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STATE OF ATMOSPHERIC POLLUTION AIR IN THE CITIES OF THE REPUBLIC OF UZBEKISTAN

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ABOUT ARTICLE

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Abstract: The article presents the results of the analysis of data on air pollution in the cities of the Republic of Uzbekistan (RUz) for 2018 based on the reporting data of the Service for Monitoring Air Pollution, Surface Water and Soil of the Center for Hydrometeorological Service of the Republic of Uzbekistan. Analyzed data on the study of the concentration of the main pollutants: dust, sulfur dioxide, carbon monoxide, nitrogen dioxide and oxide, ozone, as well as specific impurities and heavy metals. The results showed that the average annual concentrations of all pollutants under consideration did not exceed the maximum allowable concentrations, only in the atmospheric air of some cities was an excess of the average daily maximum allowable concentrations (MAC) observed. The atmospheric air pollution index (API) in cities was in the range of 1.1-4.94.

INTRODUCTION

Today, humanity is facing a number of interrelated environmental threats, such as global warming, climate change, air pollution, etc., which have a direct impact on human health.

Air quality depends on a number of factors, both natural and anthropogenic, but transport, industry, energy, manufacturing and heating systems play an important role in the level of air pollution.

The level of atmospheric air pollution on the territory of the Republic of Uzbekistan is due to emissions of harmful substances from stationary and mobile sources, as well as high (in most regions of the Republic) climatic potential for air pollution.

The purpose of the study: to assess the quality of atmospheric air in the cities of the Republic of Uzbekistan based on data received from monitoring stations for 2018.

Materials and methods. To conduct this study, data on the concentration of various pollutants in the air of the cities of the Republic of Uzbekistan for 2018 were used. The data were obtained using automatic air quality monitoring posts located in different parts of the cities of the Republic of Uzbekistan. Uzhydromet monitors air pollution in accordance with the Decree of the Cabinet of Ministers of the Republic of Uzbekistan No. 737 dated 05.09.2019. "On improving the environmental monitoring system in the Republic of Uzbekistan" in 25 cities at 53 stationary observation points. In accordance with regulatory documents, depending on the population of cities, there are from 2 to 4 posts in them. There are 13 observation posts in Tashkent.

Up to 12 pollutants are monitored in the atmospheric air at observation points. The city air quality monitoring program covers five main pollutants: dust (particulate matter), sulfur dioxide, carbon monoxide (carbon monoxide), nitrogen dioxide and nitrogen oxide. Other parameters are added to measurement programs depending on the composition of industrial emissions and the characteristics of nearby enterprises and adjacent territories (ammonia, phenol, formaldehyde, ozone, chlorine, solid fluorides, hydrogen fluoride, heavy metals).

Observations of the state of atmospheric air are carried out daily with a frequency of 3 times a day (7:00; 13:00; 19:00 local time). Sampling at the observation points of Uzhydromet is carried out by the aspiration method. Atmospheric air samples are analyzed in the laboratories of Uzhydromet.

The indicator of the level of atmospheric air pollution is a complex index of atmosphere pollution (IA), which is calculated mainly on five priority contaminant ingredients (dust, carbon monoxide (carbon gas), nitrogen dioxide, sulfur dioxide and nitrogen oxide). The values of less than 5 points correspond to the reduced pollution level. The air pollution level is considered low - with AA 0-4, increased at A 5-6, high in Amaxial 7-13, very high at the AZ).

The results. In the settlements of the Republic of Uzbekistan, the content of dust fluctuated within 0.0 - 1.3 RSC. The indicator of the total dusty of the atmosphere is monitored in 18 industrial cities of Uzbekistan. Increased dusty of air is observed in large cities of Uzbekistan, in which more than 41% of the urban population lived [4]. According to the stationary post of posters above the average, the

content of dust was noted in the cities of Bukhara, Nukus - 1.3 PDK SS Increased maximum-single concentration values were observed in cities: Nukus - 11.8, Tashkent - 2.4, Bukhara - 3.8 MDP. (Table 1).

