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## **Comprehensive Assessment of the Natural and Economic Potential of Ukraine's Sustainable Development: The Methodology of the Formation**

**Abstract.** *Overcoming destructive changes in the processes of transformation of the natural resource use of territorial communities requires the development of new approaches aimed at ensuring a balance of interests and effective interaction between the authorities, business, and the state in the field of environmental management. An urgent task is to form an updated systemic organization of spatial natural and economic formations to implement integrated management of the natural resource potential of Ukraine. The purpose of the article is to substantiate the methodology of a system-integrated assessment of the natural and economic potential of Ukraine in the context of sustainable development. The methodological basis of the research is the subject-object method. The dialectical method of applying economic laws, analysis, synthesis, economic-statistical, monographic, and abstract-logical methods was used to generalize the results obtained. Ways of solving the problems of transforming the model of state influence on the modernization processes of public-private forms of ensuring sustainable development of territories were proposed. It will allow finding a balance in the structure of resource management, in the plane of the spatial organization of natural economic activity. The authors focus on forming management systems at the lower territorial level. The updated, by modern requirements, methodology for assessing the efficiency of using the space of economic activity has been substantiated. It has been proved that an actual result can be achieved when considering three fundamental regularities of ensuring the efficiency of production and economic, interregional and intersectoral interaction of regional social, economic, and ecological systems. These study results are the basis for forming a systemic and universal concept of the transition of Ukraine and its regions to sustainable development in conditions of resource constraints and the constant strengthening of social, political, military, environmental, and economic threats and risks.*

**Keywords:** *sustainable development, environmental economics, resource security, methodology, comprehensive assessment.*

### **Suggested Citation**

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## Системно-комплексна оцінка природно-економічного потенціалу сталого розвитку України: методологія формування

**Анотація.** Подолання деструктивних змін у процесах трансформації системи природокористування територіальних громад вимагає розробки нових підходів, спрямованих на забезпечення балансу інтересів і ефективну взаємодію влади, бізнесу і держави у сфері природокористування. Актуальним завданням є формування оновленої системної організації просторових природно-економічних утворень для реалізації комплексного управління природно-ресурсним потенціалом України. Метою статті є обґрунтування методології системно-комплексної оцінки природно-економічного потенціалу України у контексті сталого розвитку. Методологічною основою дослідження є суб'єктно-об'єктний метод. Крім цього, для узагальнення отриманих результатів використано діалектичний метод застосування економічних законів, аналіз, синтез, економіко-статистичний, монографічний та абстрактно-логічний методи. З метою пошуку балансу у структурі управління ресурсами, в площині просторової організації природної господарської діяльності, запропоновано шляхи вирішення проблем трансформації моделі державного впливу на процеси модернізації публічно-приватних форм забезпечення сталого розвитку територій. Акцентовано увагу на формуванні управлінських систем на низовому територіальному рівні. Обґрунтовано оновлену, відповідно до сучасних вимог, методологію оцінки ефективності використання простору господарської діяльності. Доведено, що реального результату можна досягти за умови врахування трьох ключових закономірностей забезпечення ефективності функціонування каскадного формату організації виробничо-господарської, міжрегіональної та міжгалузєвої взаємодії регіональних соціальних, економічних та екологічних систем. Результати даного дослідження можуть бути використані для формування системної та універсальної концепції переходу України та її регіонів до сталого розвитку в умовах ресурсної обмеженості та постійного посилення соціальних, політичних, військових, екологічних та економічних загроз і ризиків.

**Ключові слова:** сталий розвиток, економіка навколишнього середовища, ресурсна безпека, методологія, комплексна оцінка.

### INTRODUCTION

In the current stage of developing the world economic system, the key tool for effective implementation of economic strategy in the country is forming appropriate economic modernization policy on the regional level. It indicates that modern institutional transformations in the country are characterized by the need for administrative reform, a policy of restructuring productive forces in organic connection with political and territorial transformations of the management system. At the same time, the relevance and urgency of using such a management tool are likely to bring national conditions of general economic growth and living standards closer to established concepts and dominants of sustainable development by EU standards.

