METHODOLOGICAL APPROACHES TO EVALUATION OF ECONOMIC AND ECOLOGICAL SYSTEMS

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Abstract. *In the research were investigated methodological approaches to evaluation of economic and ecological systems. By author was used dialectical approach to scientific knowledge, logical thinking, scientific abstraction, analysis and synthesis, complex approach, comparative analysis, grouping and econometric methods.*

Index terms: *methodological approaches, evaluation, assessment, economic and ecological systems, effective management.*

1 Introduction

In world practice, the sustainable development of regions is considered in the mutually beneficial harmony of their economic and ecological systems. In particular, the development of countries depends directly on the stability of the regions, and the positive aspects of this issue include the rational and efficient use of resources based on the expansion of the innovative economy. In particular, the proper organization of production activities in the economy, ensuring the continuity and growth of the industry depends on the availability of resources. This is due to the effective implementation of management decisions aimed at ensuring the compatibility of economic and environmental systems in ensuring the sustainability of regions. In the framework of the "Sustainable Development Goals" adopted by the UN General Assembly on September 25, 2015, it is important to ensure the effectiveness of economic and ecological systems management, such as sustainable cities and settlements, responsible consumption and production, marine and terrestrial ecosystems, climate change prevention. criteria were considered. [1]

2 Literature review

Extensive research has been conducted by foreign and domestic scientists in the field of economic and ecological systems and their management. In particular, Costanza R. [2], Cataldo A.L. [3], Andrew Brennan [4], Anthony S.F. with global economic and environmental problems far abroad. Chiu, Geng Yong [5], Raul P. Lejano [6], Daniel Stokols, Yanzhen Zhang, Ying Zhang, Inakwu Odeh, Jiaguo Qi and other economists were involved.

Studies related to the management of economic and ecological systems in the regions of the CIS countries Ananenkov [7], A.G., Bronstein AM [8], Goffman K.G. [9], Gomboev B.O. [10], Zalessky L.B. [11], Sadykova E.Ts. [12] studied by foreign scholars such as.

A.Abdullaev [13], A.Gafarov [14], B.Ataniyazov [15], AEIshmukhamedov [16], S.Gulomov [17] on the issues of management of economic and ecological systems in the sustainable development of socio-economic systems in Uzbekistan , I.Qayumova [18], T.Shodiev [19], Yu.Muhammedov [20], N.M.Mahmudov, B.Xodiev, R.Kulmatov, U.Djanibekova, A.Rasulov, I.Soliev, C. Scientists such as Yu. Yusupov were engaged.

Little attention is paid to scientific research on the development of scientific and methodological aspects of this issue, improving the efficiency of management based on the study of its factors. Also, insufficient attention is paid to the development of scientific recommendations, taking into account the characteristics of economic ecosystems in the country. The lack of a comprehensive study of economic and environmental systems, the need to study this issue in terms of effective management and efficiency, served as a basis for choosing this topic.

Ensuring sustainable socio-economic development is one of the main tasks of the country. Ensuring economic stability requires optimal and efficient management of the production process. One of the methodological bases of the study of this issue is the study of management factors in the direction of sustainable development of economic and ecological systems.

In economic research, a factor is defined as "the force that drives production and the economic process and influences the results of its activities." In studying

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the factors influencing the management of economic-ecological systems, researchers have conducted research in various areas. Some studies have been resource-based, while others have been studied through case studies. In particular, in the management of economic-ecological systems and the study of their factors are divided into three groups, "... in terms of resources, technological, general-philosophical and economic-ecological."

A resource factor group is a management that takes into account the resources and capabilities of the land in supporting the processes of socio-economic development of people on the basis of various resources. It looks at the impact of natural resources on the economy and the environment.

3 Analysis and results

The technological factor group is interpreted through management activities in the direction of rational use of scientific and technical progress. At the same time, the management of scientific and industrial forces serves to ensure sustainable development, while scientific and technological progress increases the potential of economic and ecological systems. It should be noted that while the development of science and technology leads to the saving of resources per unit of output, the rapid growth of production can have a negative impact on the environment.

In the group of general philosophical factors, the interdependence of the founders of the economic and ecological system is considered in terms of its relationship with the natural potential of society's development. This group represents the quality indicators of economic and ecological systems.

