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Environmental Security as a Guarantee of National Security

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Abstract

In 2021, the problems of ecology and environmental safety are the most pressing issues for the world scientific community. The basic principles of the national ecological security of Ukraine and the creation of a comprehensive programme to ensure environmental safety, biosecurity, and prevent the spread of dangerous infectious diseases deserve special attention. The purpose of the presented research is to study the issues of environmental safety in Ukraine, in particular, to clarify the specific features of the measures of the international system of environmental safety and their organisation in Ukraine. In the process of research the methods of synthesis and analysis of information, method of classification, method of systematisation, analysis of scientific literature on the researched topic were used. In the course of the research the basic principles of national ecological security of Ukraine were determined. The organisation of an international system of environmental safety requires the adoption of mandatory principles and standards of national conduct, and the establishment of basic principles of cooperation. Global issues, including the environment, cannot be resolved other than by a concerted effort based on consensus. It was determined that ensuring environmental safety and a favourable state of the environment should be recognised as a public priority for development. In practice, this principle means that socio-economic programmes must meet environmental requirements. Ukraine is taking measures to ensure biosecurity, prevent the spread of dangerous infectious diseases and support international efforts in this area. The practical value of the presented study is that it can be used to study the problem of environmental safety. The presented research can be used by theorists and practitioners to study the issue of environmental safety, and used as a basis for further study of the problem

Keywords: state security, ecology, environment, biosecurity, anthropogenic activity

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Introduction

Prolonged accumulation of knowledge about the relationship between man and the environment, including about the factors that can disrupt the system of this relationship, has led to a leap, which should result in awareness of environmental safety as a holistic phenomenon that can be the subject of serious research. Various attempts to consciously cover all aspects of environmental safety have ceased to satisfy the scientific community. Accordingly, a deep and comprehensive scientific understanding was needed. Environmental safety is, on the one hand, a stimulating factor in the development of science, and on the other hand the subject of comprehensive research in various sciences. Thus, the environmental problem is the subject of study of the whole complex of sciences, which can be called a socio-ecological scientific complex [1].

Like other complex problems, it is the subject of a holistic study that requires organic unity and interaction of different sciences to jointly study the subject and synthesise all the results obtained in different ways and methods. The originality of the complex of sciences that study the problem of ecological safety is explained by the specific features of the phenomenon of ecological safety, its diverse nature, internally contradictory and organically connected with all major spheres of society. As it arises and develops as a product of the interaction of natural and social processes, it needs the attention of natural, technical and social sciences. However, this relatively broad typology of sciences no longer covers the entire problem of environmental safety [2].

The problem of environmental safety, of course, is primarily a social problem, because it is the consequences of anthropogenic activities have a pronounced social nature and threaten the living conditions of society. It is also a natural science problem, as it significantly and increasingly affects the processes occurring in the biosphere. There is also a production and technical problem, as it relates to production activities associated with negative changes in the environment. Environmental safety is also considered as an agricultural problem, as its solution depends on agricultural production (reduction of soil degradation, pest control, increase in crops, etc.) [3].

Ecological safety can be characterised as a kind of socio-natural and scientific reality, the study of which should be carried out using appropriate methodological tools. It needs to be identified and the study adapted accordingly. The main tools chosen for such a study are methodological approaches. Of course, they do not exist by themselves, regardless of the object and subject of research, but abstractly we can identify some of them as tools that would be appropriate to use in the research process. It should be noted that the very understanding of methodological approaches is not clear. The same means of cognition are called approaches, sometimes methods, and sometimes principles. The closest

in their properties approaches and methods of scientific knowledge. There are usually two points that characterise the approach: the ability to record the general direction of the study [4].