Within the institutional matrix of sustainable development, it is possible to form a systemically organized set of state and non-state subsystems, which will be provided with means of adjustment and active influence on the pace of scientific, technological, and

socio-economic development. Therefore, using the community determinants of self-organization to increase and rationalize the strategic potential of neighboring regions, it is possible to ensure sustainable development, the transformation of a social, branch, technological, corporate, innovative, etc., structures.

### LITERATURE REVIEW

The problem of building an effective system of regional governance in Ukraine on the societal principles of strengthening interregional cooperation is considered in the context of intensifying adjustment and directing the European integration course. However, the solution of these scientific and applied problems should be based on methodological developments and practical experience of the subjects of the government of those countries that belong to the transitional group of strategic management. The chosen problems, including the individual aspects of the manifestations of safety, the principles of the modeling processes, were studied in the works of many

scientists (Demydyuk, 2010; Kachynskiy, 2001; Alimov et al., 2016; Khvesyuk, 2020). Modern processes of general economic acceleration evidence the effective functioning of economic systems.

According to the economic and statistical analysis results, it is substantiated that the mechanism of management of the technological component of formation needs radical changes. That means that Ukraine's lag behind the level of modernization of the technological base from the leading countries may lead to the transformation of the domestic economy into their raw material supplement and the destruction of competitive advantages. With such conditions, information technology of the third intellectual level should be used.

There is a need for a comprehensive analysis of the set of conditions of the technological breakthrough of the Ukrainian industry. This can be done even considering the current maximum usage of technological equipment in the leading sectors of the national economy (Khvesyuk, 2012; Verkhovna Rada Ukrainy, 1996; Khvesyuk, Bystryakov & Klinoviy, 2018; Sokil et al., 2018).

*The purpose of the article* is to substantiate the methodology of system-comprehensive assessment of the natural and economic potential of Ukraine in the context of sustainable development.

### RESEARCH METHODOLOGY

The subject-object method is used to determine the essence of the methodology of system-comprehensive assessment of the natural and economic potential of Ukraine in the context of sustainable development, the definition of various characteristics, direct and feedback, correlations and tools, and mechanisms used in the processes of transformation of the nature management system of territorial communities. The dialectical method of applying economic laws and analysis and synthesis, economic-statistical, monographic, and abstract-logical methods were used to generalize the obtained results.

### RESULTS AND DISCUSSION

Due to the financial and economic crisis associated with the deepening globalization and transformation of basic economic activities of Ukraine, the transfer process or adaptation of scientific and technological progress into business practice, demographic, medical, and social situations in the regions differ. The generalization of the data of economic and statistical materials and reporting of the State Statistics Service testifies to:

- the reduction of the scale of influence of national institutions and diplomatic opportunities for changes in regulatory and legal support on the system of regulation of innovation and technological activities in the sector of the national economy;
- the lack of effective control over the results of the implementation of scientific and technical developments of the NAS of Ukraine;
- the openness and receptivity of the state political elites to social policy.

We present summary assessments of international

rating systems, which are considered as initial macroeconomic characteristics, which can be used to identify the state of the national economic system maintaining the balanced functioning of its regions based on societal principles (Table 1).

Gaps and imperfections of the functions of state authorities in the formation and implementation of effective social policy consider the prevention and minimization of threats to the environment, which, in fact, officially demonstrate the results of its identification in the international environmental rating of Ukraine in 2012 (according to the index of environmental achievements). According to the World Economic Forum, Ukraine ranks only 102 and out of 132 countries globally, losing fifty-one positions in the global environmental rankings between 2006 and 2012.

Such a rapid decline in the position of innovation, technological competitiveness, and intellectual potential of Ukraine, including environmental sustainability, indicates a significant increase in the risk of environmental degradation and deterioration of the social component of national security. In addition, the decline in socially significant levels of development of the national economy reveals a mainly regressive direction of Ukraine's movement along the trajectory of ecologically unbalanced functioning and inefficiency of domestic socio-economic policy, which does not contribute to the formation of a societal economy.

