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Sustainable Development and “Green” Economy: Main Concepts and Approaches

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ABSTRACT

Problems of formation of sustainable ecological and economic space under sanctions restrictions and the global crisis of the economic system. A detailed study of approaches to the evaluation of sustainable development of the territory will reveal shortcomings in the methodological basis, which will allow leveling to develop a comprehensive approach to evaluating the sustainability and improve the efficiency of the formation of sustainable ecological and economic space. The article considers the basic ideas that appear in the study of sustainability; concepts associated with this phenomenon in the context of development of economic systems of different levels. The article studies the approaches to the assessment of sustainable economic development, and also analyzes the impact of climate change and nature on the steady growth of the economy. The artificial type of economic development prevailing on the market is characterized in work as destructive to nature. The article focused on the factor based on the use of artificial means of production, where, according to socio-economic and environmental experts, the means for developing the global environmental trend of the industry strongly affects the globalization of the manufacturing industry in the global economic market. In general, it can be stressed that high-quality economic growth leads to the resolution of the emerging problems in the field of education.

JEL Classification: O10, O49, I29, I26.

Keywords: “green” economy, sustainability, sustainable development, ecological development, territory.

1. INTRODUCTION

The expanding global crisis that hit the financial and economic system in the beginning of the XXI century is a logical continuation of the evolutionary shortcomings of the social development and the accumulated

legacy of the XX century. The overall trend can be described as a loss of stability, unbalanced inertial development not supported by qualitative changes.

The traditional model of economic growth in developed countries has exhausted the available resources, and multiple crises of social, environmental and economic nature have ascertained its future futility. In recent decades, the basic concept of strategic international development is the theory of sustainable development, better known in modern adaptation as “green” economy.

The planetary crisis of economic order accompanied by internal and external personified threats for each individual region is described by intensification processes in the field of science and innovation, which can be explained by the search for a driver development model of the territory growth points.

Current instability of energy prices is an indisputable evidence of the acquired instability, disorientation of the trajectory of future developments and ineffectiveness of current approaches to the management of economic systems of different levels. The development of civilization is at a historical turning point, the search for an alternative long-term development scenario.

2. THEORETICAL ANALYSIS

The basics of the stability theory have been formed at the junction of a spectrum of sciences: mathematics, physics, philosophy, biology, studying the various forms of its manifestation - the stability of the system, movement, balance, form. Initially, the idea of “sustainability” was of abstract nature, and its discussion remained theoretical. The first “practical application” was associated with the environmental issues, the resolution of which international organizations tried to find. The main prerequisites for sustainability studies are: the dominant position of “philosophy of consumption”, resource-destructive technologies, increasing social inequality when building the “center” politics and others. As A.G. Polyakova rightly points out, modern economy has a significant number of grounds for the practical application of the key tenets of the theory of sustainable development (Polyakova, 2009; Kolmakov, Polyakova & Shalaev, 2015).

Traditionally, sustainability in the socio-economic context is understood as the effective use of limited resources and the increment of values of indicators of positive changes. The main reference points are:

- ensuring compatibility of energy, material, information fields for the balanced development;
- the constancy of the effective use of the available resource base;
- free and unimpeded development, regardless of the environment;
- the pursuit of security and ability to protect oneself from unexpected and unstable impact factors;
- adaptability to changing environmental conditions and development of operational actions.

In modern economic theory, there is no unified definition of “development”, due to its versatility and plenty of approaches to its study. Traditionally, development is viewed as:

- the property of matter;
- the process of changes irreversible over time;

- the natural development of consciousness;
- the process of achieving the ultimate particular goal (Begun, 2012).

In the variety of points of view there is a single element emphasizing the philosophical origin of the idea. To conduct a series of studies, the definition developed in 1963 by the UN experts is used: “This is a process in which the actions of the people themselves are united with the actions of the authorities to improve the economic, social and cultural conditions of life of the community, to integrate these communities into the mainstream of national life, to give them the opportunity to make the maximum contribution to national development” (Filippov & Avdeeva, 2000).

