



# The paradigm of sustainable development and innovation in the region

## El paradigma del desarrollo sostenible y la innovación en la región

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Received: 01/07/2018 • Approved: 25/07/2018

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#### ABSTRACT:

Progressive development of society and the economy can be achieved by moving to the path of sustainable development based on the use of innovations.

Innovative activity assumes that its results will not have a devastating impact on the environment. The application of innovative developments in all spheres of human activity will allow us to shift to a new type of economic growth without causing damage to the natural environment, ensuring an effective, balanced, progressive movement and generally sustainable development. The main role in solving existing problems should be assumed by the regions.

**Keywords:** concept, sustainable development, innovation, innovation, region.

#### RESUMEN:

El desarrollo progresivo de la sociedad y la economía se puede lograr al avanzar hacia el desarrollo sostenible basado en el uso de innovaciones. La actividad innovadora supone que sus resultados no tendrán un impacto devastador en el medio ambiente. La aplicación de desarrollos innovadores en todos los ámbitos de la actividad humana nos permitirá cambiar a un nuevo tipo de crecimiento económico sin causar daños al entorno natural, asegurando un movimiento efectivo, equilibrado, progresivo y un desarrollo generalmente sostenible. El papel principal en la solución de problemas existentes debe ser asumido por las regiones.

**Palabras clave:** concepto, desarrollo sostenible, innovación, innovación, región.

## 1. Statement of a problem

The modern world community has come to realize the fact that the burden it exerts on the natural atmosphere is becoming excessive, which makes it necessary to take comprehensive measures that would eliminate the risks associated with environmental degradation. The permanent decline in the quality of environmental parameters has led to the need to create a concept that could ensure the preservation of climate. At the end of the last century, under

the auspices of the UN, the main outlines of the concept of sustainable development were outlined, which assumed that improving the efficiency of production systems may be associated with the need to protect the environment. Currently, there is no interest in the concept of sustainable development on the part of the state and the scientific community, which took place in the late 80's and early 90's. But this does not mean that the problems associated with a more humane attitude to the natural environment and its softer use have been solved, on the contrary, many problems have worsened, there are new ones, which include waste disposal and environmental protection from human activities. All countries agree that it is necessary to move to a new type of economic growth based on the model of sustainable development. This aspiration was confirmed at the climate conference, which was held in Paris from November 30 to December 12, 2015. The core category in the concept of sustainable development is the category of "sustainability", which is understood as the ability of the system to carry out an upward trend. Having stability (ability to keep the system), it does not allow the system to go beyond certain limits, despite the influence of the environment. But there may be radical shifts that will shift the system beyond the "cone of tolerance", and then the system will undergo irreversible changes, which can lead to the loss of the system. However, as the system reaches a higher level of development, the limits of the "tolerance cone" are expanded and it becomes more flexible and maneuverable.

Sustainability can be classified into different types, for example, economic, social, regional, national, natural and environmental, etc.

In General theoretical terms, in the context of our study, the stability of the system is understood as its ability to return to the initial position after internal or external influence on it or to reach a higher point in the trajectory of development.

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## **2. Analysis of recent researches and publications**

Different scientists and research organizations provide a variety of definitions of the concept of "sustainable development". Here are some of them.

From the materials of the United Nations Conference on Environment and Development, held in Rio de Janeiro in 1992, it follows that sustainable development is "development that allows for sustainable economic growth without leading to degradation of the natural environment. At the same time, it is especially fixed that the access to the level of sustainable development makes it possible to count on meeting the needs of both present time and future generations "[1].

N. Vashchekina and V. Los point out that sustainable development is "a process that signifies a new type of functioning of civilization. In essence, the task is not so much to optimize the management of the natural and resource elements of the biosphere, but rather to manage the whole natural and sociocultural potential which is at the disposal of the society "[3, p. 42].

A. Salikhova notes that development can be sustainable if it contributes to solving the problems of the current generation of people, but their actions do not cause damage and do not create difficulties for future generations to solve the problems facing them [7].

R.Vlasov notes that this concept "is a theoretical and empirical model of the functioning of the region, in which a social system of flexible response to emerging threats and threats is created and is actually being implemented through their localization for further safe development" [4, p.30].

From the point of view of P. Ivanov, sustainable development is "the ability of the region to preserve and develop the importance of the necessary parameters of the quality of life within (above) the safety threshold with wide fluctuations of external and internal disturbances (socio-political, socio-economic, technogenic, natural and climatic), threatening the quality of life, determines the sustainability of regional development (the principle of homeostasis) "[5, p. 8].