Given the development of the principles of environmental safety, at first glance, it seems enough one principle, namely, the need for the natural environment as the basis of material and spiritual development of present and future generations of people. However, from a practical standpoint, this principle seems quite contradictory and ambiguous. Especially in this aspect, there are many contradictory proposals: from the release of toxic waste into Earth orbit to their use as a building material or fertilizer. Of course, serious projects are to some extent based on scientific developments and are subject to review. However, none of them indicates errors, especially since there is no agreement among experts on the principles of determining strategic directions of nature protection [5].

In the article by G. Varlamov and co-authors the mechanisms of influence of public ecological organisations on the problem of ecological safety of the fuel and energy complex of the country are considered [6]. The article formulates the requirements for specialists of the fuel and energy complex, considering the conditions of implementation of the new paradigm of their training and creative approaches in solving complex energy and environmental issues. The authors indicated the directions of public activity of energy specialists and their influence on the relevant decisions of state bodies and management of enterprises [6].

O. Bezpalova and co-authors found that along with the concept of "environmental safety" there is the concept of "environmental modernisation" as overcoming the negative effects on the environment by industrial society by transforming the latter with the help of new technologies [7].

A study by O. Mitryasova and co-authors showed that most post-Soviet countries do not use the terms "ecological system" and "ecosystem services" in their legislation, which are now an integral part of environmental policy and legislation in developed countries [8]. The basic principles of ecological safety of aquatic ecosystems are as follows: a water body (surface or underground) is a complex, functionally integrated and self-regulating ecological system. It cannot be considered as a resource for biological and social needs. Priority in the use of water should be living components that exist in it and ensure its functional integrity. Each aquatic ecosystem should be economically assessed not only in terms of available water resources, but also in terms of other ecosystem services, including the diversity of its biotic components. All these principles and the presented approach in case of implementation in the Ukrainian legislation will allow achieving progress in the field of ecological safety of aquatic ecosystems

and sustainable social and economic development. The approach that determines the effectiveness of environmental policy in the field of water safety has been improved by correlating the analysis of water consumption and population.

The purpose of this study is to study environmental safety in Ukraine.

Materials and Methods

The methodological basis of the presented research is a combination of theoretical methods of scientific knowledge. The following methods of scientific cognition were used in the research process: methods of information synthesis and analysis, classification method, systematisation method. During the research, an analysis of the scientific literature on the research topic was also conducted. In particular, scientific articles on environmental safety in Ukraine and the world were analysed.

Methods of analysis and synthesis are used in modern natural sciences, humanities and social sciences. These methods are characterised by special applications and modifications depending on their application for each specific industry. Analysis and synthesis are universal, oppositely directed ways of understanding an object, concept or phenomenon. They are used both in theoretical research and in practice, especially in experimental activities. Analysis provides knowledge about the individual elements of the subject of knowledge in various aspects of its existence. At the level of synthesis, an idea of the structure and properties of the system is formed and the connection between its main characteristics is established. These methods have been used to define the term "environmental safety". Using the methods of analysis and synthesis, the characteristics of ecological safety in Ukraine are considered and analysed.

The method of induction is a method of cognition, which is based on a formal-logical conclusion, which allows obtaining a general conclusion based on individual facts. In other words, it is the movement of our thinking from the individual to the general. Thus, with the help of the induction method the main characteristics of ecological safety, and also directions of development of ecological safety in Ukraine are defined.

The method of classification is a way of combining elements of classification into classification groups. There are two main methods of classification: hierarchical and faceted. The method of hierarchical classification is characterised by the fact that the initial set of information objects is gradually divided into groups (classes) of the first level of division, and then into groups of the next level and so on. Systematisation is the process of combining various knowledge about objects (phenomena) of objective reality into one scientific system, which determines their unity. Systematisation is a reflection of the material unity of the world and is based on the study of the basic connections that connect these objects (phenomena). It is based on the classification, analysis and

synthesis of the basic properties of a particular objective system. In the course of the research, thanks to these methods, the priorities of ensuring environmental safety on the territory of Ukraine were systematised.