In the group of economic-ecological factors, management based on the laws of equilibrium of the system is considered. At the same time, the formation of horizontal and vertical links in the structure of economic and ecological systems is an attempt to ensure sustainable development based on the sustainability of natural resource potential. According to this factor, environmental sustainability is a key factor in the development of economic and ecological systems. These factors as the effectiveness of management of economic and ecological systems include population growth, scientific and technological progress, increasing the ecological purity of products, access to natural resources, policies in the field of rational use of nature, increasing living standards.

In another source, economic-ecological systems are divided into three groups, namely, social, economic and ecological types, directly linking the factors influencing the management of sustainable development with its structural structure. They are:

- Natural and ecological factors: natural and climatic conditions, soil composition, land resources, available water resources in nature, underground and surface resources;

- economic factors: specialization of the region; potential and structure of the regional economy, the level of development of production infrastructure, investment climate;

- Social factors: demographic, socio-cultural factors, living standards, labor resources, public health, development of social infrastructure, social impacts.

In general, environmental factors play a special role in the structure of the above classification. In particular, environmental factors are a source of determining the specialization of the economy. Nevertheless, the productive forces that make efficient and optimal use of these are the economic factors. We can look at the economic factor as the main means of influencing natural resources. It is expedient to interpret social factors as social spheres of human life.

Group factors influencing the management of economic and ecological systems and existing factors can be divided into external and internal factors, taking into account the degree of impact. The level of sustainable development of economic and ecological systems is determined by the positive or negative impact of internal and external factors of the region. The stability of economic and ecological systems can be attributed to the following sources that have a general description of environmental factors: geographical location of economic and ecological systems, political and spiritual-educational environment, scientific and technological progress, components of economic and ecological systems at the macro level. Internal environmental factors include conditions directly related to the effective management of economic and ecological systems, such as natural resources, demographics, traditions of environmental culture, social management and organizational structure, environmentalization of production, environmental investment status (Figure 1).

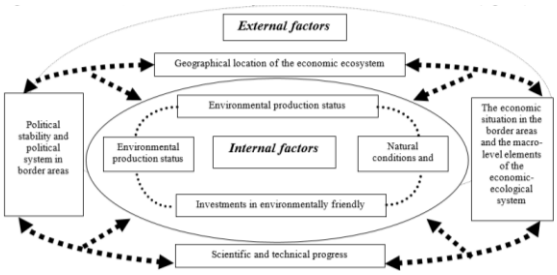

Fig.1. Movement of external and internal factors of effective management of the economic and ecological system

The geographical location of economic-ecological systems takes into account the systems that distinguish them from other economic-ecological systems. Geographical situation occurs when the economic and ecological system changes within its territory. Factors in the use of geographical location opportunities can be divided into two: the potential

geographical location and the geographical location used in practice. In the first case, it includes unused opportunities in the area where the economic and ecological systems are located, and in the second case, it includes the unused opportunities in the area where the economic and ecological systems are located. While the factor in the first case represents the management of the available stock, the second direction is the direct management factors. However, special attention should be paid to this factor. Because this factor is a resource for the development of economic and ecological systems, which determines not only its stability, but also its future development. Thus, the geographical location determines the direction of development of economic and ecological systems.

The spiritual-enlightenment environment occurs in the process of industrialization of society and is associated with its socialization. In this factor lies the formation of a spiritual image of the relationship between man and nature. This issue is addressed on the basis of the political situation, environmentalization, socio-cultural and spiritual status of society and plays an important role in the sustainable development of economic and ecological systems.

Scientific and technical progress is widely used as a key factor in the effective management of economic and ecological systems. It provides an opportunity to modernize production, create low-cost and resource-saving technologies. However, along with the application and use of scientific and technical progress in the economic activities of workers, its anthropogenic impact on economic and ecological systems is also predicted. It should be noted that the development of science and technology and the impact of the science and technology revolution on economic and ecological systems differ from each other. While the development of science and technology ensures the sustainability of economic and ecological systems on the basis of certain techniques and technologies, the scientific and technological revolution provides a factor of sustainable development of the system.

Macroeconomic components constitute descriptive characteristics at the macro and micro levels. These characteristics are the basis of the ecological, economic, social and institutional system. The ecological description takes into account natural disasters at other objects that have an impact on the management of the economic-ecological system under study. Economic factors take into account the processes of integration, the diversification of foreign economic relations, the external economic resources of the system, the role of the international division of labor. Social factors include natural population growth, the number and composition of migration movements, as well as other indicators of economic and ecological systems that interact on the basis of this factor. Institutional factors include constitutional and legal rights and obligations of citizens, economic and environmental institutions, norms of anthropogenic impact on the environment.

