

## LAND AND RESOURCE POTENTIAL OF PROTECTED AREAS OF UKRAINE IN THE CONTEXT OF THE IMPLEMENTATION OF SUSTAINABLE DEVELOPMENT STRATEGY

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### Abstract

*One has determined the essence, structural features, functional significance and the role of protected areas. One has revealed the concept of "land and resource potential of protected areas". One has kept under review features of the use of the land and resource potential of protected areas considering the strategic concept of sustainable development. One has determined the indicators of the quantity, the structure, the dynamics, and the distribution of object areas by categories, as well as characterized indicators of the reservation of the territory of the country. One has proved that there are positive tendencies in increasing areas of protected areas. One has indicated the necessity of capacity building by increasing the area of protected areas, which is expedient to carry out due to the transformation of disturbed, degraded and low-yield lands on the basis of re-cultivation, conservation (grassland renovation, forestation) and their transfer to separate objects of protected areas.*

**Key words:** protected territories, land and resource potential, sustainable development products, Romania

### INTRODUCTION

The strategy of sustainable development, which is a crucial concept of the contemporary worldview formation, puts the priority task of preserving natural resources and protecting the environment. At the same time, the problem the preservation of unique nature objects becomes obvious in the context of exacerbation of environmental problems associated with the use of natural resources in economic activity, the consequence of which is the violation and degradation of natural ecosystems in the significant number of areas and water areas.

The wealth of Ukraine is directly related to its considerable land and resource potential. Land resources are one of the components of the environment. Moreover, anthropogenic pressure intensively grows on those resources, especially in recent years. Considering land resources, their development is increasing, and therefore the avoidance of imbalance in the "human-environment" system and the

creation of favorable conditions for their balanced use remain the urgent issues. In such a way, the increase of anthropogenic and man-made load on the environment, the violation of ecosystem regulation and self-reproduction, the extremely high level of utilization of components of nature and resource (including land and resource) potential, reduction of the agro-landscapes stability, formation of rational use and protection of lands encourages the need for research issues related to the functioning of the land and resource potential of protected areas in the context of the implementation of sustainable development strategy.

### MATERIALS AND METHODS

We have applied a number of general and special methods for achieving the set goal and solving the above-mentioned tasks of scientific research. One has used methods of logical generalization and scientific abstraction in order to clarify the conceptual

apparatus of the research; methods of system analysis and synthesis, induction and deduction – to identify the regularities, features of the formation, use and development of protected areas and land and resource potential; complex analysis – to establish environmental and economic as well as social trends of the protected areas.

One has used tabular, graphical and cartographic methods for a visual illustration of the results of the study. The legislative and regulatory documents of Ukraine, official data of the State Statistics Service of Ukraine, the Ministry of Ecology and Natural Resources of Ukraine, the State Service of Ukraine for Geodesy, Cartography and Cadastre, reports of regional departments of the StateGeoCadastre, ecology and natural resources departments form the information base of the research.

Boreiko (2005), Kasperevych (2017), Reimers, Shtylmark (1978), Chernykh (2014), and others reflected various aspects of the development and functioning of the land and resource potential of protected areas in national and foreign publications [1, 4, 12, 2]. It should also be noted that today there are virtually no results of the complete systematic studies aimed at solving the problems of the functioning of the land and resource potential of protected areas in the context of implementing sustainable development strategy.

## RESULTS AND DISCUSSIONS

The development of economics, construction, growth and strengthening of urbanization processes, the expansion of economic and recreational activity in natural landscapes lead to the necessity to protect and preserve the environment of stabilizing, health, and protective properties of nature, conservation for the present and future generations of areas of primitive and unchanged nature, wealth and the diversity of flora and fauna, unique and attractive natural creations that make up a nationwide and ethnic heritage. This task can be resolved only due to the creation and organization of protected areas.