Results and Discussion

The basic principles of national environmental security are formulated in the Law "On the Basic Principles (Strategy) of the State Environmental Policy of Ukraine for the Period Up to 2020" [9]. The Law emphasises the strengthening of the role of environmental management in the system of public administration of Ukraine to achieve equality between the three components of development (economic, environmental, social), focusing on sustainable development, considering the environmental consequences of management decisions in preparing documents containing political and program principles of state, sectoral, regional and local development, intersectoral partnership and stakeholder involvement, including prevention of natural and man-made emergencies, analysis and forecasting of environmental risks based on strategic results, environmental assessment, state environmental expertise, state environmental monitoring.

According to this Law [9], the government focuses on ensuring environmental safety and maintaining ecological balance in Ukraine, overcoming the consequences of the Chernobyl disaster, the responsibility of the current generation to preserve the environment for future generations. Another important aspect is the participation of the public and the business community in the development and implementation of environmental policy, and consideration of their proposals for improving environmental legislation. Also, we should note the need for responsibility for violations of environmental legislation, the priority of the requirement "polluter and users of natural resources pay the full price", the responsibility of executive authorities for the availability, timeliness and accuracy of environmental information; availability, reliability and timeliness of environmental information, state aid and incentives for Ukrainian enterprises to modernise production to reduce the negative impact on the environment [9].

It follows that environmental factors affect all indicators of quality of life. Therefore, ensuring environmental safety and a favourable state of the environment should be recognised as a public priority for development. In practice, this principle means that socio-economic programmes must meet environmental requirements. It will find application in this area of environmental legislation, regulation of economic activity and the environment. This means that environmental security should be considered one of the highest priorities, to which all other tasks are subordinated, including national security measures, as environmental security is universal and cannot be implemented at the expense of some other countries [10].

The organisation of an international system of environmental safety requires the adoption of mandatory principles and standards of national conduct, including the establishment of guidelines for cooperation. Global issues, including the environment, cannot be resolved other than by a concerted effort based on consensus. These principles, standards and recommendations need to be developed together, based on a broad and constructive dialogue.

The basis for making the most important decisions must be established by the political will of states to overcome internationally acceptable environmental issues, and by preparing an effective program of joint political and environmental action. Conditioned upon the great variety of environmental problems, the company is forced to prioritise their solution and, accordingly, to attract investment. This does not mean that there should be any environmental problems they are absent indefinitely, but the priority seems significant.

Priorities should reflect the urgency and importance of addressing certain environmental issues. Based on the low quality of all natural ecosystems of Ukraine, the need for significant environmental costs of the program in general socio-economic aspects, including budgetary and financial crisis, annexation of Crimea and occupation of certain areas of Donbass by the Russian Federation became the basis for priority development of realistic, efficient solutions [11].

Hopes for a socialist environmental system that recognises the environment as public property have not materialised. Natural resources were available to agencies, irresponsible officials and anonymous organisations. This has led to unprecedented environmental losses. However, private ownership of natural resources does not bode well. In this case, nature is perceived as a means of personal gain and the establishment of

a cult of consumption. Environmental technologies, saving energy and other resources, waste disposal, environmental education, such measures allow technically developed countries to alleviate the environmental situation. But to radically improve it, thus overcoming the general ecological crisis of modern technical civilisation, is unlikely to succeed [12].

Despite all the diversity of modern political systems, socio-economic structures remain united, perhaps in essence: they remain consumer societies that deplete and pollute the environment and the biosphere. The mechanical system of technology is designed to conquer and exploit the environment, and the resources of the biosphere are known to be quite limited, while the power and capabilities of technology are growing almost indefinitely. Thus, modern technical civilisation differs only from previous ones that have unique capabilities to destroy the biosphere: in a few minutes (nuclear war), or for decades (the constant expansion of the human environment) [13].

