Регіональна економіка

UDC 332.1:502

Tymchyshyn Yuliya
PhD in Economics, Doctoral
Dolishniy Institute of Regional Research of NAS of Ukraine,
Associate Professor of Accounting and Finance
Lviv Institute of Economics and Tourism

ECOLOGICAL COMPONENT OF THE UKRAINIAN REGIONS' ECONOMIC SECURITY

Summary. *The article reveals the threats to the Ukrainian regions' environmental security. The problems of ecological safety of the regions are highlighted: non-compliance of the quality of certain surface watercourses of the regions with the existing standards due to inefficient operation of treatment facilities in settlements and violation of the hydrological regime in river basins; environmental pollution by household waste due to the lack of an effective system at the regional level for the collection and sorting of certain types of waste as secondary raw materials; radioactive contamination of the northern regions as a result of the Chernobyl accident; low efficiency of control in the field of protection of biological and first of all forest resources of the region and others. Measures (decisions) of ecological safety of regions are considered: general, which are carried out by legislative, executive and legal bodies, they include planning and forecasting (development, approval, implementation of environmental programs and projects on the basis of system-ecological approach; anticipation of negative and crisis situations , planning of environmental measures in all sectors of the economy); special, which are performed by entities that have special powers in*

accordance with current legislation, they include: monitoring - conducting observations, collecting and processing information about the state of the environment by environmental monitoring entities; informing the public, authorities, business entities about the state of the environment, possible risks and threats; creation of an environmental safety center at the regional state administration. The tasks of the center of ecological safety are offered. The list of existing indicators of ecological safety of the ecosystem is analyzed. It is proposed to use the following indicators to assess the environmental safety of district heating systems: the indicator of changes in the level of environmental safety of ambient air and the indicator of changes in the level of environmental safety of the soil cover. The methodical approach to a comparative estimation of regions of the state on a level of ecological safety is allocated. A system of indicators characterizing the state of environmental safety in the regional dimension is proposed.

Key words: *ecological safety of regions, region, measures, problems, emergencies, method, monitoring, indicators.*

Problem formulation. In modern conditions, the ecological security of the regions is becoming an important component of the Ukrainian regions' economic security. Analysis of the main trends and nature of changes in the factors of environmental security of the regions convincingly proves that maintaining high energy and resource intensity of Ukraine's economy under further depletion of land, water, minerals and biotic resources will inevitably lead to large-scale threats to regional and national security in environmental and natural -technogenic spheres.

Ukraine's advancement through European integration requires active participation of our state in the efforts of the international community to prevent and reduce the negative consequences of environmental threats to regional

security, introduction of a risk-oriented approach to increase the efficiency and effectiveness of the state system of protection of the population and territories. best practices of developed countries in this area.

In this regard, a very important task of the state regional policy in the field of protection of the population and economic facilities from natural and man-made threats is to ensure a guaranteed level of security that corresponds to the level of developed countries. This necessitates a comprehensive analysis of current natural and man-made threats, their constant monitoring and development on this basis of reasonable precautions aimed at preventing and minimizing the negative consequences in the event of their implementation [1, p.157].

State regulation of environmental safety at the regional level should become scientifically sound and stable. We need a system of regulation that would unite all areas: balanced administrative and control and financial and economic levers that allow effective decision-making on the regulation of environmental protection and environmental security of the region.

Analysis of recent research and publications. The works of such scientists as S. Ivanyuta [1], A. Kachynsky [2], L. Klymenko [3], V. Kravtsiv [5], O. Lysenko [6], T. Nechaeva [7], M. Parasyuk [7], Yu. Sytnyk [6], D. Sas [7], P. Fesyanov [8], S. Chumachenko [6], S. Shulzhenko [7] and others were devoted to the regions' problems of ecological safety.

Main goal. Highlight the ecological component of the Ukrainian regions' economic security.

Presenting main material. In the context of the financial and economic crisis, when the resources for preventing and counteracting threats to the environmental security of the regions are acutely felt, the question of effective and reasonable distribution of budget funds between regions to improve the security of the population and facilities arises. Experience shows that the solution of this issue

can be based on the results of comparative assessment of the regions of the state on a comprehensive indicator that takes into account the impact of real threats to environmental security of each region of the state.

