

Tourism and Ecology in Restoration of Nature Reserves of Ukraine

Svitlana Melnychenko¹, Tereza Mykytsei¹, Michał Roman^{2*}, Iryna Kudinova¹

¹Department of Hotel-Restaurant and Tourism Business, National University of Life and Environmental Sciences, Kyiv, Ukraine;

²Department of Tourism, Social Communication and Counselling, Warsaw University of Life Sciences, Warsaw, Poland

ABSTRACT

The full-scale Russian invasion of Ukraine and the temporary occupation of part of its territory since 2014 has caused a significant damage to Ukraine's nature reserve fund and worsened the environmental situation in the country. One of the directions for attracting internal and external visitors to the nature reserves was ecological tourism. However, the worldwide pandemic of Coronavirus infection and then a military aggression of the Russian Federation against Ukraine, led to a reduction of tourist flows and foreign investments withdrawal out of nature reserve fund and tourism industry. Safety risks remain a decisive factor in forecasting the further development of nature reserves, including through tourist trips of ecological direction. According to the World Travel and Tourism Council (WTTC), over the next 10 years tourism industry is expected to grow by 50% worldwide compared to 2019 and account for approximately 11.6% of the global economy. But, encouraging forecasts of world tourism development among other factors depend as well on the intensity of hostilities and the duration of the martial law in Ukraine. Ukraine recovery plan covers the solutions of such key industry challenges as: Restoration of wildlife, enhancing fire safety measures in forests, implementation of ecosystem services concept, assessment of losses and threats to sustainable development of regions, re-naturalization of territories damaged during hostilities and the expansion of the eco-network, creation of an inter-agency program "Ecological education and informing for sustainable development of Ukraine in 2022-2032" for each region of Ukraine. The implementation of strategic objectives mentioned above is possible if sustainable development paradigm is maintained. Therefore, the aim of this paper is to justify the proposals for restoration and development of nature reserves by attracting international and national sources of funding in the context of sustainable development concept. Through application of economic and statistical methods, state of nature reserves was assessed, their recovery was forecasted in accordance with requirements of sustainable development. Application of analysis and synthesis methods gave opportunity to assess the damage inflicted to protected environmental territories and to identify potential trends of their post-war development. The hypothesis is confirmed that one of the drivers of post-war restoration and development of nature reserves is the environmental partnership between government institutions, public and business structures. Based on conducted analysis, sources of financing the processes of restoration and development of nature reserves, of both national and international significance, are proposed in the paper. One of the local budgets financing sources is tourist activities in compliance with rules of stay on such type of territories.

Keywords: Nature reserves; Tourism; Sustainable development; Environmental tax; Territories; Sources of financing

Correspondence to: Michał Roman, Department of Tourism, Social Communication and Counselling, Warsaw University of Life Sciences, Warsaw, Poland; E-mail: michal_roman@sggw.edu.pl

Received: 27-Jun-2024, Manuscript No. jth-24-32440; **Editor assigned:** 02-Jul-2024, PreQC No. jth-24-32440 (PQ); **Reviewed:** 16-Jul-2024, QC No. jth-24-32440; **Revised:** 16-Jun-2025, Manuscript No. jth-24-32440 (R); **Published:** 23-Jun-2025, DOI: 10.35248/2167-0269.25.14.581

Citation: Melnychenko S, Mykytsei T, Roman M, Kudinova I (2025) Tourism and Ecology in Restoration of Nature Reserves of Ukraine. J Tourism Hospit. 14:581.

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INTRODUCTION

According to Ukrainian legislation, the nature reserve fund is represented by land and water areas, natural complexes and objects that are valuable from the environmental, scientific, recreational and other points of view, are protected as a national heritage, which is allocated for the conservation of natural landscapes, animal and plant genetic pools, maintenance of ecological balance and background monitoring of the natural environment (Law of Ukraine "On Nature Reserve Fund of Ukraine", with amendments and supplements). As the National Natural Reserve Fund is a component of the world natural system, its popularization in the domestic and international markets is possible through the development of tourism in the nature conservation area. It is tourist sector that contributes to the formation of image of protected areas, the increase in local budget revenues and the development of related industries, which are involved in the creation and provision of tourist services [1].

Partial occupation of Ukraine by Russia in 2014 and the full-scale invasion at the beginning of 2022 damaged 20% of nature conservation areas, around one million hectares, which is 24.4% of the total area of nature reserve fund. The ecological situation in the country worsens every day due to hostilities that destroy the natural environment. According to the State Environmental Inspection of Ukraine, since the beginning of the armed aggression by the Russian Federation and as of March 10, 2023, the damage caused to the environment is around 2 trillion hryvnias (UAH), among them: Land littering, pollution of soils, atmospheric air and water objects. The greatest damage was caused in Donetsk, Luhansk regions and the Autonomous Republic of Crimea, on the territories of which 42% of Ukraine's nature reserves are located.