As with any process, development has a number of basic laws presented in Table 1.

Table 1
Basic laws of development

<i>Law</i>	<i>Explanation</i>
Unevenness	Uneven development of various functional properties and activities of the territory
Heterochronism	Asynchronous phases of functional areas development
Instability	The undulating nature of development, including crisis phenomena
Sensitivity	A stage of development accompanied by increased susceptibility to external factors
Cumulativeness	The result of development determined by the potential accumulated over previous phases of development
Divergence (diversification)	Increasing the diversity of activities in the development process
Convergence (specialization)	Increased selectivity of activities, focus on the development of strengths

Figure 1 allows one to visualize the algorithm of the development process. The ultimate goal of development regardless of the complexity of the system, the extent of the impact, the aggregate impact of internal and external factors is not the quantitative or qualitative growth, but the subsequent social progress.

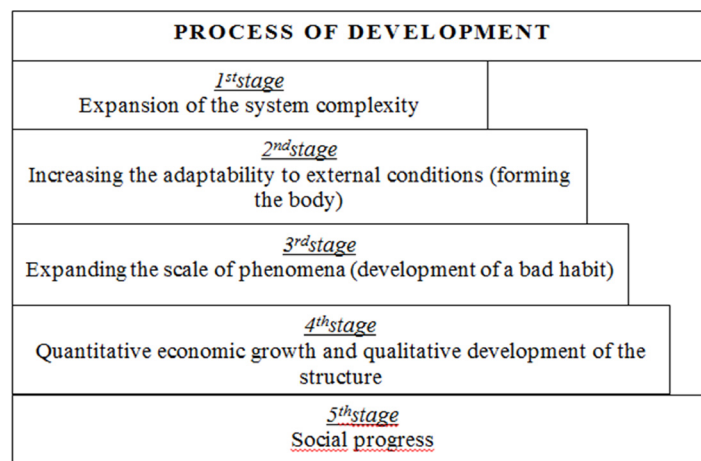


Figure 1: Development as a process

According to classical economic theory development can be intensive or extensive (Figure 2). When it comes to transformations (social, economic, environmental, etc.), particular attention should be paid to

the type of movement, i.e., in what way the desired trend will line up. The most desirable in all systems is a qualitative transformation, due to effective changes.

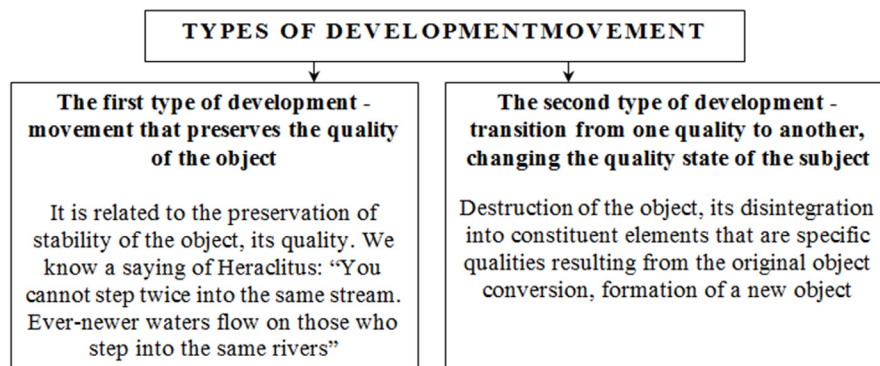


Figure 2: Types of movement during development

The uniqueness of the “development sustainability” concept lies in its relativity in economic research. A certain ranking in the test sample of indicators characterizing the properties of the system can have a positive and negative (or desired and undesired) direction: unsustainable development; sustainable development with the positive/negative dynamics; equally sustainable development. A common feature of the positive dynamics is qualitative changes in the system at the immutability of its properties. Negative trends reflect qualitative changes that lead to deterioration in key indicators of the system development, loss of integrity and can lead to its destruction.

The economic component of the concept of sustainability is based on the Hicks-Lindahl theory of the maximum flow of aggregate income.

