



ANALYSIS OF THE IMPACT OF THE INCREASING NUMBER OF CARS ON NATURE

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Abstract: In the modern world, cars have become an integral part of human life. They play an important role in transportation, economic activity, and everyday life. However, the rapid growth of the number of cars is causing serious harm to the environment. In Uzbekistan, especially in the last decade, the number of cars has increased significantly. For example, according to UzAutoMotors, in 2023, more than 1.5 million cars were registered in the country, which is 40% more than in 2015. This article analyzes the impact of the increasing number of cars on nature, considers the situation in Uzbekistan, and makes proposals to mitigate the problem.

Keywords: cars, transport, nature, people, ecology, exhaust gases, noise, toxic substances, environmental monitoring, public transport.

The growth of the number of cars and environmental problems are closely related. The increase in the number of cars has a number of negative effects on the environment. The main problems are:

Air pollution.

Car engines, especially internal combustion engines, produce many toxic gases. Worldwide, cars consume approximately 2.1 billion tons of fuel per year and emit about 700 million tons of toxic substances into the atmosphere, including:

- Carbon dioxide (CO₂): Causes the greenhouse effect and climate change.
- Carbon monoxide (CO): 420 million tons, harmful to human health.
- Nitrogen oxides (NO_x): 60 million tons, causes respiratory diseases.
- Hydrocarbons (CH): 170 million tons, irritates mucous membranes.
- Soot and lead: 17 million tons of soot and 0.6 million tons of lead pollute water and soil.

Air pollution is a growing problem in Uzbekistan, particularly in large cities such as Tashkent. In 2024, the Air Quality Index (AQI) in Tashkent was at "unhealthy" levels 40% of the year, largely due to vehicle emissions.

Impact on water resources.

Vehicle emissions enter water bodies through the air, polluting them. For example, lead and hydrocarbons mix with rainwater and reach rivers and lakes. In Uzbekistan, the level of pollution in the Amudarya and Zarafshan river basins has increased by 15%, partly due to vehicle emissions.

Damage to soil and plants.

Exhaust gases and soot change the chemical composition of the soil, reducing its fertility. The amount of lead in agricultural land in the Tashkent region has increased by 10% in the last 10 years. This negatively affects plant growth and reduces agricultural productivity.

Noise pollution.

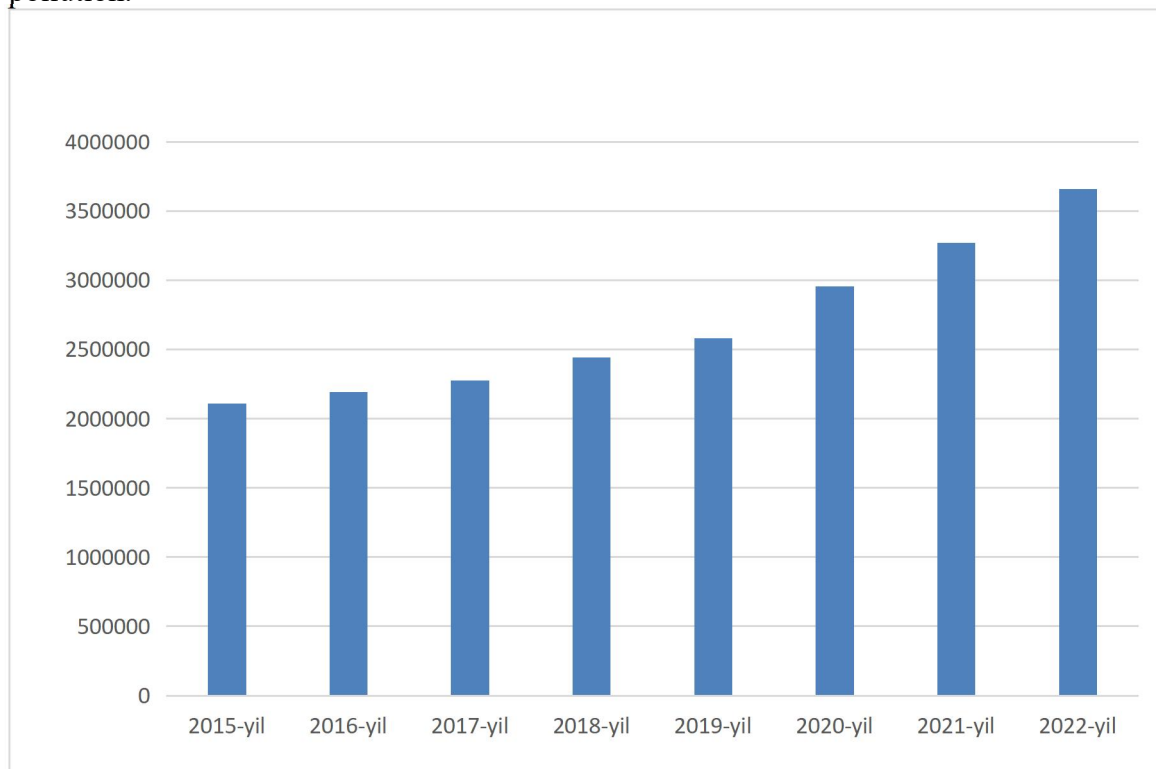
The increase in the number of cars increases the noise level in cities. The noise level on the central streets of Tashkent reaches 70-80 decibels, which leads to human health problems, in particular, stress and sleep disorders.

