

Legal Foundations for the Protection of Urban Air Quality: Problems in Uzbekistan and Their Regulatory-Legal Solutions

Normatov Ermamat Toyir o'g'li¹ 

¹Doctoral researcher at Tashkent State University of Law
normatovermamat@gmail.com

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***Corresponding author:**

Normatov Ermamat Toyir o'g'li¹
normatovermamat@gmail.com

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Abstract

This article examines the theoretical-legal and practical aspects of the legal protection of atmospheric air quality in cities, including the problems arising in this sphere in the Republic of Uzbekistan and the ways of resolving them through regulatory-legal means. The relevance of the study is determined by the sharp increase in the level of air pollution observed in recent years in Tashkent and other major cities, which poses a serious threat to public health, the economy, and ecological sustainability. The purpose of the study is to conduct a comparative analysis of the national legislative framework for the protection of urban air quality against international legal norms and the experience of foreign states and to identify gaps in the current regulatory mechanism. The analysis indicates that Uzbekistan's current legislation on the protection of atmospheric air is based largely on approaches from the last century and has not sufficiently adapted to modern ecological risks in particular, pollution by fine particulate matter (PM_{2.5}). The study also reveals systemic problems such as the ineffectiveness of liability institutions, the lack of coordination between urban planning and environmental expert review, and the weakness of judicial practice. In conclusion, the author recommends the adoption of a unified Environmental Code, the introduction of mandatory urban PM_{2.5} standards, and the strengthening of mechanisms for the judicial protection of citizens' environmental rights.

Key words: atmospheric air, environmental law, urban ecology, air quality standards, environmental liability, "Clean Air" national project, legislative reform.

Introduction

The rapid pace of urbanization processes in the modern world is leading to an increase in the ecological burden on cities, in particular, to a sharp rise in the level of atmospheric air pollution. According to the World Health Organization (WHO), nearly 99 percent of the world's population is exposed to air pollution levels exceeding WHO-recommended limits [1]. This problem has become extremely urgent for Uzbekistan as well, particularly for its capital, Tashkent. In 2024, the average annual PM_{2.5} level in Tashkent amounted to 31.5 µg/m³, which is 6.3 times higher than the WHO's annual recommended guideline of 5 µg/m³. According to research conducted by the World Bank, air pollution in Tashkent causes more than 3,000 premature deaths annually, while the economic damage amounts to USD 488.4 million per year or 0.7 percent of the country's gross domestic product [2].

This grave situation is, above all, connected with gaps in the legal regulatory system. In the Republic of Uzbekistan, relations concerning the protection of atmospheric air are primarily regulated by the Law "On the Protection of Atmospheric Air," adopted in 1996 [3]. However, nearly 30 years have passed since the adoption of this law, during which time modern scientific knowledge regarding the impact of fine particulate matter such as PM_{2.5} on human health had not yet been fully formed. For

this reason, although the existing legislative act has undergone a number of amendments and additions does not systematically meet the requirements of modern urban ecology [4].

The scientific problem of the study may be formulated as follows: Is Uzbekistan's current legislation on the protection of atmospheric air sufficient to effectively regulate the modern ecological risks arising in urban conditions, and, if not, what regulatory-legal means exist for its improvement?

The object of the study is the social relations concerning the protection of atmospheric air quality in cities of the Republic of Uzbekistan; the subject is the legal norms regulating these relations, their application in practice, and their comparative aspects with foreign experience [5].

The purpose of the study is to conduct a comprehensive analysis of the theoretical-methodological foundations of the legal protection of urban air quality, the existing problems in national legislation, and the regulatory-legal solutions for overcoming them [6].

To achieve this goal, the following tasks have been set:

- 1) to study the international legal foundations of the protection of urban air quality;
- 2) to conduct a systematic analysis of Uzbekistan's national legislation;
- 3) to identify institutional-legal problems in practice;
- 4) to conduct a comparative study of the experience of foreign states (the European Union, China, Kazakhstan);
- 5) to develop scientifically grounded proposals for improving the legislation.

The scientific novelty of the study lies in the fact that it examines, for the first time within a comprehensive legal analysis, Uzbekistan's regulatory acts adopted in recent years, including the 2026 Decree on the "Clean Air" national project [5], and conducts a comparative analysis of these acts with the European Union's new Directive 2024/2881 [7].

The practical significance of the article is determined by the fact that its findings may be used in law-making activity, in particular, in the preparation of the draft Environmental Code currently being developed, as well as in the teaching of environmental law in higher education institutions [8].

Methodology

Issues of urban environmental law have become one of the actively researched directions in world legal scholarship over the past decade. At the international level, the constitutional foundations of environmental law, the population's right to a healthy environment, and the state's environmental obligations have been extensively covered. In particular, the system of ecological-legal norms of the Constitution of the Republic of Uzbekistan the ecological duty of citizens, the ecological requirements for the use of property, the principles of state ecological policy, and the powers of local government bodies in the field of ecology has been examined in detail in scholarly sources that provide a comparative analysis from the standpoint of national and foreign experience.