At the same time, awareness of the level of environmental impact on the state of the national economy and its competitiveness was reflected in the calculations of the Sustainability-Adjusted Global Competitiveness Index, launched by this year's World Economic Forum. Its basic component is a comprehensive indicator of social sustainability along with environmental.

The latter criterion measures the impact of a set of institutions, policies, and factors that ensure effective resource management for the prosperity of present and future generations. At the same time, the use of a complex indicator of environmental sustainability in the calculations will allow combining three complex blocks with their inherent indicators – the parameters of environmental policy, renewable resources, and environmental degradation.

According to all indicators that characterize Ukraine's transition to sustainable development and its readiness to modernize various areas of the socio-economic system, the scale of sustainable development potential has the worst position. The comparative analysis of these indicators shows that for the formation of an effective national social policy for sustainable development of the state based on social processes of modernization of regional socio-economic systems, the following tasks are priority: further institutional support for economic liberalization, including its information transparency to implement the principles of GATT / WTO competition and focus on the competition policy of the European Union; sustainable macroeconomic development; strengthening attention to the institutionalization of the technological structure of the country.

**Assessment of the national economic system according to international rating standards  
for the generation of signs of sustainable development based on macrosystem evolution**

Index	P (N)*	Value	
		the maximum achieved by the states	For Ukraine
Index of states that were defeated in solving socio-economic problems	113 (177)	80,1	67,2
	Characteristics: social - demographic pressure, mass movement of refugees and internal displacement, the presence of those seeking group revenge, and brain drain; economic - uneven economic development of groups, poverty and economic decline; political - criminalization / legitimacy of the state, deterioration of public services, human rights.		
Global World Index	71 (158)	0,62	1,95
Of economic freedom	163 (185)	1,29	46,1
Of world competitiveness	73 (144)	6,95	2,30
Perception of corruption	144 (182)	100,0	26,0
Innovative ability		0,99	0,59
Human development	78 (187)	0,97	0,77
Trade and development	56 (110)	8,75	4,83
Of globalization	44 (208)	Degree of global connections, integration and independence in the economic, social, technological, cultural, political and environmental spheres	
Of willingness to operate in the global network	78 (102)	5,51	2,96
Of population aged 60 and older in the total population	21 (102)	30,7	21,8
Life expectancy (men / women)	57 (102)	80,1/83,3	63,8/73,9
Level of doing business	137 (185)	According to nine indicators	
Media freedom	116 (179)	82	55
Welfare	100 (151)	89	42
Birth rate	197 (228)	91	33

Note: \*P – rating of Ukraine among N studied countries.

Source: Compiled by the authors.

Since the transition to sustainable development involves achieving organic functioning against the background of synchronous involvement of three constitutively key components, it is necessary to improve the quality of life to determine the basic principles of socio-economic regeneration using societal principles of functioning of the X-institutional matrix (Khvesyk, 2018).

It has been found that it is currently difficult for society to impose uncharacteristic institutions and to subjectively change one institution to another (which is more effective in other countries). To do this, it is necessary to form certain historical, cultural, logistical prerequisites.

Existing disparities in regional socio-economic development affect the ability to effectively manage other territories, which are given more excellent opportunities to address many social, economic, spiritual, and political issues. However, against the background of positive changes in the high-tech regions of the country, there is a gradual degradation of agricultural production, which hinders the solution of socio-economic problems of the population. The most acute of these are the difficult demographic situation, the decline of the social sphere and consumer services, as well as unemployment and low

incomes of the rural population.

According to the written above, it is necessary to use modern synergetic macroeconomic models to incorporate them into the mechanism of strategic management to objectively predict the pace of future economic growth of the state. This will contribute to forming a new style of managerial thinking, the leading feature of which will be a probabilistic vision of the world, confirmed by the reality of its reflection. Therefore, it is necessary to focus on creating a system of rational development, accumulation, transformation, and dissemination of the elementary composition of potentials included in the total resources, reserves, and capabilities of Ukraine (primarily potentials of the system-universal group) due to their subordination, coordination, autonomous and intersectoral interaction with self-reproduction.