As the environment is constantly changing, both in result of human activity and its careless attitude towards the environment, insignificant changes in the ecosystem can lead to huge disasters now and in the future. Preservation of ecological balance, including protected areas, is one of humanity's tasks. Therefore, the objective of the research is to justify proposals for the restoration and development of nature reserves through international and national financing within the context of sustainable development concept [2].

According to the WTTC, in the next 10 years, tourist travel is expected to grow at a much faster rate than the general economy worldwide. Such growth will lead to a significant environmental burden and use of natural resources. Therefore, it is important to form public awareness on treating nature with care, including through the educational and recreational opportunities of ecological tourism. As practice of the pre-war period has shown, the potential of nature reserves for the development of ecological tourism is not sufficiently utilized.

The positive dynamics of ecotourism development in the world is aimed at the shared use of natural and cultural heritage, including the liberated territories and involves the growing role of national parks in development of this sector. It is also important to develop a strategy for the transformation of the areas into green energy zones with the planning of "smart"

settlements, existing in harmony with nature, opening of new ecological tourism corridors, which will contribute to the growth of demand for it.

Theoretical and praxeological aspects of the study of ecology issues, features of the organization of biosphere reserves for the conservation of biological diversity and economic development of territories and their cultural values are in the sphere of interest of foreign scientists. Scientists have justified the role of biosphere reserves as learning platforms for sustainable development, providing simultaneous care for people and ecosystems through the construction of a cross-border model of nature reserves.

Emil A. Jabrayilov based on the SWOT analysis, identifying the impact of ecological sustainability, economic efficiency and social responsibility on biodiversity and tourism proposed strategies for ensuring the sustainability of national parks. In result of the research, it was revealed, that the use of tourism potential of national parks together with the stimulation of local entrepreneurship could have a positive impact on the sustainable development of the region.

The aggravation of economic, social, ecological and humanitarian crises is a prerequisite for the development of a "green" business, as the basis for providing countries with a sustainable future. Over the past ten years, Ukraine has improved its position in the world by reducing the negative impact of business structures on the environment and promotes the rational use of natural resources.

Branding of nature conservation areas as a tourist destination plays an important role in the process of forming its attractiveness for the currently growing target market, which is oriented at the consumption of environmental friendliness as an unconditional value. In the case when the object of branding is an environmental protection object, it is necessary for the intangible elements of the brand (affirmative thoughts, beliefs and associations) to be based on the principle of environmental friendliness and tangible elements (logos, colors, designs, semantic and visual effects) must reflect this primary value. Analyzing the branding of protected areas and focusing on the process of forming their attractiveness for consumers, a set of measures for positioning the brand of national parks within the framework of eco-brand concept are proposed. The authors insist that the development of a national natural park within the concept of eco-brand also means the introduction of ecological standards of landscape design, appropriate models of behavior and approaches to management [3].

Research papers that are most widespread, are the ones that cover the studies of national parks and their promotion on the international markets through the development of tourism and its ecological component.

Mashika GV and Lendel VV in their scientific work characterized nature conservation areas from the point of view of their tourist-recreational use, using the example of the Carpathian biosphere reserve. At the same time, they conducted a comparative analysis of the concepts of ecotourism, in result of which, they identified its main components, including nature conservation, educational and cultural. Gabchak N, et al.

conducted a comprehensive study devoted to ecological tourism in nature conservation areas of Zakarpattia Oblast. In a result of assessment of recreational-tourist resources of this protected area and identification of the ecological tourism development specifics within the boundaries of the national parks and the Carpathian biosphere reserve, the authors' team developed recommendations for the sustainable development of ecological tourism in the protected areas of the specified Oblast.

Issues of weak, unacceptable development of ecological tourism in nature reserves are the basis of research conducted by Ukrainian scientists, including Zavarika H. The main argument is historical peculiarities of national nature reserves development, which did not provide for the setup of ecological routes, eco-trails, that is, ecological tourism. Only scientific research was permitted in these territories. At the same time, the author indicates the reasons for insufficient development of such type of tourism in the territories of nature reserves and among them, the low level of ecological culture of the population, which is manifested in a sloppy attitude towards nature. However, the introduction of mass environmental education, especially among young people, the exchange of experience between reserves regarding the organization of ecological tourism within the framework of existing regional associations of state nature reserves will provide an opportunity to improve significantly the economic situation in the region and in these territories. Important part in the process of development of ecological tourism is preservation of the natural and ethno-cultural environment, restriction of the tourist load on the objects of the natural reserve fund.