Factors influencing the management of economic-ecological systems affect the system as a whole, and a change in one factor group also affects another group of factors. Hence, the factors influencing the management of economic-ecological systems realize a mutually synergistic effect. Indeed, in factor analysis, each factor is evaluated separately, and from a structural point of view, each of the factors is considered as an element of a whole structure.

An important internal factor that determines the management of economic and ecological systems are natural conditions and resources. This factor is characterized by the functioning and use of economic and ecological systems. Assuming that economic development is largely dependent on natural resources, the availability of different resources allows for the continuous development of sectors of the economy. Natural resources also have a role to play in this regard. The impact of agriculture, especially irrigated agricultural products, food, technical raw materials, etc., supplied by dry farming and pastoralism, on the growth of the national economy is quite high. We all know that environmental resources supply 32% of the world's GDP.

In our view, the role of environmental resources in economic development is expected to increase in the future. This is due to the fact that population growth will affect the quantitative increase in livestock and agricultural production (requires the supply of grain, livestock products in per capita terms).

It has not been recognized that the economy is supplied with natural raw materials and has long been dependent on the laws of nature, especially environmental laws and regulations. As a result of the development of production and the widespread application of scientific and technological advances in industry and agriculture, the location of natural resources, their potential, regenerative capacity, levels of self-purification, including dependence on environmental laws, began to be substantiated by experts.

Inefficient (extensive) development of the economy, based on the principle of "achieving high returns at the lowest cost", eventually led to an environmental crisis. Its negative effects, such as air and water pollution, as products produced due to soil impoverishment, have led to economic hardship in society through declining incomes, deteriorating human health, declining labor productivity, and declining productivity. It was found that as a result of a one per cent reduction in soil fertility, it would be necessary to spend 10 per cent to compensate for the yield. The study found that the productivity of the secondary forest formed on the site due to natural deforestation was not commensurate with the primary forest.

Every year, 2.5 trillion dollars are spent worldwide to reduce the incidence of infectious diseases and pests on agricultural crops. dollars, which accounts for 10 percent of the world's total budget, allows us to understand just how negatively the environment affects the economy. Experts estimate that in the second half of the twentieth century, the damage to the natural environment caused by human economic activities and, consequently, the damage to human health, exceeded the annual budget of the world. It should be noted that per unit of finished product obtained from the landfill generates several, sometimes 10 and more units of waste. Such waste is usually of no value to the economy. Because they are not used in agriculture, in addition, waste pollutes the environment, occupies pastures, endangers human life.

We all know that the more gross national product is produced, the greater the total volume of waste. However, the state prevents the deterioration of the health of the population due to the pollution of these wastes and takes care of it and allocates certain funds for this purpose. These costs are borne by the gross national product. However, the value of environmental pollution is not calculated. The newly built enterprise brings a certain annual income to its leader, but the enterprise emits various wastes into the environment, pollutes the air, water and soil, damages crops and pastures, and worsens the health of the population. The amount of tax paid by an industrial enterprise is small, the damage it causes to the environment is large enough, and in some cases it can be even higher. The fact is that the damage caused to the environment by the enterprise is not calculated objectively. That is why the ecological situation is becoming more complicated.

The impact of the economy on the environment is well known, but the impact of the environment on the economy is much more complex. This is often explained by the negative impact of nature on society. When the natural resources of the regions are used improperly, they become impoverished, degradation increases, and changes in the quantity of resources lead to changes in quality. These environmental and economic changes will impoverish the economic potential of the region, and most importantly, the socio-economic situation will worsen, a sharp decline in resource productivity will lead to disruption of irrigated agriculture and pastoralism, disrupt the supply of quality raw materials to industrial enterprises.

Demographic situation takes into account the demographic situation of the population in the current period or in a certain period of time. The interrelationship between nature and the economy is known from the earliest stages of human society. Because nature provides man with food, clothing, shelter and other necessary material goods. Man takes aesthetic pleasure from nature, restores his health in it and under its influence. In general, he receives all the material blessings necessary for life in direct and indirect ways - to enjoy. In the process of enjoying material goods, people initially used as much and as much as they wanted, and of course, allowed waste. But with the passage of time and the improvement of the tools of production, and most importantly the ability of people to think, with the growth of consciousness, signs of caution in the use of delicacies have also been formed. This phenomenon may have been well felt when they did not come from the barracks. This means that farming has been practiced by people since ancient times.