It is also advisable to ensure the approximation of the regional system-universal tools for adjusting modernization to European standards. At the same time, eliminating disparities in the development of regions, equalizing differences, and ensuring the growing quality of life of the population will contribute to the fulfillment of a certain task.

The current tools of such a process at the level of the united territorial communities are budget transfers, fiscal

instruments, including taxes and rents that can be shared between the community budget and the higher level budget, quasi taxes, parafiscal charges, concession contracts that provide for the distribution of products or profits from the use of natural resources, mechanisms for joint financing of project companies, investment tools and more.

It is advisable to transform the existing structure of natural resources management of territorial communities institutionally and with actual mechanisms, based on identifying current problems and establishing property rights to natural objects as resources located in the

territories of local communities. At the level of territorial communities and their associations, it is important to create a public-law institute of the municipality as an effective representative of interests and a steward of the community's natural resources.

In this context, it is advisable to outline the main directions of transforming the existing structure of natural resources management of territorial communities in European integration processes, ensuring full-fledged natural assets based on local natural-resource complexes (Fig. 1).

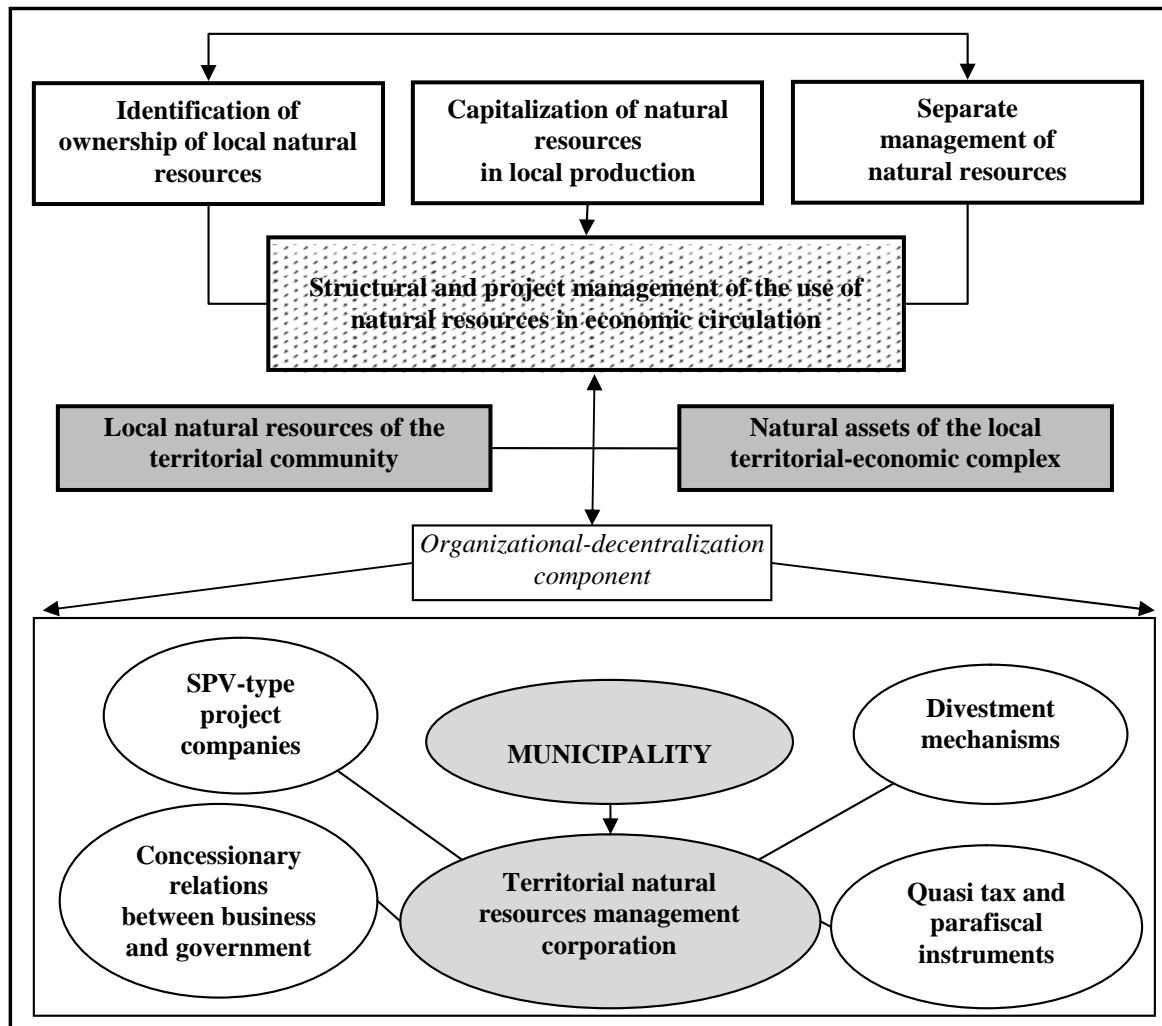


Figure 1. Transformation of the natural resources management system of territorial communities

Source: Compiled by the authors.

The main problem of the current stage of development of the national economy is the need to generate divergent and coevolutionary transformations within individual regions of Ukraine to eliminate structural and dynamic differences in their functioning, ensure balance and sustainable development of the state as a whole.

Recently the powers of territorial communities and local governments in managing socio-humanitarian development of the regions have been expanded.

However, the current system of regional governance and entities concerned with social protection, in general, inadequately use modern strategic tools to address major problems and contradictions in the context of building Ukrainian society. The lack of a comprehensive state development strategy (both in the technological and socio-economic spheres) on the national and regional levels hinders progress. It poses a direct threat to Ukraine's stability, territorial integrity, and national security. The analysis of system-universal dominants of

strategic management in the regional dimension of modern socio-economic development shows significant disparities, which lead to social tension in society.

