

**IMPLEMENTATION OF ENVIRONMENTAL MONITORING AND
ENVIRONMENTAL LEGISLATION***Nasriddinova Shodiyona**the student of Andijan Institute of Agriculture and Agrotechnologies**Zokirov Anvarjon**the student of Andijan Institute of Agriculture and Agrotechnologies**Umarov Bekzod Baxtiyorjon ugli**Assistant of Andijan Institute of Agriculture and agrotechnologies*

Abstract: This article analyzes the environmental monitoring system and the development of environmental legislation in the Republic of Uzbekistan. It explores the theoretical foundations of monitoring, its alignment with international standards, important legal documents, and practical implementation. The article also discusses the relevance and need for the improvement of environmental laws.

Keywords: environmental monitoring, environmental law, Uzbekistan, environmental protection, legal documents.

Introduction

Environmental issues are currently of global concern, and their resolution is among the key priorities of all countries, including the Republic of Uzbekistan. The expansion of industry, population growth, overexploitation of natural resources, and urbanization processes have increased negative impacts on the environment. This situation requires a systematic approach by the state to ensure environmental safety and sustainable development. One such approach is the formation and development of an environmental monitoring system, which is established based on environmental legislation.

Environmental monitoring is a system for continuously observing the state of the environment, analyzing collected data, and making forecasts to control environmental conditions. This monitoring includes indicators such as air pollution levels, the condition of water resources, soil composition, and biodiversity of flora and fauna. In Uzbekistan, environmental monitoring is an integral part of the national environmental policy. In particular, the environmental control system was significantly reformed based on a Presidential decree in 2019. By government decision, a unified state environmental monitoring information system was developed. Through this system, the ecological status of air, water, soil, and biological resources across the republic is continuously monitored and data is collected automatically. This system allows for the control of environmental factors that directly affect public health, prevents hazardous situations, and enables effective implementation of environmental policy.

Environmental monitoring is a scientific and technical process based on systematic observation, data collection, analysis, and forecasting of the state of the environment. Its main tasks include ensuring environmental safety, preventing emergencies, and providing real-time data to state authorities.

| № | Type of Monitoring | Purpose | Method of Implementation |
|---|------------------------|--|--------------------------------|
| 1 | Atmospheric Monitoring | Determining air pollution levels | Automated stations |
| 2 | Water Monitoring | Monitoring drinking water and water bodies | Laboratory analyses |
| 3 | Soil Monitoring | Assessing agricultural land conditions | Geochemical analyses |
| 4 | Biological Monitoring | Assessing biodiversity in ecosystems | Observation of flora and fauna |

Legal Foundations of Environmental Monitoring

The effective functioning of environmental monitoring depends primarily on the strength of its legal framework. In the Republic of Uzbekistan, environmental legislation is based on several core documents. Among them, the "Law on Nature Protection," "Law on State Environmental Expertise," "Law on the Protection of Atmospheric Air," and Presidential decrees play a key role. These laws define the procedures for conducting monitoring, the subjects responsible for monitoring, their obligations, and mechanisms for action based on monitoring results. The legislation also addresses citizens' rights to access environmental information, transparency of monitoring data, and accountability for environmental violations. Additionally, Uzbekistan's environmental laws are aligned with international standards and include numerous regulatory documents developed in cooperation with the UN, the European Union, and other organizations.

Environmental Monitoring System in Uzbekistan

Environmental monitoring in the Republic of Uzbekistan is carried out by the State Committee for Ecology, the Environmental Control Inspection, and other organizations. In 2019, a unified environmental monitoring system was introduced based on a Presidential decree. Its goals include:

- Continuous monitoring of the atmosphere
- Assessment of the ecological condition of water resources
- Monitoring of green zones

Example: Environmental monitoring results for Tashkent City (2024)

| Indicator | Measured Value | Permissible Level | Status |
|------------------------------------|-----------------------------|-----------------------------|--------------|
| PM2.5 Particles | 45 $\mu\text{g}/\text{m}^3$ | 25 $\mu\text{g}/\text{m}^3$ | High |
| SO ₂ (Sulfur Dioxide) | 0.07 ppm | 0.02 ppm | High |
| NO ₂ (Nitrogen Dioxide) | 0.04 ppm | 0.05 ppm | Satisfactory |

Practical Implications and Technological Integration

In practice, based on the results of environmental monitoring, industrial enterprises are given directives, required to reduce emissions, install pollution control equipment, and protect air and water sources. For example, environmental monitoring carried out at more than 140 major industrial enterprises in Tashkent revealed that some of them emitted gas and harmful substances above the established limits. In such cases, the Environmental Inspectorate issued warnings and took administrative measures. Furthermore, regional environmental reports are prepared based on monitoring results and are used to evaluate the effectiveness of national programs.

As part of integrating modern technologies with the environmental monitoring system, Uzbekistan is introducing digital information systems. For example, digital platforms such as the "Ecology Portal" and the "Green Land" project enable tracking the number and location of newly planted trees. GIS (Geographic Information Systems), satellite data, and drones are also being used to improve monitoring quality.

International Experience and Legal Reforms

Based on the above, it is also worth noting that Uzbekistan is relying on international experience in developing its environmental monitoring system. In countries such as Germany, Japan, and South Korea, environmental monitoring is conducted using artificial intelligence. For example, in Germany, satellites monitor air quality, forest conditions, and water resource levels in each region. This allows for early prediction of environmental issues and timely response. In Uzbekistan, such approaches are being gradually introduced.

Moreover, extensive efforts are being made to improve environmental legislation. New approaches include using monitoring data to detect environmental violations, requiring environmental impact assessments, and increasing environmental costs for industrial enterprises to strengthen accountability. Legal foundations are being reinforced to raise public awareness, create open access to information systems, and expand access to environmental data for citizens.

Conclusion

In conclusion, the environmental monitoring system in Uzbekistan is continuously improving and operates effectively under a strong legislative framework. Further digitization of the system, alignment with international standards, raising environmental awareness among the population, and strengthening legislation will lead to even greater results. This will not only ensure environmental safety but also help create a healthy and comfortable living environment.

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