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## **REGIONAL ENVIRONMENTAL POLICY IN THE CONTEXT OF RECOVERY AND SUSTAINABLE DEVELOPMENT: APPROACHES, CHALLENGES, AND TOOLS**

The paper provides a comprehensive analysis of the main approaches to the formation and implementation of regional environmental policy in Ukraine in the context of post-war recovery and transition to a sustainable development model. It highlights the environmental challenges faced by the regions as a result of armed aggression. The authors substantiate the need to rethink the priorities of environmental policy in the regional dimension – from environmental control to systemic environmental management. The necessity of applying mechanisms of strategic environmental assessment during the post-war restoration of territories in order to maximize the consideration of all the features of the state and damage caused to the environment is proved. It is found that the development of environmental infrastructure requires significant investment, which is problematic in conditions of limited funds, so it is advisable to attract investment, international financial and

encourage business and the public to actively participate. The paper analyzes the natural resource potential as one of the most important factors of sustainable development. The functions of local governments and regional authorities to coordinate actions between stakeholders, monitor the state of the environment, control compliance with environmental legislation, ensure public participation and attract investment in environmental modernization are highlighted. The authors emphasize the importance of the active role of local communities and non-governmental organizations in the development and implementation of environmental programs, which strengthens the elements of democratic governance and social responsibility. It is shown that approximation to the policies of the European Union creates additional institutional and financial instruments for the implementation of the principles of sustainable development. Furthermore, the harmonization of national legislation with the European Green Deal requirements is identified as a key driver for modernizing regional environmental management systems. The implementation of these approaches will allow not only to restore the damaged territories but also to create a foundation for a "green" economy at the local level. Ultimately, the proposed measures aim to achieve a balance between rapid economic recovery and the preservation of ecosystems for future generations.

**Keywords:** public administration, sustainable development, European integration, post-war reconstruction, environmental assessment, public.

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## РЕГІОНАЛЬНА ЕКОЛОГІЧНА ПОЛІТИКА В КОНТЕКСТІ ВІДНОВЛЕННЯ ТА СТАЛОГО РОЗВИТКУ: ПІДХОДИ, ВИКЛИКИ ТА ІНСТРУМЕНТИ

У статті проведено комплексний аналіз основних підходів до формування та реалізації регіональної екологічної політики в Україні в умовах післявоєнного відновлення та переходу до моделі сталого розвитку. Висвітлено екологічні виклики, що стоять перед регіонами внаслідок збройної агресії. Автори обґрунтовують необхідність переосмислення пріоритетів екологічної політики в регіональному вимірі – від екологічного контролю до системного екологічного менеджменту. Доведено необхідність застосування механізмів стратегічної екологічної оцінки під час післявоєнного відновлення територій з метою максимального врахування всіх особливостей стану та шкоди, заподіяної навколишньому середовищу. Встановлено, що розвиток екологічної інфраструктури вимагає значних інвестицій, що є проблематичним в умовах обмежених коштів, тому доцільно залучати інвестиції, міжнародні фінансові та заохочувати бізнес і громадськість до активної участі. Проаналізовано природно-ресурсний потенціал як один з найважливіших чинників сталого розвитку. Підкреслюються функції місцевих органів влади та регіональних органів влади щодо координації дій між зацікавленими сторонами, моніторингу стану навколишнього середовища, контролю за дотриманням екологічного законодавства, забезпечення участі громадськості та залучення інвестицій в екологічну модернізацію. Автори підкреслюють важливість активної ролі місцевих громад та неурядових організацій у розробці та реалізації екологічних програм, що зміцнює елементи демократичного врядування та соціальної відповідальності. Показано, що наближення до політики Європейського Союзу створює додаткові інституційні та фінансові інструменти для реалізації принципів сталого розвитку.

**Ключові слова:** державне управління, сталий розвиток, європейська інтеграція, післявоєнна відбудова, екологічна оцінка, громадськість.