The material needs of the population are infinite and unsatisfactory when viewed globally. Because the population is constantly growing. But natural resources are limited. Consequently, there is a huge difference between demand, need, and material goods. This, on the one hand, unites the economy and ecology, that is, encourages the need for highly knowledgeable and rational organization of the economy, on the other hand, there is a growing desire to find and put into practice artificial materials that can replace (replace) primary natural resources.

In ensuring the sustainable development of economic and environmental systems, the resources of this economy must be taken into account in order to make appropriate management decisions. Therefore, the organization of management on the basis of a comprehensive assessment of the existing factors of the region will ensure sustainable economic growth. At the same time, along with economic and social factors, special attention should be paid to spiritual and educational issues, customs and traditions.

Currently, there are two main and widely used methodological approaches in assessing the sustainable development of economic and ecological systems. The first approach takes into account the following system of indicators: economic, environmental, social. This approach is used by international organizations such as the United Nations, the European Union, the World Bank. This system of indicators of sustainable development was first included in the agenda of the UN Summit on Environment and Development in Rio de Janeiro (1992). Since then, the UN Commission has developed a system of indicators and improved them based on the objectives of the indicators.

The second approach uses integral indices to assess the process of socio-economic development on the basis of economic, social and environmental indicators. Integral indices determine the average value of economic and environmental results. The results obtained are standardized (compared to normative indicators) or compared to the best performance in the region.

However, there are other approaches to the assessment of sustainable development in addition to the classified approaches, which include, for example, five interrelated indicators in the "world dynamic model" proposed by the American scientist D. Forrester. These are: the world's population, capital investment (forming

natural resources, representing the level of economic development), the use of non-renewable resources, environmental pollution (waste from the activities of people who are not processed by nature) and food production. Brian Boyd evaluates the emergence of ecological conditions by the fact that nature appears at the heart of historical events and happenings.

An Australian scientist, Andrew Benan, has a philosophical approach to the evaluation of economic-ecological systems based on the customs and traditions formed in the regions. East Asian scholars have approached the assessment of the regions, taking into account their strengths and weaknesses, as well as their existing capabilities, while mobilizing tactical and strategic capabilities based on industrial ecology and levels of specialization.

Russian scientists Yu.K.Persky and VVLenikhim also advocated the assessment of sustainable development as economic, environmental and social indicators. Economic indicators include financial results, innovation activity (volume of innovative goods and services). Social indicators include occupational diseases, working conditions, and the level of qualification of workers. In ecological sustainability, emissions into the atmosphere, volume of water used, production and consumption formation, energy consumption, total water consumption, amount of occupied land were studied.

According to SA Pankov, in the assessment of the territorial aspects of the economic and ecological system studied the use of water, electricity generation, the volume of polluted water. In this approach, the author has neglected social and economic criteria, focusing on one aspect of sustainability, environmental criteria.

According to D.P. Kislitsin, the assessment of indicators representing economic-ecological systems is divided into economic and ecological types. Economic indicators include investments in environmental protection from the local budget (current expenditures on environmental protection, investments in environmental technologies, local budget expenditures on environmental activities), payments for environmental pollution (environmental and environmental payments), benefits for nature protection activities (tax benefits, benefits for ecofunds). Environmental indicators include: gross emissions into the atmosphere, water consumption (for consumption and technical purposes), energy consumption (energy efficiency, energy saving, solid household waste per capita, water polluting waste). Although this approach provides sufficient information to assess the sustainability of economic and ecosystems, in our view, the statistical data required for this assessment approach are macro-specific in relation to the regional nature. This poses a number of challenges at the regional level in the application of this approach.

The following indicators are used by EV Girusov and others as an approach to assessing the state of economic and ecological systems: cost-effectiveness of environmental protection, comparative economic efficiency, net efficiency of environmental protection costs, the negative impact of economic entities on the environment the decline rate is an indicator of the improvement of the state of the environment based on the measures taken for nature protection. In this approach, too, key indicators have an environmental classification. At the same time, almost no attention was paid to economic indicators. However, the impact on the environment occurs on the basis of production and consumption, that is, it is reflected in economic indicators.

