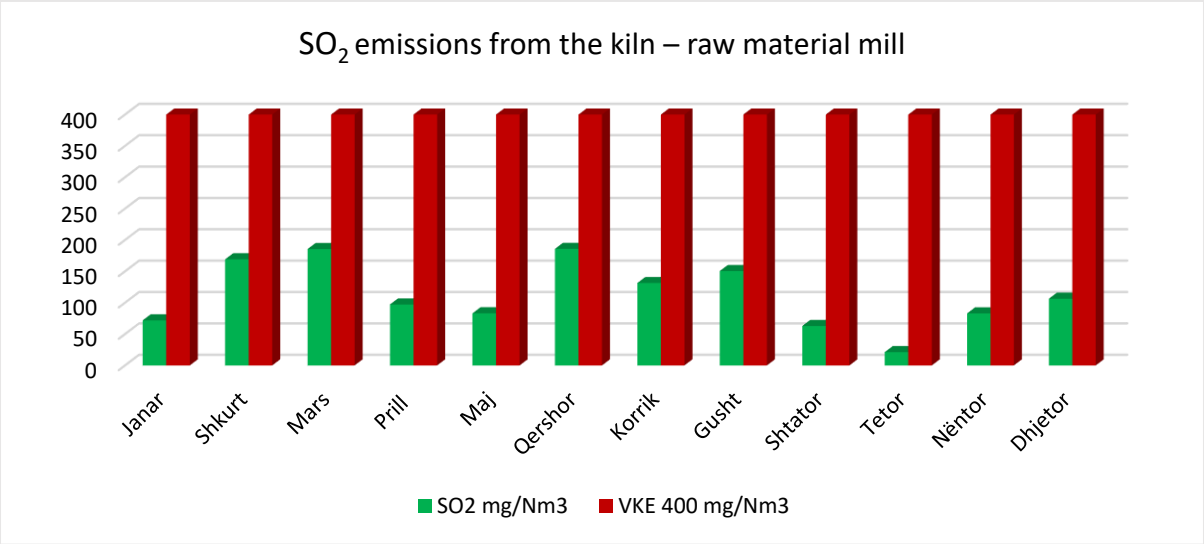


Fig.21. Monthly averages for SO_2 emissions at the furnace - raw material mill in Sharrcem, 2024

- **NO_x emissions from the kiln – raw material mill**

Në figurën 22, paraqitën Average monthly values of emisioneve të NO_x te furra – mullirit i lëndës së parë në Sharrcem, nga shihet se nuk ka tejkalime në krahasim me vlerën kufitare të emisioneve (VKE).

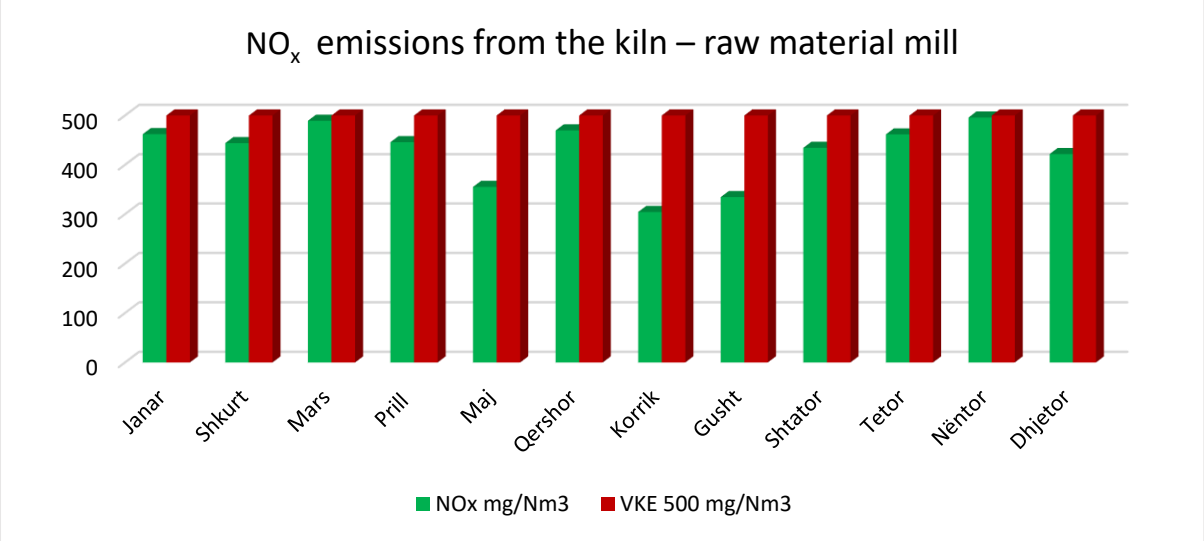


Fig.22. Monthly averages for NOx emissions at the furnace – raw material mill, 2024

3.3 Ferronikeli's activities for the year 2024

Regarding the general activities of Ferronikeli, no production activities were carried out during 2024 (as production has been stopped since November 1, 2023). This situation is expected to continue for an indefinite period, as a result of unfavorable market conditions. Among the main factors that have influenced are: the high cost of electricity in the European Union market - from where Ferronikeli is supplied with energy, as well as unfavorable nickel prices in the international market. As a result, the cost of production is currently higher than the selling price on the market. Considering that there were no production activities during 2024, no environmental monitoring was carried out. As a result, no annual report on the state of the environment related to Ferronikeli's activities was drafted for this period.