**General statement of the problem and its connection with important scientific and practical tasks.** In the context of the ongoing armed conflict in Ukraine, the environmental situation in many regions has deteriorated significantly. The consequences of the hostilities include air, soil and water pollution, destruction of ecosystems, spread of hazardous waste, and an increase in the level of man-made risks, in particular in the field of radiation and chemical safety. Coupled with global challenges related to climate change, growing resource vulnerability, and social instability, these problems form a new context for regional development in which the environmental component is becoming critical. Therefore, there is an objective need to rethink the goals, tools, and approaches to the formation and implementation of regional environmental policy, both in terms of its adaptation to the challenges of recovery and in the context of sustainable development. Modern regional environmental policy cannot be viewed as a set of environmental protection measures alone. It should be transformed into a systemic activity integrated into socio-economic and spatial planning, capable of striking a balance between environmental safety, economic efficiency and social justice. Interagency cooperation, public participation, transparency of decision-making, and consideration of regional peculiarities of natural resource potential are of particular importance. In addition, the issue of environmental policy goes beyond the scope of a purely national discourse, as Ukraine is on the path of European integration, which involves the implementation of European principles.

In the context of post-war recovery, the regions are faced with the task of not only eliminating environmental damage, but also creating a new basis for sustainable growth based on green transformation. This requires the implementation of planning that takes into account existing and projected environmental problems, the need to develop environmental infrastructure, attract investment in the green economy, improve the efficiency of management processes, and strengthen

the role of local governments. At the same time, it is necessary to overcome a number of barriers – legal, institutional, financial, and mental – that limit the potential for implementing environmental initiatives at the regional level. That is why the relevance of the study lies in the search for strategically oriented mechanisms for the formation of an effective regional environmental policy in the context of complex transformational dynamics.

**Analysis of recent studies and publications that have initiated the solution of this problem and on which the authors rely.** In the current scientific literature, considerable attention is paid to the issues of regional environmental policy in the context of armed conflict, sustainable development and adaptation to European environmental standards. Studies [1; 2; 3] analyze the impact of the war on the ecology of Ukraine's regions, outlining the problems of ecosystem degradation, hazardous waste generation, and challenges to environmental safety in the context of post-conflict recovery. Special emphasis is placed on the integration of strategic environmental assessment (SEA) into regional planning [4; 5; 6]. According to Directive 2001/42/EC [7], the implementation of which became the basis for the Law of Ukraine “On Strategic Environmental Assessment” [8], SEA is considered as a tool for ensuring the environmental sustainability of regional development projects. Noteworthy are studies that consider sustainable development from an environmental perspective [9] and environmental policy within regional rural development programs on the example of Poland, which describes the practice of successful integration of environmental criteria into local level programs [10]. This experience is relevant for Ukraine in the context of European integration and approximation to the provisions of the European Green Deal [11; 12].

Another important body of scientific literature concerns the role of local governments and the public in shaping environmental policy, especially in view of the Aarhus Convention, which enshrines the right of citizens to participate in environmentally significant decisions and is the basis for many studies, including those that highlight the effectiveness of community involvement in environmental governance processes [13; 14; 15; 16].

Institutional barriers, including weak administrative structures, insufficient funding, and imperfect interagency coordination, are also actively studied in the domestic [17; 18; 19] and foreign literature [20; 21].

Thus, the literature review allows us to confirm the scientific novelty and interdisciplinary basis of the article, while also indicating the relevance of the topic in the national and international context.

**Formulation of the article's objectives (setting the task).** The purpose of this paper is to analyze the key challenges and prospects of regional environmental policy in Ukraine in the context of post-war recovery and sustainable development, to identify strategic approaches, to assess environmental planning and management tools, and to substantiate the directions of its modernization in line with European standards and practices. The proposed approach is based on an interdisciplinary analysis of the legislative framework, strategic documents, empirical research, and practices of environmental policy implementation at the regional level.

**Presentation of the main research material with full justification of the scientific results obtained.** Ukraine's regional environmental policy is progressively aligning with European Union principles of sustainable development. A key mechanism for this alignment is the application of strategic environmental assessment (SEA), in compliance with Directive 2001/42/EC of the European Parliament and of the Council [7]. As Ukraine moves toward full EU membership, it has undertaken the task of harmonizing its environmental regulations with European legal norms. In this context, environmental governance at the regional level must incorporate the principles of openness, responsibility, and the active involvement of stakeholders.

The realization of the European Green Deal [22] necessitates a substantial rethinking of regional strategies, particularly in terms of promoting decarbonization, enhancing energy efficiency, and conserving biodiversity. Effective regional environmental governance relies heavily on

intersectoral collaboration that brings together public authorities, private enterprises, research institutions, and civil society organizations. Programs of cross-border cooperation, such as ENI CBC, contribute to this process by facilitating the sharing of best practices and supporting joint environmental actions with EU member states. Ukrainian regions that adhere to European environmental standards gain access to international technical aid and investment opportunities. Hence, the EU integration path is not only a political ambition but also a practical framework for ecological transformation and post-crisis sustainable recovery.