The results obtained by scientists and practitioners allow us to state that despite significant scientific research, no significant attention was paid to the development of proposals aimed at the restoration of nature reserves and their further development through the involvement of external and internal sources of financing in the post-war period. For the most part, scientists determine the theoretical and practical foundations of the development of ecological tourism without taking into account the potential factors of evolutionary changes, the principles of sustainable development and forecasting its impact on the development of nature conservation areas. Only some of the domestic and foreign scientists, in a result of the conducted research, came to the conclusion that the irrational use of natural resources, the degradation of natural and cultural heritage, as well as negative social consequences, determine the need for change of the paradigm of nature reserves development through rational management and responsible use of recreational and tourist resources in compliance with principles of sustainable development.

MATERIALS AND METHODS

The achievement of the set objective is ensured by the application of socio-economic methods, which provided the opportunity to predict and identify zones of strategic research of nature reserve areas and to forecast their restoration in accordance with the requirements of sustainable development concept. Based on general scientific methods of research, the evaluation, forecasting, determination of aspects and

development of scenarios of positive renewable impact on the development of nature reserve areas in the post-war period will be conducted [4].

The empirical method (observation, benchmarking) is used during the research of websites and logos of 19 nature reserves, successful practices of marketing tools application in the context of increasing the tourist attractiveness of the areas; focus group method-to assess the initial reputation of the area; logical and comparative analysis-to form reasonable conclusions based on the results of research. Recommendations contain the latest approaches to the assessment of social and environmental results of the functioning of nature reserve area considering their compliance with components of safety requirements in a given area and with the environmental sustainability index.

RESULTS AND DISCUSSION

There are 19 nature reserves in Ukraine, located in 12 regions and the Autonomous Republic of Crimea, *i.e.*, 33% of protected areas are located in Crimea (Figure 1). These territories were created with the purpose of preservation, reproduction and effective use of natural complexes and objects that have a special environmental, healing, historical and cultural, scientific, educational and aesthetic value.

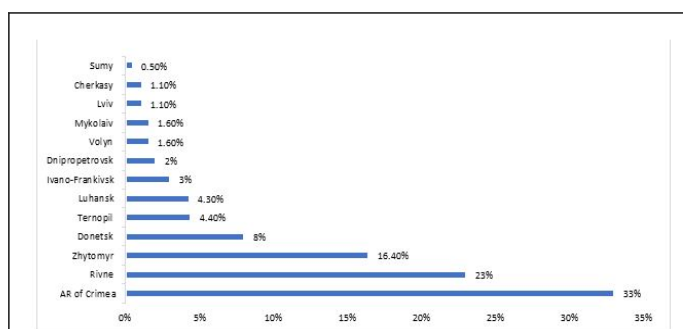


Figure 1: Allocation of natural reserve areas among regions of Ukraine.

According to the results of the research, conducted in the pre-war period, related to the analysis of websites of nature reserves of Ukraine, since they are the main tool of the tangible aspects of the brand, it was identified that the structure of websites and the text content in the vast majority of the reserves are quite standard. That is, one of the most important marketing tools does not fulfill its direct task, namely positioning and distribution to the target market. The language of websites is official, standardized and generally accepted. On the one hand, this is the correct approach to the use of language according to literary norms when compiling information about the functioning of the reserve and on the other hand, the language of advertising is traditional and similar, which deprives it of its uniqueness. The content of the websites is poorly optimized for the search engines ranking. In addition, the features of territories that could have become the basis of brands are kept hidden in such structural components like "Flora" and "Fauna". The tourist component of their activities is usually presented in the sections of websites dedicated to eco-trails and recreational areas. Only there a potential visitor can learn about the features of the reserve, and therefore the reason for the visit.

A visual comparative analysis of the logos of the protected areas revealed that their graphic and color components quite accurately reflect the specifics of the reserves and their assets, such as typical landscapes, flora and fauna. Almost all researched logos are made in natural colors and can be evaluated as ecological. Some of the logos are similar to each other, which clearly makes identification difficult. Seven reserves have no logos at all (Figure 2) [5].

Gorgany		Kaniv		Polissia	
Dniprovsko-Orilskyi		Luhansk		Roztochia	
Drevlians		Medobory		Rivne	
Kazantypskyi		Michael's Virgin Land		Cheremske	

Figure 2: Logos of nature reserves of Ukraine.