The prerequisite for the creation of protected areas is also caused by the fact that at the present stage human activity is the main factor that determines the major part of the processes which take place in ecosystems. As a rule, protected areas are excluded from economic activity to some extent, and they are traditionally considered as objects that impede the economic development of the region. Meantime, these territories, which are completely or partially withdrawn from economic circulation, have a special regime of protection, which depends on the category, and is an important stabilizing mechanism of the biosphere. The territories support the ecological stability of the territory, which is substantially changed by economic activity; they impede the growth of negative processes that lead to the degradation of the biosphere; they contribute to the provision of ecosystem services; they are of vital importance in stabilizing the climate, mitigating the processes of its change; they are biological reserves, in which unique and typical natural complexes are preserved, objects of the animal and plant world, including endangered and valuable resources. Simultaneously, protected areas perform essential scientific and socio-cultural functions, being polygons for studying natural ecosystems and processes that take place in them, as well as they contribute to ecological education, educational activity and public awareness campaign of the population. In addition, there are significant recreational resources and tourism potential in these areas. Nowadays the main feature of the development of protected areas is the transition from the local nature of the impact on nature to the global one [15].

According to the International Union for Conservation of Nature (IUCN), a protected area is the territory or water area, intended for the protection and maintenance of biological diversity and natural and related cultural resources, the protection of which is established by law or by other means [10]. In accordance with the data of the International Union for Conservation of Nature, there were 209,429 security objects with a total area of about 32.9 million km<sup>2</sup> (14% of the globe and 3.41% of the World ocean) in the world in

2014 [3]. At the same time, there is considerable unevenness in the distribution of protected areas of different categories by regions of the world and countries. As a matter of fact, the distribution of protected areas and their share in the land fund are determined by a lot of factors, among which the size and natural conditions of the regions, the degree of their human development, the tradition of reserve issues, the nature protection culture of states and population, the level of social and economic development of the country, the features of the state ecological politics, etc.

Ukraine has considerable unique, diverse and attractive natural resources and conditions: water resources, forest resources, land resources, climatic conditions, landscape, and biodiversity, which allow for sustainable development. These resources are crucial in diversifying the economy of the country, and their rational use contributes to the growth of natural capital and social and economic potential of the territory.

The natural and resource potential of the country has been used inefficiently and irrationally for a long time, and as a result, depleted and degraded resources (land, forest, water ones) require urgent intervention, in particular, conservation, careful use, and thriving use and restoration. Therefore, the corresponding response to the total use of natural resources of the country is the development of the existing network of protected areas of Ukraine and the creation of new territories, which should fulfill the role of the ecological framework, and some of them form special centers that allow preserving the most valuable natural complexes in the natural state, as well as they can contribute to the successful restoration of ecosystems.

One should pay attention to the fact that from the scientific point of view the term “protected areas” is quite common, but it is not provided in the legislative norms of Ukraine. According to the current legislation of Ukraine, the term “natural territories and objects that are subject to special protection” is widely used. Thus, in accordance with the article 60 of the Law of Ukraine “On Environmental Protection” natural areas and

objects to be protected, form a single territorial system and include territories and objects of nature and reserve fund, health and therapeutic, recreational, water protection, field protection and other types of territories and objects, determined by the legislation [5]. Principally, the system of territories and objects of special state protection includes the territory (water areas), which preserve almost unchanged or partially changed natural landscapes. They are protected as a national heritage and at the same time as a component of the world system of natural territories and objects under special protection.

In our opinion, the term “*protected areas*” should be identified with the term “natural territories and objects subject to special protection”. Therefore, nature reserves (water areas), which are allocated for the purpose of environmental protection, for which clearly defined, regulated forms and methods of using natural resources and conducting economic activity, should be included in the protected areas. Consequently, nature protection areas include natural areas and objects subject to special protection, as well as various protective, buffer and other zones, urban forest areas, suburban green zones, the legal regime of which is fixed in the land, water, forest, and town-planning legislation. In this case, we state that protected areas should be included in the system of rational nature use and interact not only among themselves but also with exploited territories. Furthermore, they perform the environment stabilizing, protective, and resource-saving and other functions that represent a unified functional system.

Thus, the above-described structural features of protected areas allow us asserting that we consider nature protection areas not only as a category of land but rather as a qualitative category that reflects the purpose of assigning a specific area (territory, its part) for environmental protection, conservation, resource conservation, restoration goals. In this regard, it one should take into account that protected areas can be located in almost all categories of land provided for by the Land Code of Ukraine.