The EU's cohesion policy serves to minimize economic and social disparities among its regions, particularly between central and peripheral territories. These policies emphasize balanced development while integrating ecological safeguards. However, research demonstrates that regional economic development within the EU remains spatially uneven [9], highlighting the complexity of implementing sustainability across different territories.

Currently, environmental considerations play a pivotal role in shaping regional development agendas, as the sustainable management of natural resources and the preservation of ecosystems are essential for both quality of life and regional economic stability. According to Ukrainian legislation, environmental imperatives are formally embedded in the country's regional policy framework [23]. Confronted with intensifying global ecological challenges-including climate change, biodiversity loss, and depletion of natural assets – Ukrainian regions must adopt integrated strategies that minimize environmental harm and promote ecological resilience.

The term “sustainable development” is a semantic puzzle which is perceived by current EU policies as a call for multispectral and inherently conflicting changes to be imposed by all stakeholders in the utilitarian context [24].

Ukrainian legislation identifies the root causes of environmental problems, including [25]:

- subordination of environmental priorities to economic expediency; failure to take into account environmental consequences in legislative and regulatory acts, in particular in decisions of the Cabinet of Ministers of Ukraine and other executive bodies;
- predominance of resource- and energy-intensive industries in the economic structure with mostly negative environmental impact, which is significantly exacerbated by the lack of regulatory framework in the transition to market conditions;
- physical and moral depreciation of fixed assets in all sectors of the national economy;
- ineffective system of public administration in the field of environmental protection and regulation of natural resources use, in particular, inconsistency of actions of central and local executive authorities and local self-government bodies, unsatisfactory state of the state environmental monitoring system;
- low level of understanding in society of the priorities of environmental protection and the benefits of balanced (sustainable) development, imperfection of the system of environmental education and awareness;
- poor compliance with environmental legislation and environmental rights and obligations of citizens;
- poor control over compliance with environmental legislation and failure to ensure inevitable liability for its violation;
- insufficient funding from the state and local budgets for environmental protection measures, financing of such measures.

One of the fundamental priorities of regional environmental governance is the practical application of sustainable development principles, aimed at achieving a balance between economic advancement and environmental stewardship. In this context, efforts to curb greenhouse gas emissions, modernize outdated industrial infrastructure, and upgrade transport systems are of strategic importance. A growing number of Ukrainian regions are now actively pursuing green transition agendas, focusing on the expansion of renewable energy sources such as solar, wind, and small-scale hydropower.

On February 24, 2022, the countdown began not only to Ukraine's military victory over the Russian invaders, but also to its energy independence. Because of the war, the value of renewable energy sources has transformed from being more environmental to security and economic. Given the limited access to resources during martial law, environmental management at the regional level must prioritize the rational and sustainable exploitation of natural assets [26]. Innovative technologies play a critical role in this effort by enabling more efficient waste management systems and the reintegration of materials into production cycles, thereby reducing ecological pressure.

A further strategic direction is the development of environmental infrastructure. Realization of such initiatives requires not only adequate financing, but also active collaboration between authorities, private sector actors, and civil society in shaping and executing environmental strategies.

Let's look at environmental investments on the example of Lviv region, which is actively involved in regional and international projects and has an environmental passport of the region (Fig. 1). In some regions, websites with environmental information are not updated regularly or do not work due to the war. At the same time, Donetsk, Zaporizhzhia, Kyiv, Luhansk, Mykolaiv, Kherson, and Chernihiv regions do not have such passports.