He studied the assessment of economic and ecological systems by AP Kuznetsov, combining them into six areas. The elimination of air pollution (atmospheric pollutant emissions) has put in the first place such indicators as the volume of gases generated in the treatment of technical pollution. In the second direction, pollutants discharged into reservoirs are included in the indicators for assessing the pollution of water sources, which represent the volume of puddle water resulting from the treatment of pollution. On the basis of solids, environmental pollution (volume of waste as a result of the organization of production and consumption, waste collection and storage) is studied in the third direction. In the fourth direction, the increase in renewable resource reserves is generalized (reclaimed area of forests, area of deforested (cut) forests). The fifth direction is the recovery of biological resources (recycled area to be hunted, hunting area). Separately protected areas (specially protected natural areas) are the sixth direction. This approach is more in line with the assessment of economic and environmental potential of the region than the assessment of economic and environmental systems.

The World Bank, which makes extensive use of methodological approaches to assessing the sustainable development of economic and environmental systems, uses a model to determine the actual savings rate in assessing sustainability. This process consists of two stages. In the first stage, the net internal fund (NDS) is determined. To determine it, the depreciation of production assets (CFC) is deducted from the Gross Domestic Fund (GDS). In the second stage, the net domestic fund is added to the cost of education (EDE), minus the cost of natural resources (DPNA) and the damage caused by environmental pollution (DME). The appearance of this model is as follows:

$$GS = (GDS - CFC) + EDE - DPNR - DMGE \quad (1.1)$$

In our opinion, the final indicator of the economy is not savings, but GDP (revenues such as SIM, MD). Also, the above method requires large-scale

processing of statistical data. This creates uncertainties for the problem under study to find a clear solution.

The UN uses the following model to assess economic and environmental systems:

$$EDP = (NDP - DPNA) - DGNA \quad (1.2)$$

In this case: EDP - environmentally friendly pure domestic product; NDP - pure domestic product; DPNA - value of spent natural resources (oil, gas, deforestation); DGNA is the value of environmental damage.

This method used by the UN has a number of shortcomings compared to the above approach. In particular, one of the key indicators of the economy, which is evaluated and taken as a basis, is the gross domestic product. However, there are a number of controversial indicators in this method. Generally, gross domestic product is expressed in terms of values, and the figures are required to be expressed in terms of values. However, there are uncertainties in the value of felled forests. This creates uncertainties and difficulties for the practical application of this model.

In her research, SA Surkova used the index method in the assessment of economic and ecological systems. It assesses and ranks the relevant indicators of the regions. EA Tretyakova also used the dynamic method in assessing the sustainable development of economic and ecological systems. His research assessed economic, social and environmental criteria. Financial indicators as an economic criterion in the evaluation process, the rate of change in GRP, fixed assets, labor productivity, average real wage growth trends, the cost of innovative products, research and development costs, industrial output, the growth rate of loss-making enterprises , describes indicators such as wear coefficient. Environmental criteria include the growth rate of neutralized and recycled waste, changes in the actual volume of fuel saved through the use of secondary energy resources, the difference between environmental protection and fixed capital investment, the growth rate of environmental protection expenditures. The social criteria include the growth of GRP per capita, changes in average per capita income, the reduction of low-income families, and the improvement of the demographic situation. This assessment approach focuses on a comprehensive study of economic, environmental, and social sustainability. It also focuses on environmental criteria and their changes in relation to economic indicators. In our view, it is appropriate to link environmental change to social criteria in this approach. This is because with changes in social indicators, there will be a change in both the consumption of raw materials and their consumption, and this situation represents the right relationship.

E.L. Kuzina's research has studied the modeling of economic and ecological systems management processes. In the study, the author used economic-mathematical methods to assess the cost-effectiveness of environmental protection measures. The appearance of the model is as follows:

$$\text{Пр (У)ooc} = (S1 - S2) - (\text{К}/n1 + \text{Э}/n2 + P) \quad (1.3)$$

In this case: Pr (U) oos - the benefit (hidden benefit) as a result of measures taken to protect nature; S1, S2 - damage to the environment caused by users before and after the application of environmental measures; K - capital investments made by the nature conservationist in nature protection measures; n1 is the guaranteed period of nature protection, the effectiveness of which does not change; E - operating costs appropriate for the implementation of nature protection; n2 - period of validity of nature protection measures; P - payments for environmental pollution and other negative effects on it. In this way, the author focuses on the environmental situation and investments in its improvement. Typically, capital investment in changes in economic performance or technological processes, i.e., improvements, also results in resource-efficient production. At the same time, the involvement of professionals or the change in their qualifications also leads to similar positive changes. Given this situation, the use of equality allows for a comprehensive implementation of the evaluation method.