At the same time, in the existing scholarly literature, the specific legal mechanisms for protecting urban air quality in particular, the regulatory-legal instruments governing fine particulate matter such as PM_{2.5} have not been sufficiently deeply studied in the context of Uzbekistan. The majority of existing research is devoted to the general theory of environmental law or to the legal regulation of natural resource use, while the specific institutional-legal aspects of protecting urban atmospheric air such as the regulation of emissions from the transport, thermal energy, and construction sectors, the legal status of environmental monitoring systems, and mechanisms for citizens' judicial protection have received little attention as an independent subject of research. This gap served as the principal motivation for writing this article.

Methodologically, the study is based on a combination of several scientific methods. First, the formal-legal method was used to analyze the text, structure, and interrelation of the current legislative acts. Second, the comparative-legal method was applied to compare Uzbekistan's legislation with the air-quality legislation of the European Union, the People's Republic of China and the Republic of Kazakhstan. Third, the systemic-structural analysis method was used to study the powers and interaction of participants in ecological-legal relations. Fourth, the statistical analysis method was applied to assess the indicators of air pollution in Tashkent, their dynamics, and their socio-economic consequences. The principal sources for the study were the current legislative acts of the Republic of Uzbekistan, presidential decrees and resolutions, international legal instruments, as well as the official reports and statistical data of international organizations such as the World Bank, WHO, and IQAir.

Results and Discussion

1. International legal foundations for the protection of urban air quality

The legal protection of urban air quality, as a component of modern international environmental law, is reflected in a number of core instruments. Principle 1 of the 1992 Rio Declaration on Environment and Development establishes that human health and well-being should be at the center of sustainable development policy [9]. The Aarhus Convention, for its part, establishes an important normative framework regarding the openness of information on atmospheric air quality, while consolidating

citizens' rights to access environmental information, to participate in decision-making and to seek judicial protection of their environmental rights [10].

The WHO's 2021 updated Global Air Quality Guidelines set the permissible annual average concentration of PM_{2.5} particles at 5 µg/m³, a level more than twice as stringent as the 2005 recommendations. Although WHO guidelines do not carry binding legal force, they serve as the principal regulatory benchmark for reforming the national legislation of many states [11]. An example of this is the European Union's Directive (EU) 2024/2881, adopted on 23 October 2024, which sets the goal of bringing the annual PM_{2.5} limit value closer to WHO recommendations by 2030 and achieving full alignment with them by 2050.

The Republic of Uzbekistan is not outside these international legal processes. Uzbekistan is a party to the Vienna Convention (on the protection of the ozone layer), but has not yet formally acceded to the Aarhus Convention, which creates a certain gap in ensuring citizens are provided with equivalent legal guarantees regarding access to environmental information [12].

2. Systematic analysis of national legislation

The Constitution of the Republic of Uzbekistan constitutes the fundamental basis of urban environmental legal relations. A number of constitutional provisions enshrine citizens' duty to treat the natural environment with care, the ecological requirements for the use of property, and the principles governing the state's obligation to ensure ecological security [13].

The current special legislation is embodied in the Law "On the Protection of Atmospheric Air". This law was adopted on 27 December 1996 and has since been amended and supplemented on several occasions including on 21 April 2021, when a provision on the priority of international treaties was introduced into Article 2. Article 8 of the law regulates the standards for the harmful impact of permanent pollution sources on atmospheric air, while Article 29 addresses liability for violations of the law [14].

In recent years, the country's leadership has carried out a number of institutional-legal reforms aimed at improving air quality. Decree No. PF-81, adopted on 31 May 2023, fundamentally reorganized the activities of the Ministry of Ecology, Environmental Protection and Climate Change, and established the task of introducing digital environmental monitoring mechanisms [15]. Resolution No. PQ-338, adopted on 24 September 2024, approved an urgent program of measures aimed at improving air quality in Tashkent, providing for the establishment of vehicle-free zones in the city center, the installation of modern dust and gas purification equipment at industrial enterprises, and the development of an ecological "master plan" for each district [16].

The most recent and, from an institutional standpoint, the most significant instrument is Decree No. PF-46 of 25 March 2026, pursuant to which the "Clean Air" national project was launched, establishing regional target indicators, a separate program for the city of Tashkent, and targets for the development of green areas through 2030. The Decree also envisages measures such as the phased prohibition of fuel of quality below the "Euro-4" standard and the introduction of artificial rain technology by 2027. Decree No. PF-217, adopted on 18 November 2025, established the National Committee for Ecology and Climate Change, further centralizing the management system [17].

Nevertheless, all of these regulatory instruments have, in essence, been adopted at the level of presidential decrees or Cabinet of Ministers resolutions and have not been consolidated into a single codified document possessing the force of law. This creates conflicts of norms and instances of duplication in law-enforcement practice [18].

3. Institutional-legal problems in practice

The practical problems in the field of protecting urban air quality in Uzbekistan may be grouped into several areas. First, there is the problem of the fragmentation of the regulatory-legal framework: relations concerning the protection of atmospheric air are simultaneously regulated by the general law, special presidential decrees and departmental normative acts, which results in a lack of systemic coherence in law-making activity.