4. Investments in the air sector for the year 2024

Investments for the air sector from the budget of the Republic of Kosovo in 2023-2026 are presented in the table below:

Table 17. Value of investments from the budget of the Republic of Kosovo

Type of investment	Total value	Year
Maintaining air quality applications and informing the public about the three-day air quality forecast	252,756.00 €	2023-2026
Maintenance of air quality monitoring stations for a period of 3 years	600,000.00 €	2023-2026

- **Investments from donors**

JICA investments for 2024

Among the most important foreign investors in the air sector in Kosovo, especially in building capacity for air quality pollution control, is the Japan International Cooperation Agency (JICA). This agency, for the period 2022-2026, is engaged in a long-term project that aims to develop professional knowledge and improve methodologies for measuring and controlling air pollution. JICA's investment is considered one of the most structured and serious interventions in this field, including training for technical staff, supply of modern equipment and preparation of standardized reports. The main goal of the project is to build local capacities to ensure a sustainable and effective air monitoring system. This support has been highly appreciated by local institutions due to its positive impact on strengthening infrastructure and improving air quality data. In this way, JICA plays a key role in Kosovo's efforts to meet international environmental standards. (*See Table. 17).*

Table.18. Investment value and project period

Type of investment	Total value	Year
Air Pollution Control Capacity Development - Phase Two	2,700,000 €	2022-2026

5. The effects of air pollution on health

Air pollution is one of the most serious threats to public health worldwide, with direct impacts on both people's physical and mental well-being. Pollution particularly affects vulnerable groups of the population, including children, the elderly and individuals with chronic conditions such as asthma and cardiovascular disease.

The sources of air pollution are numerous and often present in everyday life. Household activities that involve the use of outdated technologies for heating or cooking, heavy traffic, industrial processes and forest fires are among the main contributors to air pollution. These processes release hazardous pollutants such as fine particles (PM10 and PM2.5), carbon monoxide (CO), nitrogen dioxide (NO_2), tropospheric ozone and sulphur dioxide (SO_2).

Exposure to these pollutants is linked to a range of health problems, such as respiratory diseases (chronic bronchitis, respiratory tract infections), lung damage, and an increased risk of heart disease, stroke, and some types of cancer, including lung cancer. Recent studies have shown that air pollution also affects the neurological development of children, causing problems with concentration, memory, and behavior.

In addition to individual impacts, air pollution also has major consequences for the health system and the economy as a whole. Increased morbidity is associated with a greater number of hospital visits and high healthcare costs. Therefore, it is imperative to take measures to reduce pollution and protect public health.

6. Recommendations

• Legislation for the limitation of air pollutant emissions from stationary and moving sources, should be fully implemented.

• Responsible institutions, especially inspectorates at central and local level, to carry out continuous monitoring of polluting operators, to ensure compliance with standards for air pollutant emissions.

• Municipalities to draft and implement local plans for the protection of air from pollution, in accordance with the specific situation of their territory.

• Polluting operators that are not yet equipped with environmental permits should be equipped as soon as possible.

• To reduce the use of fossil fuels in households, schools, preschool institutions and economic operators as much as possible.

• To expand the cogeneration system of the heating plant of the city of Pristina, but also to apply it to other cities in Kosovo.

• Vehicle technical control centers to be more rigorous in verifying the permitted norms of polluting gas emissions.

• Promote and use more urban public transport, reducing individual car use.

• Strictly prohibit the burning of waste in any form, except in cases permitted by special authorization.

• Increase the number of green areas in urban areas and degraded areas.

• Increase investments in the air sector, with special support from the Kosovo budget.

• The National Institute of Public Health of Kosovo (NIPHK) to conduct regular annual assessments of the impact of air pollution on public health, based on air quality monitoring data.

7. List of Abbreviations

MESPI - Ministry of Environment, Spatial Planning and Infrastructure.

KEPA - Kosovo Environmental Protection Agency.

DEA - Directorate for Environmental Assessment.

KHMI - Kosovo Hydro-meteorological Institute.

TCA - Kosovo Power Plant A.

TCB - Kosovo Power Plant B.

AQI - Air Quality Index.

EU - European Union.

WHO - World Health Organization.

JICA - Japan International Cooperation Agency**.**

8. List of Figures

9. List of Tables

The Annual Report on the State of Air in Kosovo 2024
was prepared by the Division for Environmental Assessment &
Directorate for Environmental Assessment
with the support of other units of the Kosovo Environmental Protection Agency.

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