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MAIN SOURCES ATMOSPHERIC AIR POLLUTION (ON THE EXAMPLE OF THE CITY OF BUKHARA).

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Abstract: The article analyzes the data of the state network of observations of the annual reports of the Bukhara Department of Hydrometeorology on air pollution in the city of Bukhara. On emissions of pollutants into the atmosphere from stationary sources and vehicles in the city.
Priority chemical air pollutants (dust, nitrogen dioxide, nitrogen oxide, phenol, sulfur dioxide, carbon monoxide, ammonia, hydrogen sulfide) have been identified. As a result, it was found that air pollution in the region is unevenly distributed by months and seasons throughout the year.
Keywords: dispersion of impurities in the atmosphere, emissions of pollutants into the atmospheric air, air quality in cities and along federal highways, soil pollution, environment, factor, impact, ecology, analysis.

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Introduction One of the important components of the environment is atmospheric air. The life and health of the population depend on the amount of pollutants contained in it. The nature of the temporal and spatial variability of the concentrations of harmful substances in the atmospheric air is determined by a large number of various factors: the number and parameters of stationary and mobile pollution sources, meteorological parameters, etc. [2-3].

To assess the level of pollution in cities, networks of monitoring posts for atmospheric pollution are being created, which make it possible to monitor changes in the content of harmful substances in the atmospheric air.

In the problem of environmental protection, the protection of the air basin from pollution is of paramount importance. The priority of this task is due to the fact that every day a person inhales about 16 m^3 of air. At the same time, part of the air components settles in the lungs, and part of the toxic components is absorbed by the body, causing biological changes in it [1].

Characteristics of the study area

The city of Bukhara is characterized by both natural and anthropogenic sources of pollution. Of the natural sources of air pollution, dust storms remain relevant.

As for anthropogenic sources, they account for a large mass of emissions. Stationary sources are represented by enterprises of thermal power engineering,

building materials, light and food industries. A significant role in the pollution of the surface layer of the atmosphere in the city of Bukhara is played by emissions from mobile sources, namely from road transport. There is a trend towards a constant increase in the number of vehicles in the city. According to the traffic police of the city of Bukhara, as of March 07, 2022y.178,377 thousand units or 8% of the total number in the Republic were registered in Bukhara.

Observation of atmospheric air pollution in the territory of Bukhara

To assess the level of air pollution in the city of Bukhara, a network of posts of the Bukhara Department of Hydrometeorology was created. The network determines the content in the atmosphere of various harmful substances coming from both natural and anthropogenic sources of pollution.

At stationary observation posts, dust, nitrogen dioxide, nitrogen oxide, phenol, sulfur dioxide, carbon monoxide, ammonia, hydrogen sulfide are subject to mandatory measurements.

Among industrial enterprises, the main contribution to air pollution is made, first of all, by Promteploset enterprises (boiler houses of the Issiklik Manbai, Energomarkaz), motor transport.

The motor transport complex is one of the main sources of environmental pollution in the city of Bukhara. The specificity of mobile sources of air pollution is manifested in the location of exhaust pipes practically in the human breathing zone, in close proximity to residential areas and weak dispersion of exhaust gases in the atmosphere. Protection of atmospheric air and the population from the impact of pollutants emitted with the exhaust gases of motor vehicles is one of the main environmental problems of large cities, which include the city of Bukhara. The rapid growth of cars, the increase in the intensity of traffic flows, the accumulation of cars on the main city highways and their intersections (crossroads).

Every year, from one car with an average mileage of 15,000 km, about 1 ton of carbon oxides (CO), 2 tons of carbon dioxide (CO_2), 0.2 tons of hydrocarbons (C_xH_y), 0.03 tons of nitrogen oxides are emitted into the atmosphere with exhaust gases (N_xO_y), as well as soot, sulfur oxides, aldehydes and others; For 1000 km of run of one car, about 400 kg of oxygen is consumed - about as much as a person needs during the year. According to the harmful effects on the human body, exhaust gas components are divided into toxic: carbon oxides (CO), hydrocarbons, nitrogen oxides, sulfur oxides, aldehydes, heavy metal compounds (lead, etc.) and irritating: sulfur oxides, hydrocarbons, soot; carcinogenic: benzo(a)pyrene [10-11].

The immediate purpose of the analysis of the reports of the hydrometeorology department is also to localize the place and determine the source of air pollution.

Physical pollutants can be divided into gaseous and solid-phase dispersion, and chemically active and passive, which have a harmful effect.

The impact of most chemicals, biological and physical components of air (with the exception of nitrogen and oxygen) on the monitoring object of this type, empirical, as a rule, based on observations, leads to negative consequences. Accordingly, the maximum allowable concentrations of these pollutants are due to many years of experience in observations and specially conducted studies [12-20].