Thus, the specifics of most protected areas of Ukraine are unclear and unknown to tourists and perceived as largely unrelated to ecological dominant. The main activity of nature reserves is available for understanding only to a narrow circle of specialists. This is confirmed by an interview with specialists in the tourism industry who are familiar with the specifics of nature reserves in Ukraine. During the interview, experts named the main expectations from visiting protected areas, as well as their features, which in the future can serve as the basis of tourism brands. It should be noted that when positioning nature reserves within the framework of ecological branding concept, experts focused attention on features of landscape, uniqueness of natural objects and rare species of flora and fauna. Their development in the eco-brand concept also means the introduction of appropriate behavioral models and management approaches. It should be noted that nature reserves of Ukraine in the pre-war period were at the first stage of forming their own ecological brands.

The European integration of Ukraine involves compliance with priority of environmental policy as recognized by EU countries' governments, which is based on the principles of prevention and elimination of sources of pollution and involves the joint activities of society and state in order to protect and improve the natural environment; nature management and environmental protection; ensuring environmental safety of citizens; implementation of waste-free and low-waste, environmentally friendly technologies; development of environmental upbringing and education.

Taking into account the multilevel nature of environmental policy (international, national, regional, local), it is important to implement its directions in close cooperation of the participants of this process at all levels. The Law of Ukraine "On the basic principles (strategy) of the state environmental policy of Ukraine for the period until 2030" provides for the introduction of an ecosystem approach for all areas of social and economic development of Ukraine through the achievement of such goals as: The formation of ecological values in society and as well as

principles of sustainable consumption and production, including through environmental awareness, values and education; ensuring the sustainable development of the natural resource potential and the integration of environmental policy into the decision-making process in direction of socio-economic development of the country; reduction of environmental risks for ecosystems and citizens' health; improvement and development of the state system of environmental protection management [6].

The gradual implementation of the environmental policy of Ukraine provided for a significant improvement of the environmental state by 2030, the development of an ecologically effective partnership of entities at the state, regional and local levels and alignment with functioning principles of "green" economy.

As per Environmental Performance Index (EPI), reported annually by the Yale Center for Environmental Law and Policy, in 2022 Ukraine ranked 52nd among 180 countries in the world with an index of 49.6 and improved its position compared to in 2020 (60th place). Index rating is based on measuring the country's achievements in areas such as ecology, natural resource management, population health, ecosystem viability, climate change and the effectiveness of state environmental policy (Figure 3).

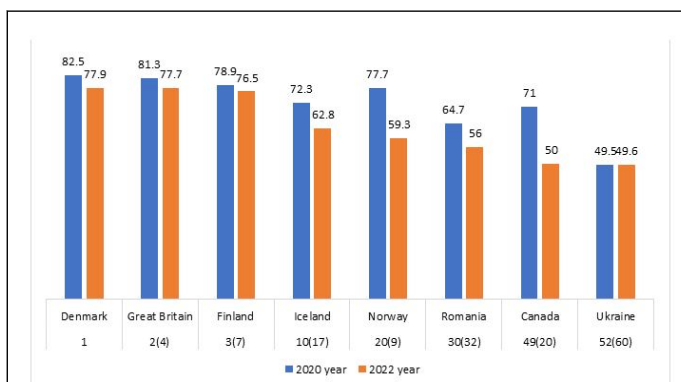


Figure 3: Environmental performance index ranking of the selected countries.

However, Russian occupation of part of Ukraine's territory in 2014 and the full-scale invasion at the beginning of 2022 made negative adjustments to the life of society and the implementation of strategic directions of the country's socio-economic development, including its environmental component. The risk of damage to the objects of nature reserve fund, pollution of soils, forests and air has increased significantly. Around 51% (88,515.6 hectares) of nature reserves areas were in the zone of hostilities and temporary occupation. As a result of the military operations, forest plantations were damaged, which is associated with fires from ammunition explosions, deliberate arson, as well as mechanical damage to territories during the maneuvering of military equipment and direct fighting [7].

Resolution no. 1364 of the Cabinet of Ministers of Ukraine, December 6, 2022 (as amended) defines the list of territories where hostilities are (were) taking place or temporarily occupied by the Russian Federation. Order of the Ministry on

Reintegration of Temporarily Occupied Territories of Ukraine no. 309 dated 22.12.2022 (as amended) defines the territories where hostilities are (were) taking place and are temporarily occupied, as well as those where hostilities and temporary occupation were ended and further hostilities are being prevented. The list can be updated if necessary, but not less than twice a month. Taking into account the above-mentioned legal documents and the results of the analysis of the websites of nature reserves (Table 1), it can be concluded that on 42% of

the territories of nature reserves no military actions took place and there was no temporary occupation, on 10.5% the temporary occupation was completed and on 5% hostilities were stopped. In the rest of the territories, temporary occupation continues and on some of them liberation operations are being carried out.

