ОЦЕНКА ЭКОЛОГИЧЕСКОГО СОСТОЯНИЯ КАЧЕСТВА ВОЗДУХА ГОРОДА В УСЛОВИЯХ ГЛОБАЛИЗАЦИИ

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Аннотация: Очень важным и актуальным вопросом, требующим системного и комплексного вмешательства, является сохранение качества городского воздуха. Ухудшение качества городского воздуха влечет за собой серьезные негативные последствия для здоровья населения и окружающей среды. Целью данной работы является изучение современных стратегий и методов, направленных на обеспечение здоровья и чистоты окружающей среды, а также улучшение качества воздуха в городских районах. К основным источникам ухудшения качества городского воздуха относятся транспорт, промышленные предприятия, а также характеристики бытовых и промышленных выбросов. Проанализированы причины увеличения выбросов и их влияние на здоровье населения и экологические факторы.

Ключевые слова: *индекс инфляции, рисковые активы, болезнь, чрезмерная эксплуатация, ненадежные источники.*

GLOBALLASHUV DAVRIDA SHAHAR HAVOSINING EKOLOGIK HOLATINI GIGIYENIK BAHOLASH

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Annotatsiya: Atrof muhitning salomatligi va tozaligini ta’minlash hamda shahar sharoitida atmosfera havosini ifloslanish darajasini pasaytirishga qaratilgan zamonaviy chora tadbirlar va usullarni o‘rganishdan tashkil topadi. Mazkur maqsadga erishish uchun shaharlar havosini ifloslantiruvchi asosiy manbalar: avtotransport, ishlab chiqarish korxonalari, maishiy va xo‘jalik chiqindilarining xususiyatlari ko‘rib chiqildi. Xosil bo‘layotgan chiqindilar miqdorini ortish sabablari va ularni aholi salomatligiga hamda atrof muhit omillariga ko‘rsatadigan ta’siri tahlil qilindi.

Kalit so‘zlar: *inflyatsiya indeksi, xavfli aktivlar, kasallik, ortiqcha ekspluatatsiya, ishonchsiz manbalar.*

EVALUATION OF THE ECOLOGICAL STATE OF THE CITY’S AIR QUALITY DURING THE GLOBALIZATION

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Annotation: A very important and urgent issue requiring systematic and comprehensive intervention is preserving urban air quality. The deterioration of urban air quality poses serious negative consequences for public health and the surrounding environment. This work aims to learn modern strategies and methods to ensure the health and cleanliness of the surrounding environment and improve air quality in urban areas.The main sources that deteriorate urban air quality include transportation, industrial factories, and the characteristics of residential and industrial emissions. The reasons for increasing emissions and their impact on public health and environmental factors were analyzed.

Keywords: *inflation index, risky assets, illness, overexploitation, unreliable sources.*

Introduction: Serious problems are emerging related to the deterioration of the urban atmosphere in modern cities. Preserving the atmosphere is becoming an important task due to its impact on the level of urbanization, industrial expansion, and increasing traffic movement [1,2]. Initially, it is necessary to pay attention to the impact of polluted air on public health and its influence on the lifestyle. The high level of atmospheric pollution leads to an increase in respiratory diseases, cardiovascular system disorders, and a higher risk of contracting infectious diseases. This situation poses a significant danger to public health and requires urgent measures to reduce pollution levels and implement preventive actions [3,4,5]. In addition to affecting public health, polluted air hurts the biological diversity of urban ecosystems and the surrounding environment. Pollutants emitted into the atmosphere contribute to the contamination of water and soil resources and pose a threat to plant and animal life. The disruption of ecological balance due to atmospheric pollution leads to long-term consequences for the sustainability of the urban environment [5].

