

## ECOLOGICAL AND HYGIENIC ANALYSIS OF ATMOSPHERIC AIR (ON THE EXAMPLE OF THE CITY OF TASHKENT)

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**Abstract:** Our wise forefathers predicted that air pollution is extremely dangerous for life, human life and prospects. According to them, the world of people, animals and plants that breathe polluted air will gradually die, die without being able to live. Air pollution is the source of all the diseases that arise.

The article presents the results of the ecological and hygienic analysis of the atmospheric air of the city of Tashkent based on the information of the Hydrometeorological Service Agency of the Republic of Uzbekistan.

**The urgency of the problem.** Atmospheric pollution means changes in its composition and properties that have a negative impact on human health, animals, plants and ecosystems. The atmosphere is polluted by natural and artificial means. Volcanic eruptions, dust pollen, forest and steppe fires, plant dust, microorganisms, space dust, etc. are sources of natural pollution [2-7].

Sources of man-made pollution include energy, industrial enterprises, transport, household waste, etc. Currently, 75% of atmospheric pollution comes from natural sources and 25% from anthropogenic sources. The level of artificial pollution of the atmosphere is increasing. Local, regional and global pollution of the atmosphere is observed. Air polluting compounds can be divided into four groups according to their state of aggregation: solid, liquid, gaseous and mixed compounds. The main air pollutants and compounds include aerosols, solid particles, dust, soot, nitrogen oxides (NO<sub>x</sub>), carbon oxides (CO, CO<sub>2</sub>), sulfur oxides (SO<sub>x</sub>), chlorofluorocarbons, metal oxides, etc. [1].

3.5 mln. 100 million per year from the salty area of the seabed, more than one hectare. More than t of dust and salt particles are causing ecological problems in the entire republic and neighboring countries, starting from the regions around the sea [1, 3, 4].

Atmospheric air is a component of natural resources, it is a national asset and is protected by the state. (Law of the Republic of Uzbekistan "On Protection of Atmospheric Air", Article 1.)

Legal and regulatory documents related to the industry have been developed and are being developed in our republic. "On the protection of atmospheric air", SanQvaM №0147-04 "Microorganisms and their products in the atmospheric air of residential areas of the Republic of Uzbekistan", SanRvaN №0293-11 "Atmospheric air of residential areas of the Republic of Uzbekistan REK list of pollutants" and others [4].

At 8 o'clock in the morning of September 11, 2023, Tashkent took the 4th place in IQAir's rating of the air pollution level of the world's major cities. The capital's air became harmful for an influential group of people [<https://www.gazeta.uz/oz/2023/09/11/air-quality>].

**The purpose of the study.** Ecological and hygienic analysis of atmospheric air of the city of Tashkent based on the information of the Hydrometeorological Service Agency of the Republic of Uzbekistan

**Research materials and methods.** The data of the Hydrometeorological Service Agency of the Republic of Uzbekistan were analyzed using statistical methods in assessing air quality indicators of the city of Tashkent.

**Research results and discussion.** Monitoring of atmospheric air conditions in the Republic of Uzbekistan is carried out at 66 stationary observation points and 16 automatic stations in 26 cities. Observations at stationary posts are carried out every day (except Sundays and holidays) with a frequency of 3 times a day (at 7:00; 13:00; 19:00 local time) [ <https://monitoring.meteo.uz/ru/map>].

Atmospheric air monitoring in Tashkent is carried out by the Hydrometeorological Service Agency under the Ministry of Ecology, Environmental Protection and Climate Change through 15 automatic stations. During the monitoring, indicators such as dust, sulfur dioxide, nitrogen dioxide, nitrogen oxide, carbon monoxide, phenol, hydrogen fluoride, ammonia, formaldehyde, heavy metals, small particles PM10 and PM2.5 were observed [ [monitoring.meteo.uz](https://monitoring.meteo.uz) ] .

Monitoring of atmospheric air pollution in the cities of the republic (22.01.2024y.15:18)

N	Pollutant substances name	REMM (mg/m <sup>3</sup> )	Tashkent
1	Nitrogen dioxide	0.06	3.73
2	Carbon oxide	4.0	1,031
3	Sulfur dioxide	0.2	3.26
4	Ozone	0.10	2,894
5	PM 2.5	-	35,56
6	10 p.m	300	49,48