Summing up the above-mentioned issues we state that “land and resource potential of the protected area” is a set of available land and other related resources and conditions, quantitative and qualitative opportunities of the natural territories (water areas) allocated for the purpose of environmental protection, for which there are clearly regulated forms and methods of land use, have clear limits and legal status and are intended for the protection of the environment.

Land resources always play a key role in the current social and economic development of society. As part of the natural resource potential of Ukraine, land and resource potential is 44.7 percent of the total value [9]. One has characterized the land and resource potential by the presence of high bio-productive potential, and fertile black soils predominate in its structure. Thus, the averagely weighted land provision of the major sectors of the economic complex is sufficient for their normal development and functioning. Meantime, the existing systems of agricultural and environmental land use

deplete natural potential. The high demand for land use changes often results in deforestation and loss of biodiversity.

Based on the analysis of the state of land and resource potential of Ukraine, it does not fully meet the requirements of rational nature use management. Land resources of Ukraine (60,354.9 thousand hectares) are characterized by an extremely high level of development; more than 92% of its territory is included in economic use [7]. Investment returns of land and resource potential and contribution to accelerating social and economic development remain unsatisfactory. In Ukraine, there is an unbalanced structure of land use and management, which is generally ineffective and environmentally hazardous. Thus, considering their economic use, an estimation of the distribution of land resources of Ukraine shows that the largest share belongs to agriculture – 69.8%, forestry takes the second place – 14.7%, environmental protection – the third one (4.8%) and other and unused lands – 5.4% (Table 1).

Table 1. An estimation of the distribution of land resources considering their economic use

№	Types of economic use of lands	Total area		including		
		thousand hectares	%	arable lands	under construction	Ecologically-stabilizing lands
1	Agriculture	42,131.0	69.8	32,173.4	1,162.0	8,795.6
2	Residential and other buildings	987.1	1.6	59.8	576.0	351.3
2.1	including for waste disposal	16.5	0			
3	Forestry	8,868.4	14.7	1,079.1	791.7	6,997.6
4	Water resource management	243.7	0.4	1.6	28.8	213.5
5	Defense industry and other ones	1,653.7	2.7	223.2	968.0	462.5
5.1	including industries for the development of mineral deposits, borrow pits	157.1	0.3			
6	Environmental protection	2,909.8	4.8	1.0	1.5	2,907.3
7	Human health protection	160.9	0.3	3.2	47.4	110.3
8	Culture, spirituality, etc.	170.8	0.3	42.2	69.4	59.2
9	Not used and other lands	3,229.3	5.4	1,044.1	777.2	1,408.0
	<b>Total:</b>	<b>60,354.9</b>	<b>100.0</b>	<b>34,627.6</b>	<b>4,422.0</b>	<b>21,305.3</b>
	<b>% of the total area</b>	<b>x</b>	<b>x</b>	<b>57.4</b>	<b>7.3</b>	<b>35.3</b>

Source: It is calculated according to the data from [7].

In Ukraine, lands are differentiated according to the categories that are allocated for the main purpose and have a certain legal status (Table 2). Thus, agricultural lands occupy the largest share – 70.0%. The lands of forestry make up 14.9%. The category of lands of nature and reservation as well as nature and conservation purposes is only 4.8%.

Table 2. The distribution of lands according to categories

Categories of lands	Area	
	thousand hectares	%
Agricultural lands	42,228.2	70.0
Land for residential and public construction	1,559.0	2.6
Lands of nature and reservation as well as nature and conservation purposes	2,906.8	4.8
Lands for recreational purposes	27.5	0
Lands for health purposes	109.9	0.2
Lands of historical and cultural purposes	53.2	0.1
Lands for forestry purposes	9,028.3	14.9
Earth Water Fund	3,255.0	5.4
Lands of industry, transport, communication, energy, defense and other purposes	1,187.0	2.0
Total area	60,354.9	100

Source: It is calculated according to data [7].

