DIGITALIZATION OF ENVIRONMENTAL LEGAL RELATIONS IN UKRAINE: PRINCIPLES AND DISADVANTAGES

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Annotation. The article examines the issue of digitalization of environmental legal relations in Ukraine, outlines the main principles and shortcomings. It is noted that the digitalization of environmental relations involves the introduction of digital technologies and innovations to optimize management in the field of ecology by increasing the effectiveness of measures to protect the environment, nature management and ensure environmental safety. It includes the use of various digital tools and technologies, artificial intelligence for monitoring and collecting data on various aspects of the environment, performing analysis and forecasting to process large amounts of information and predict trends in climate change and ecosystems, creating electronic systems for effective management and monitoring of waste management, using a network of connected devices for interaction and information exchange between environmental objects, which enables effective resource management, using technologies in the field of green energy to support renewable energy sources. It is emphasized that digital technologies play an important role in the implementation of the environmental rights of citizens of Ukraine. This is associated with the transmission of data on the state of the environment, for example, atmospheric air or emissions that have a negative impact on humans, their health and life. Through the use of digital technologies, which are a special and important part of digitalization, it is possible to conduct an analysis of the environment and, with a certain degree of autonomy, develop state action strategies to achieve certain goals. Digital technologies can also be implemented in equipment, autonomous vehicles in order to detect an unfavorable environmental situation.

It is concluded that using the potential of information technologies in the field of environmental protection and environmental safety, it is possible to expand the possibilities of making informed decisions, optimizing the management of environmental resources, and facilitating cooperation between state authorities and citizens of Ukraine in creating a safe environmental environment. In addition, the introduction of digital technologies changes the internal content of the processes of influencing public relations, expanding and transforming the methods of influencing the behavior of participants in environmental relations. By supplementing traditional methods of legal regulation with technical means of ensuring their implementation, the Ukrainian state increases the effectiveness of the mechanism of environmental and legal regulation. Digital technologies contribute to the possibility of regulating public relations in fundamentally new ways, expanding the variability of the tools of environmental law.

Key words: protection of human rights, environmental legal relations, environmental legislation, digitalization, digitalization, information technologies, environment, environmental policy, environmental disasters.

1. Introduction.

In the current conditions of increasing number of environmental disasters and risks, the desire to ensure a favorable environment is an unconditional imperative of all civilized states without exception. Thus, the main principles (strategy) of the state environmental policy of Ukraine for the period until 2030 stipulate that among the root causes of environmental problems in our country

is an unsatisfactory level of compliance with environmental legislation and environmental rights and obligations of citizens. Instead, the goal of the state environmental policy is to achieve a good state of the environment by introducing an ecosystem approach to all areas of socio-economic development of Ukraine in order to: ensure the constitutional right of every citizen of Ukraine to a clean and safe environment and implement balanced nature management and preserve and restore natural ecosystems, etc [1].

In addition, the Ukrainian state is trying by all means to create conditions for the development of the ecological system and economy through the implementation of innovative digital technologies. This corresponds to the activities of all economically developed countries that are also introducing digital technologies or have already introduced them. All Member States of the European Union need to make some efforts to achieve the 2030 goals set in the European Digital Decade: digital targets for 2030 [2]. These efforts are of great importance in the field of environmental policy and environmental law. In such conditions, it is information systems that have become the most important catalysts in this area, playing a key role in ensuring environmental safety and protecting the environmental rights of citizens.

2. The degree of scientific development of the problem.

Research into the problems of digitalization of certain types of legal relations, including relations in the field of environmental protection, has been the subject of analysis in the scientific works of leading Ukrainian scientists, in particular, A. Getman, N. Ilkiv, P. Kulynich, N. Malysheva, S. Romanko, etc.

3. Purpose of the article.

Research into the issue of digitalization of environmental legal relations in Ukraine, outlining the main principles and shortcomings in this area.

4. Presentation of the material.

The phenomenon of digitalization (digitization) refers to the process of applying information and communication technologies by subjects of law, based on the capabilities of modern IT technologies, to achieve the goal of activities aimed at changing existing social relations by digitizing them. In turn, digitization (digitization) means converting data (information) into digital form and using them in this format.