It should also be borne in mind that each region is a complex socio-economic and ecological system, the functioning of which is characterized by an unstable balance due to the influence of a significant number of factors of political, economic, environmental nature. An important feature of this state is the rapid emergence and development of economic and environmental crises under the influence of external disturbances due to the region's inability to withstand their destabilizing effects. Given the export orientation of Ukraine's economy with a predominant focus on the extraction and processing of large amounts of minerals, which leads to significant pollution and deterioration of air, land resources, water sources, in many regions of the country may transition to unstable conditions due to environmental factors [1, p.158].

Taking into account that the state of ecological safety of a certain region is affected by threats of natural, man-made and social nature, it is proposed to use an integrated indicator for comparative assessment of regions on the level of ecological safety, which would take into account assessments of harm to life, health and economic interests. region as a result of these threats.

The core of the region's environmental security system is the system of public administration, which should ensure a satisfactory state of the environment in the normal mode and its effective monitoring. The main purpose of the environmental safety system, on the one hand, is to prevent the negative impact of economic activities of departments, enterprises, individuals and individuals on the environment, and on the other - to monitor negative trends in natural and man-made changes in the environment and environmental situation. In addition, it is essential in such a system worked out and enshrined at the legislative level

financial and economic mechanisms for concentrating funds to ensure its functioning and to prevent emergencies of man-made and natural nature, elimination of their consequences and environmental rehabilitation [6, p. 132-133].

In Ukraine, there are significant shortcomings in the state regulation of environmental safety at both the state and regional levels, which are exacerbated by the transitional processes of socio-economic transformation of Ukrainian society. As the experience of modern development of many countries of the world shows, overcoming environmental problems is impossible without a balanced state policy on environmental safety management in the regions. It is at the regional level that the ecological problems of society are formed, and demands are made for the greening of production and the rational use of natural resources. The structure and scale of regional production determine the nature and extent of pollution, the intensity of the impact on the environment [5].

Today's environmental problems pose a threat to human existence at all levels: from the region to the state and the world at large. For Ukraine, these problems are particularly acute, as there is a significant concentration of hazardous industries, significant transformation of landscapes, inefficient use of natural resources (including non-reproducible destruction), insufficient development of the mechanism of state management of environmental safety [8, p. 108].

Despite some movement of Ukraine towards achieving a sufficient level of environmental safety, it is difficult to talk about a real improvement of the environmental situation in its territory [6]. If this is the case in some regions, it is the result of an economic crisis - a reduction in production and a corresponding reduction in industrial emissions and discharges into the atmosphere and hydrosphere. Given the expansion of production and Ukraine's exit from the economic crisis, we can predict a deterioration in environmental security in the regions. The sharp disturbance of the unstable balance of natural and man-made

geosystems, which was formed in some regions as a result of the accumulation of imbalances in nature management during the years of totalitarianism, led to the development of catastrophic situations. Under such conditions, the only thing that can be done to stabilize the environmental situation is to introduce in Ukraine a clear and effective system of environmental safety at the regional level and ensure its functioning at the legislative and administrative levels. This is one of the urgent issues of national security of our country, the solution of which can be considered as one of the basic conditions for its sustainable development.

The source of environmental pollution in the regions can be chemical, woodworking, food and processing industries, enterprises for the manufacture of building materials, mechanical engineering, heat production and housing and communal services. The main air pollutants were ferrous metallurgy, thermal energy, coal, oil and gas, cement industries, whose emissions of pollutants accounted for almost 90% of total emissions of pollutants into the atmosphere from stationary sources in Ukraine.

Such problems of ecological safety of regions include [8, p. 109]:

- non-compliance of the quality of individual surface watercourses of the regions with the existing standards due to inefficient operation of treatment facilities in settlements and violation of the hydrological regime in river basins;
- environmental pollution by household waste due to the lack of an effective system at the regional level for the collection and sorting of certain types of waste as secondary raw materials;
- radioactive contamination of the northern regions as a result of the Chernobyl accident;
- low efficiency of control in the field of protection of biological and first of all forest resources of the region and others.