Unfortunately, the current state of Ukrainian natural landscapes only partially meets the criteria for attributing them to the Pan-European Ecological Network [11]. As a whole, according to the National Report of Ukraine on the harmonization of the society life in the environment, prepared for the 5<sup>th</sup> All-European Conference of Ministers of the Environment “Environment for Europe”, natural landscapes exist on almost 40 percent of the territory of Ukraine. They have been preserved in the least altered form on lands which are occupied by forests, shrubs, swamps, and open lands, the area of which is 19.65% of the territory of the country. Taking into consideration that only 44 percent of forests perform protective and environmental and security functions, there are reasons to believe that the state of landscapes, which is close to the nature, have 12.7 percent of the country’s territory [6]. At the same time, the consequences of irrational use of land

resources in the past, namely an extensive land use, a neglect of environmental justification in the process of development of the agro-industrial complex, a regulation of river flow, a drainage of swamps, a spontaneous development of collective gardening and other disorderly actions led to the destruction of almost 70 percent of valuable lands, natural complexes and landscapes of Ukraine.

Today, the paradigm of sustainable development, environmental security, conservation of biological and landscape diversity has never been a priority. However, the compliance with environmental directives and, in particular, the conservation and restoration of biodiversity is one of the prerequisites for full membership in the context of the Association Agreement between Ukraine and the European Union.

So, our country occupies 6% of the European area and owns more than 35 percent of its biodiversity. In our territory, we protect 70-90% of the endangered and rare species of flora and fauna, which are listed on the European Red List. Most migration routes and environmental corridors pass through Ukraine [13]. Therefore, only creating ecologically and biologically stable and representative networks of protected areas can stop the rate of loss of biological diversity in the transition to sustainable development of society. Their role in this process is principal and fundamental.

Thus, the natural reserve fund predominates within the protected areas. The structure of the nature reserve fund of Ukraine includes all 11 categories of territories and objects of national and local significance. According to data of the Ministry of Environment and Natural Resources of Ukraine, 5 biosphere reserves, 19 nature reserves, 49 national natural parks, 3,168 reserves, 3,441 natural monuments, 81 regional landscape parks, and 812 protected natural boundaries as well as a number of artificial objects (botanical gardens, zoological parks, arboreta and parks of monuments of garden design) – only 8,245 territories and objects with the total area of 4,318.2 million hectares, which was 6.6% of the territory of the country, and 1 marine

botanical reserve of the national value “Phyllophora field of Zernova” with an area of 402.5 thousand hectares were included in the territories and objects of the nature reserve fund of Ukraine as of January 01, 2017. So, the natural monuments, reserves and protected natural boundaries (about 90% of the total number of existing objects) had the largest share of them. Over 85.5% of the natural reserve fund was allocated to nature reserves, national natural and regional landscape parks made the largest share [14].

There were 663 territories and objects of the natural reserve fund of national importance: 19 natural and 5 biosphere reserves, 49 national natural parks, 320 reserves, 136 natural monuments, 18 botanical gardens, 7 zoological parks, 20 arboreta, 89 parks-monuments of garden design in Ukraine, as of 01.01.2017. Their total area was 2,477.1 thousand hectares (within the territory of Ukraine) or 57.36% of the total area of the natural reserve fund and 4.10% of the area of Ukraine. The number of territories and objects of the natural reserve fund of local significance was 7,582 units with an area of 1.841 million hectares [14].

The share of areas of territories and objects of certain categories in the natural reserve fund was: natural reserves – 4.79%, biosphere reserves – 11.09%, national natural parks – 30.37%, reserves – 32.18%, natural monuments – 0.69%, regional landscape parks – 18.2%, reserves – 2.26%, botanical gardens – 0.05%, zoological parks – 0.01%, arboreta – 0.05%, parks of monuments of garden design – 0.31% [14].

The indicator of the reservation varies considerably in the regions of the country (Fig. 1). Thus, it is the smallest (up to 5%) is in the regions of Vinnytsia, Dnipro, Donetsk, Zhytomyr, Zaporizhia, Kyiv, Kropyvnytskyi, Luhansk, Mykolaiiv, Odessa, Poltava, Cherkasy, Kharkiv, and the largest one (more than 12 %) in the regions of Ivano-Frankivsk, Khmelnytskyi, Transcarpathian and Chernivtsi, while it is 14.9% and 30.3 % in Kyiv and Sevastopol respectively. To add more, it is 6-12 % in Volyn, Lviv, Rivne, Sumy, Ternopil, Kherson, Chernihiv regions and the Autonomous Republic of Crimea.