As the study of foreign and domestic economic literature shows, there are other definitions of this concept, which to some extent repeat the essence of the previously given definitions.

The common feature of most statements is that they explain the essence of sustainable development for different levels of socio-economic systems or the economy as a whole, but do not propose mechanisms or models for further progress in the paradigm of sustainable development.

**Research objective** of the study is to analyze the theoretical and methodological foundations for the formation of the paradigm of sustainable development on the basis of increasing the effectiveness of innovation in the region.

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### **3. Main results of a research**

In our opinion, the progressive development of society and the economy can be achieved by moving to an innovative development path based on the knowledge economy and effective use of human capital. Innovative activity involves the use of information and knowledge that will not have a devastating impact on the environment. The application of innovative developments in all spheres of human activity will allow us to shift to a new type of economic growth without causing damage to the natural environment, ensuring an effective, balanced, progressive movement and generally sustainable development.

The basis and the driving force for a new type of social development must be knowledge and the innovations derived from them - the most significant resources that can ensure the progressive development of society and the economy. Alternatives to the use of new knowledge and innovations for comprehensive progress can hardly be found in the modern world.

A new type of social development based on the knowledge and innovation economy, where a stable socio-economic state in the country and regions is achieved, should create crisis-free, safe and reliable prerequisites for sustainable development in the long term.

The foundation on which these prospects can be realized is the development and implementation of regional strategies and programs for sustainable development of the region. The regional dimension is important for the further development of the country, because it consists of regions that differ in a variety of criteria, from the availability of resources to the climate.

Crisis phenomena that accompany the economy and social sphere and regions form an understanding that only the reproductive cycle of use of the results of research activities will allow economic entities to be competitive not only in the regional markets, but also in the markets of the whole country.

The level and dynamics of advanced technologies development become the defining characteristics of the productive forces and capabilities of the economy. High technologies become the strategic foundation for building the economic well-being of the country and determine its status in the world. The achievement of science and the innovative potential of the country's regions determine the competitiveness of the national economy and the prospects for its participation in the world division of labor. High competitiveness of the national economy creates the basis for its stability and stable growth in the conditions of market fluctuations and transformation of international economic relations [2].

The steady trend of increasing the role of knowledge, education and innovation in ensuring the progressive dynamics of the economy and social welfare has become a characteristic feature of the defining development of a number of industrial countries. New knowledge invested in increasingly efficient production technologies, high-quality products, management organization give the main share of their gross domestic product and productivity growth.

In this connection, the greatest research interest, from the point of view of strategic choice of the path of intensification of social production, is represented by enterprises and branches of the manufacturing industry, those that make up its high-tech and knowledge-intensive sector. As noted above, the regions of the Russian Federation differ in their potential and, therefore, each of them needs to identify those sectors of the economy that have great opportunities for their development.

As for the North Caucasus Federal district, the object of our study, the development Strategy of the district until 2025 notes that the main potential is located in such sectors as agriculture, tourism, recreation and energy [8]. Of course, these sectors of the economy need to be analyzed thoroughly, because they have a certain potential, but the locomotive, which possibly withdraw the regions of the district from the zone of depression, is hardly possible.

In our opinion, the socio-economic development of the district can be based on the Economics of knowledge and the results of research activities. The development of scientific, technical and technological potential, advanced growth of production of knowledge-intensive and science-intensive products should be considered as a priority direction of district development.

Implementation of priority directions of economy development in the district is possible can be carried out by intensifying research and innovative activity. Innovations obtained as a result of such activities will allow putting into practice the technological modernization of the district economy, which is necessary at this stage of development.

Ultimately, the subjects of the NCFD can reach a higher level of socio-economic development. In connection with the above it is important to analyze the status and trends of innovative development of subjects of the NCFD (table. 1.)

**Table 1**  
Innovative development Indicators of North Caucasus Federal district

Regions	Costs of technological innovations, per 1000 rubles. GRP (RUR)		The volume of innovative goods, in % of the total volume of goods shipped		Number of advanced production technologies used		Number of production technologies developed	
	2010	2017	2010	2017	2010	2017	2010	2017
Russian Federation	10,7	20,5	4,8	8,7	2033330	204546	864	1400
North Caucasus Federal District	1,7	4,1	8,5	7,6	3282	2234	10	27
Republic of Dagestan	0,2	0,2	5,9	0,6	1793	431	7	13
Republic of Ingushetia	-	0,1	0,1	0,2	-	-	-	-
Kabardino-Balkarian Republic	2,8	5,7	7,4	2,4	192	252	3	6
Karachay-Cherkessian Republic	4,9	2,7	12,0	0,1	70	84	-	-
Republic of North Ossetia	1,1	1,2	1,8	0,1	19	19	-	-
Republic of Chechnya	-	0,1	13,6	1,6	157	322	-	8

Stavropol Krai	18,9	9,4	9,1	11,0	920	1121	-	-
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Source: Compiled from "Regions of Russia. Socio-economic indicators. 2015": stat. SB. / Rosstat. - M., 2015.