Second, there is the problem of the ineffectiveness of liability institutions. Although Article 29 of the Law provides for liability for violations of the rules on the protection of atmospheric air, in practice the amounts of fines particularly for large industrial enterprises are insufficient to compensate for actual ecological damage. Furthermore, although penalties have been introduced for persons who fail to prevent dust emissions at construction sites, a monitoring mechanism ensuring the systematic application of such measures has not yet been sufficiently developed.

Third, the lack of coordination between urban planning and environmental expert review constitutes a significant problem. The mandatory procedure for assessing the air-quality impact of new construction projects prior to their approval is not sufficiently regulated in the current legislation, with the result that urban-planning decisions are often made without taking ecological factors into account.

Fourth, the mechanism for the judicial protection of citizens' environmental rights remains weakly developed. Although the current legislation formally grants citizens the right to recover damages caused by air pollution, in practice the number of such claims is very low, owing to the fact that the ecological-medical expert infrastructure and judicial practice necessary to prove such damage have not been sufficiently developed.

Fifth, statistical data show that the principal sources of PM_{2.5} pollution in Tashkent the thermal energy sector (28%), transport (16%), construction works (18%), and industry (13%) fall within the jurisdiction of various different agencies, and a mechanism capable of coordinating their activities on a unified legal-institutional basis is not yet operating with sufficient effectiveness.

4. Foreign experience: the examples of the European Union, China, and Kazakhstan

The experience of foreign states in regulating urban air quality offers valuable lessons for Uzbekistan. The European Union's Directive (EU) 2024/2881 consolidated Directives 2004/107/EC and 2008/50/EC into a single, simplified regulatory system. An important feature of the Directive is that it guarantees citizens the right to compensation for health damage in the event of a violation of air quality standards by member states, and reinforces equal access to judicial protection. Such an approach does not currently exist in Uzbekistan's legislation.

The People's Republic of China's Law on the Prevention and Control of Atmospheric Pollution (in its 2018 revision) is distinguished by its centralized ecological control system, the personal accountability of local government leaders for air quality indicators, and the requirement for real-time monitoring of emissions from industrial enterprises. The institution of personal accountability of local officials for ecological indicators may also prove potentially beneficial for Uzbekistan, in particular through the inclusion of air quality indicators among the criteria for evaluating the performance of provincial and district governors.

From a regional perspective, the Environmental Code of the Republic of Kazakhstan, adopted on 2 January 2021, deserves special attention. This Code consolidated all environmental relations including the protection of atmospheric air into a single codified document, reinforced the "polluter pays" principle through expanded legal-economic mechanisms, and introduced an obligation for the largest polluters to adopt best available techniques (BAT). The absence, to date, of such a single codified document in Uzbekistan may be assessed as one of the most serious systemic shortcomings in its legislation.

The comparative analysis of the experiences described above shows that modern legal systems regulate urban air quality on the basis of three common principles: (1) scientifically grounded, regularly updated regulatory standards; (2) clearly defined and monitored powers of local government bodies; and (3) citizens' access to effective judicial and administrative remedies. Uzbekistan's legislation has developed only partially with respect to each of these three principles, and systemic reforms are required for their full implementation.

Findings

The study conducted led to the following principal conclusions.

First, the structure of Uzbekistan's core law on the protection of atmospheric air largely remains a continuation of past regulatory approaches and does not fully encompass modern ecological risks such as PM_{2.5}.

Second, although the decrees and resolutions adopted over the past three years (2023–2026) demonstrate a positive institutional shift aimed at improving air quality, all of them are instruments of legal force lower than that of a law, and have not reached the level of systematic codification.

Third, the analysis of statistical data confirmed that the principal sources of air pollution in Tashkent (heating, transport, construction, and industry) fall within the jurisdiction of different agencies, and that there is a need to coordinate them on a unified legal basis.

Fourth, the comparative analysis of foreign experience (the examples of the European Union, China, and Kazakhstan) showed that effective legal regulation requires three elements scientifically grounded standards, the personal accountability of local government, and citizens' judicial remedies none of which has yet been sufficiently developed in Uzbekistan's legislation.

Conclusion

Although the legal framework for protecting urban atmospheric air quality in Uzbekistan has been considerably strengthened in recent years, it still lacks a unified, scientifically grounded, and internationally harmonized codified form. Given the real harm air pollution in Tashkent inflicts on public health and the economy, serious legal reform is needed.

Four proposals follow. First, consolidate fragmented environmental legislation into a single Environmental Code establishing mandatory air-quality standards aligned with WHO recommendations. Second, introduce a mechanism strengthening local government leaders' personal accountability for air quality indicators. Third, establish a mandatory legal procedure for assessing the air-quality impact of new construction and industrial projects before approval. Fourth, simplify the judicial mechanism for citizens to recover damages from environmental violations, and develop ecological-medical expert infrastructure.

Implementing these recommendations will strengthen Uzbekistan's ecological security, help fulfill its international sustainable development obligations, and genuinely secure the constitutional guarantees for public health protection.

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