Table 1: The state of nature reserves during the war.

No	Name of the nature reserve, region	Year established, area	Characteristics of the nature reserve	Caused damage	Legally defined condition of the territory
1	Gorgany, Ivano-Frankivsk	1996, 5344 ha	Preservation of the relic European cedar pine	Deterioration of the environmental situation as a result of missile attacks (especially in the beginning of the war)	A territory on which no active hostilities took place and which was not temporarily occupied
2	Dniprovsko-Orilskyi, Dnipropetrovsk	1990, 3766 ha	Protection of flooded forests, groves, meadows, plots of autochthonous vegetation	The death of animals and birds by shrapnel or weapons damage, explosive wave impact. Forest fires on the territory of 121 hectares	A territory on which no active hostilities took place and which was not temporarily occupied
3	Drevlians, Zhytomyr	2009, 10 thsd. ha	Protection of forests starting from Chernobyl accident, protection of plants and animals	Damaged soils, massive forest fires (22% of the territory of the reserve), peatlands, destruction of the biological fund, migration of animals to Belarus. Contamination of part of the territory by mines. A natural monument was destroyed-a 500-year-old 25 meters high oak tree. (How the war affected the "Drevlyans" nature reserve, 2023)	Temporary occupation is over
4	Yelanets Steppe, Mykolayivska	1996, 3010,65 ha	Preservation and restoration of the fescue-feather grass steppe, protection of the virgin steppe area on the right bank of Ukraine	Territory of active hostilities. Pollution of water and soils, including due to fuel spills. Partial mining of roads. Fires on 4% of the territory. 14 cases of damage to the nature reserve fund were recorded	Cessation of hostilities
5	Kazantypskyi, Crimea	1998, 450,1 ha	Preservation of typical unique steppe natural complexes of the Azov	Total militarization	Temporarily occupied

			coast of Crimea and the adjacent water area		
6	Kaniv, Cherkasy	1923, 2027 ha	Protection of reference and unique natural complexes of the forest-steppe, preservation of biodiversity	Deterioration of the ecological situation due to missile attacks	A territory on which no active hostilities took place and which was not temporarily occupied
7	Karadag, Crimea	1979, 2874 ha	Protecting the only Jurassic period range in Europe with typical features of volcanic activity	Total militarization	Temporarily occupied
8	Crimea, Crimea	44175 ha	Protecting oak, beech and pine forests which are the most valuable in Crimea, unique relic groups of berry yew, tall juniper, habitats of waterfowl and swamp birds	Destroyed by dividing it into two parts, the larger of which has been turned into a park	Temporarily occupied
9	Luhansk, Luhansk	1968, 8000 ha	Preservation of natural complexes which are typical and unique for the steppe landscape zone	The territory of active hostilities. Release of ammonia into the atmosphere. Damage from missile attacks. Mining of part of the territory	Branch of the reserve "Provalsky Steppe"-partially occupied, "Striltsivsky Steppe" and "Stanichno-Luhanske"-on the Ukraine-controlled territory, on the demarcation line
10	Medobory, Ternopil	1982, 8071 ha	Preservation of the unique natural complexes of Podilski Tovtry in their natural state	Deterioration of the ecological situation due to missile attacks	A territory on which no active hostilities took place and which was not temporarily occupied
11	Cape Martyan, Crimea	1973, 240 ha	Preservation of the valuable natural complexes of Cape Martyan in their natural state, protection and preservation of rare species of plants and animals	The use of natural territories in the military and defense interests of the Russian Federation and the personal interests of high officials of the aggressor country	Temporarily occupied
12	Michael's Virgin Land, Sumy	1928, 882,9 ha	Preservation of a valuable area of meadow steppe in the forest-steppe zone	Release of ammonia into the atmosphere. Damage from missile attacks	De-occupied
13	Opuksky, Crimea	1998, 1592,3 ha	Preservation of steppe landscapes of the Crimean Peninsula and aqua complexes of the Black Sea in their natural state	Regular military exercises with missile launches and bombing. The water area near the reserve is	Temporarily occupied

