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STATE POLICY OF ENVIRONMENTAL SECURITY IN UKRAINE

The authors examine the state policy of environmental security in Ukraine. In particular, the authors study the structure of the market of environmental services; indicate the impact of the military activity on the environment and define the concept of "ecocide".

The authors argue that the structure of the market of environmental services on the territory of Ukraine includes the following components: environmental information; environmental and economic licensing and accreditation; environmental certification; development of environmentally friendly technology; services for assessment and compensation of environmental damage; an automated system for assessing the impact environment on the state; environmental insurance, legal maintenance, service maintenance in the field of natural territories.

The authors show that the assessment of the damage caused to the ecosystem of Ukraine is closely related to the specifics of each individual region that has undergone hostilities. It should be noted that before the start of the war, some environmental problems of these regions were not properly resolved.

Keywords: environmental security, state policy, ecosystem, climate change.

Formulation of the problem.

As a leading component of environmental security of Ukraine, the current system of planning and financing of environmental protection and nature use, directly related to the current norms of environmental law, should be considered.

The analysis of the formed environmental legislation of Ukraine, which consists of two subsystems natural resource and nature protection allows us to state the following. Current legislation today is not yet sufficiently adapted to the qualitatively changed social and economic realities. The most important component of the country's national security environmental security does not yet have the necessary legal basis.

Many years of experience in the application of administrative and economic methods of state regulation of nature use testify to their weak orientation towards the creation of effective incentives for the use of resource-saving and nature-protecting technologies; the existing economic mechanisms, in particular environmental taxation, ultimately do not adequately ensure payment for nature use.

Analysis of recent research and publications.

In the article (Kantemnidis, D. & Botetzagias, I., 2023), the authors evaluate different concepts of environmental security, policies and actions of the participants of the Common Security and Defense Policy. The authors conducted a survey of key stakeholders that formulate both the discourse of climate security and demonstrate the results of its policies. The results show that the effectiveness of policy directives in comparison with practice and developed capabilities depend on individual initiatives and efforts. The study indicates that individual policies and actions in the field of environmental security are necessary in order to motivate both practitioners and policymakers to develop methods and programs that are suitable for solving problems related to environmental security and especially climate change.

The article (Nicole Detraz & Michele M. Betsill, 2009) examines the implications of the April 2007 UN security debate on security aspects of a changing climate for international climate change policy. Specifically, the analysis focuses on whether security concerns have been addressed in past international policy debates on climate change, and examines the Security Council debates that emphasized the threat of climate-related conflict are a reflection of a discursive shift. The authors develop two general discourses on the relationship between environment and security, called environmental conflict and environmental security.

The article (Barnard, E., Johnson, L. K., & Porter, J., 2021) examines the history and importance of scientific advisory groups in conducting research and advising state administrations on the risks of climate change and environmental security. The authors argue that climate change will continue to act as a threat multiplier, exacerbating these risks and their impact on security and society. The government scientific advisory group MEDEA and its contribution to environmental research and analysis of national, social and environmental security are presented as a model of partnership between the scientific and intelligence communities.

However, the issue of examination of the state policy of environmental security in Ukraine remains insufficiently worked out.

The purpose of the article. Taking into account the relevance of the chosen research topic, the purpose of the article is studying of the state policy of environmental security in Ukraine.

The given purpose of the study requires solving the following problems:

- to study the structure of the market of environmental services;
- (2) to indicate the impact of the military activity on the environment;
- (3) to define the concept of "ecocide".

Presenting main material.

The structure of the market of environmental services on the territory of Ukraine includes the following components:

- (1) environmental information;
- (2) environmental and economic licensing and accreditation;
- (3) environmental certification;
- (4) development of environmentally friendly technology;
- (5) services for assessment and compensation of environmental damage;
- (6) an automated system for assessing the impact environment on the state;
- (7) environmental insurance, legal maintenance, service maintenance in the field of natural territories.

