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THE SCIENTIFIC BASIS FOR THE SUSTAINABLE DEVELOPMENT OF REGIONAL ECONOMY

Summary: The article deals with the theoretical questions of sustainable development of the region. In order to eliminate discrepancies in the terminology, the author perfected the conceptual apparatus. It is impossible to solve the problem of the socio-economic system stability without creation of a sound methodological and methodical foundation, without a scientific substantiation of actions at all hierarchical levels. The critical analysis of existing definitions of sustainability of socio-economic systems showed that the generally accepted concept of modern science has not been produced. Four approaches to determine the sustainability of socio-economic systems are analyzed. The principles of process management of the sustainable development are justified, the directions to achieve it are studied. The modern regional policy is proved not to be focused on the formation and implementation of the sustainable development of the regions. But the definition in the proposed conceptual principles of the management of sustainable development principles, directions and objectives of the regional policy on the implementation of the project at the regional level with specifying the tools and mechanisms to achieve is the key attraction of regions of Ukraine to management in terms of sustainable development.

Keywords: sustainability, sustainable development, sustainable growth, the region, the natural environment, environmental control, social infrastructure, socio-economic recovery.

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НАУКОВІ ЗАСАДИ СТАЛОГО РОЗВИТКУ РЕГІОНАЛЬНОЇ ЕКОНОМІКИ

Анотація: В статті розглянуто теоретичні питання сталого розвитку регіону. З метою усунення різночитань у термінології автором було удосконалено понятійний апарат. Проведений критичний аналіз вже наявних визначень стійкості соціально-економічних систем показав, що загальноприйнятого поняття сучасна наука досі не виробила. Тому було виділено чотири підходи визначення стійкості соціально-економічних систем. Автором обґрунтовано принципи управління процесами сталого розвитку, які повинні стати основою соціально-економічного відновлення Донецької області. Запропоновано напрями досягнення сталого розвитку в економічній, екологічній та соціальній сферах.

Ключові слова: стійкість, сталий розвиток, стійке зростання, регіон, природне середовище, екологічний контроль, соціальна інфраструктура, соціально-економічне відновлення.

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НАУЧНЫЕ ПРИНЦИПЫ УСТОЙЧИВОГО РАЗВИТИЯ РЕГИОНАЛЬНОЙ ЭКОНОМИКИ

Аннотация: В статье рассмотрены теоретические вопросы устойчивого развития региона. С целью устранения разночтений в терминологии автором был усовершенствован понятийный аппарат. Проведенный критический анализ уже имеющихся определений устойчивости социально-экономических систем показал, что общепринятого понятия современная наука до сих пор не выработала. Поэтому было выделено четыре подхода определения устойчивости социально-экономических систем. Автором обоснованы принципы управления процессами устойчивого развития, которые должны стать основой социально-экономического восстановления Донецкой области. Предложены направления достижения устойчивого развития в экономической, экологической и социальной сферах.

Ключевые слова: стойкость, устойчивое развитие, стойкий рост, регион, естественная среда, экологический контроль, социальная инфраструктура, социально-экономическое возобновление.

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Introduction. Harmonization of economic, social, and environmental subsystems and development of the region are the primary tasks. They are designed to find ways of its transition to a model of sustainable development which will provide growth opportunities to meet the needs of not only modern but also future generations, preserving the environment.

Analysis and statement of the problem. Development issues in the region were considered in the writings of domestic and foreign scholars, such as: A. I. Amosha, O. F. Novikova, S. F. Povazhnii, V. V. Dorofienko, O. V. Kolomiychenko, M. S. Pashkevych, O. V. Balahonova, Z. S. Varnalìi, L. I. Fedulova, Y. V. Belinska, V. I. Liashenko et al.

Study results. The theory, investigated in the paper, is on the stage of sustainable development of socio-economic systems, therefore a lot of urgent issues remain unsolved. The first scientific community is concerned with the question whether it is generally possible to discuss the stability of a dynamic socio-economic system, as in the philosophical sense the stability is considered as a sustainability, a certain state, as opposed to the changes. There is no clear understanding how to relate the concept of "sustainability", "sustainable development" and "sustainable growth" in many academic works. Scientists have not come to a consensus in resolving the notion about sustainability of socio-economic systems; modern science has not produced a generally accepted definition. Criteria of stability of complex socio-economic systems and the methods of its evaluation have not been identified yet, and the stability specificity of regional systems has not been studied. It is impossible to solve the problem of the socio-economic system stability without creation of a sound methodological and methodical foundation, without a scientific substantiation of actions at all hierarchical levels.