Digitization (digitization) as an upward trend of development has existed for several decades. Many elements of our life are gradually becoming digital. At the same time, information law itself creates a format for the further use of information technologies in the legal sphere. According to Ukrainian scientists, "information processes affect civil society and legal, social and state institutions. Human rights in the information sphere need to be consolidated. Information, its free production and distribution are one of the important guarantees of observance and protection of human rights" [3, p. 8].

According to scientists, the digitalization of environmental relations involves the introduction of digital technologies and innovations to optimize environmental management by increasing the effectiveness of environmental protection, nature management and environmental safety measures. It includes the use of various digital tools and technologies, artificial intelligence for monitoring and collecting data on various aspects of the environment, analysis and forecasting for processing large amounts of information and predicting trends in climate change and ecosystems, creating electronic systems for effective management and monitoring of waste management, using a network of connected devices for interaction and information exchange between environmental objects, which enables effective resource management, using green energy technologies to support renewable energy sources and energy efficiency, using digital technologies such as blockchain [4].

Blockchain ensures responsible waste management, providing transparency and tracking the value chain in this process. Waste tracking ensures compliance with environmental regulations. This allows

waste disposal companies to divert more waste from landfills. Blockchain verifies waste management information at every stage of its generation and processing. For example, a company that delivers waste to a carrier puts all the information into a digital document that is verified by the carrier, and the final recipient of the waste confirms receipt of the waste and ensures transaction security. This process makes it impossible to create spontaneous landfills. Data from smart garbage dump sensors provides an idea of the frequency of garbage dump emptying depending on the location. This allows waste collection companies to determine the type of waste based on specific locations and ensure timely waste collection. In addition, big data allows companies to calculate and manage carbon dioxide emissions from existing waste management practices, which will minimize air pollution [5, p. 44].

It should be noted that digital technologies are technologies that use electronic computing equipment to record code pulses in a certain sequence and with a certain frequency [6]. In a general sense, digitalization is a cultural, organizational and operational change in an organization, industry or system through a thoughtful and phased integration of digital technologies, processes and competencies at all levels [6].

Digital technologies play an important role in the implementation of environmental rights of citizens of Ukraine. This is due to the transmission of data on the state of the environment, for example, atmospheric air or emissions that have a negative impact on humans, their health and life.

Using digital technologies, which are a special and important part of digitalization, it is possible to conduct an analysis of the environment and, with a certain degree of autonomy, develop state action strategies to achieve certain goals. Digital technologies can also be implemented in equipment, autonomous vehicles in order to detect an unfavorable environmental situation.

According to N. Ilkiv, for the formation of legal foundations for the digitalization of environmental relations, the need to use digital technologies to create conditions for the general availability of environmental information and increase environmental awareness is crucial. Digitalization of environmental awareness is at the same time a guarantee of the constitutional right of citizens to access environmental information. And as a result, the digitalization of citizens' participation in the decision-making process in the field of ecology, which consists in submitting proposals and comments, initiatives, that is, digital environmental democracy [7, p. 330]. The ability to obtain reliable information about the state of the environment will allow to form the trust of Ukrainian citizens in the activities carried out by public authorities and other legal entities in the field of environmental protection.

We emphasize that in the field of environmental protection there are general and specific information requirements, the implementation of which produces tasks and urgent problems that require implementation and independent legal regulation. So, let us briefly describe the main directions of digitalization of environmental relations.

1. Expanding the possibilities of making informed decisions in the field of ensuring a safe environment:

a) data collection and analysis: digitalization facilitates the collection, storage and analysis of environmental data. These data, which cover everything from air and water quality to resource consumption and waste generation, provide valuable information about environmental trends and problems in this area. By analyzing these data, politicians, businesses and individuals can make informed decisions that minimize environmental impact and promote sustainable practices based on positive foreign experience;

b) Environmental monitoring and risk assessment: Digitalization provides real-time environmental monitoring, which allows for early detection of potential hazards. This can include monitoring air and water quality, tracking deforestation, and identifying areas prone to natural disasters. By facilitating early detection and assessment of risks, digitalization expands the possibilities for taking preventive measures to mitigate environmental damage and protect the environmental well-being of the population of Ukraine;

c) Transparency and accountability: Digitalization promotes transparency by providing stakeholders with access to environmental data and information. Such transparency promotes accountability,

as organizations and individuals are responsible for their environmental impact. Public access to environmental data gives Ukrainian citizens the opportunity to participate in promoting environmental protection and holding polluters accountable.