The social context of the study of sustainable development shows the exhaustion of the development capacity of society and nature relationships within a specific, existing type of the system.

There are questions of studying the problems of sustainability and development of the world system of national socio-economic aspects of a regional nature and construction of models, i.e., there is a simultaneous study of two opposing phenomena - dynamic development and stability, immutability.

3. RESULTS

A new turn in the study of sustainability was the concept of sustainable development, which originated in the 1970s of the XX century. Today, this concept is seen as an integral symbolizing the totality of the problems of the modern world community. The idea of sustainability continues to be detailed, acquires formal traits and characteristics gradually shaping a specific program core, strategic elements of civilizational development designed to save humanity from destruction.

Development of the concept of sustainability can be described as a logical transition of ecologization (greening) of scientific knowledge to ecologization of socio-economic development associated with the issues of environmental pollution and a lack of a certain amount of natural resources (Table 2).

The fundamental importance of the sustainable development concept is formed and implemented through overcoming a number of restrictions that accompany the process of improving ecologization.

Table 2
The timeline of the sustainable development concept

<i>Stage</i>	<i>Timeline, years</i>	<i>Key events</i>	<i>Characteristics</i>
1	1913 – 1948	1913 Bern, Switzerland, the first conference attended by scientists from 18 countries. 1923 The First International Congress on Environmental Protection was held in Paris. 1928 The International Union for Protection of Nature was established in Brussels, Belgium.	Various countries attempted to combine their efforts in the field of nature protection in the international conference format. Without the support of governments, these efforts did not result in taking any practical steps.
2	1948 – 1968	1948 The first international nature protection organization was created (International Union for the Preservation of Nature) on the basis of the Brussels Union, with the active support of UNESCO. 1950 The concept of nature conservation replaced the concept of nature protection. 1956 The International Union for Protection of Nature changed name into the International Union for the Conservation of Nature and Natural Resources (IUCN).	Creation of the United Nations, which plays a key role in international environmental cooperation
3	1968 – 1992	1960 Human impact on the environment is global in nature, ecosystems lose the ability to renew themselves. 1968 The UN General Assembly adopted a resolution to establish the role of favorable environment for compliance with fundamental human rights. 1972 The United Nations Conference on the Human Environment was held in Stockholm, Sweden, the United Nations Environment Programme (UNEP) was adopted. 1974 The World Population Conference was held in Bucharest, Romania. 1974 The World Food Conference, Rome, Italy. 1976 United Nations Conference on Human Settlements in Vancouver, Canada.	The negative effects of scientific and technological revolution intensified international environmental cooperation
4	1992 – present	1992 The United Nations Conference on Environment and Development held in Rio de Janeiro, Brazil, summarized the results of international environmental protection activities over 20 years after the Stockholm Conference. 2002 The UN Conference on Sustainable Development “Rio+10”, Johannesburg, South Africa. 2012 The UN Conference “Rio+20”, the most important meeting of the world leaders on sustainable development.	The action plan of future international cooperation in the field of environmental management “Agenda 21” was developed together with other final documents. In 2012, at the conference the members approved the outcome document called “The Future We Want”.

A sustainable development strategy cannot be created based on traditional universal ideas and values, stereotypes of thinking. It is necessary to develop new scientific approaches that must not only conform to current realities, but also to the prospect of development of the third millennium. A similar idea is expressed in the work of A.G. Polyakova and V.V. Kolmakov who indicate the need for transformation of the control mechanisms, revision of property relations, etc. to improve sustainability of socio-economic systems (Kolmakov & Polyakova, 2008, p. 99).

Particular attention of the international scientific community should be paid to the area of green economy based on the postulates of sustainable development, in which programs to address the major “pain points” of the modern civilization process are developed and implemented.

Issues of development of the territory, limits of the resource use, problems and consequences of interaction between nature and society have always excited researchers. At the end of the twentieth century, there was a fundamental change in the orientation of scientific thought from the rational use of natural resources to finding ways to achieve sustainable development, “greening” of the processes of the economic system (Zykov, 2011).

