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ANTHROPOGENIC AIR POLLUTION CAUSING AN ECOLOGICAL CRISIS

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ABSTRACT

Every year, during the melting and recycling of old car bodies, a huge amount of metal particles are released into the atmosphere. According to statistics, in developed countries, cars emit more than 31 million tons of harmful gases into the atmosphere per year. This figure is 22 million tons in the Russian Federation. In general, cars and transport and road complexes are one of the main sources of environmental pollution.

Keywords. Atmosphere, biosphere, microorganism, ecological factor, biotic, abiotic, anthropogenic factors.

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“Atmosfera havosi antropogen ifloslanishining ekologik inqirozga sabab bo‘lishi”

ANNOTATSIYA

Har yili eski avtomobillarning tanasini eritib, qayta ishlash jarayonida ham juda ko’p miqdorda metall zarralari atmosferaga ko’tariladi. Statistik ma’lumotlarga qaraganda rivojlangan mamlakatlarda avtomobillar atmosferaga yiliga 31 mln tonnadan ortiq zararli gazlar chiqarar ekan. Bu ko’rsatkich Rossiya Federatsiyasida 22 mln tonnani tashkil etadi. Umuman olganda avtomobillar, transport-yo’l majmualari atrofni ifloslanishiga olib keluvchi asosiy manbalardan biridir.

Kalit so‘zlar. Атмосфера, biosfera, mikroorganizm, ekologik omil, biotik, abiotik, antropogen omillar.

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АННОТАЦИЯ

Ежегодно в процессе плавки и переработки старых автомобильных кузовов в атмосферу выбрасывается огромное количество металлических частиц. По статистике, в развитых странах автомобили ежегодно выбрасывают в атмосферу более 31 миллиона тонн вредных газов. В Российской Федерации эта цифра составляет 22 миллиона тонн. В целом, автомобили и транспортно-дорожные комплексы являются одним из основных источников загрязнения окружающей среды.

Ключевые слова: Атмосфера, биосфера, микроорганизм, экологический фактор, биотические, абиотические, антропогенные факторы.

Relevance. Nowadays, vehicles play an important role in people's lives. We cannot imagine our daily life without automobile transport. After all, cars play a huge role in bringing us closer and saving our precious time. In general, a car is a wheeled vehicle with an independent energy source, designed to transport goods and people on land, on trackless roads, or to perform special work with the help of devices installed on it, with comfort and safety[1,6].

The word car comes from the Greek autos, which means itself, and from the Latin mobilis, which means moving. If we look at the history of its origin, the first car in the world with an internal combustion engine was invented by Karl Benz in 1885. Later, the automotive industry developed in a number of countries around the world, such as France, the USA, Germany and Japan. The automotive and mechanical engineering industries are one of the most profitable areas. As a simple example, Japan and Germany, although they fell behind in every way after the World War, these two countries quickly recovered in a short time due to the development of mechanical engineering and automotive industries. It is no wonder that a country with a developed mechanical engineering industry never lags behind in development[3].

Currently, a number of large Japanese automobile companies such as Toyota, Honda, Nissan, Mazda, Isuzu, Daihatsu are leading the world market. Cars, while bringing great benefits and developing human civilization, also cause harm. After all, when cars are moving, they emit more than 200 harmful substances into the environment due to incomplete combustion of fuel products in internal combustion engines. The main waste from motor vehicles includes lead batteries, plastic interior trim elements, tires, and metal parts of car bodies[6,8].

The aim of the study Every year, during the melting and recycling of old car bodies, a large amount of metal particles are released into the atmosphere.

According to statistics, in developed countries, cars emit more than 31 million tons of harmful gases into the atmosphere per year. This figure is 22 million tons in the Russian Federation. In general, cars and transport and road complexes are one of the main sources of environmental pollution. In particular, cars play a significant role in the pollution of water bodies. Because petroleum products, worn-out tires and brake pads, bulk and dusty cargo, chlorides used as de-icing agents pollute roadsides and water bodies. People naturally want freedom of movement. As a result, everyone prefers to have a personal vehicle and use it every day. This creates high noise levels in large cities, large megacities of the world, significantly contributes to thermal pollution of the environment, and the level of hearing of people[2,5].