In order to improve the system of state regulation of environmental safety at the regional level, improve control over the environmental situation, coordination of actions of services, which in accordance with current legislation are entrusted with these responsibilities, possibly through the following decisions (measures) [8, p. 112]:

- general, carried out by legislative, executive and legal bodies;
- special, which are performed by entities that have special powers in accordance with applicable law.

General measures include planning and forecasting (development, approval, implementation of environmental programs and projects based on a systemic-ecological approach; anticipation of negative and crisis situations, planning of environmental measures in all sectors of the economy).

The special measures of ecological safety of the regions include:

1) monitoring - conducting observations, collecting and processing information on the state of the environment by subjects of environmental monitoring;

2) informing the public, authorities, business entities about the state of the environment, possible risks and threats;

3) creation at the regional state administration of the center of ecological safety.

The tasks of the environmental safety center are as follows.

1. Creating a database of information and reference system on environmental safety.

2. Ensuring interdepartmental coordination of information collection and processing activities, simplification of the information exchange process through the use of a single data exchange protocol.

3. Analysis and comprehensive processing of statistical, monitoring and forecasting data, development of the calculated scenario of the situation.

4. Collection, processing, display of the received information and its transfer to public administration bodies for decision-making.

5. Integration of thematic data into a single information retrieval system.

6. Creation, maintenance and ensuring the smooth operation of the data transmission system.

7. Ensuring the protection of information data from unauthorized access.

The main purpose of the center of environmental safety in the region should be to create maps of the risk of emergencies, which will allow:

- Receive and process information based on modern GIS technologies, received in accordance with the protocol exchange established between the subjects of the environmental monitoring system.
- Carry out forecasting and timely detection of the causes of ecological, natural, and in the long run man-made emergencies on the territory of the region.
- Provide sound forecasting of the risk of emergencies.
- Issue operational data for management decisions to prevent and eliminate emergencies and their consequences [8].

The solution of such problems requires the development of a system of appropriate indicators that comprehensively characterize the dynamics of processes in the environmental sphere. Currently, a number of international organizations are developing such indicators, including the UN Commission on Sustainable Development, the International Institute for Sustainable Development (IISD), the Scientific Committee on the Environment (SCOPE), and Yale University [1, p. 158].

For example, Yale University experts annually determine the Environmental Performance Index, which characterizes the effectiveness of public policy on

ecosystem conservation. This indicator is calculated using 22 indicators, divided into ten categories that characterize both the quality of the environment and the viability of ecosystems.

The Organization for Economic Co-operation and Development's environmental indicator system, widely recognized in Europe, includes more than 50 socio-economic and environmental indicators. The indicators are grouped by separate sections related to climate change, ozone layer, air condition, production and consumption waste, quality and resources of fresh water, forest resources, fish stocks, energy resources and biological diversity [1, p. 158].

The Statistical Office of the European Union (Eurostat) has developed indicators for assessing the environmental damage caused by human economic activity in accordance with the project "Towards Environmental Pressure Indicators for the EU" (TEPI). This system of indicators in some way characterizes the level of air pollution, the use of natural resources, climate change, toxicity, biodiversity loss, coastal areas and waste recycling. Damage estimates are given as a percentage of GDP and include damage to ecosystems, environmental functions, human health, yields, etc. [1, p. 158].

The Statistical Office of the UN Secretariat has developed a system for integrated environmental and economic accounting (System for Integrated Environmental and Economic Accounting), focused on taking into account the importance of the environmental factor in national statistics. This system assesses the relationship between the state of the environment and the development of the country's economy. The calculations performed according to this method showed a huge discrepancy between traditional economic indicators and environmentally adjusted ones. On average, the value of ecologically adjusted net domestic product is 60-70% of GDP.

The substantiation of the criteria for assessing the environmental safety of the whole region is a significant number of different indicators that characterize the state of the natural and anthropogenic environment, as well as their diversity, which virtually eliminates the possibility of a single quantitative measure of comparison and evaluation.