The current concentration of pollutants at a certain point in the atmosphere is formed under the influence of the balance of the intake of harmful substances and their distribution in the air. It is known from sources that the flow of pollutants and the dynamics of their distribution are unstable.

Generalized information on the state of air pollution in the city is presented in the form of tables.

Table 1

***NUMBER OF OBSERVATIONS OF IMPURITY CONCENTRATIONS IN 2022*YEAR**

impurities	Quantity			MPC values mg/m^3	
	Department of Hydrometeorology	Center for Sanitary and Ecological Improvemen	industrial enterprise	Maximum one-time	Average daily
Bukhara					
Dust	900	192	-	0.5	0.15
Sulfur	2700	192	-	0.5	0.05
carbon	900	192	-	5	3
nitrogen	2700	192	-	0.085	0.04
Nitric oxide	900	-	-	0.4	0.06
Phenol	1800	-	-	0.01	0.003
Ammonia	900	192	-	0.2	0.04
hydrogen		192	-	0.008	0.008
Total:	**10800**	**1152**			

AIR QUALITY

Information about the monitoring network. Observations are carried out at 3 stationary posts of the State Environmental Monitoring Service (GOS). Methodological management of the network is carried out by the Environmental Pollution Monitoring Department (MPP). The GOS network operates in accordance with the requirements of RD 52.04.186-89. Posts are divided into: urban "background" - in residential areas (post No. 1 and No. 4), "car" near highways or in areas with heavy traffic (post No. 3).

In the city of Bukhara, observations are carried out at 3 stationary posts: post No. 1 - st. Mustakillik, post No. 3 - A. Gijduvony Ave., post No. 4 - st. Muminova. Observations of the level of atmospheric air pollution are carried out in accordance with GOST 17.2.3.01 - 86 with an extended period of validity.

This division is conditional, since the development of the city and the location of enterprises do not allow for a clear division of areas. Additionally, route observations are carried out by the regional center for sanitary and environmental improvement (CSEB) in industrial and residential areas of the city[4].

Dust concentrations

The average concentration for the year was 0.2 mg/m^3 (1.3 MPCs), the maximum of one-time 2.1 mg/m^3 (4.2 MPC mr) was observed in February and November at post No. 3.

Sulfur dioxide concentrations

The average concentration for the year was 0.005 mg/m^3 (0.10 MPCd), the maximum of one-time 0.030 mg/m^3 (0.06 MPCmr) was observed in June at post No. 3 and in July at post No. 1.

Carbon monoxide concentrations

The average concentration for the year was 3 mg/m^3 (1.0 MPCd), the maximum of single concentrations - 8 mg/m^3 (1.6 MPCmr) was observed in January, June, July and October at post No. 1.

Nitrogen Dioxide / Nitric Oxide Concentrations

The average concentration of nitrogen dioxide for the year was 0.03 mg/m^3 (0.75 MPCd), the maximum of one-time 0.16 mg/m^3 (1.9 MPCmr) was observed in October at post No. 3. The average content of nitrogen oxide is 0 0.02 mg/m^3 (0.33 MPCd) the maximum of single 0.08 mg/m^3 (0.20 MPCmr) was observed in January, February, July and September at post No. 1.

Concentrations of specific impurities

For phenol, the average annual concentration was 0.002 mg/m^3 (0.7 MPCd), the maximum concentration of one-time - 0.014 mg/m^3 (1.4 MPCmr) was observed in August at post No. 1.

For ammonia, the average annual concentration is 0.01 mg/m^3 (0.25 MPCav), the maximum of single concentrations - 0.07 mg/m^3 (0.35 MPCmr) was registered in May at post No. 3.

Results of route observations of the regional TsSEB.

8% of samples for dust and 1% of samples for sulfur dioxide were in excess of MPCmr. The maximum dust content reached 0.58 mg/m^3 (1.16 MPCmr) was observed in July near the bus station. The maximum concentrations of sulfur dioxide 0.58 mg/m^3 (1.2 MACm) were recorded in July near the bus station. The maximum concentrations of carbon monoxide amounted to 3.9 mg/m^3 (0.8

MPCmr) were observed in July near the bus station. The maximum concentrations of nitrogen dioxide amounted to 0.078 mg/m^3 (0.92 MPCmr) were observed in August near the bus station. Excess concentrations of ammonia and hydrogen sulfide were not observed during the year.