Disruption of the ecological balance.

Exhaust gases harm the natural environment of plants and animals. For example, nitrogen oxides (NO_x) and hydrocarbons create photo smog, which disrupts the photosynthesis process of plants. In Uzbekistan, the rate of plant death in the Fergana Valley has increased by 5%.

The growth of the number of cars in Uzbekistan.

The number of cars in Uzbekistan has been growing rapidly in recent years. The following statistics confirm this: Data for 2023: More than 1.5 million cars are registered in the country, of which 70% are gasoline, 20% diesel, and 10% are gas or hybrid engines. The situation in Tashkent: More than 500,000 cars drive in the capital every day, which accounts for about 60% of air pollution.



The number of cars in Uzbekistan is increasing.

Negative effects of car emissions

Impact on human health. Respiratory diseases: NO_x and soot damage the respiratory tract, causing diseases such as asthma and bronchitis. In Tashkent, respiratory diseases increased by 12% in 2024. Allergies and mucous membrane irritation: Hydrocarbons irritate the mucous membranes of the eyes, nose and throat. Stress and mental health: About 20% of the population suffers from constant stress due to noise pollution.

Ecological consequences. Greenhouse effect: CO₂ emissions contribute to global warming. About 30 million tons of CO₂ are emitted by cars in Uzbekistan annually. Water pollution: Lead and other heavy metals pollute water resources, harming fish and aquatic plants. Soil degradation: Toxic substances reduce soil fertility, which harms agriculture.

The following measures can be taken to reduce environmental problems caused by the increase in the number of cars in Uzbekistan:

Development of environmentally friendly transport. Electric and hybrid cars: Uzbekistan needs to expand the infrastructure (charging stations) for electric cars. For example, 50 charging stations were installed in Tashkent by 2024, but this is not enough. State subsidies: Introduction of tax incentives for the purchase of electric cars (for example, a 10-15% discount).

Use of catalytic converters and neutralizers. Catalytic converters reduce CO, NO_x and hydrocarbon emissions by 60-80%. Installation of catalytic converters should be mandatory for all cars in Uzbekistan. Introduction of diesel particulate filters (DPF) for diesel engines and their regular cleaning.

Development of public transport. Expansion of the Tashkent metro and purchase of environmentally friendly vehicles (for example, electric buses) for the bus fleet. By 2025, it is planned to introduce 200 electric buses in Tashkent, which can reduce urban emissions by 10%.

Urban planning and traffic optimization. Intelligent transport systems: Real-time traffic management in Tashkent (for example, the ATTO system) can reduce fuel consumption by 15%. Reducing the use of private cars by expanding bicycle lanes and pedestrian zones.

Environmental monitoring and legislation. Expanding the sensor system for monitoring air quality. For example, 20 air quality monitoring stations are to be installed in Tashkent by 2024. Introducing strict standards for vehicle emissions (for example, Euro-5 or Euro-6 standards).

Increasing the environmental literacy of the population. Organizing educational programs for the population on the use of environmentally friendly transport through IT-Park and local universities.

Conclusion: The growth of the number of cars poses a serious threat to the environment in Uzbekistan and around the world. Problems such as air, water and soil pollution, noise and climate change are harming human health and the ecological balance. To mitigate this problem in Uzbekistan, it is necessary to develop environmentally friendly transport, use catalytic converters, expand public transport infrastructure and strengthen legislation.

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