Ukraine is a large agrarian country, most of whose economy is made up of the production and export of agricultural products. It belongs to countries with large arable land. Agricultural

lands occupy 70.5% of the total area of the country, 57% of them are arable land, and in some regions their volume reaches 86%. At the same time, Ukraine belongs to the countries with a shortage of water resources (surface and underground water suitable for use in the national economy of Ukraine), is among the European countries with the largest water shortage [2; 4].

The full-scale invasion of Russian troops into our country on February 24, 2022 caused massive destruction of the infrastructure of populated areas and caused significant damage to its economy and the natural environment of the country as a whole. Kyiv, Chernihiv, Sumy, Kharkiv, Luhansk, Donetsk, Zaporizhzhya, Kherson, and Mykolaiv regions experienced active hostilities. Almost all climatic zones of Ukraine were affected by the hostilities, hundreds of hectares of various and rare biogeocenoses were destroyed. Other consequences of war, which unfortunately are often underappreciated, include the long-term effects of hostilities on the environment and the large-scale disruption of ecosystems. Obviously, the real extent of the damage caused to the ecosystem will be assessed only after the occupation of our territories is complete.

The assessment of the damage caused to the ecosystem of Ukraine is closely related to the specifics of each individual region that has undergone hostilities. It should be noted that before the start of the war, some environmental problems of these regions were not properly resolved. It is well known that industrialized regions have over a long period of time put a heavy strain on the environment, making it extremely vulnerable. For example, if the areas, massively plowed for crops, have suffered for years from irrational management, military actions on their territory will be the impetus for complete unsuitability for agricultural use. If a chemical industry plant has poisoned certain cities or regions for decades due to outdated treatment facilities, then the attack on such a plant will lead to a man-made disaster that will instantly destroy the biogeocenoses that have been so badly affected. Such a situation can easily be compared to an organism that is exhausted after a long struggle with a disease and finally succumbs to a mass infection with a new virus instead of proper treatment [3; 5].

One of the most serious long-term consequences for ecosystems is considered to be chemical contamination of sites where large quantities of ammunition are used. Man-made disasters caused by bombing and shelling of enterprises and critical infrastructure facilities of our country also cause significant damage to the environment. In addition, the use of long-range missiles by the aggressor state also creates man-made disasters throughout the territory of Ukraine, in particular, industrialized regions with a concentration of energy, mining, processing, chemical and other industrial facilities become the most vulnerable.

The ongoing hostilities in Ukraine have caused significant damage to our fields for plowing and other mechanized work, as well as long-term chemical and biological contamination of fertile soils. Thousands of fired shells, detonated and burned military equipment, abandoned in fields and plantations, will remain a massive and unlimited source of contamination of our soils and groundwater with iron, aluminum, copper and other heavy metals and their compounds for hundreds of years [1; 3].

According to international law, the mass destruction of flora and fauna, poisoning of the atmosphere or water resources, as well as the commission of other actions that can cause an environmental disaster, is defined by the concept of "ecocide". A particularly serious form of ecocide is military ecocide the violation of human habitat ecosystems as a result of hostilities aimed at achieving a military and political goal.

In connection with this, the process of documenting the damage caused by the enemy

and its long-term impact on the environment acquires great importance. At the same time, this becomes a key issue when assessing the amount of reparations that will be demanded from the aggressor state after the end of hostilities. It is important to identify the range of major sources of pollution that have long-term effects on the environment before focusing on analyzing the impact of military activities on each element of the ecosystem, such as air, water resources, and soils [1; 2].

1. Impact of military activity on the air. Military activity, which caused fires at industrial and infrastructure facilities, at the level of the residential sector and natural ecosystems, emissions of volatile compounds as a result of damage to industrial facilities, led to emissions of a large amount of greenhouse gases and other pollutants into the air.

Due to enemy shelling, fires regularly occur at factories and warehouses, which leads to the release of a large number of combustible products into the atmosphere. The danger of such fires is related to the fact that products and materials of various origins are often stored in warehouses, creating favorable conditions for the formation of a chemical “cocktail” that affects the environment on a scale that is difficult to estimate.