Methods. Today, more than 60% of the population of large cities in Uzbekistan suffers from such harmful noise. In addition, the exhaust gases emitted from them cause serious harm to the flora and fauna. In nature, all layers of the atmosphere have their own specific function. For example, the ozone layer protects all living organisms from radiation. Ozone, formed under the influence of sunlight in the presence of oxygen, nitrogen oxides and other gases, absorbs strong ultraviolet rays[3].

According to world scientists, motor vehicles are in the first place in the list of the main anthropogenic factors that pollute the air. This means that 40% of the annual damage to the atmosphere is caused by cars. In 2021, individuals in the Republic of Uzbekistan owned 3.14 million cars. Of these, 75%, or 2.4 million, ran on gas, 796 thousand on gasoline, and 71 thousand on diesel fuel. In 2023, this figure will be 4.6 million cars. All this will have an impact on nature. Currently, the capital of our country, Tashkent, is among the most polluted cities in the world. The number of vehicles in Tashkent is increasing day by day[2].

The environmental level of vehicles depends on the fuel used and the quality of traffic management. Currently, an average of 730 thousand vehicles move in Tashkent per day, and from 160 thousand to 300 thousand cars are additionally entering from the regions. Vehicles using AI-80

gasoline, which does not meet international standards, and old cars with a long history of production emit harmful emissions into the atmosphere in excess of the norm. The number of intersections of traffic and pedestrian flows in cities has not been reduced, the load level on highways has not been reduced, the cycle of regulating the composition of traffic flow and speed regime has not been optimized, and traffic has not been properly organized. As a result, the streets of Tashkent remain congested. This means that a car in a traffic jam emits more exhaust gases into the atmosphere than a moving car[1,3,6].

Results and discussion. Currently, a number of measures are being proposed to reduce the negative impact on the air quality in Tashkent. In particular, the use of AI-80 gasoline, an environmentally friendly motor fuel below the Euro-4 standard, is being abandoned; In order to reduce traffic congestion and ensure traffic safety, the movement of trucks of categories N2 and N3 in Tashkent during rush hours is being restricted; All categories of vehicles manufactured before 2010 are being banned from driving, and vehicle owners are being provided with incentives, preferences, and subsidies to switch to modern vehicles, namely electric vehicles;

In order to reduce traffic jams on highways in recent years, the following have been implemented as an experiment: to introduce a rule to drive cars on odd and even days to optimize traffic; to organize areas free of vehicles on the city's main central streets; to switch public transport to fully electric, gas-powered and other types of alternative fuels and to organize road infrastructure. In other countries of the world, damage to nature is also observed due to cars. In some regions of Japan, due to the excessive number of cars, a police officer who controls traffic is forced to change his oxygen mask every two hours. As for the gas emitted from car engines, it contains carbon monoxide, carbon dioxide, aldehydes, nitrogen oxides, and lead compounds. This is very harmful to human health. For example, carbon monoxide combines with hemoglobin in the blood, reducing its ability to carry oxygen. Lead compounds enter the body through the respiratory tract and have a negative effect on the functioning of the cardiovascular system[10].

If we think about it in conclusion, 1 car burns an average of 10-12 liters of gasoline per day, it emits about 25 kilograms of harmful substances into the atmosphere. This allows us to lose more than 4 tons of oxygen per year. The carbon monoxide contained in the harmful gases emitted by cars poisons plants and animals, water and soil. As a result, trees and plants become less productive. Gases accumulated in the atmosphere and on the surface of various substrates increase the amount of dust and reduce oxygen. In order to reduce such cases in the future, the level of impact of cars on the environment should be studied. This will allow us to develop clearly defined measures to reduce the negative impact of vehicles on the environment in the future. As a result of such research activities conducted by our state, the amount and composition of harmful gases emitted by vehicles moving on city streets are studied and monitored. According to the State Committee for Ecology and Environmental Protection, vehicles in Uzbekistan cause more harm to the atmosphere than industrial enterprises[7,9].