The concept of “green economy” (similar terms are “green economics”, “ecological economics”, “low-carbon economics”) is based on the postulates of sustainable development and principles of decoupling. Decoupling is a strategic foundation of moving towards environmentally sustainable economy, allowing separation of the growth rate of people’s welfare, on the one hand, and resource consumption and environmental impact, on the other (Bobylev & Zaharov, 2012).

The first record of “green” economy is found in the program of the UN dated 1989. Active use of this concept is associated with the launch of Green Enterprise Initiative (GEI) in 2008, an organization that seeks to turn environmental protection into a creative process, encouraging each person to carefully handle nature on a daily basis.

Studying the concept of “green” economy revealed a number of its interpretations: industry, economy, a version of the concept of sustainable development, a new socio-economic system. According to the UN, “green” economy is economy that results in improved well-being and social equity, while significantly reducing the economic risks and scarcity of natural resources.

Switching to this model of development is caused by an attempt to solve the country’s fuel and energy complex problems that have acquired a special urgency in the time of sanctions.

Principles of “green economy” continue to develop and advance across the world and, according to the European Environment Agency, include equality and justice over generations, consistency with the principles of sustainable development, adequate consideration of natural and social capital, sustainable and efficient use of resources, creation of “green” jobs, eradication of poverty, improving competitiveness and growth in the key sectors of economy (“*Evaluation of environmental assessments in Europe*”, 2016).

In terms of environmental sustainability, future economy must have the following important features:

- conceptually, economic strategies/programs/plans include directions set forth in the documents of the UN and the OECD, dedicated to “green” economy and growth, low-carbon economy;
- ecological living conditions and their provision become essential;
- knowledge-intensive, high-tech, infrastructure and processing industry sectors with minimal impact on the environment are given priority in development;
- a share of the primary sector in economy is reduced;
- efficient use of natural resources and their saving is radically improved, which is reflected in the sharp decline in the cost of natural resources and the amount of pollution per unit of outcome (reduction of environmental capacity and pollution intensity indicators);
- environmental pollution is reduced (Bobylev & Zaharov, 2012).

The determining factor for the success of economic development on the way of "greening" is the interest of people, authorities and business. A major role in the reorientation of society towards sustainable development is played by environmental awareness, education and culture, which should be the initiators of mass awareness of the need for transition to "green economy" and its development.

Analysis of recent national and international research has shown the apparent interrelation of several concepts: "space", "sustainability", "development", which confirms the relevance of the research of "green economy" in the context of territorial limitations of space.

Simulation of situational territorial development based on the concept of "green economy" occurs in poorly predictable effects, explained the risk of external and internal environment and a number of restrictions, among which are: archaic and disordered structure of science, restrictions of financial nature, low productivity of fundamental and applied research, etc.

Modern deep influence exerted by globalization trends in territorially cohesive spatial units is characterized by a set of major changes that, in simplified form, can be classified as follows:

- formation of an innovative aspect of the economic system development is in direct collaboration with the major international trends of the search for sustainable development;
- widespread increase in the use of intangible assets of diverse nature;
- scaling of information flows and capitals at micro, regional, national and intercountry levels.

Development of a territorial space is in a permanent state of risk coupled with the influence exerted by a set of factors of the globalization nature, which, in general, is an essential condition for sustainable functioning of the regional system. It is this spatial approach, according to A.G. Polyakova, that should become a scientific and methodological basis for decision-making to ensure the improvement of the strategic sustainability of socio-economic systems (Polyakova, 2009, p. 36; Polyakova & Simarova, 2014).