Table 1. Level of pollution of the atmosphere of cities of the Republic of Uzbekistan

№	Cities	Impurities (in the share of the PDK S).								API
		Sulfur Dioxide	Carbon oxide	Nitrogen dioxide	Nitrogen oxide	Dust	Phenol	Ammonia	Fluoride is hydrogen	
1	Almalyk	1,12	1,11	0,9	-	0,56	0,61	-	-	4,3
2	Angren	1,07	1,18	0,81	-	0,69	-	1,19	-	4,94
3	Andijan	-	0,47	0,67	0,25	0,91	-	1,16	-	3,46
4	Bekabad	-	-	1,23	0,55	0,82	-	0,64	0,69	3,93
5	Bukhara	-	0,80	0,69	0,30	1,58	0,93	-	-	4,3
6	Gulistan	0,12	0,72	0,43	0,26	1,00	-	-	-	2,53
7	Denau	0,02	0,25	0,16	-	0,54	-	-	0,13	1,1
8	Kokand	0,33	0,58	0,61	-	0,82	-	0,27	-	2,61
9	Navoi	-	-	1,19	0,85	0,66	0,42	0,85	-	3,97
10	Namangan	0,22	0,95	1,11		0,92	-	-	-	3,2
11	Nukus	-	0,83	0,35	0,26	1,61	0,34	-	-	3,39
12	Samarkand	-	0,27	-	-	0,98	0,34	0,42	0,32	2,33
13	SarAsia	0,02	0,22	0,20	-	0,57		-	0,16	1,17
14	Tashkent	-	0,65	0,97	-	0,96	0,50	-	0,58	3,66
15	Fergana	-	0,68	1,14	-	0,41	0,90	0,60	-	3,73
16	Chircgik	-	0,53	0,67	0,46	-	0,62	1,18	-	3,46
17	Uzbekistan	0,3	0,6	0,8	0,3	0,7	0,7	0,7	0,4	3,26

Such an increased debt content in the air of cities is explained by the formation of climate and the structure of the soil, inadequate compliance with the sanitary norms of construction and road work. The average annual content of sulfur dioxide in all settlements of the Republic of Uzbekistan did not exceed the PDC SS, with the exception of GG. Almalyk, Angren, where his content exceeded the sanitary norm in 1.1 times. The maximum-single concentration exceeded the maximum permissible values in the Almaty city - 1.2 times. The content of the carbon monoxide in the atmospheric air does not exceed the PDC S.S. In all populated areas of the Republic of Uzbekistan, with the exception of Angren, where his concentration exceeded the PDC SS. 1.3 times. The maximum values of single concentrations were made in cities: Almaty, Angren, Andijan, Namangan - 1.2, Bukhara, Tashkent - 1.6 MDR M.R. The reason is the concentration of motor vehicles and boiler houses during the adverse meteorological conditions (NMU), as well as uncontrolled garbage burning, production waste. Pollution of the atmosphere by nitrogen dioxide on the average in the republic is below the PDK SS. In the cities of Bekabad, Navoi, his concentration was 1.3 of the PSC SS, in cities: Almaty, Tashkent, Nurabad, Margilan, Namangan, Fergana, Kagan, Shakrisabz - 1.0 PDK SS, in the remaining cities of the republic below the PDK SS The observed maximum single concentrations were made in cities: Margilan, Nurabad - 1.1, Navoi, Ferghan - 1.3, Bekabad - 1.5, Kagan - 1.6, Bukhara - 1.8, Chirchik - 1.9, Tashkent - 2.1 MDR M.R. The reason is the emissions of vehicles and their accumulation in the period of the NMU. The average annual content of nitrogen oxide in all cities of the republic remains at 0.2 - 0.5 PDK SS The maximum values of this