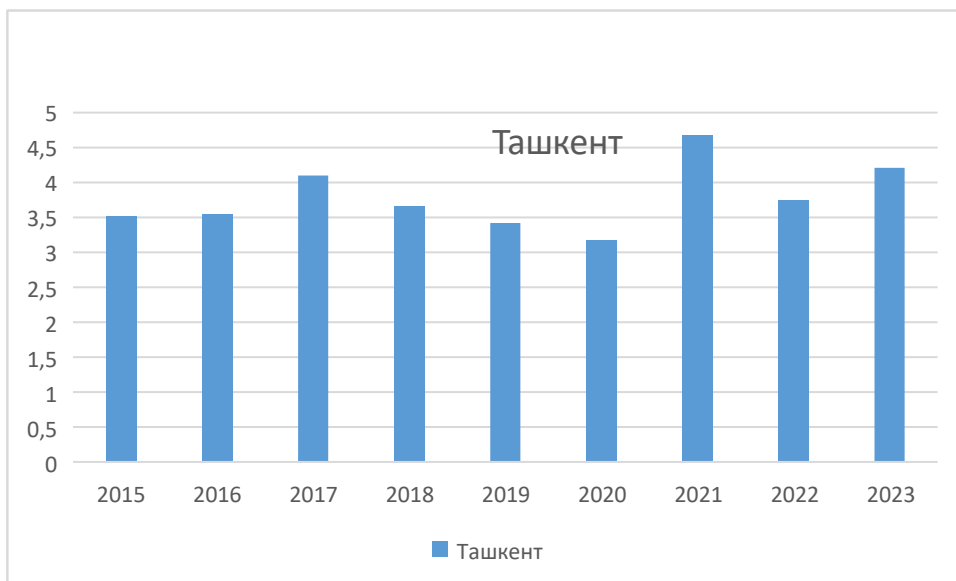
Current at the time atmosphere of air contamination the world health storage organization (WHO) recommendations with is being compared to recommendations of our republic geographical and climatic from the features come out reach difficult To him according to PM 2.5 average yearly the amount is 5 µg /m<sup>3</sup> , average per diem quantity 15 µg / m<sup>3</sup> the organize does of the world never one in the state indicators by WHO recommendation done to standards answer does not give

Information for , this standard USA and 12 µg /m<sup>3</sup> in Mexico , Belarus and 15 µg /m<sup>3</sup> in Japan , Europe Union 25 µg /m<sup>3</sup> in Russia , 20 µg /m<sup>3</sup> in China , 35 µg /m<sup>3</sup> in China and 40 µg /m<sup>3</sup> the organize does m<sup>3</sup> in India . South PM 2.5 standard in Korea there is it's not.

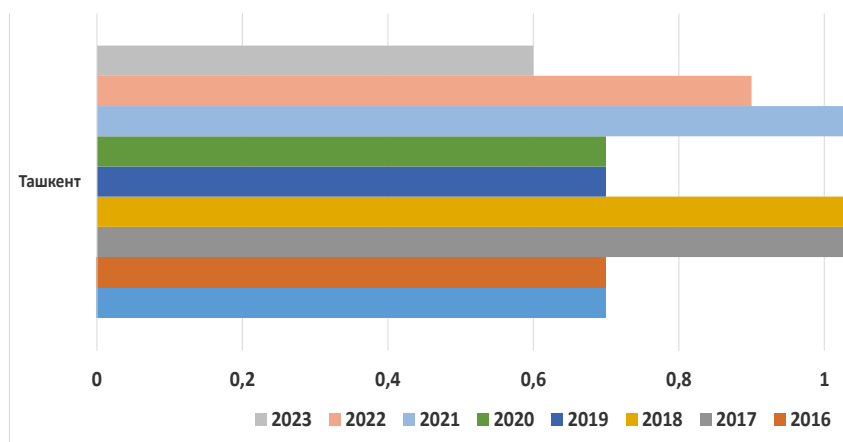
The same at the time in Uzbekistan Health storage ministry with together the air quality monitoring according to national platform and mobile app work exit project done being increased separately to emphasize it is permissible . To him than in the air small particles quantity and their to the population effect account received without the air quality national standards work will be released. Project Surkhandarya, Bukhara, Khorezm in 2023 regions and Karakalpakstan in the Republic the air from pollution of the population illness level learning started

With that together , in the republic atmosphere of air contamination level current indicator known one area for priority a pollutant of substances come came out without counting to be released atmosphere pollution index (AII) is .

### AII indicators in Tashkent city in 2010-2023



### Dust concentration of atmospheric air of Tashkent city in 2015-2023



From the table apparently as the next in years of air contamination level increased is going Also the city of Tashkent atmosphere in the air dust quantity permission done maximum 1.3 from the concentration equal to increased went

Months	Pollution degree (number of days)				
	good	average	Unhealthy	harmful	Very harmful
January	1	8	3	19	-
February	2	19	7	-	-
March	4	26	1	-	-
April	3	27	-	-	-
May	3	15	1	-	-
June	8	6	-	-	-
July	7	24	-	-	-
August	7	24	-	-	-
September	5	23	2	-	-
October	1	24	5	1	-

November	3	17	9	1	-
December	1	14	11	5	-
total :	45	227	39	26	

That's it with together with IQAir website scale according to in Tashkent the air pollution automatic monitoring to do stations in the data january month of 2023 contaminated month indicates that it has been

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