2. Optimizing resource management and efficiency. Digitalization plays a crucial role in optimizing resource management and increasing efficiency, leading to reduced environmental impact:

a) Digitalization helps optimize logistics and minimize emissions related to waste transportation;

b) Energy management. Digitalization enables the creation of smart energy networks that allow real-time monitoring of energy consumption and efficient resource allocation. This can include the implementation of smart meters to monitor energy use, the integration of renewable energy sources into the power grid, and the promotion of energy-saving methods;

c) Waste reduction and recycling: Digitalization contributes to efficient waste management by optimizing collection routes, identifying recycling opportunities, and promoting sustainable waste disposal methods. This can include the use of waste tracking systems, the development of digital platforms to connect waste producers with recyclers, and raising public awareness of sustainable waste management strategies.

3. Digitalization facilitates collaboration and knowledge sharing between different stakeholders, accelerating progress towards sustainable development:

a) Communication and coordination. Digitalization platforms enable effective communication and coordination between public authorities, businesses and individuals working towards environmental goals. This can include shared platforms for sharing best practices, coordinating environmental initiatives and facilitating joint efforts to ensure sustainability;

b) Knowledge dissemination and education: Digitalization facilitates the dissemination of knowledge and awareness about environmental issues and solutions. This can include the development of educational platforms, providing access to environmental data visualizations and facilitating public participation in sustainability initiatives;

c) Crowdsourcing: Digitalization enables crowdsourcing and citizen awareness in this area, enabling people to contribute to the collection and monitoring of environmental data. This may include developing mobile applications for monitoring air and water quality, using data collection platforms, and facilitating environmental monitoring initiatives.

However, despite the positive effects of digitalization of environmental security, there are still some challenges in this area, including:

– data security and confidentiality. Ensuring the security and confidentiality of environmental data collected using information technology is of paramount importance. Reliable data management systems are necessary to protect sensitive information and strengthen trust between stakeholders;

– digital literacy and accessibility. Bridging the digital divide and ensuring equitable access to information provided to citizens is of great importance. This requires targeted initiatives to master the necessary skills for the effective use of information technology and the participation of citizens in environmental decision-making;

– integration and interoperability. Integrating data from different sources and ensuring interoperability between different information platforms is crucial for effective environmental management. That is why joint efforts are needed to create standardized data formats and communication protocols.

It is important to point out the value of digital technologies for environmental monitoring. Thus, the use of artificial intelligence in the field of environmental monitoring significantly increases the efficiency of detecting and responding to potential threats to the environment. This, in turn, allows you to increase the accuracy of detecting threats, reduce response time and economic costs, which makes it an important tool for ensuring human safety and sustainable environmental development.

However, like any process, in particular, the process of digitalization is accompanied by certain problems.

In the field of implementing the environmental rights of citizens, these include, for example, the facts that digital technologies cannot always build a mechanism for collecting information about the state of the environment with absolute accuracy, process it and send it to public authorities or a specific citizen, based on his request; digital technologies may be accompanied by technical shortcomings, which will most likely be eliminated by a person, not a robot. Finally, a failure of the information system can cause the loss of data on the state of the environment, which will also be restored by a person. This will increase the time required to provide the requested information and reduce the effectiveness of the implementation of citizens' environmental rights. Even the issues of collecting information on the state of the environment are not always resolved without human participation.

5. Conclusions.

So we can summarize that, using the potential of information technologies in the field of environmental protection and environmental safety, it is possible to expand the possibilities of making informed decisions, optimizing the management of environmental resources, and facilitating cooperation between state authorities and citizens of Ukraine in creating a safe environmental environment. In addition, the introduction of digital technologies changes the internal content of the processes of influencing public relations, expanding and transforming the ways of influencing the behavior of participants in environmental relations. By supplementing traditional methods of legal regulation with technical means of ensuring their implementation, the Ukrainian state increases the effectiveness of the mechanism of environmental and legal regulation. Digital technologies contribute to the possibility of regulating public relations in fundamentally new ways, expanding the variability of the tools of environmental law.

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