Sustainability of the spatial territorial development at the regional level can be described as the optimal combination of goals, resources and results of activities in the region ultimately aimed at achieving 17 Sustainable Development Goals (SDGs), the achievement of which stimulates activity in the areas of greatest importance for humanity (end poverty in all its forms everywhere; end hunger; achieve food security and improved nutrition; promote sustainable agriculture; ensure healthy lives and promote well-being for all at all ages; ensure inclusive and equitable quality education and promote lifelong learning opportunities for all; achieve gender equality and empower all women and girls; ensure availability and sustainable management of water and sanitation for all; ensure access to affordable, reliable, sustainable and modern energy for all; promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all; build resilient infrastructure; promote inclusive and sustainable industrialization and foster innovation; reduce income inequality within and among countries; make cities and human settlements inclusive, safe, resilient and sustainable; ensure sustainable consumption and production patterns; take urgent action to combat climate change and its impacts; conserve and sustainably use the oceans, seas and marine resources for sustainable development; protect, restore and promote sustainable use of terrestrial ecosystems; sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss; promote peaceful and inclusive societies for sustainable development; provide access to justice for all and build effective, accountable and inclusive institutions at all levels; strengthen the means of implementation and revitalize the global partnership for sustainable development).

There are several classification approaches to identification of forms of regional space sustainability (Table 3).

Table 3
Classification of approaches to identification of forms of regional space sustainability*

<i>No.</i>	<i>Author</i>	<i>Year</i>	<i>Forms</i>	<i>Note</i>
1	Gaponenko A.L.	1999	Normal sustainability Permanent sustainability Hyper-sustainability	Regular increment of the averaged outcome Changes of any nature (positive and/or negative) are short and irregular Poorly susceptible to development, unable to adapt to changes
2	Leksin V.N.	2003	Potential of the territory in various areas (social, environmental, etc.).	Achieving a balanced state of the regional space
3	Krasnova T.A., Vasilieva N.K.	2007	Upward sustainability Downward sustainability	Direction of the regional development on a scale from “depressed” to “sustainable”
4	Bartashevich A.A.	2012	Unsustainable development Absolutely sustainable development Potentially sustainable development Standardly sustainable development Really sustainable development	Depending on the impact of the internal and external environment one of these trajectories of the regional development is given

*compiled by the authors based on the analysis of the source 1.

Traditionally, a set of indicators to assess the sustainability of the region’s territorial space is used (UN, OECD, World Bank and others) reflecting the system-oriented eco-social orientation of the development of the economic system under study. Along with this, tasks associated with the new concepts of space security are integrated.

Main methods for assessing the sustainability the region’s territorial space can be classified as follows:

- multivariate analysis (sustainability index, construction of typological groups of sustainability, etc.);
- evaluation by GRP (indicator “True savings”);
- coefficient method (investment growth, method of calculating the index of sustainable economic welfare);
- functional method (vector algebra tools);
- rating method (ranking approach);
- expert evaluation;
- ranging;
- stress testing (Orlova, 2014).

In simplified form, several key areas of territory sustainability development can be identified: uncomplicated reproduction of renewable natural resources, search for alternative energy sources, introduction of low-waste technologies, minimization of negative anthropogenic impact, “green” education, etc.

Attributes of development sustainability of the regional territorial space are its distinctive characteristic properties which are indicative points of achieving a balanced, “safe” state (Figure 3).

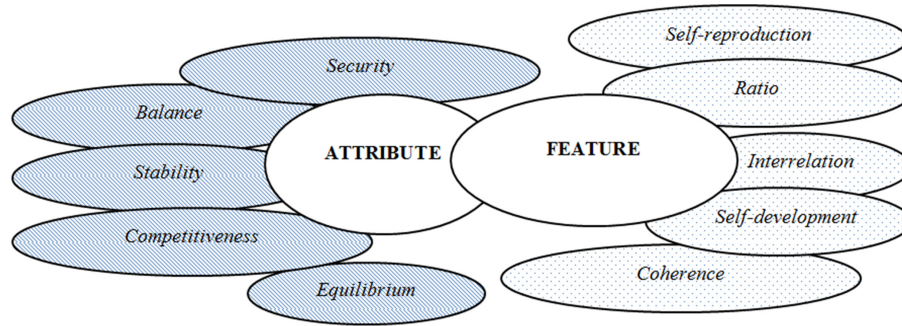


Figure 3: Attributes of development sustainability of the territorial space

In our view, the strategy of sustainable development of space includes several fundamental postulates, such as: priority is given to the achievement of quality indicators of living standards, leveling entropic processes in society, maintaining cultural and biological diversity, etc.