The urgency to discuss the issues requires consideration, above all, of the theoretical foundations of sustainability. In this regard, it is necessary to avoid various terminologies and improve conceptual apparatus which are designed to create the necessary scientific platform for research to ensure the formation of the theory of sustainable development of socio-economic systems in the future.

At the present time there are many definitions of socio-economic stability and their number continues to grow. Thus, it confirms not only the complexity of the concepts, but also the complexity of the object of study in general. In some cases, macroeconomics (national economy), in other-mesoeconomics (regional economy), thirdly – microeconomics (economics of business entities), the fourth – an economy subsystem of a particular level are the object of the research.

The critical analysis of existing definitions of sustainability of socio-economic systems showed that the generally accepted concept of modern science has not been produced. After all, as a minimum, there can be four different approaches. Supporters of the first approach determine the stability of the socio-economic system as the relationship of the security, stability, reliability, integrity and strength of the system.

Supporters of the second approach define sustainability as the relative permanence of main parameters of social-economic system and its ability to remain unchanged for some time. But the socio-economic system is self-organized, and the source of its transformation or its functions as the authors emphasize, "lies in the same system", pointed out by V. D. Mogilevsky [7]. The scientist argues that the system is self-organized in the way to ensure its own survival, stability and development, the evolution, the movement to the target. This duality is one of the main contradictions in the system, solved through its development. Therefore, in the process of development of the system and its operation system parameters are constantly changing, so that they cannot remain unchanged.

Supporters of the third approach understand the stability as an ability of a socio-economic system to keep dynamic balance. Thus, the stability is believed to be the "integrated system property to maintain a dynamic balance while changing the possible parameters of the external and internal environment" [11]. Other researchers [4] believe the category "the economic stability of the regional economic system" to be an integrated system property to maintain a dynamic balance while changes occur within the possible parameters of the external and internal environment.

However, the encyclopedia definition [6] leads to the conclusion that a balance is a state of stability under the influence of the exactly opposite forces (for example, the balance between supply and demand). The socio-economic system is an open system, prone to the effects of many different forces, and a dynamic balance is one of the system state moments.

Representatives of the fourth approach focuse on the availability of the connection between the stability of a socio-economic system and the ability of the system to function consistently, develop, and maintain movement on the chosen trajectory, with a non-stop self-development. This statement is, in our opinion, the most close to the true point of view. The author [9] has the same opinion, rightly arguing that "any developing system periodically jumps from one stable state to another".

Supporters of this approach, that shows the essence of this category, highlighting certain characteristics of the socio-economic system, in the first place, pay attention to the ability of the system to function, that is, in fact, perform its functions, while seeking to maintain dynamic balance when the system periodically jumps from one stable state to another; as well as the ability to develop in the long term using own adaptation opportunities. Hence, the study understands the sustainability of socio-economic system, including the regional one, as an ability of the system to steadily operate and develop in the long run in terms of the dynamic changes in the internal and external environment, which is very important in determining the priorities of socio-economic recovery of Donetsk region.

Thus, three main approaches to the construction of models of sustainable development can be outlined in the field of theoretical knowledge about the processes of sustainable development, namely: resource, biosphere, integrative ones. All these approaches are based on a single philosophical and natural foundation. Mutual efforts of mathematicians, naturalists, sociologists, specialists, economists, managers resulted in the complex nature of nonlinear relationships in the system "man-society-nature" and they need a complex analysis.

The theory of sustainable development is based on a harmonization of social, economic and environmental subsystems of the socio-economic system, and is aimed at finding ways of system transition on the model of sustainable development, which will provide a rapid growth rate of capabilities to meet the needs of both the contemporary and future generations, while preserving the environment.

The crisis, which resulted from thoughtless reform policy, first of all, determines the need for transition of Ukraine to a model of sustainable development. So, an attempt to move from the administrative to the market-based economic system in the early 1990-ies was artificial in nature. The Government policy of that time was based on the borrowing of "other people's recipes" and was directed exclusively to overcome the negative effects of the crisis, while the specificity of the development of the country in the previous decades was not taken into consideration [5]. Consequently the situation in Ukraine was characterized by such phenomena as: violation of the

reproduction mechanisms; differentiation strengthening; the lack of its own institutional infrastructure for the advanced play.

In addition, it should be noted that the modern structure of production becomes more oriented on the branch one, namely the regional management system. The transformations in recent years have led to weakening of region sectors, with understanding them as components of a single economic complex of the country in general and their formation as regional commercial complexes. Therefore, these circumstances are of particular relevance in the context of ensuring the sustainability of socio-economic systems, and, consequently, the need for regional studies.

Assessing the specific study of the region as the object of sustainability from the point of view of the most successful research instruments, we consider that it is necessary to focus on the historical, structural and functional, as well as system approaches. So, in work [3] it is indicated that the historical approach is aimed at the study of region genesis, the driving forces and factors of its education, formation and development. The structural-functional approach in the system methodology is one of the basic ones to study complex systems.