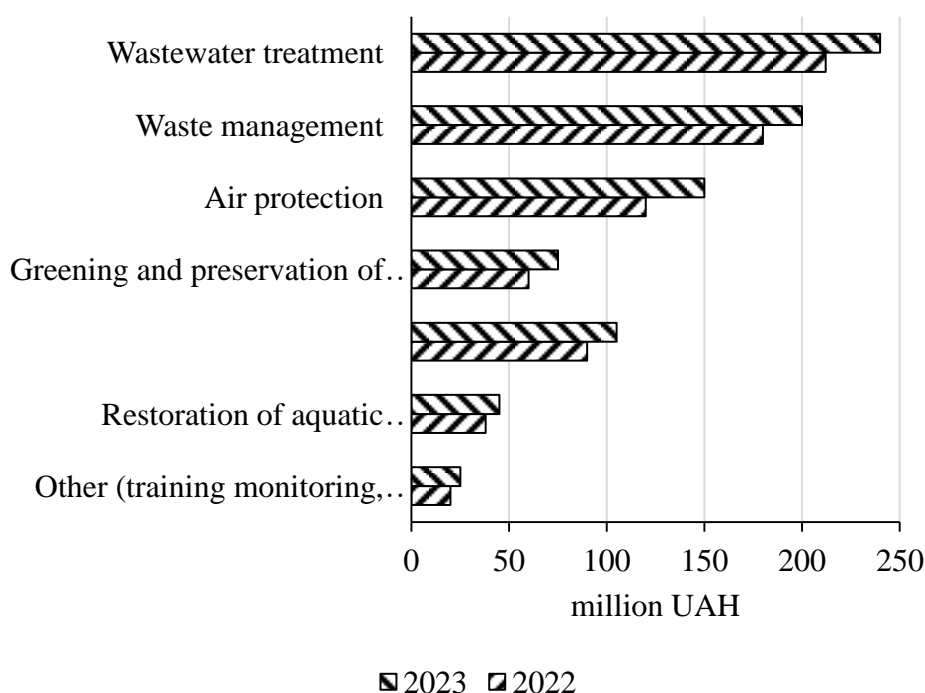


Fig. 1. The structure of environmental investments in Lviv region (2022-2023), UAH million

*Source: compiled by the authors according to [27; 28]*

The diagram in Fig. 1 shows that wastewater treatment and waste management are the highest priority areas, in which more than 50% of the region's environmental budget is invested. This is due to overloaded treatment facilities (Lviv, Chervonohrad, Drohobych). Air protection became more important in 2023, in particular due to the installation of new filters and monitoring sensors in industrial areas. Greening receives moderate but growing funding (parks, squares, buffer forest strips). Lviv region is actively attracting European funds and programs (e.g., LIFE, Interreg, ULEAD), especially in the areas of waste management and energy efficiency.

In 2021-2023, the amount of funding for environmental protection measures in Lviv region increased both from the regional budget and from grants and interregional projects. According to the Environmental Passport of Lviv Oblast (2023), funding increased in the following areas [29]:

- waste management (projects with the EU and the Ministry of Ecology),
- modernization of wastewater treatment facilities (Lvivvodokanal),
- air monitoring (together with GIZ and the EBRD).

The nominal amounts allocated to finance the environmental policy of Lviv region (all

sources), without taking into account inflation, were as follows:

In 2021 - UAH 450 million

In 2023 - over UAH 750 million.

Inflation index in Ukraine [30]:

2021 - 10%

2022 - 26%

2023 - 5.1%

Thus, the cumulative inflation rate for the three years is over 40%, which means that part of the increase in funding is nominal, not real. Taking inflation into account, the actual increase is closer to 20–30% rather than the nominal 70–80%. In other words, funding for environmental policy in Lviv Oblast is actually growing, although part of the growth is absorbed by inflation. But at the same time, the region is actively expanding the range of environmental projects, not just increasing spending in existing areas. This, especially given the martial law in the country, is evidence of an effective environmental policy at the regional level.

In essence, sustainable development-oriented environmental policy seeks to foster conditions for balanced socio-economic growth while safeguarding natural capital and ensuring the well-being of future generations. Environmental challenges have a profound impact on regional development, often manifesting through deteriorating living standards, rising rates of illness, increased strain on healthcare systems, and declining labor productivity. Public awareness of the critical link between environmental conditions and personal health often emerges only when the damage becomes visible and undeniable – when polluted water, contaminated soil, or smog-filled air are evident, or when mass die-offs of animals, plants, or insects occur. These signs are typically followed by a spike in health issues recorded by statistical agencies. Ukrainian legislation explicitly acknowledges the interdependence between environmental quality and public health. However, despite this legal recognition, environmental literacy among the population remains alarmingly low, and personal environmental responsibility and culture are still underdeveloped [31]. Environmental degradation – such as deforestation, biodiversity loss, and depletion of natural resources – also threatens the sustainability of key economic activities, particularly in agriculture and tourism.