In accordance with the recommendations of the UN Commission on Sustainable Development and the Commission on Global Ecology [3, p. 16], a new approach to the problem of environmental security of regions (territories) based on the environmental paradigm has been proposed. The advantage of the new approach, in contrast to the old, generally accepted one, which is based on the "polluting" paradigm, is that a comprehensive assessment of environmental safety is proposed on the basis of a new organizational structure of environmental control and information model by involving specially formed new environmental indicators. indicators and quality indices. These indicators are related to the level of environmental risk and allow a quantitative assessment of the level of environmental safety and the level of environmental risk [4]. This approach differs from the generally accepted one in that it does not require the involvement of MPC as a basis for calculation, which are known to be sanitary-toxicological, not environmental standards [3, p. 16].

According to A. Kaczynski [2], the extraction, processing and use of energy resources, as well as environmental pollution in the energy supply of buildings can be attributed to the first major component of environmental security in Ukraine, which explains 41.1% of the total contribution of components to environmental security.

When meeting the needs of buildings in heat and cold supply due to traditional energy sources has a negative impact on the environment. Characteristic features of such influence are constant and ever-increasing intensity,

multifacetedness (simultaneous influence on various components of environment: atmosphere, hydrosphere, lithosphere, biosphere), diversity (alienation of territories, alienation of territories, disturbance of natural landscapes). influences) and scale (manifestation not only on a local and regional, but also on a global scale) [7]. Having studied the negative effects of traditional district heating systems on the environment, the main threats to environmental safety include emissions of pollutants into the atmosphere and the disposal of solid waste from traditional district heating systems.

When choosing indicators, an approach based on the comparison of the amount of pollutants formed per unit of energy produced for different types of heat and cold supply systems was used [3, p. 16]. After analyzing the lists of existing indicators of ecological safety of the ecosystem, it is proposed to use the following indicators to assess the ecological safety of district heating systems:

1. Indicator of changes in the level of environmental safety of ambient air, which characterizes the volume of gaseous emissions into the atmosphere of heat and cold supply systems per unit of energy produced by them.

2. Indicator of changes in the level of environmental safety of soil cover, which characterizes the amount of solid waste from heat and cold supply systems, per unit of energy produced by them.

These indicators allow us to assess the change in the level of environmental safety of air and soil cover with the introduction of alternative energy sources.

It is known that comparative assessment of regions can be carried out by statistical, probabilistic and heuristic methods. The statistical method involves the analysis of statistical information on the consequences of the manifestation of current natural and man-made threats over a period of time and determine on this basis the relevant indicators. An important advantage of this method is objectivity, which is based on the use of official data from government agencies [1, p. 158].

The use of probabilistic and heuristic methods makes it possible to take into account the sources of threats, which are quite rare, but have catastrophic consequences. In this case, the probabilistic method requires a significant amount of initial data, is quite complex and has low accuracy.

Conclusions. The creation of environmental safety centers of the regions will allow: to begin the formation of a territorial system of monitoring and forecasting, to prepare the transition from a system focused on emergency response to emergencies, to a system aimed at their prevention and elimination of sources, to combine the threat forecasting system. Emergencies and a system of measures aimed at preventing emergencies and eliminating the source of a possible emergency.

The proposed indicators allow us to assess the change in the environmental safety level of air and soil cover with the introduction of alternative energy sources.

References

1. Ivanjuta S.P. Ekologhichna bezpeka reghioniv Ukrajiny: porivnjaljni ocinky / S. P. Ivanjuta // Strateghichni priorytety. 2013. № 3 (28). S. 157-164. URL: file:///C:/Users/Admin/Downloads/spa_2013_3_23%20(1).pdf
2. Kachynsjkyj A.B. Ekologhichna bezpeka Ukrajiny: systemnyj analiz perspektyv pokrashhennja [Elektronnyj resurs]: monoghrafija/ Kachynsjkyj A.B. URL: http://www.niss.gov.ua/book/Kachin/index.htm
3. Klymenko L.P. Vybir indykatoriv zminy rivnja ekologhichnoji bezpeky reghionu pry vprovadzhenni aljternatyvnykh system teplokholodopostachannja / L. P. Klymenko // Ekologhichna bezpeka. 2010. №2(10). S. 16-19. URL: http://www.kdu.edu.ua/EKB_jurnal/2010_2(10)/pdf/16.pdf