				a "cemetery" of missiles and ammunition'	
14	Polissia, Zhytomyr	1968, 20104 ha	Preservation of typical natural complexes of Polissia, protection of relict and endemic plants and animals, reproduction and enrichment of natural forests of Polissia	Deterioration of the ecological situation due to missile attacks	A territory on which no active hostilities took place and which was not temporarily occupied
15	Roztochia, Lviv	1984, 2084,5 ha	Preservation of beech forests, reminiscent of the primeval forests of the Carpathians	Deterioration of the ecological situation due to missile attacks	A territory on which no active hostilities took place and which was not temporarily occupied
16	Rivne, Rivne	1999, 42288,7 ha	Preservation of typical and unique natural complexes of Ukrainian Polissia in their natural state	Deterioration of the ecological situation due to missile attacks	A territory on which no active hostilities took place and which was not temporarily occupied
17	Cheremsk, Volyn	2975,7 ha	Preservation of typical and unique natural complexes of Ukrainian Polissia in their natural state	Deterioration of the ecological situation due to missile attacks	A territory on which no active hostilities took place and which was not temporarily occupied
18	Ukrainian Steppe, Donetsk	1961, 2768,4 ha	Preservation of primal steppe vegetation and areas of natural ecosystems	Territory of active hostilities. Pollution of atmospheric air and soils, mining of the territory of the reserve. Damage from missiles and other weaponry	Partially occupied
19	Yalta Mountain-Forest, Crimea	1973, 14523 ha	Tall pine, beech and oak forests are protected	Military use of the territory, personal use by high-ranking officials	Temporarily occupied

The continuation of military aggression by the Russian Federation leads to violation of the ecological balance of protected areas, the destruction of animal and plant life. European community addressed environmental and animal protection issues in 1992 through the signing of the Maastricht Treaty and adoption of the Rio Declaration on Environment and Development. The latter contains 27 principles of ecologically correct behavior of the world community, which Russian Federation violated in relation to Ukraine. The developed Environmental Policy of Ukraine for the period until 2030 envisioned the stabilization of the ecological situation by 2025 and development of a "green" economy by 2030. The war prevented full implementation of the defined strategic tasks and in some areas significantly worsened the environmental situation in the country, delaying the introduction of European environmental norms and standards.

At the same time, the development of ecological partnership between government institutions, public and economic entities, as envisioned in the State Strategy for Regional Development of Ukraine for 2021-2027 and approved in the pre-war period, despite the state of war in the country, continues to implement tasks that ensure the achievement of strategic goals, namely: Stimulation of the economic environment and increases in employment around nature-protected areas, including the definition of an economic mechanism for stimulating the creation and preservation of nature-protected territories; expansion of tourist routes and trails network within the territories and objects of the Nature Reserve Fund of Ukraine using interactive methods; promoting public awareness of ecosystem services, including recreational and educational services; support in formation of regional tourism brands and their promotion within the country and abroad, with the help of modern digital and network technologies as well [8].

According to the approved strategy for natural protected areas, this means that there is a need to improve the tourist product, to intensify marketing activities, which include the development of branding strategies. Additionally, in accordance with the Ukraine Recovery Plan, as part of the implementation of the national program “Reconstruction of Clean and Protected Environment”, projects aimed at the implementation of the Unified Ecological Platform “EkoSystema” and national parks for people are envisaged. The implementation of these projects requires various sources of financing, including the restoration and development of protected areas of Ukraine in the post-war period (Figure 4).

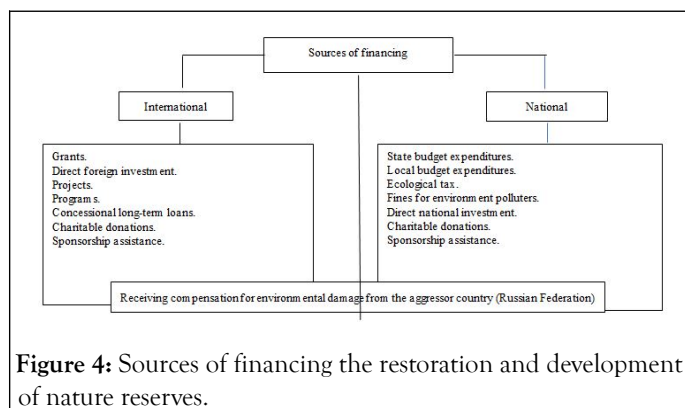


Figure 4: Sources of financing the restoration and development of nature reserves.

By becoming a candidate for membership in the European Union, Ukraine will gain access to its financial instruments through direct foreign investments, grants and loans for specific projects, including for the elimination of environmental damage. Currently, various international funds and programs actively support Ukrainian scientists, businessmen and public organizations by providing grant support, including those aimed at reduction of environmental risks and negative impact of war on the ecological situation in the country. According to the Ministry of Finance of Ukraine, between beginning and April, 2023, total grants received by Ukraine was 17.9 billion US

dollars. USA, which is 39% of the total received financial assistance from international partners. Countries that provided the largest share of grant support are the USA-87% of the total grants amount and Germany 7%.