Global environmental problems are a complex set of dynamically changing problems of natural and anthropogenic origin. Many of them are real environmental threats: changes in the chemical composition of the atmosphere and their consequences (increasing greenhouse gas concentrations and global warming, acidification of the environment and other pollution of natural freshwater, oceans and coastal waters), deforestation and desertification, soil erosion, loss of fertility soils, biotechnological risk, production, transportation and use of toxic substances, accompanied by various threats to human health and safety in different countries, including the transfer of hazardous technologies to developing countries, which poses a threat to the population, etc. [14]. Priority actions to ensure environmental safety in Ukraine are presented in Figure 1.

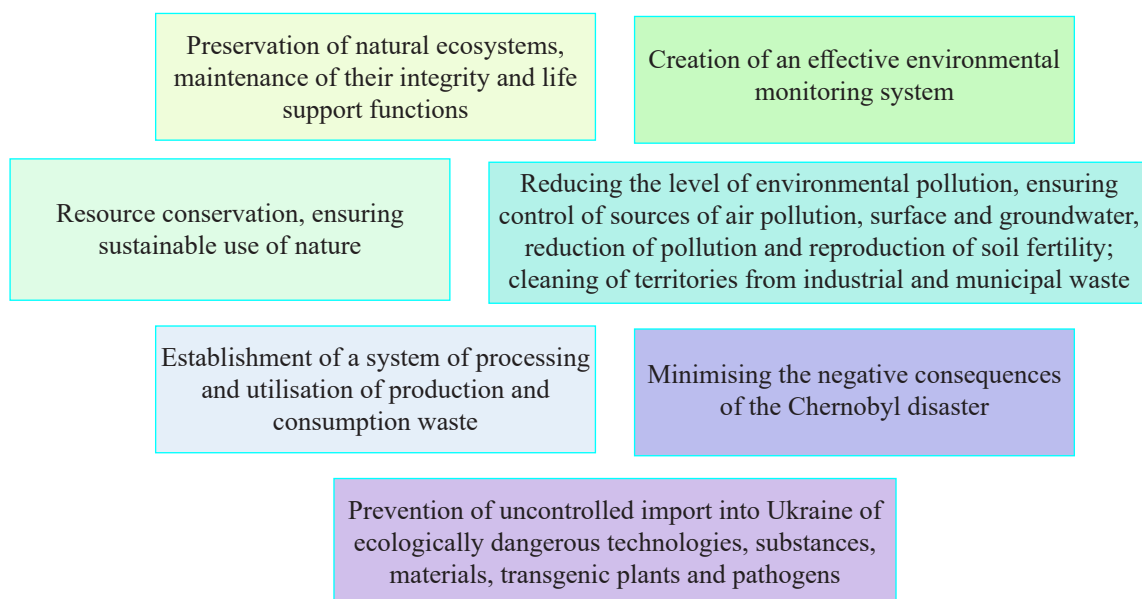


Figure 1. Priorities for ensuring environmental safety in Ukraine

Ukraine is taking measures to ensure biosecurity, prevent the spread of dangerous infectious diseases and support international efforts in this area. Undoubtedly, these are very important issues and each of them can be a priority. But so far it is nothing more than desire or planning. They will become a priority only when a comprehensive program is developed for them. It is also clear that, given the importance of these problems, the budget deficit will not solve them at the same time. Therefore, it is necessary to determine the order of their solution. It is not a matter of postponing some environmental programmes indefinitely, but of balancing the priorities that have been circulating in the ministry's documents since 1994. It is important to specify them, fill them with relevant content, outline in stages, provide scientific, material and financial resources [15].

Although great efforts and measures are being made, especially in the field of nature protection, its conceptual basis remains unclear. And when they believe that the implementation of environmentally sound development policy requires only the good will of citizens and the government, it is only a condition that is necessary, but not enough to address all environmental issues. At the same time, special knowledge is needed to navigate the various problems of food protection and find optimal solutions.