The aim: Among the most common modern issues in large cities is the need to protect the urban atmosphere from industrial emissions and vehicle exhaust emissions. Failure to comply with ecological requirements for vehicles, the continued growth of automobile fleets, poor traffic flow characteristics of roads, technical inadequacies in vehicle maintenance, inefficient operation of emission control equipment at industrial plants or their absence altogether, reduction in green areas occupied by vegetation year after year - all contribute to gradually deteriorating ecological conditions in cities. The lack of compliance with environmental standards by polluters contributes significantly to environmental degradation in urban areas. Among all types of pollutants released into the environment, atmospheric pollution due to human activities is considered the most dangerous because breathing exposes individuals directly to harmful substances from outside. Particularly in large cities, air quality is deteriorating not only due to industrial and municipal emissions but also because transport vehicles play a significant role [6]. Research findings have shown that air pollution in cities is largely influenced by climatic conditions and wind patterns as well as city planning strategies. In Tashkent city, natural-climatic conditions cause frequent inversions and stagnation of atmospheric air which leads to pollutants accumulating within lower layers of the atmosphere. An increase in dust particle concentration in the air indicates dry climate conditions combined with desert-like soil layers where the wind continuously repeats itself [5].

Result: Control over the level of atmospheric air pollution in Tashkent city is carried out at 13 control posts of UzHydromet, located in 9 districts of Tashkent city. To obtain more detailed information on air quality, control posts are located in different functional areas of the city (residential areas, industrial areas, along the main highways). Given that there are currently 12 districts in Tashkent City, a significant part of the city's territory is deprived of control points. The amount of dust, dioxide, nitrogen, and two oxides, carbon, phenol, hydrogen fluoride, ammonia, formaldehyde, and heavy metals in the air is estimated to measure urban air quality. The main air pollutants are dust, carbon dioxide, nitrogen dioxide, sulfur dioxide, and ammonia, and the annual average concentration of these indicators is high in some months (mainly in the hot months of the year due to motor vehicle emissions, and in the winter months due to emissions from the boiler house). The Air Pollution Index (AII), calculated based on the five substances mentioned above with the highest concentration, was used to assess the air condition.

The Ministry of Ecology, Environmental Protection, and Climate Change listed the factors affecting atmospheric air pollution in Tashkent. Today, the level of atmospheric air pollution is increasing in major cities around the world, including Tashkent. Natural and anthropogenic factors cause this. In particular, the influence of the following factors on atmospheric air pollution in the capital city has deteriorated its quality indicators. Such factors include: the reduction of green spaces in Tashkent is considered the main factor. According to information, about 49 thousand trees were illegally cut down during the monitoring on cutting down trees and shrubs; The second important factor is indiscriminate construction works without approval of master plans for urban development. In particular, even though a moratorium on non-performance of construction works has been declared several times in the city of Tashkent, construction works continue. The third important factor hurting atmospheric air is a sharp increase in the number of cars in urban areas. The ecological level of vehicles depends on the fuel used and the quality of road traffic organization. Specifically, in 2021, the number of cars in the Republic was 3.14 million, and in 2023 their number reached 4.6 million.

Today, an average of 730 thousand cars move through the city of Tashkent per day, in addition, from 160 to 300 thousand cars enter from the regions. Machines running on A-80 petrol, which do not meet international standards, produce harmful emissions into the atmosphere. The number of intersections of transport and pedestrian traffic has not been reduced in the cities, the level of load on highways has not been reduced, the cyclic composition of traffic flows, speed regulation has not been optimized, and road traffic has not been properly organized. As a result, there are many traffic jams in Tashkent. A car standing in a traffic jam produces more emissions than a moving car. The use of hydrocarbon raw materials, including coal fuel, is increasing as a result of the growing demand for energy resources from economic sectors and the population. Specifically, in 2019, 3.9 million tonnes of coal fuel were used, in 2022 this amount reached 5.3 million tonnes, and by the end of 2023 it reached 6.7 million tonnes. Pollutants emitted during coal mining, transport and use lead to environmental pollution, including atmospheric air, soil, and water resources. For information, when burning 10 tons of coal fuel, the atmosphere releases 220 kg of water vapor, 360 kg of sulfur dioxide, 64 kg of carbon dioxide, 16 kg of nitrogen dioxide, and 2 tons of carbon ash.