According to the association agreement between the European Union and Ukraine, Ukraine guarantees that its environmental policy will be based on the precautionary principle and the principles that require application of preventive measures, compensation for damage caused to the environment and payment of fines by the environment polluters. In this regard, another source is income from applied penalties [9].

At the same time, an important ecology-impacting factor is the environmental tax, which is imposed on economic entities-environment polluters, the economic essence of which is that the polluter is paying for economic losses causing negative ecological impact on people's health, economic objects, agricultural land and natural resources. Thus, in accordance with the Budget Code of Ukraine, the funds from the environmental tax go both to the general fund of the state budget and to the special fund of the state and local budgets and are targeted to be used in full in accordance with state programs exclusively to finance environmental protection measures aimed at preventing, reduction or elimination of pollution.

In 2022, only 30% of total environmental tax paid was allocated to the special fund, while in 2023 share increased to 40% (Table 2). In addition, this year's state expenditures budget include funds allocated for the preservation of nature reserves which comprise 12.6% of the total amount of expenditures provided to the Ministry of Environmental Protection and Natural Resources of Ukraine and 2% allocated for the implementation of nature protection measures, in particular for improving the state of the environment.

Table 2: Environmental tax revenue trending (according to state budget of Ukraine).

Revenue	2022			2023		
	Total	General fund	Special fund	Total	General fund	Special fund
Revenue						
Environmental tax revenue, mln. hryvnias	3661.5	2575.5	1086	2716.7	1634	1082.7
Total revenue, mln. Hryvnias	1267393.4	1131070.6	136322.9	1329260.1	1173110.7	156149.4
Share of environmental tax in total revenue, %	0.29	0.23	0.8	0.2	0.14	0.7

Discussions regarding the structure of the domestic system of environmental taxation are ongoing and boil down to the need for harmonization with the EU tax system and strengthening the stimulating function of the environmental tax. The European integration vector of Ukraine's development involves taking into

account the experience of European countries acting within the framework of the Green Deal. The European Commission launched the European Green Deal in December 2019 with the aim of a sustainable transition to climate neutrality across Europe by 2050. Among others the preservation of biodiversity

and a zero level of pollution are expected are expected to contribute to achieving this goal. Ukraine declared its intention to participate in the implementation of this deal and developed the national concept "Green Transition before 2050" which is similar in structure and content. Work on improving the content of this document continues to this day.

One of the essential sources of financing are the funds received from tourism activities. Nature reserves that position themselves as brands of ecological tourism and natural products and attract local craft producers, contribute to increase in local budgets' revenue. At the same time, it should be taken into account that mass tourism is prohibited on the territory of the nature reserves, while ecological excursions along clearly mapped eco-trails are allowed. The use of the objects of the nature reserve fund for tourism purposes is possible after agreement between all involved subjects, taking into account the compliance with the protection regime established for them. The organization of tourist activities on nature-reserve territories should be based on the principles of sustainable tourism, namely: Ensuring the optimal, ecologically balanced use of natural resources with the preservation and restoration of biodiversity and natural heritage, the elimination of incurred damage by attracting investments, the development of the region's economy without irreversible impact on ecological systems, as well as through involvement of the local population in the process of ensuring environmental sustainability; increasing the ecological conscientiousness of youth through the teaching of relevant disciplines in educational institutions; offering tourists a variety of activities that will help them understand the essence of ecological tourism; assistance to territorial communities in participation of local entrepreneurs in grant awarding competitions, including international ones.

The development of recreational activities within the territories and objects of the nature reserve fund through the provision of paid services can become a significant source of financial

income for the above-mentioned objects. Last year, the Regulation of recreational activities within the territories and objects of the Nature Reserve Fund of Ukraine was approved. It clearly defines the directions, types and features of organization of such activities in these territories and objects. Such activities can be carried out together with local self-government bodies, public and international organizations, business structures through investment programs and projects. Receipts from recreational activities are revenues of budgetary institutions of the nature reserve fund, a source to fill up a local budget.

Today, the whole world is concerned with environmental problems and environment preservation. Therefore, it is necessary to radically change the consciousness of a person and especially young people, regarding the acceptance of some restrictions and prohibitions dictated by the laws of nature. It is important in this regard to introduce the environmental education by increasing the environmental competence of scientific and pedagogical workers of special disciplines in non-specialized institutions of higher education and the formation of educational and professional training programs for students in various specialties, taking into account the introduction of both mandatory and optional components. The introduction of ecological disciplines into the educational process will foster the formation of an ecologically cultural personality who is aware of and is able to deal with natural resources.