Nature protection cannot be considered an isolated and self-sufficient union, but is directly included as a main component in the system of universal priorities. This determines a systematic approach to solving food security problems, eliminates their obvious conflict over the main goals of development and the universal system of values [16].

In addition, it should be noted that the identified priorities and strategic directions of action have not yet been reflected in policy documents at the regional level. Similarly, government target programmes, current and future, do not ensure the full implementation of some strategic measures. The lack of mechanisms for linking environmental policy with plans and programmes of socio-economic development at the national and regional levels leads to low efficiency in solving environmental problems [13].

For a more detailed consideration of the issue of environmental safety of Ukraine, it is necessary to consider the research of other scientists. The article by Sokolenko and co-authors analyses the methodological approaches to assessing the level of environmental and economic security of the regions [16]. The authors proposed to assess environmental and economic security as an integrated index that considers the relationship of financial and environmental components and the impact of natural and man-made risks [16]. The main indicators of the integrated index of ecological and economic safety are determined. A scale for assessing regions (depressed, satisfactorily protected, and acceptably protected regions) is developed depending on the value of the integrated

index. In the manuscript, the authors assessed the level of ecological and economic security of the regions of Ukraine [16]. According to the results, most regions of Ukraine have a low (on average not more than 0.2) level of security.

The authors emphasised that this approach will improve the quality of regional management by developing a strategy that is most favourable for financial opportunities and the environmental situation in the region [16]. The authors propose to develop measures for the efficient allocation of budget funds depending on the level of the developed index [16].

The article by O. Bezpalova and co-authors is devoted to the study of environmental security of the state in the national and globalisation aspects [7]. The authors found that the ecological security of the state is a state of security of each person, society, state and nature from excessive danger to the environment, ie preservation and protection of life, interests of the person and his environment from negative anthropogenic and natural factors, consequences that are an important component of national security [7]. The existing threats to Ukraine's environmental security identified in the National Security Strategy of Ukraine in 2015 have been identified. The authors stressed the need for additional attention to the armed conflict in eastern Ukraine as one of the threats to the economic security of states, which corresponds to the provisions of the UN Resolution "Environmental Protection in Areas Affected by Armed Conflict" [17]. It is noted that the Ministry of Ecology and Natural Resources only formally performs environmental assessment tasks, unlike the governments of Finland and Sweden.

The issue of public participation of Ukraine in nature management still remains debatable, as defined Law of Ukraine "On Environmental Protection" [18], it remains only formal, although, for example, the public is actively involved in the management of this area in China. Accordingly, the authors proposed not only to fulfill the task of the Ministry of Environment and Natural Resources to develop a single list of indicators at the EU level to assess the state of the environment, but also to involve the public in full participation in environmental management.

The article by O. Cheberyako and co-authors is devoted to the study of the essence of "green" finance and aims to give an idea of the existing "green" financial instruments and problems of their application in Ukraine, outline ways to improve the use of "green" finance and social and environmental security [19]. The authors note that the study requires a revision and improvement of the practice of using "green" financial instruments, considering international experience [19]. The results of the study obtained by the authors allowed providing directions for the development of "green" finance in the context of social and environmental security in Ukraine, including strengthening the use

of public-private partnerships, climate risk insurance and investment in education to create skilled labour in "green" finance [19].

The main purpose of A. Kuzior and co-authors was to analyse and solve problems of green energy implementation in Ukraine, in particular to identify its advantages and disadvantages [20]. The authors emphasise the introduction of solar renewable sources, ie stations, panels and batteries [20]. The results of sociological research of Ukrainian public opinion on environmental issues, in particular energy, are presented. The presence of public demand for renewable energy and the willingness of the population to use renewable energy sources. The strategy of strengthening the energy independence of the country in the conditions of new challenges of globalisation is defined.