The main key characteristics of the region as a complex socio-economic system is its quality attributes, properties, function, which is a consequence of the special organization system, and is also included in its elements. The systematic approach explains this phenomenon by system emrgence, i.e. there are system properties which its elements lack, as well as the amount of elements not related to the special framework ties.

The application of historical approach in combination with the structural-functional and systemic approaches gives the opportunity to link the emergence of the new quality in the development of the region with a modification of its structural and functional organization, approach to understanding of the patterns of qualitative transformations in the economy and the social sphere considering the environment actions.

The possibility of applying methodological approaches has been proved by both domestic and foreign scientists-regionalists, among them are A. I. Amosha, O. F. Novikova, S. F. Povazhnii, V. V. Dorofienko, M. T. Agafonov, O. O. Granberg, M. F. Zamiatìna, O. V. Kolonyichenko, V. N. Leksyn, A. P. Lytovka, P. A. Mìnakìr, M. M. Nekrasov, V. I. Rohchìn, O. I. Tatarkìnia, V. E. Selìverstov, I. I. Sigov, O. N. Shvetsov, et al. Taking into account papers of the above mentioned scholars, as well as the results of their research, it can be concluded that the regions should be considered as meaningful, actually operating system components of the territorial administration.

It is generally accepted that a very important factor, that significantly affects the territorial organization of socio-economic life and production efficiency, is undoubtedly the ecological environment. In turn, the key determiner, which causes the ecological conditions of Donetsk region, is the development of extractive and processing industry with outdated technologies and related to it excessive urbanization of many Donbas areas. From this perspective, a promising direction of scientific research is to study the role of the environmental component in the formation of a sustainable development trajectory and justification of the specific features such as the effect on recovery and development of Donbas. The high concentration of industrial and agricultural production, transport infrastructure, combined with a high population density, has created an excessively high technological and anthropogenic burden on the biosphere – the highest in Europe. Donbas has stocks of virtually all chemical elements. The deposits of coal are considered to be the most important natural riches of the region. There are 57 billion tons of its explored reserves, which can meet the needs of industry and population for many decades [8].

Despite a production cut as a result of which the total amount of emissions and discharges dropped dramatically, the burden on the biosphere of the Donbas region still remains one of the largest in Europe. High speed and scope of the industrial processes, a huge move of mountain masses cause significant scattering of many chemical elements (primarily carbon and heavy metals), causing accumulation of chemical elements in the atypical combinations in nature. Thus, it follows, that Donbas has one of the most critical environmental situations, in this case water and soil pollution become the most burning problems [10].

Along with the general causes of a man-made pollution a "specific" type of environmental

consequences, characterized by the mass closing of mines has become urgent. In this regard the groundwater standing level changed and a new, unusual phenomenon appeared in this poorly suppled with water region, that is the flooding of a number of settlements. It is, above all, numerous mining towns made up of the suburbs of large and medium cities of the Central Donbas.

The program of the reconstruction of the coal industry, and in connection with it the closure of the mines in Donbas became the source of unexpected environmental problems that turned into the socio-economic issues of the region.

The objectivity of evaluations of scientists and experts about the environmental consequences of mass closures of mines in the Donbas region of Ukraine and their influence on human health as well as recommendations for eliminating their negative impacts has no doubts, which are as follows:

1. As a result of the cumulative impact of negative factors when closing the mines there is a steady growth of areas with the active development of the flooding of the residential and industrial facilities, farmlands, communication facilities, motor highways, etc.

2. The processes of surface and underground waters pollution, sedimentation of the daily surface, accumulation of potential energy in the flooded mining workings with the formation of hydrogeomechanical stress and a decrease in the stability of the rock become more intense.

3. Change of the flows structure of explosive gases may lead to complications of gas and vapor conditions of existing mines and surrounding areas.

4. There is a geochemical pollution of agricultural and industrial territories, which manifests itself in the increasing concentration of heavy metals, petroleum products, in soils, snow cover, bottom sediments.

5. Due to the heavy metals of underground and surface water salinity and pollution by nitrates increases.

6. Radiochemical soil pollution of water with uranium-bearing minerals is urgent for the zones with the slag collection systems.