Therefore, the urgent needs within the strategic tools of goal-oriented management of sustainable development potential are: formation of the main priorities for intensification of modernization processes; analysis of existing deformations; study of proportions in the economic, social, political, and spiritual spheres; development of a set of models of sustainable development of the state; substantiation of directions of sustainable development; identification of objects of efforts and principles of modernization of the regional socio-economic system; diagnostics and development of the forecast of probabilistic consequences of modernization of the economic system.

Such a situation, of course, requires a new approach to economic policy, ways of its implementation on the regional level as a complex holistic phenomenon, its involvement in the processes of macrosystem evolution in the state, the formation of goals and directions of socio-economic policy and priorities.

### CONCLUSIONS

The problems, associated with modeling a trajectory of Ukraine's sustainable development, ensuring the reliability and efficiency of the functioning of the state's economy as a systemic formation of an advanced level of complexity, occupy an important place in the theoretical

and practical activities of Ukrainian society and government in most countries and the supranational unions. Therefore, qualitative improvement of the essence of the sustainable development strategy is the identification of the policy with the guarantor of the stability and inevitability of economic, social, and political revival of the country. During the last decade, these problems have become the epicenter of implementation of state efforts in Ukraine, which can be solved only by the consequences of building up adequate to actual current processes territorial natural and economic complexes (by the scale and dimensions of the macroeconomic regulation of their development). It should be noted that the development of a sustainable development strategy and, accordingly, the formation of territorial natural and economic complexes in Ukraine are possible due to the cascade format of organization of production and economic, interregional, and intersectoral interaction of regional social and economic systems. At the same time, the real result can be achieved by taking into account the three constitutively key regularities of ensuring the effectiveness of the functioning of the latter and the dominants of the corresponding type of the systemic and universal concept, which determine the transition of Ukraine and its regions to sustainable development in the conditions of resource constraints and constant strengthening of social, political, military and economic threats to the creation of the state of Ukraine.

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