When shaping environmental strategies, it is crucial to consider the potential for attracting investment into green initiatives, as environmental protection and the rational use of natural resources have become essential priorities amid escalating global ecological threats. Investment in such areas not only fosters ecological improvements but also lays the groundwork for stable economic progress, enhanced social conditions, and improved standards of living.

The capacity to utilize local natural and human capital efficiently strengthens the economic sustainability of regions and nations, especially under intensifying global market pressures. This also reduces reliance on imports and encourages the advancement of domestic innovation and production systems [32].

Securing funding for environmentally oriented initiatives is a cornerstone of effective regional ecological governance. These undertakings often require substantial monetary inputs that exceed the capabilities of public budgets. Therefore, private capital, support from international donors, and financial institutions become vital. Their contributions enable the deployment of cutting-edge technologies and eco-friendly practices, such as advanced purification systems, modern waste processing, clean energy infrastructure, and energy-saving solutions that reduce dependence on finite resources.

Environmental initiatives play a crucial role in stimulating employment and fostering the growth of local enterprises. For instance, the establishment of recycling plants, implementation of energy-efficient technologies, and expansion of eco-tourism and other sectors within the green economy demand a workforce of qualified professionals and innovative entrepreneurs. These developments create favorable conditions for the emergence of small and medium-sized enterprises, ultimately contributing to regional economic revitalization. Financial inflows into environmentally

oriented projects serve as a catalyst for regional economic advancement, enhancing competitiveness and increasing the region's appeal to both domestic and international investors.

Particular attention should be paid to investments targeting the development of renewable energy. In light of the escalating global demand for sustainable energy sources and the gradual depletion of fossil fuel reserves, regions that strategically prioritize solar, wind, and hydroelectric power gain a distinct advantage. Not only do such measures reduce environmental degradation, but they also position these territories to lead in the future energy market. Despite the substantial initial capital required, the long-term benefits – such as decreased reliance on hydrocarbons and reduced emissions of greenhouse gases – make these investments economically and ecologically sound.

Regions suffering from poor environmental conditions often experience limited employment opportunities, as many industries cannot operate under such constraints. This scenario contributes to labor outmigration and slows regional economic momentum. Therefore, although environmental restoration and protection demand considerable financial inputs, in the broader perspective, they lay the foundation for regional sustainability. This is achieved through the advancement of green industries and the attraction of investments that align with environmental responsibility.

It should be borne in mind that the poor environmental condition of the region negatively affects its investment attractiveness, which makes it difficult to attract investors, including for financing environmentally oriented projects. Therefore, without creating a favorable regulatory and institutional environment, attracting investment in environmental projects can be problematic. For a region to successfully attract investment, there must be a comprehensive regulatory framework that encourages businesses to participate in environmental initiatives. Incentives include tax breaks, subsidies, grants, and other support measures for companies investing in green technologies and projects. In addition, openness and transparency of government procedures are important, which will increase investor confidence and speed up the implementation of environmental programs.

The involvement of international organizations and ecological funds in the financing of environmental initiatives is of strategic importance. Numerous global institutions – including the World Bank, the European Bank for Reconstruction and Development, and a range of environmental foundations – offer financial instruments to assist countries and regions in implementing sustainable development strategies. By integrating such projects into regional development agendas, local authorities increase their ability to secure supplementary funding for environmental restoration and growth-oriented initiatives.

Natural resource endowments are foundational for productive sectors such as agriculture, manufacturing, and energy, thereby playing a pivotal role in shaping regional economic trajectories. While resource-abundant areas possess inherent potential for accelerated development, less endowed territories must seek alternative pathways for economic expansion. In either context, the sustainable and efficient management of natural resources becomes a decisive factor for long-term regional viability [33]. Mismanagement, depletion, or inefficient exploitation of these resources risks destabilizing the economic base. Conversely, when governed through balanced and ecologically conscious public policy, natural wealth can be transformed into a sustainable driver of regional prosperity.

The post-war ecological recovery of Ukraine's territories is now emerging as a prerequisite for not only regional development but also for restoring conditions suitable for human habitation and economic functionality. This is particularly urgent in areas that have been heavily affected by active military operations. Incorporating environmental recovery efforts into strategic regional planning is essential for ensuring both ecological safety and the sustainability of redevelopment [34].