4. Kljuchevye voprosы okhrany okruzhajushhej sredы pry obъedynenyy эlektroэnerghetycheskykh rynkov ES y SNGh. Union of the electricity Industry "Eurelectric", Elektroenerghetycheskyj Sovet SNGh. Sovmestnaja rabochaja ghruppa ЭЭS SNGh – EVRЭLEKTRYK «Rynky», nojabrj 2005. 108 s.
5. Kravciv V. Ekonomichnyj rozvytok i ekologhichna bezpeka: shljakh Ukrajiny / V. Kravciv // Reghionaljna ekonomika. 1999. № 3. S. 97-104.
6. Naprjamy vdoskonalennja pryrodookhoronnoji dijaljnosti v Zbrojnykh Sylakh Ukrajiny: nauk.-metod. posib. / [Ju. I. Sytnyk, O. I. Lysenko, S. N. Chumachenko ta in.]. K.: NNDC OT i VB Ukrajiny, 2006. 424 s.
7. Nechajeva T.P., Shuljzhenko S.V., Sas D.P., Parasjuk M.V. Faktory ekologhichnogho vplyvu elektroenerghetychnykh ob'jektiv na dovkillja //Problemy zaghaljnoji energhetyky. 2008. № 18. S. 53-60.
8. Fesjanov P. Systema derzhavnogho reghuljuvannja ekologhichnoji bezpeky: suchasnyj stan ta naprjamy vdoskonalennja (na prykladi Rivnensjkoji oblasti) / P. Fesjanov // Visnyk Nacionaljnoji akademiji derzhavnogho upravlinnja. URL: http://visnyk.academy.gov.ua/wp-content/uploads/2013/11/2012-2-16.pdf

Література

1. Іванюта С.П. Екологічна безпека регіонів України: порівняльні оцінки / С. П. Іванюта // Стратегічні пріоритети. 2013. № 3 (28). С. 157-164. URL: file:///C:/Users/Admin/Downloads/spa_2013_3_23%20(1).pdf
2. Качинський А.Б. Екологічна безпека України: системний аналіз перспектив покращення [Електронний ресурс]: монографія/ Качинський А.Б. URL: http://www.niss.gov.ua/book/Kachin/index.htm
3. Клименко Л.П. Вибір індикаторів зміни рівня екологічної безпеки регіону при впровадженні альтернативних систем

теплохолодопостачання / Л. П. Клименко // Екологічна безпека. 2010. № 2 (10). С. 16-19. URL: http://www.kdu.edu.ua/EKB_jurnal/2010_2(10)/pdf/16.pdf

4. Ключевые вопросы охраны окружающей среды при объединении электроэнергетических рынков ЕС и СНГ. Union of the electricity Industry "Eurelectric", Электроэнергетический Совет СНГ. Совместная рабочая группа ЭЭС СНГ – ЕВРЭЛЕКТРИК «Рынки», ноябрь 2005. 108 с.
5. Кравців В. Економічний розвиток і екологічна безпека: шлях України / В. Кравців // Регіональна економіка. 1999. № 3. С. 97-104.
6. Напрями вдосконалення природоохоронної діяльності в Збройних Силах України: наук.-метод. посіб. / [Ю. І. Ситник, О. І. Лисенко, С. Н. Чумаченко та ін.]. - К.: ННДЦ ОТ і ВБ України, 2006. 424 с.
7. Нечаєва Т.П., Шульженко С.В., Сас Д.П., Парасюк М.В. Фактори екологічного впливу електроенергетичних об'єктів на довкілля // Проблеми загальної енергетики. 2008. № 18. С. 53-60.
8. Фесянов П. Система державного регулювання екологічної безпеки: сучасний стан та напрями вдосконалення (на прикладі Рівненської області) / П. Фесянов // Вісник Національної академії державного управління. URL: http://visnyk.academy.gov.ua/wp-content/uploads/2013/11/2012-2-16.pdf