General scientific methods were used in the work, including special methods: statistical analysis, secondary analysis of sociological research data of state institutions, office analysis of documents and reports of public services. In the work of A. Kuzior and co-authors, it was concluded that Ukraine is geographically and territorially attractive for the development of green energy and investment [20]. It is important that there is a public and state demand in the country to strengthen the country's energy security, in particular, through the introduction of renewable energy sources. The authors note that despite the shortcomings and obstacles, green energy in Ukraine has great prospects [20].

One of the ways to prevent defects and regulate land plots in Ukraine now and in the future is to ensure the adaptation of national land legislation to the requirements of the European Union. Implementing Ukraine's European integration is an integral part of Ukrainian reforms aimed at economic growth, improving living standards, developing democracy, building civil society, guaranteeing the rule of law, freedom of expression, protecting human rights and freedoms, and strengthening national security. Sannikov notes that deepening cooperation with the European Union is an important element in strengthening stability and security on the European continent, stimulating domestic economic and political reforms, promoting social progress and developing a socially oriented economy of Ukraine [21].

Signing and ratification of the Association Agreement between Ukraine, on the one hand, and the European Union, the European Atomic Energy Community and their Member States, on the other, the Ukrainian Parliament in 2014 and the need to adapt national legislation on land use and protection as the main national assets, determine the relevance of the chosen research topic [22].

A comparative analysis of Ukrainian and foreign normative analysis of environmental liability and compensation for land losses conditioned upon economic and other activities indicates the need to consider several provisions of the directives that will help build

a European model of financial responsibility for land in Ukraine. Considering the European experience in solving the problems of environmental damage, it should be noted that in all positive aspects the Institute of Environmental Responsibility and its effectiveness depend on the level of development of the financial guarantee mechanism.

Until 2010, the directive provided for the development of a system of mandatory financial guarantees in case of environmental damage. Insurance is considered the most affordable and universal form of financial guarantee. Therefore, for Ukraine, in addition to improving the institution of financial responsibility, special attention needs to be paid to creating a real system to ensure its implementation, one of the methods of which is environmental insurance. Therefore, it is necessary to create a legal basis for its regulation through adoption of the Law of Ukraine "On Environmental Insurance" [23]. Sannikov notes that special attention should be paid to the harmonisation of methods of environmental damage assessment, which should provide an adequate assessment of the actual damage [21]. The methods of assessing the damage caused to land in Ukraine generally correspond to modern procedures enshrined in European legislation.

The calculation method used to determine the amount of damage meets the requirements of a market economy and allows displaying the actual amount of damage. However, these techniques do not provide a mechanism for compensating for damage caused by pollution of human life and health. The effectiveness of such a settlement is important for legal standards of a protective nature [21].

O. Mitryasova and co-authors established key principles of ecological safety of aquatic ecosystems in the context of sustainable use of natural resources and socio-economic development [8]. The authors analysed the main aspects of water resources management in the world in the context of the provisions of the concept of sustainable development [8]. Comparison of countries with different levels of development allowed the authors to identify key methodological provisions that are implemented in environmental water policy. The authors proposed an approach to the establishment of environmental impact indices [8].

The results of the study by O. Mitryasova and co-authors allow quantitatively assessing the management of water resources [8]. The results of the study of the influence of the factor of freshwater resources on the socio-economic development of countries and regions of the world indicate that in this system of context there is a strong statistically significant correlation [8].

The article by Y. Samusevych and co-authors is devoted to the study of environmental, energy and economic security by methods of multidimensional analysis [24]. The set of indicators selected for the study contains 9 parameters for each type of security. The

sample consists of data for 6 Eastern European countries (Ukraine, Moldova, Poland, Romania, Hungary and the Slovak Republic) for the period 2000-2019. The authors note that the empirical study was performed by the method of factor analysis, which allowed identifying the main components of environmental, energy and economic security [24].

Comparison of the obtained results for the studied countries showed the differentiation of individual profiles of these types of security. The study of integrated vectors of environmental, energy and economic security showed the highest level of interaction between energy and environmental security and the lowest between energy and economic security.