As a result of shelling of energy infrastructure facilities, in addition to emissions into the atmosphere associated with direct damage to such enterprises, there were emergency and scheduled power outages for enterprises and citizens. Therefore, generators of various capacities, which run on gasoline or diesel fuel, are widely used to ensure production processes and provide various services. At the same time, the use of wood and pellets in solid fuel boilers, known as sources of combustion products in the air, has increased for home heating in the private sector.

Fires in natural ecosystems caused by shelling can also have long-term effects because they cannot be extinguished over a long period of time. Although it is currently difficult to assess the actual volume and structure of emissions into the air as a result of military operations, it can be stated that Russian aggression has a direct and indirect negative impact on the state of the atmosphere. Under such conditions, special attention should be paid to the operation of automated atmospheric air monitoring systems at various levels, including state, communal and public networks. Data from these systems should be used to document environmental crimes caused by Russian aggression. Given the significant risk of man-made accidents caused by war and the possibility of an aggressor’s use of chemical weapons, it is also necessary to expand the list of substances to be measured and to provide instruments for measuring gamma radiation [2; 4].

2. Impact of military actions on the state of water resources of Ukraine. Water resources belong to the national heritage of every country and are the natural basis of their development. They provide for all spheres of human life and economic activity, determine opportunities for the development of industry and agriculture, promote and support recreational and health facilities.

Conducting military operations on a large territory of Ukraine means that its water resources, especially in its southern regions with low water availability, and in its eastern regions with a large industrial load on water resources, will be significantly damaged.

The following three key factors can be attributed to the consequences of hostilities, which can cause an environmental disaster in the sphere of water resources of Ukraine:

- (1) failure of facilities that clean city wastewater;
- (2) violation of the process of water supply to enterprises and the population in large

settlements;

(3) direct mechanical and chemical pollution of groundwater and reservoirs as a result of hostilities.

Regarding the pollution of surface and underground waters as a result of military activities, it is known that military activities cause mechanical and chemical pollution of reservoirs and groundwater. Mass flooding of military equipment and ammunition in reservoirs, leaks of oil products and other chemical compounds as a result of the destruction of large industrial facilities, as well as biological pollution due to a large accumulation of human and animal corpses can be considered as the most serious sources of pollution [1; 4].

3. Impact of military operations on land resources of Ukraine. Agricultural land is the country's most valuable resource, which provides the basic needs of society. Millions of kilograms of metal the remains of ammunition and destroyed and abandoned equipment saturate our soils with iron compounds, which suppresses the growth of plants and the vital activity of soil organisms for a long time. Another factor that affects soil fertility is its compaction by heavy machinery, explosions, and the use of a fertile layer of compacted soil in the construction of trenches. Such soil compaction is always accompanied by the processes of siltation and waterlogging and, as a result, loss of their fertility [2; 5].

Human losses are always a consequence of active military activity. If we consider the problem from a biological point of view, mass burials or simply abandoned human bodies are always a large amount of organic material, which releases many poisonous substances during decomposition. The process of decomposition of dead bodies can also cause an outbreak of diseases, the pathogens of which have been stored in the bodies during life.

4. Impact of military actions on natural ecosystems of Ukraine. Ukrainian natural ecosystems were directly and indirectly affected by military operations. Taking into account the specificity of this impact, both ecosystems and their separate components, represented by soil, water area, plantations, etc., were damaged in various situations.

In addition, the environment suffers from the influence of physical factors noise, vibration, infrasound, ultrasound, electromagnetic radiation, etc. [1-3].

As for the species of the animal world, today there are neither methods nor tariffs for calculating the amount of damage caused to the animal world in territories that do not have nature conservation status as a result of military aggression. It should also be noted the negative impact of hostilities on the breeding season of wild animals and fish spawning.

Conclusions. Finally, there are several methodologies for calculating damages and environmental damage in Ukraine. The negative impact on land resources, as a habitat for geobionts, is assessed according to the methods of determining the amount of damage caused by pollution and clogging of land resources, deterioration of the condition of land, as well as violation of the regime, norms and rules of land use.

It will be possible to fully assess and calculate the final damage caused to the environment in general and its individual components, particularly biodiversity, as a result of Russian aggression, only after the end of hostilities. A comprehensive assessment will require monitoring studies, including the dynamics of populations of living organisms.

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