Analysis of innovation development shows that in 2017 the cost of technological innovation per 1,000 rubles of GRP in the NCFD amounted to 4.1 rubles, in General, in Russia-20.5 rubles, higher than in the NCFD by 5 times. The highest results for the North Caucasus Federal district has had two regions: Kabardino-Balkarian Republic — 5.7 ruble and Stavropol Krai — 9.4 ruble. In other regions of the district, the costs of technological innovation remain low.

By the volume of innovative goods, works and services in the total volume of goods shipped regions of the district, except the Stavropol Krai, sharply lost their positions. Four regions had particularly low rates. The Republic of Dagestan, where the decrease was 9.8 times, the Karachay-Cherkessian Republics 12 times, the Republic of North Ossetia-Alania — 18 times, the Chechen Republic-8.5 times. In 2010, the district had almost two-fold superiority over Russia according to this indicator, in 2017 the situation changed, now the North Caucasus Federal district lags behind the figure in Russia.

In modern conditions, the principle of catch-up development based on borrowing of advanced technical and technological experience is the most acceptable for the NCFD regions. At the same time, the selection of new technologies should be made taking into account what competitive advantages of the region or sectors of the economy can be realized at the same time.

N. Komkov notes that, given the technological level of domestic innovation structures is lagging behind the world level; it is advisable to import technologies, licenses and patents on a large scale, followed by the maintenance of these industries with domestic innovation potential [6, p. 15]

The progressive development of the regional economy is inextricably linked to the expansion of economic ties with other regions and countries. Therefore, the Kabardino-Balkar Republic will have to radically restructure the economy not only due to the increasing demands of the consumer and production sectors of the domestic market, but in accordance with the requirements and conditions of sustainable development. Sustainable growth is the goal of any regional economy, as well as national one.

Now the Republic has to take a certain step, which will allow moving to a new stage in its socio-economic development. This direction of development of the regional economy is associated with the choice of the main vector of development of its scientific and technical, industrial, agro-industrial, resource, raw materials and human resources potential, with the definition of priorities and the basis of competitiveness of various industries. The core of manufacturing competitiveness is its ability to accept various types of innovations based on new knowledge.

The basis of the innovative type of economic systems development based on sustainability is the understanding of the economy of any level as a system of dynamic organism, the core of which is the economic system that makes up a set of production forces, organizational and economic relations, interrelated and constantly interacting.

This system has a number of features of integrity, which are considered as its main properties: interacting subsystems that form the basis of its structure; resistance to external influences; proportionality of subsystems and elements; the ability to create internal factors of self-development.

As the experience of developed countries, as well as best domestic practice, the fundamental factors that ensure the progressive and effective development of any economic, including socio-economic system, is a new type of technology, new technologies, new organization of labor and production, a new motivational system, the development of entrepreneurship, which together determine innovation.

The complex use of innovative factors that contribute to the technological transformation of

the production and social sphere, and also the environment is the essence of the transition to a new type of growth according to the concept of sustainable development.

In most regions, there is no real basis for transition to the post-industrial level. In the current situation, it is necessary to carry out innovation policy in each region, taking into account its specific features, to allocate funds to overcome the total dependence on historical specialization, which will make the regional economy more resistant to changes in the situation and crisis situations.

The economic cycle, which took place during the reforms, passed without modernization of the production structure, which aggravated the lag in the technical and technological processes. The situation is abnormal, as the phases of recovery and growth were not accompanied by mass modernization. The question is whether another crisis period is necessary to get out of it with a comprehensive update of fixed capital and new technologies, or the update should take place in the form of a sluggish process with the preservation of the entire technological backlog [9, 10].

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## 4. Conclusions

The peculiarity of the existing economic system is that it is not able to assimilate national savings, innovations, for the sake of the vital process of modernization at the level of modern requirements. Modernization of the economy in all its various aspects is relevant not only for individual regions, but for Russia as a whole. Only the implementation of a comprehensive structural adjustment (technological, sectoral, information and institutional) in the interaction and relationship will create the necessary prerequisites for the transition to the paradigm of sustainable development.

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The reported study was funded by RFBR according to the research project № 18-010-00943

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Revista ESPACIOS. ISSN 0798 1015  
Vol. 39 (Nº 47) Year 2018

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