Conclusions

It was found that the originality of the complex of sciences studying the problem of ecological safety is explained by the specific features of the phenomenon of ecological safety, its diverse nature, internally contradictory, organically connected with all major spheres of society. Given the development of the principles of environmental safety, at first glance, it seems enough one principle, namely, the need for the natural environment as the basis of material and spiritual development of present and future generations of people. However, from a practical standpoint, this principle seems quite contradictory and ambiguous.

In the course of the research the basic principles of national ecological security of Ukraine were determined. The organisation of an international system of environmental safety requires the adoption of mandatory principles and standards of national conduct, including the establishment of guidelines for cooperation. Global issues, including the environment, cannot

be resolved other than by a concerted effort based on consensus. It was also determined that ensuring environmental safety and a favorable state of the environment should be recognised as a public priority for development. In practice, this principle means that socio-economic programmes must meet environmental requirements.

It should be noted that environmental security should be considered one of the highest priorities of the task to which all other tasks are subordinated, including national security measures, as environmental security is universal and cannot be implemented at the expense of some other countries. Ukraine is taking measures to ensure biosecurity, prevent the spread of dangerous infectious diseases and support international efforts in this area. Undoubtedly, these are very important issues and each of them can be a priority. But so far it is nothing more than a desire or planning for change. They will become a priority only when a comprehensive program is developed for them.

Thus, it can be noted that the issue of environmental safety is insufficiently studied and needs further study. The presented research can be used as a basis for further study of the problem of ecological safety of Ukraine. Thus, ensuring cohesion at the national and local levels within the defined priorities remains an important area of activity. To increase the effectiveness of environmental planning, it is necessary to prepare drafts of the strategic document "Principles of National Environmental Policy", "National Plan of Environmental Measures" and the draft law "On Amendments to the Law of Ukraine" on state target programmes "Environmental Policy" in regional socio-economic development programmes, which depends on the effectiveness of planning activities in Ukraine.

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Екологічна безпека як запорука національної безпеки

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Анотація

У 2021 році проблеми екології та екологічної безпеки є найбільш актуальними питаннями для світової наукової спільноти. Особливої уваги заслуговують основні принципи національної екологічної безпеки України та створення комплексної програми з забезпечення безпеки довкілля, біозахисту, запобігання поширення небезпечних інфекційних захворювань. Метою представленого дослідження є вивчення питань екологічної безпеки в Україні, зокрема, з'ясування специфіки заходів міжнародної системи екологічної безпеки та їх організації в Україні. У процесі дослідження були використані методи синтезу та аналізу інформації, метод класифікації, метод систематизації, аналіз наукової літератури з досліджуваної теми. В процесі дослідження було визначено основні принципи національної екологічної безпеки України. Організація міжнародної системи екологічної безпеки вимагає прийняття обов'язкових принципів та стандартів національної поведінки, а також встановлення базових принципів співробітництва. Глобальні проблеми, включаючи охорону навколишнього середовища, не можуть бути вирішені інакше, як спільними зусиллями на основі консенсусу. Було визначено, що забезпечення безпеки довкілля та сприятливого стану довкілля має бути визнано суспільним пріоритетом розвитку. На практиці цей принцип означає, що соціально-економічні програми повинні відповідати екологічним вимогам. Україна вживає заходів для забезпечення біозахисту, запобігання поширенню небезпечних інфекційних захворювань та підтримки міжнародних зусиль у цій сфері. Практична цінність представленого дослідження полягає у тому, що воно може бути використане для вивчення проблеми екологічної безпеки. Представлене дослідження може бути використане теоретиками і практикаками для вивчення проблематики екологічної безпеки, а також використане як основа для подальшого вивчення висвітленої проблеми

Ключові слова: державна безпека, екологія, навколишнє середовище, біозахист, антропогенна діяльність