A number of closed mines in the region need the following actions [1]:

-forecasting assessment of the impact of the mines closure on the environment;

-determination of potential sites with flooding and sites of storage of liquid and solid waste which can possibly be flooded;

-development of management schemes of levelled groundwater regime;

-development of regional changes forecast in groundwater quality;

-to prepare recommendations for the adoption of decisions on the prevention of environmental disasters;

-improvement of monitoring systems on different levels, first and foremost, the geological environment;

-creation of subdivisions in the zones of influence of the closed mines on areas complex ecological economic management;

-development of models with the formation of a functional database based on GIS-technologies;

-recycling of industrial waste, which is both a factor of harmful effects on the environment and the traditional source of a number of scarce useful components;

-use the potential of the research, design and manufacturing organizations to solve problems related to the consequences of the mines closure;

-ensure the financing of nature protection measures on the study, prevention and liquidation of consequences of mass mines closures with budgets of different levels.

The issues of regulation and enhancement of the role of local authorities in providing security in ecology are relevant.

The instability of the political situation in the Donbas region became the reason of the management efficiency lowering, monitoring and control functions in the field of environmental safety. It should be noted that the effectiveness of the management of the natural environment and nature management is a fundamental task in the field of ecology. This task involves the state, industry, industrial, municipal and public control.

No doubt that the main condition for ensuring the effectiveness of the management of the

executive authorities of the region in the field of ecology is the effectiveness of the system of managing itself directly, which requires a number of measures to ensure environmental protection and rational use of nature:

-to adopt a number of documents that establish the timing and sequence of administrative procedures and administrative actions in the state regulation of nature management and environmental protection;

-to hold the functional diagnosis of regional authorities in the field of environment and local authorities in order to exclude duplication of certain functions;

-to ensure the cooperation of the executive authorities of the region and local authorities with contact audience represented by social movements, organizations and political parties in the area of environmental safety;

-to empower local bodies of executive power with the right to carry out control in the environmental protection and environmental objects of regional and local significance. In particular, the following powers:

a) for public accounting of factors that adversely affect the region ecology, which is carried out by authorized bodies of the executive power;

b) control in accordance with the regional legislation on paying for pollution and other harmful effects on the environment on the enterprises with economic and other activities, other than those that are subject to state ecological control;

c) keeping records of underlying causes of harmful effects on the environment;

g) re-equipment of the enterprises, the balance of which is physically and morally obsolete equipment;

d) timely detection, as well as reducing the environmental risks that can become sources of natural and man-made emergency situations, caused by military actions, etc.

Thus, environmental protection and nature management of all kinds of resources are connected with improvement of production location, in particular, potentially dangerous one. The basis for the modernization of its territorial organization has become a permanent spatial dynamic information about the nature and condition of the natural environment, of the processes occurring in it, about the level of economic activity.

Economic and social approaches to environmental problems need attention regarding the evaluation of the rationality of the production process, it should be noted that it is important to take into account both impact on the environment and the costs spent by the society to eliminate these problems.

Operating activities of modern enterprises should be directed to the production of material goods, while simultaneously preserving the environment [2]. The factor to achieve such a consensus is to move to environmentally safe production technologies to minimize environmental risk and negative impact on the environment. Production ecologization is characterized by the adoption of a number of management and technological decisions aimed at the rational nature management and protection of the environment; taking into account the factors in the field of ecology, which have great influence on the production process, as well as factors of production, with negative impact on the ecology of the region; assessment of the damage of the environment caused by these factors.

It is important to ensure the integrated nature management and environmental protection, which must meet the environmental features of a specific territory; stimulation of the economic activity of enterprises to meet the environmental requirements; implementation and use of the management activity of the modern directions of interaction of nature and society, the environmental certification of jobs, improving technologies, the creation of industrial products.

Conclusions. Thus, these are the following principles of sustainable development processes: moderation, appropriateness, social partnership, information openness, as well as complex target and accompanying criteria to achieve sustainable development should become the basis for socio-economic recovery of Donetsk region.

The modern regional policy is proved not to be focused on the formation and implementation of the sustainable development of the regions. But the definition in the proposed conceptual principles of the management of sustainable development principles, directions and objectives of the regional policy on the implementation of the project at the regional level with

specifying the tools and mechanisms to achieve is the key attraction of regions of Ukraine to management in terms of sustainable development.

Suggested directions for achieving sustainable development in the economic, environmental and social spheres are: to ensure sustainable economic development – the transfer of regional economy to the development innovation way; the introduction of tight system resource; implementation of the structural adjustment of the economy of the regions; to ensure sustainable social development – the formation of the modern model of consumption; the creation of the necessary legal, organizational, financial, material conditions to ensure human development in all its diversity; to ensure sustainable environmental development – formation of modern environmental infrastructure in the region; development of the ecological passport of the region; improving the system of monitoring of the level of technogenic load on the regional ecosystem; development and implementation of regional programmes of environmentally sound production and household activities; setting a tough national and regional environmental standards of production in accordance with the EU standards and monitoring compliance.

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