The use of fuel oil as additional fuel by the existing heating centers for district heating of the population in the autumn-winter period causes severe air pollution and objections from the population. According to information, only in Tashkent in December, 3 thousand tonnes of fuel oil were used in 9 boiler houses of 6 heat centers. Air pollution in Tashkent is determined by wind direction and speed, air temperature, solar radiation, amount and duration of precipitation, temperature inversions (a layer of warm air that prevents mixed particles from dispersing vertically), and other natural factors. The city of Tashkent is surrounded by mountains and is located deep. Because of this, because the wind does not circulate, the dusty air stream stays in the city, becomes damp, and does not leave naturally. In 2023, among the chemical safety indicators of substances in the atmospheric air, the leaders are nitrogen dioxide, Benz (a) pyrene, (and dust) particles with the size from 10 to 2.5 microns (respectively PM10, PM2.5). They were considered, hydrosulfide, nickel oxides, and formaldehyde. The results of the studies showed that the hygienic standards of the above chemicals were equal to 1.1-5.0mg/m3. For 2021-2023 years it was noted that the amount of persistent chemicals in the atmospheric air of the city was 5 times higher than REM. In recent years, the amount of harmful substances emitted by vehicles in Tashkent has increased. This situation is reflected in the table №1 spreadsheet.

Spreadsheet №1. The amount of persistent chemical substances in the urban atmospheric air.

Years	2021	2022	2023
Tashkent	65.0	62.4	70.3
On individual materials			
Solid particles	32.1	29.6	35.4
Sulfur dioxide	23.5	28.6	30.3
Nitrogen oxide	15.4	17.8	21.1
Nitrogen carbon	20.3	21.6	23.4
Carbohydrates	1.4	1.8	2.4

As can be seen from the table above, the concentration of harmful substances emitted into the atmosphere is increasing every year. Measures to reduce them determine the need for timely and effective organization of measures.

Analyzing the data on emissions from cars in Tashkent city, it was found that the largest volume of carbon monoxide was observed in Tashkent city (92 tonnes). At the same time to reduce negative impacts on the atmosphere in Tashkent city, the following measures are proposed to be implemented:

- Restricting the use of lower ecological grade gasoline (AI-80) from vehicles not meeting Euro-4 standards.

- Limiting traffic flow and ensuring road safety by restricting the movement of vehicles weighing more than 3.5 and 12 tons during peak hours (from 07:00 to 10:00 and from 17:00 to 20:00) in Tashkent city.

- Enforcing restrictions on all types of vehicles produced before 2010 and providing incentives, preferences, and subsidies for vehicle owners to switch to modern vehicles (electric cars).

- Implementing a rule for alternating odd and even days for vehicle movement to regulate traffic flow and reduce emissions.

- Creating pedestrian zones in central areas of the city.- Transitioning public transportation to electric, natural gas-powered, and other eco-friendly modes of transport.

- Declaring a moratorium on construction projects except those deemed socially or state-essential.

- Restricting coal consumption for industrial purposes in suburban areas surrounding Tashkent city.

- Ensuring microclimate stability by establishing artificial water reservoirs to positively impact air quality.

- Prohibiting the use of fuel oil as a heating fuel in heating centers across Tashkent city.

- Planting «green walls» around Tashkent city to mitigate wind speed and prevent soil erosion.

- Installing scoreboards and monitors that constantly report the air quality indicator.

Conclusion: It is essential to emphasize that the air quality in Tashkent city is not considered «healthy.» Local monitoring services may not provide comprehensive data since monitoring stations do not cover all parts of Tashkent city or detect hazardous pollutants like RM10, RM5, and RM2.5 according to local standards. To provide reliable information to residents and ecological services representatives, it is necessary to introduce indicators such as RM10, RM5, and RM2.5 into monitoring systems along with increasing surveillance points. To improve air quality in the city, it is also crucial to increase green spaces in streets and other urban areas by primarily using large leafy trees.

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