In this article, we have examined in detail the impact of vehicles on the environment. So, harmful gases emitted into the atmosphere as a result of incomplete combustion of fuel in the internal combustion engine of cars and their negative impact on human health, the noise level of cars in large megacities, the spread of a large amount of toxic smoke into the environment as a result of traffic jams, dust on unpaved and dirt roads, the gradual transition to environmentally friendly fuels, the advantages of electric cars, and we considered the impact of vehicles on the atmosphere using the example of the city of Tashkent. My personal opinion is that people should switch to electric cars as much as possible. Because, first of all, toxic gases are not emitted into the atmosphere, cheap fuel consumption is achieved, and the noise level is minimized. In any case, it is not possible to recycle the gases emitted into the atmosphere from cars, while in electric cars, it is possible to recycle, that is, dispose of, the used batteries[3].

It is necessary to develop and implement projects for intersections without traffic lights in large cities, as much as possible. In particular, we should widely use this system on the streets of Tashkent. Because in this way, traffic jams will be prevented, and as a result, the amount of harmful gases emitted by cars will be reduced, and significant fuel economy can be achieved. In order to combat air pollution, the “International Car-Free Day” has been held in hundreds of cities around the world since 1995, at the initiative of the World Car Free Days consortium.

In our country, by the decision of the Cabinet of Ministers of the Republic of Uzbekistan, September 22 has been declared “Car-Free Day” in our republic starting from 2021. It would be appropriate to organize actions similar to this event not once a year, but every month. I think that all the projects mentioned above will greatly help reduce air pollution. In cities that are becoming large megacities, it is necessary to return the population to a healthy lifestyle. To do this, it is necessary to build parks, green spaces and groves, artificial lakes in the city, to establish services such as boats and ships, bicycles, scooters, gyro scooters, skateboards, and organize walking and running campaigns. It should be implemented. Then people will start playing sports and returning to a healthy lifestyle.

The WHO Global Air Quality Guidelines (GAQG) provide global recommended limit values for the concentrations of key air pollutants that pose a risk to public health. These guidelines are of high methodological quality and are developed through a transparent and evidence-based decision-making process. In addition to recommended concentration values, the WHO Global Air Quality Guidelines include interim targets for a gradual transition from high to low concentration levels, outlining the associated health benefits. For example, achieving the first target (35 μg/m³) would prevent approximately 300,000 deaths annually[8,12].

The recommendations also include qualifying statements regarding good practice for managing certain types of particulate matter (PM), such as black carbon/atomic carbon, ultrafine particles, and particles emitted by dust and sandstorms, for which sufficient quantitative data are lacking to support the GQFI.

Recognizing the seriousness and urgency of the problem, all WHO Member States endorsed resolution WHA68.8, "Health and the environment: addressing the health impacts of air pollution," at the 2024 World Health Assembly, complemented by a corresponding roadmap for action the following year[6,13].

WHO, as the coordinating authority for international health, supports countries in protecting public health through evidence-based policies and actions. Given the significant health burden and the multiple potential benefits of action, WHO supports countries by providing evidence, building institutional capacity, and leveraging health advocacy to mobilize cross-sectoral action to address air pollution[2].

Ecology and human health are inextricably linked. The impact of the environment on the human body can be both direct and indirect, cumulative over time. Only a comprehensive approach, including prevention, information, adaptation, and international cooperation, will minimize the harm from adverse environmental factors and preserve the health of the nation's population[3].

Conclusions. The majority of the city's population commutes to work by private car. This leads to obesity as a result of low mobility. By developing public transport, it is possible to bring the population to a car-free lifestyle. If public transport is properly organized and everyone uses public transport, there will be no traffic jams on the roads, the atmosphere will not be polluted, and the oxygen level will be normalized. Toxic air contains carcinogens that cause serious diseases such as stroke and lung cancer. In addition, I would like to propose a special approach to building parking lots on the outskirts of the city. As a result, the number of vehicles entering the city from the regions will decrease, and residents coming to the capital will park their private cars in parking lots on the outskirts of the city and move around the city by public transport. This, in turn, requires public transport to increase the number of metro and its cars, and to return trams to the city transport system.

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