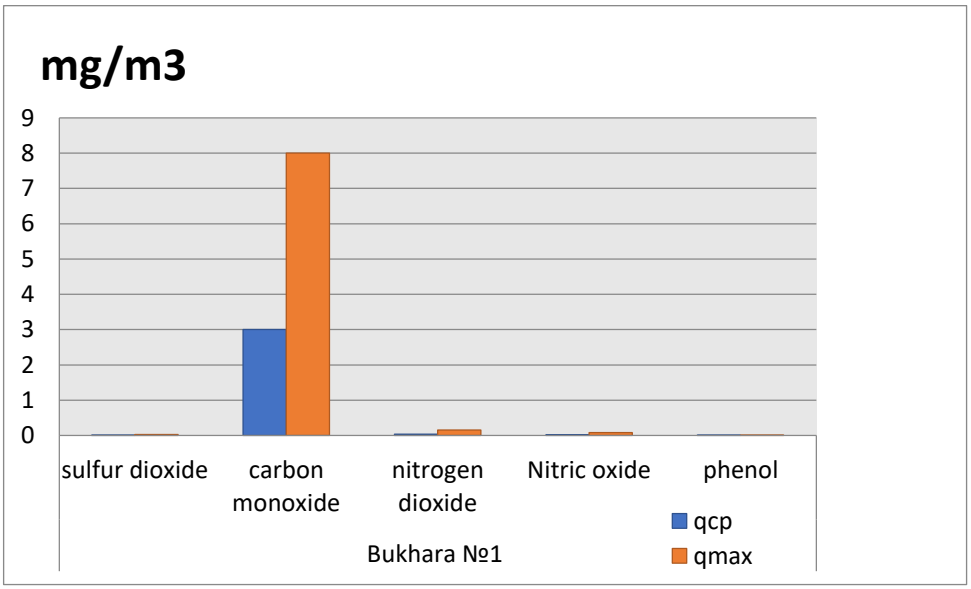

Fig - 2. Characteristics of air pollution in the city of Bukhara for 2022, post No. 1.

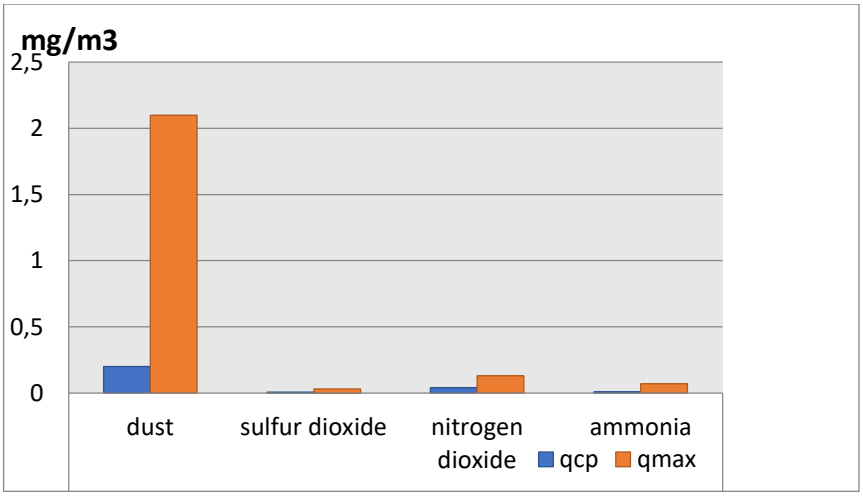

Fig - 3. Characteristics of air pollution in the city of Bukhara for 2022, post No. 3.

Conclusions: An analysis of the reports showed that the highest level of pollution for substances such as sulfur dioxide and carbon monoxide is observed in December, the reason for this may be the heating season, which accounts for the bulk of emissions of these substances. In summer, namely in July, the highest level of pollution is observed for dust and nitrogen dioxide.

To improve the urban environment, a targeted environmental policy is needed, including the modernization of transport networks of cities and suburbs

with an increase in capacity, improvement of the quality of the road surface in order to increase the average speed of vehicles (creation of "transport corridors" similar to modern "organic systems" of urban transport in many European cities). It is necessary to change the fuel balance in the heat and power industry, to reduce the share of coal and fuel oil.

Additional greening of cities with such plants as acacia, paulownia and sophora is also required. They have a good spreading crown, because Bukhara needs shady alleys. In addition, we carry a huge amount of herbs - rosemary, lavender and yellow chrysanthemums. The city often experiences sandstorms, wind and sand, so you need to sow as much of the city area and land as possible with grasses. All these plants are drought-resistant, perennial, unpretentious and fast-growing. Just what you need for a city in the middle of Bukhara. Also, planting gas-resistant tree species, such as poplar, linden, ash, etc. It is also desirable to "green" the walls and roofs of houses with climbing plants, which will reduce air pollution and reduce sound discomfort near highways.

As we know, the ecology of the modern world is such that we cannot completely get rid of harmful substances. However, it is in our power to minimize the risk. Thus, we can say that only a comprehensive solution to the problem of urban pollution, improving the environmental situation will help improve the health of the younger generation and reduce the burden of many social problems in the future.

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