Estimates by the United Nations Environment Programme (2022) indicate that the war in Ukraine has resulted in environmental damage to over 600 sites, including contamination of soil and water systems [35]. The devastation of natural landscapes and ecosystems is one of the most visible consequences of the conflict. Military actions – such as the detonation of explosives, vehicular



movement, and the use of chemicals – have led to severe environmental degradation, including air, water, and land pollution, as well as the destruction of biodiversity and natural habitats.

Restoring ecosystems is a complex and long-term process that requires targeted and sustained interventions. Without deliberate restoration strategies, many natural areas affected by warfare may never fully recover. Therefore, contemporary regional development strategies must incorporate a robust environmental component, with emphasis on the rehabilitation of soils, reforestation, restoration of aquatic ecosystems, and the renewal of other critical natural assets damaged during military operations.

One of the pressing challenges in post-conflict recovery is managing the massive accumulation of construction debris resulting from widespread destruction. The volume of such waste has already reached hundreds of thousands of tons, far exceeding the usual levels of municipal solid waste due to its mass and density. This waste is often stored not only in authorized landfills but also in numerous illegal dumping sites, raising environmental and public health concerns. The surge in debris generation now represents an issue of national security. The most affected regions include Kyiv, Zhytomyr, Sumy, Mykolaiv, Kherson, Chernihiv, and Kharkiv. Meanwhile, accurate waste quantification in territories under ongoing occupation, such as Donetsk and Luhansk oblasts, remains a significant challenge [36].

Another crucial area of concern involves addressing the environmental consequences of war-induced industrial and technological disasters. The destruction of manufacturing sites, energy infrastructure, and critical facilities has led to the uncontrolled release of toxic substances into the environment, contaminating land, air, and water resources.

An especially dangerous dimension of the conflict is the persistent threat of radioactive contamination. The Zaporizhzhia Nuclear Power Plant, currently located in a conflict zone, represents a particularly high-risk site. Any detonation of unexploded ordnance near or on the premises could inflict serious damage on its infrastructure, potentially compromising reactor safety systems. This could result in hazardous radioactive leaks, endangering both ecosystems and human health. The detonation of spent munitions near sensitive equipment risks triggering nuclear or radiological emergencies.

Moreover, the ability of emergency response services, such as the State Emergency Service (SES), to contain wildfires in occupied territories is severely limited. In the absence of an effective fire management infrastructure, uncontrolled blazes in these areas could escalate to catastrophic levels. Fires at or near nuclear facilities represent a grave danger, as they may exacerbate radiation risks and further complicate efforts to ensure environmental safety [37]. Protecting nuclear and radiological facilities during armed conflicts must be a top priority. This includes not only securing physical infrastructure but also developing contingency plans to mitigate damage from potential nuclear-related incidents.

Another source of environmental disasters is the pollution of water bodies, and their restoration will require expensive and complex cleaning measures. The problem has long been a nationwide issue, with environmentalists recognizing 60% of water in our country as unfit for drinking. The worst situation is in Dnipropetrovsk, Donetsk, Zaporizhzhia, Kyiv, Kherson, and Odesa regions [28]. The escalation of hostilities has resulted in significant water contamination, primarily caused by the destruction of industrial and wastewater treatment infrastructure, as well as explosions at oil depots and facilities storing fuels and lubricants.

The cost of eliminating the consequences of the disaster after the explosion of the Kakhovka hydroelectric power plant has not yet been fully calculated. Particular attention should be paid to the disposal of ammunition and military waste. Unexploded shells, mines and other types of weapons pose a threat to both the environment and the population [39]. Their presence complicates agricultural activities, disrupts ecosystems and creates a risk of new environmental disasters.

The analysis of the dynamics of hostilities during Russia's armed aggression against Ukraine suggests that after the de-occupation of the territory of Ukraine, certain arsenals of unusable

ammunition will be discovered and will need to be disposed of. The technological policy of ammunition utilization should first of all ensure technogenic and environmental safety during the organization and execution of all necessary work. Therefore, NATO countries tend to develop technologies that do not involve open burning or open detonation. In addition, one of the main conditions for ensuring technogenic and environmental safety in economically developed countries has become risk management during the implementation of relevant technologies [40].

Provision and inclusion of appropriate measures to eliminate environmental damage in regional action plans will minimize the cost of mitigating negative consequences and reduce the time to bring the environment back to normal. Therefore, when formulating regional development policies, it is necessary to include programs for demining territories and recycling military waste in accordance with modern environmental standards.