impurity did not exceed the MDR. In none in the city of the republic. Observation of the content in the ambient air of ozone was carried out in cities: Almalyk, Angren, Bekabad, Tashkent, Chirchik, Ferghan and Navoi. The greatest average values are fixed in cities: Bekabad - 1.1, Chirchik - 1.2, Angren - 2.2, Ferghan - 2.7 PDK SS The maximum values exceeded the MDR. In cities: Angren - 1.1 times, Ferghan - 2.0 times, in other cities, where the ozone content was observed. The maximum concentration was below the level of the MDR. The content of phenol in atmospheric air did not exceed the PDK S.S. In all settlements of the Republic of Uzbekistan. The maximum concentrations were registered in cities: Ferghan - 1.2, Tashkent - 1.6, Bukhara - 1.8 MDR M.R.

The content of hydrogen fluoride was determined in cities: Almalyk, Bekabad, Tashkent, Samarkand, Denau and Sariacia. The average values in all cities of the republic remained at 0.2 - 0.8 RDK SS The maximum values in all the city of the republic did not exceed the MDR, Mass, with the exception of T.Shantha, where its content exceeded the PDK M.R. 1.1 times. In all cities of the republic, the average concentration of ammonia was lower or at the level of PDK SS. Increased average values are fixed in cities: Angren, Chirchik, Andijan - 1.3 PDK SS Increased maximum-single concentration was noted in cities: Tashkent - 1.3, Chirchik - 1.6 RDK MR The concentration of formaldehyde was in the cities: Andijan - 0.003 mg / m3, Tashkent - 0.017 mg / m3. The maximum-single concentrations reached in the cities of Andijan - 0.014 and Tashkent - 0.059 mg / m3. The content of chlorine in Samarkand was 0.3 MDP SS The maximum-one-time concentration is 0.5 MDR. The content of heavy metals in the air in the cities: Almalyk, Angru, Navoi, Bukhara, Cocanda, Tashkent, Fergana did not exceed the maximum permissible values. In 2018, the level of pollution of the atmosphere, characterized by the index of pollution of the atmosphere in all cities of the republic was low. Using state statistical reporting data, the volume of emissions from stationary sources is calculated, and emissions of pollutants from moving sources are calculated based on the amount of fuel consumed by vehicles in handling in the country.

In this dusty, the content of sulfate salts reaches 25-48%, chlorides - 18-30%, and carbonates - 10-20%. The main volumes of dust and gas transfer are occurs within 300 km from the coastal strip. The amount of dust falling on the soil in the region of Southern Priarlaja is ten times more than in the irrigated zone. In the cities of Bukhara, Urgench and Nukus, the excess of the average daily PCs of total solids was observed in 1.3, 1.3 and 2.7 times, respectively. Pollution of atmospheric air in cities is due to the dispersion of emissions from industrial enterprises and weather conditions. The resource level of pollution of atmospheric air in April 2020 was within the limits of the norm.

Conclusions. In general, on the basis of monitoring data, it is possible to conclude that the quality of air in the cities of RUz is satisfactory and is in accordance with the installed MDP. In general, the pollution of the atmosphere in the cities of RUz is associated with emissions of nitrogen oxides, sulfur and carbon, as well as dust and smoke. In addition to emissions from industrial enterprises and vehicles, there are other sources of atmospheric pollution. For example, during the dust storm, which occur from the autumn to the spring, the concentration of dust in the atmosphere is significantly increased. In addition, burning garbage on landfills is also a significant source of atmospheric pollution, especially in the summer. To improve the situation with pollution of the atmosphere, a number of measures needed to reduce the emission of pollutants into the atmosphere. For example, environmentally friendly transport modes such as electric vehicles are needed, and also to modernize equipment at industrial enterprises to reduce emissions to the atmosphere. In addition, it is necessary to develop a distillation distillation

system and take measures to reduce dust load in the city. Thus, despite positive results, air pollution is a serious problem that has a negative impact on the health of the population. To improve the situation, it is necessary to take measures to reduce pollution emissions into the atmosphere, and to conduct air purification and reduce dust load.

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