The concept of sustainability of territorial space is important in the development of modern economic theory. It describes the latest trend in the study of processes that operate inside and outside the region, it emphasizes the need to explore globalization phenomena of the world economic space and the interpretation of its impact on a specifically considered region geographically confined in space. Methodical aspects of this issue are an active discussion platform for the world scientific community and have no unequivocal solution (Rudneva, Pchelintseva & Gureva, 2016; Rudneva, Pchelintseva & Gureva, 2016).

Problems of formation of sustainable ecological and economic space under sanctions restrictions and the global crisis of the economic system have acquired exceptional importance for Russian society, experiencing actual time threats (decrease in real incomes and, as a consequence, the level and quality of life, etc.).

The target reference point in the diagnosis of the stability of the territory is evaluation of the ecological balance. Scientific and methodological approaches of contemporary researchers (Figure 4) in the field of spatial and territorial approaches to the evaluation of environmental sustainability, balance, “greenness” can be formalized in a few general areas:

CLASSIFICATION GROUPS OF APPROACHES	
●	<p><u>Resource approach</u></p> <p>A.G. Shapar, S.Z. Polischuk, V.A. Dolodarenko, N.A. Chemobrovkina, A.I. Rybko, N.M. Vetrova et al*</p> <p><i>*the group of authors is selected based on the analysis of the source 1.</i></p>
●	<p><u>Spatial approach</u></p> <p>A.Yu. Davankov, B.V. Burkinskiy, V.N. Stepanov, S.K. Harichkov, L.G. Melnik, L. Hens, B.M. Danilishin, G.V. Balabanov, V.P. Nagornaya, O.M. Nizhnik et al*</p> <p><i>*the group of authors is selected based on the analysis of the source 1.</i></p>
●	<p><u>Assessment methodologies for sustainable development</u></p> <p>UNCSD Indicators project, the model of the OECD indicators of sustainable development, the extended model definition EA Environmental Protection indicators of sustainable development environment, system of indicators, designed to improve the management of natural resources in Central America, the system of the World Bank's indicators of sustainable development, “World Development Indicators”, environmentally adapted clean domestic product, the rate of genuine savings, environmental sustainability index, the index of real progress, the index of sustainable economic welfare, human development index, the index of “living planet”, “ecological footprint” and etc.</p>

Figure 4: The main scientific and methodological approaches of modern researchers in the sphere of sustainability assessment of the territorial space

- quantitative and qualitative assessment of the state of a natural resource, its stock, as part of the resource approach;
- environmental assessment of ecological environment potential of the territory within the spatial approach;
- assessment methodologies for sustainable development (Oshovskaya, 2015).

The symbiotic merging of approaches outlined above will ensure the reliable characterization of destructive factors delaying the implementation of various processes for the establishment of a balanced sustainable ecological and economic territorial space.

4. DISCUSSION

A detailed study of approaches to the evaluation of sustainable development of the territory will reveal shortcomings in the methodological basis, which will allow leveling to develop a comprehensive approach to evaluating the sustainability and improve the efficiency of the formation of sustainable ecological and economic space.

The intensity of the relationship between nature and society is rapidly escalating bringing public awareness of the reality of the threat of global ecological catastrophe. A man-made type of economic development prevailing on the market can be described as nature-destructive based on the use of artificial means of production created without taking into account environmental constraints.

According to experts, the elimination of the environmental issues from the influence exerted by man-made economy requires huge expenses, which can actually be released from the current system and redirected to the development and establishment of the global environmental industry trend.

To prevent the existing environmental crisis, transitioning from the technogenic type of development to the sustainable one is required, involving the use of new technologies to meet the needs of mankind without harming nature (Potravnaya, 2015).

5. CONCLUSIONS

A qualitatively new economic growth allowing overcoming the existing crisis of territorial entities and space is due to the innovative aspects of a balanced, safe, “green” growth. Further development of the territorial space will be conditioned by consolidation of reference points of growth based on ecological and innovative ways to achieve sustainable development of a “green” economic system.

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