Restoring ecosystems and minimizing environmental harm in post-conflict areas should become a fundamental component of regional recovery strategies. Sustainable revitalization of war-affected territories is only possible when environmental priorities are embedded into development planning. Incorporating ecological considerations helps not only to rehabilitate degraded ecosystems but also to enhance the well-being of local populations and ensure long-term preservation of natural assets. To properly evaluate the scope of ecological damage and plan effective interventions, it is essential to conduct comprehensive environmental assessments.

According to the Law of Ukraine "On Strategic Environmental Assessment" [41], environmental assessment is an obligatory procedure at every stage of state-level strategic planning. It mandates the early integration of ecological indicators into the planning process. The overarching objective of such assessments is to foresee and reduce potential environmental risks, propose mitigation strategies, and foster responsible management of natural resources.

The strategic environmental assessment (SEA) process involves multiple phases, including the collection and analysis of environmental data, evaluation of potential ecological threats, and formulation of recommendations to guide policy and project implementation. Conducted from the earliest conceptual stages through to the operational phase of development, SEA supports forward-looking, sustainable planning that alleviates ecological pressure while enhancing regional living standards. Furthermore, it aligns regional development with international environmental frameworks and guarantees transparency in governance through participatory decision-making at all administrative levels.

Regional governments are instrumental in executing environmental initiatives, as they can tailor interventions to local environmental challenges and community priorities. Their responsibilities extend beyond project implementation to include monitoring, impact assessment, and coordinating the efforts of public institutions, private stakeholders, and civil society.

The role of subnational authorities is particularly critical in the practical realization of sustainable development objectives. At the regional and local levels, the integration of ecological, economic, and social dimensions can be most effectively harmonized [42].

One of the most important functions of the authorities is to encourage businesses and residents to switch to environmentally friendly technologies, rational use of resources and reduction of harmful emissions. Stimulating the introduction of green technologies is impossible without an adequate level of environmental awareness and educational work among the population.

Environmental education and public awareness is an important element of the state environmental policy in the context of European integration and sustainable development. Regional public authorities are increasingly including measures to improve environmental literacy in their plans, which helps to foster a responsible attitude towards nature among residents and businesses. In addition, regional authorities are involved in environmental education of the population, raising awareness of environmental issues and engaging citizens in environmental initiatives. An important element of their work is monitoring the environmental situation in the region and responding to emerging issues in a timely manner.

The role of involving the population and public organizations in the implementation of environmental initiatives should be taken into account. This approach is consistent with the provisions of the Aarhus Convention, which enshrines the right of citizens to participate in making environmentally significant decisions. To do this, it is necessary to develop mechanisms for active participation of citizens in the region's environmental policy through public discussions, consultations, and participation in decision-making. An important step is to create platforms for interaction between the state, business, and the public, where local residents and NGOs can propose ideas, participate in environmental projects, and monitor their implementation.

It is also advisable to provide for programs to support and encourage activists and NGOs involved in environmental issues. This could include grants, subsidies, or partnerships with regional authorities. Public involvement helps to strengthen environmental responsibility, raise awareness, and ensure broader support for initiatives that lead to long-term sustainable development of the region and improved quality of life.

Civil society organizations (CSOs) serve as vital actors in advancing environmental education and promoting ecological awareness. They contribute significantly to shaping environmentally responsible attitudes by organizing a wide range of educational initiatives – including workshops, seminars, public lectures, and interactive outreach programs tailored for various demographic groups. By collaborating with schools, universities, and community organizations, CSOs advocate for the systematic integration of environmental topics into formal and informal educational curricula.

Beyond the educational sphere, CSOs frequently spearhead advocacy campaigns to highlight the significance of sustainable natural resource management, the preservation of biodiversity, and proactive responses to climate change. These organizations often initiate and coordinate grassroots activities such as community clean-up drives, tree-planting efforts, and public demonstrations supporting environmental legislation and policy reform. Thanks to their adaptability and capacity for rapid mobilization, non-governmental organizations have emerged as catalysts for environmental transformation and public engagement.