The best and most affordable way to combine environmental education, rational use and protection of natural resources is the development of ecological tourism. Since hiking on ecological trails accompanied by guides who are employees of nature reserves carries not only an educational function, but is a hands-on experience of "communication" with nature (Table 3).

Table 3: Environmental and educational activities of nature reserves.

No.	Name of the nature reserve	Ecological trails	Ecological education
1	Gorgany	Gregoty Gorgan	Christian-ecological school at EkoEthnoHub "Nadbystryska Hutsulshchyna" (located on the adjacent territory)
2	Dniprovsko-Orilskyi	Into the heart of the Dnipro reed beds", "Through the floodplain meadows	Educational and research ecological expeditions
3	Drevlians	+	Excursions
4	Kaniv	+	Nature museum
	Medobory	"Hostra", "Bohit", To the hermit's thick forest	Excursions
5	Michael's Virgin Land	Preserved Steppe", "Through Michael's virgin land	Excursions

6	Polissia	Through Polissia lands	Visitor center, nature museum, Ecological, educational and local history routes
7	Roztochia	+	Ecological and educational center, nature museum, social clubs "Green School"
8	Rivne	+	Ecological and educational center, environmental and educational department
9	Cheremske	+	Excursions

Nature reserves, which are located on the territories that were not temporarily occupied and where hostilities did not take place, continue to work actively in the direction of environmental education through maintaining ecological schools ("Gorgany"), nature museums ("Kaniv", "Polissia", "Roztochia"), ecological and educational centers ("Roztochia", "Rivne"), social clubs ("Roztochycha"), ecological and educational departments ("Rivne"), ecological and educational and local history routes ("Polissia"), conducting ecological expeditions among children and youth ("Dniprovsko-Orilskyi"), seminars and conferences on environmental issues, etc.

The task of environmental upbringing and education should be joint and carried out in close cooperation of local self-government bodies with the administration of nature reserves through the introduction of training programs for the local population, promotion of their participation in thematic courses and seminars, sending them to study at higher education institutions on specific purpose programs, and to continuing education courses. To obtain up-to-date information, it is necessary to monitor international organizations websites, including the International Union for Conservation of Nature (IUCN), the United Nations World Tourism Organization (UNWTO).

An important aspect in the implementation of regional environmental policy is the unification of efforts of state institutions, business and public in the restoration and development of nature reserves. It is necessary to start with the formation of a strategy for the development of the region, taking into account the outlook for the development of the nature reserve fund, the preservation of biological and landscape diversity, followed by its real-life implementation. It is important to align the strategy for the development of nature conservation areas with the tourism activity plans of local authorities and territorial communities.

The results of the analysis of the approved strategies for the development of regions for the period until 2027, on the territories of which nature reserves have been established, show that among strategic goals and objectives of vast majority of regions there are no measures planned for support of nature reserves. Plan of measures for the implementation of strategic tasks in Cherkasy, Dnipropetrovsk and Mykolaiv regions includes preservation of the environment, especially valuable natural territories and biodiversity and the sustainable use of

natural resources. Only Volyn region in the above-mentioned documents clearly defined the further increase of the area of the nature reserve fund to 14.1% of the total area of the region. Such an increase will contribute to the preservation and restoration of land ecosystems, i.e., the achievement of the 15th goal of UN sustainable development goals. In addition, the plan of measures for the implementation of the strategy includes the development of the natural reserve fund of the region and preservation of biological and landscape diversity.

CONCLUSION

Restoration of nature-protected territories of Ukraine together with the implementation of EU integration reforms require close cooperation of international and domestic investors. Since hundreds of billions of US dollars will be needed to restore damaged objects of the nature reserve fund, polluted environment, results of irrational use of natural resources in temporarily occupied territories. Close cooperation of local authorities, the public and business entities increases the likelihood of faster liquidation of damage caused to nature reserves during the war, the search for potential donors for the implementation of projects related to the revival of territories and objects of the nature reserve fund and ensuring their further development in the future. It is obvious that the development of ecological tourism in nature-reserve territories in accordance with the principles of sustainability, recreational activities, have a high competitive potential, it gives the opportunity for reserves and territorial communities to self-develop in the direction of establishing tourist businesses, improving infrastructure and supporting related industries. Decisive factor in the development of these territories is the agreement of actions regarding the opportunities of their functioning between the institutions of the nature reserve fund and territorial communities. This approach will make it possible to expand the internal and external replenishment of local budgets and solve the issue of improving the environmental situation in the region.

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