Thus, the indicator of the reservation ranges from 2.24 to 15.71 % in the various regions of Ukraine.



Fig. 1. The indicator of the reservation of regions of Ukraine

Source: made by author based on the data from [14].

In general, one can state that the reserve case got its “Renaissance” in the first decade of the independence of Ukraine. Recognizing this important environmental field as one of the main priorities of state policy, the reserve fund has more than doubled, and at the same time, the legal framework for the further development of the reserve case is laid down. So, according to the State Statistics Service the dynamics of the increase of the areas of reserves and natural national parks of the years 1990-2017 shows positive trends in increasing their areas almost in three times (by 1,590.4 thousand hectares) (Fig. 2). Actually, this network of reserve areas of the country is not only a national heritage but also an integral part of the European and world nature conservation network.

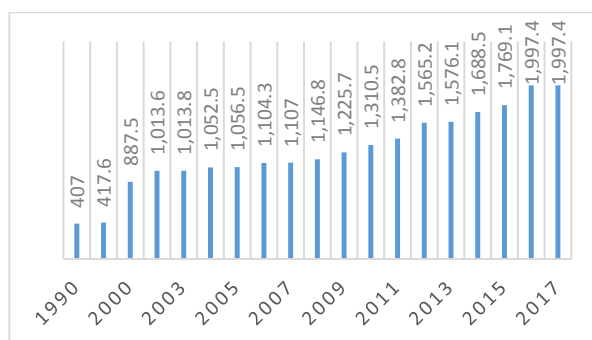


Fig. 2. The dynamics of the areas of reserves and natural national parks of the years 1990-2017, thousand ha

Source: made by author based on the data from [8].

Herewith one should pay regard to the fact that the area of protected areas per one resident of Ukraine is only 570 square meters in comparison to 2,220 square meters in Europe. According to the Law of Ukraine “On the main principles (strategy) of the national environmental policy of Ukraine for the period until the year 2020”, the expansion of the protected area of the nature reserve fund should reach 15 percent of the territory of Ukraine until the year 2020. Compliance with the requirements of this Law as well as the State Strategy for Regional Development for the period up to 2020 is extremely important, since now the indicator of protected areas in Ukraine is almost lower in three times than the average one in Europe, and for comparison, the area of unauthorized dumps exceeds the territories of nature reserve fund [13]. We state that it is expedient to increase the area of protected areas due to the transformation of disturbed, degraded and low-yield lands on the basis of re-cultivation, conservation (grassland renovation, forestation) and their transfer to separate objects of protected areas.

Global sustainable development goals were approved by the United Nations Summit on Sustainable Development in 2015. Markedly, 17 sustainable development goals and 169 targets were approved in the document of the Summit “Transforming our World: the 2030 Agenda for Sustainable Development”. Ukraine, like other UN member states, has joined the global process of sustainable development. An inclusive process of adaptation of sustainable development goals was initiated in order to establish a strategic framework for national development of Ukraine for the period up to the year 2030 on the basis of the principle of “Do not leave anyone aside”. One considered each global goal considering the specifics of the national development.

## CONCLUSIONS

All in all, sustainable development of any territorial social and economic system can not be considered without the functioning of protected areas. We declare that balanced land

and resource potential is optimizing its structure to environmentally sound borders. Therefore, the current crisis phenomena that take place at the present stage of using the land and resource potential of the protected areas imply the extremely necessary implementation of the 15 sustainable development goals: “To preserve and restore the ecosystems of lands and to promote the rational use of these ecosystems and forests, to combat desertification, to stop and to turn back the process of degradation of lands and to cease the process of biodiversity loss” [8]. The following tasks are set in the context of this goals: to ensure the conservation of the restoration and sustainable use of ground and inland freshwater ecosystems; to promote sustainable forest management; to restore degraded lands and soils using innovative technologies; to ensure the conservation of mountain ecosystems. Thus, the implementation of a sustainable development strategy is a kind of “projection of the future” with a clear set of actions for achieving the set goals.

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