At the regional level, local communities and NGOs are essential partners in the ecological advancement of territories. Their involvement raises environmental awareness, facilitates the pooling of local resources, and supports the implementation of grassroots sustainability initiatives. Community-based organizations often serve as initiators of eco-projects ranging from the establishment of urban green zones and small-scale wastewater treatment initiatives to the introduction of waste segregation practices and citizen-led environmental monitoring systems.

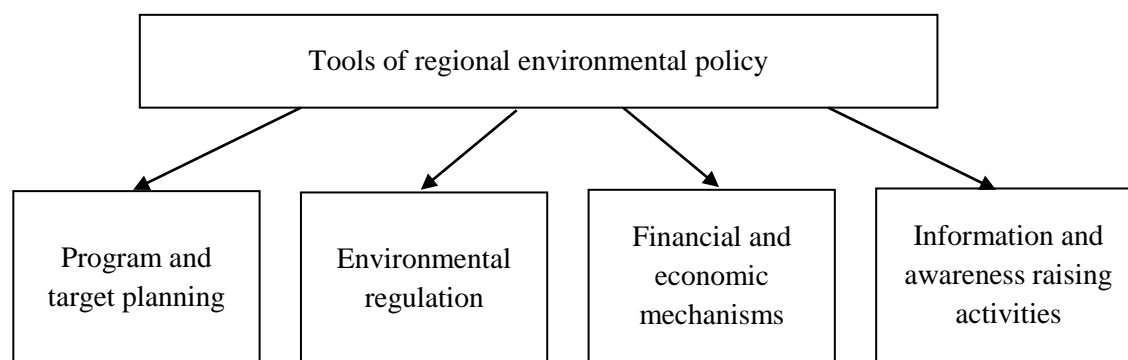


Fig. 1. Regional environmental policy instruments in the context of restoration and sustainable development

Moreover, NGOs play a strategic role in shaping regional environmental governance. They often act as intermediaries between governmental bodies and the public, channeling expert knowledge and financial resources toward the resolution of pressing environmental concerns. In this context, regional authorities are tasked with integrating environmental objectives into broader socio-

economic development strategies, fostering stakeholder collaboration, and ensuring adherence to environmental standards. This approach contributes to the long-term resilience and sustainability of regional development processes.

In general, for effective restoration and sustainable development, it is necessary to use all instruments of state environmental policy in a complex (Fig. 1).

**Conclusions from this study and prospects for further research in this area.** The results of the study confirm that regional environmental policy in Ukraine should be transformed in line with new challenges, both internal (post-conflict recovery, decentralization, resource vulnerability) and external (EU integration, climate change, environmental safety). A modern approach to its implementation should be based on the principles of comprehensiveness, integration, adaptability, and focus on a long-term sustainable perspective.

Investing in environmental projects is a prerequisite for the successful implementation of regional development programs. This contributes not only to environmental protection but also to economic growth, social well-being and improved quality of life. The development of a green economy, renewable energy, modern technologies and environmentally friendly infrastructure enables regions to become more sustainable and competitive in the face of global change.

The example of Lviv Oblast demonstrates that environmental policy funding can have a stable upward trend even under martial law, and that a realistic regional environmental strategy, consistent implementation, and effective resource mobilization are crucial in this process. Despite the impact of inflation, the increase in support for environmental activities in the region is accompanied by an expansion of activities, particularly in the areas of waste management, water treatment, and environmental monitoring. It can be predicted that after the end of hostilities, positive changes and intensification of environmental policy will gradually spread to other regions of Ukraine.

Effective regional recovery is impossible without taking into account the environmental factor, which should be systematically incorporated into regional strategies, socio-economic development programs, spatial planning schemes, and financial planning. Instead of fragmented environmental protection measures, it is necessary to build a holistic model of environmental management with clear mechanisms for strategic planning, monitoring, evaluation, and public participation.

The key tools for implementing regional environmental policy should include strategic environmental assessment, environmental impact assessment, ecosystem approaches to natural resource management, digitalization of accounting, analysis and forecasting processes, and attracting investment in the green economy. Another important task is to build an environmental infrastructure capable of minimizing the risks associated with environmental pollution and degradation of natural systems.

In view of the above, it is advisable to develop a national framework concept for regional environmental policy in Ukraine based on the principles of multi-level governance, transparency, participation, cross-sectoral cooperation, and innovative eco-driven transformation. This approach will not only ensure environmental sustainability, but also become a catalyst for sustainable post-war recovery, improved human well-being, and Ukraine's European integration.

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