In the researches of PV Drujinin and GTShkiperova the problem of modeling of economic ecological systems is studied:

$$Z(t) = F(U_1(t), U_2(t), U_3(t), t) \quad (1.4)$$

Where: Z (t) is the environmental factor under study; U1 (t) - size, which represents the development of the economy and has a negative impact on the environment (investments in the economy and new construction, GRP); U2 (t) - a factor that reflects the nature conservation activities and has a positive impact on the environment (investments in nature conservation, current expenditures in this area); U3 (t) - a factor that changes the current production and has a positive impact on the environment (investment in modernization of production); t - year.

Based on the research, the following econometric model was developed:

$$Z(t) = 8{,}79 * U_1^{0,191}(t) * U_2^{-0,033}(t) * U_3^{-0,042}(t) \quad (1.5)$$

In other words, a 1% increase in investment in new construction increased waste by 0.191%, investment in modernization reduced waste by 0.042%, and investments in nature conservation reduced waste by 0.033%.

In doing so, the author focuses on comparing the sources of investment with each other. That is, an assessment was made of the extent to which a change in the unit of investment in terms of resources would affect sustainability, including environmental sustainability indicators. Thus, on the basis of a group of indicators classified by the author, the following model for

determining the integral quality indicator (I) of regional economic development was proposed:

$$I = \sqrt[3]{I_1 I_2 I_3} \qquad (1.6)$$

The above indicators I_1, I_2, I_3 are indices obtained on the basis of grouping of economic, social and environmental indicators, respectively, for their definition the following equation is proposed:

$$I_j = \frac{\sum_{i=1}^{n} y_{норм} i}{n} \qquad (1.7)$$

In this case: I_j - development index of economic, social and environmental spheres; Y_{norm} is the normative level of each indicator included in economic, social and environmental groups.

Taking into account a number of shortcomings in the approaches to assessing the state of classified economic and ecological systems in our study, and to expand the quality and effectiveness of assessment capabilities, we believe that it is necessary to develop a methodology for assessing economic and ecological systems. The new assessment methodology to be developed should be aimed at expanding the possibilities of determining and increasing the level of efficiency in the assessment and management of economic and environmental systems.

4 Conclusions

Ensuring the sustainable development of the regions as a whole requires a special consideration of the interdependence of economic and ecological systems. Economic and ecological systems operate as a whole, that is, one does not work without the other. The study of the structural structure of the regional economic and ecological system and their interaction as a whole is necessary to ensure sustainable development through effective management. In particular, they consist of economic, environmental and social sections, and on the basis of their sustainability, sustainability is ensured by effective governance in general. Environmental sustainability differs from natural-economic sustainability in that it assesses the level of the economy's access to natural resources. Economic stability will be aimed at ensuring economic growth while maintaining and not disrupting large-scale ecological balance or increasing ecological purity. Effective use of methods for managing the sustainability of economic and ecological systems will allow for the rational and efficient use of natural resources, environmental protection and the implementation of economic reforms. This will require the intensification of innovation and investment activities at the regional level, the orientation of the economic system in accordance with environmental standards.

In ensuring the sustainable development of economic and ecological systems, it is necessary to take into account the group factors that affect the management of systems and the degree of influence of existing factors. It is possible to divide into internal and external factors according to the degree of influence of factors. External environmental factors include the geographical location of economic and ecological systems, political and spiritual-educational environment, scientific and technological progress, the components of economic and ecological systems at the macro level, conditions directly related to the effective management of economic and ecological systems, ie natural resources. demographic situation, ecological culture, public administration, greening of production, ecological investment status. Application of factors influencing the management of economic and ecological systems in accordance with the principles of comprehensiveness, systemicity and variability. Identification of interrelated gross factors determining the stability of systems and the organization of management of economic and ecological systems on the basis of complex assessment and sustainable economic growth and environmental cleanliness. allows you to provide.

Based on the study and analysis of methodological approaches used to assess the sustainable development of economic and ecological systems, it was found that existing methodological approaches focus on regional, economic, environmental, average value, philosophical, social and historical aspects of economic and ecological systems as a whole. . Taking into account a number of shortcomings in the approaches to assessing the state of economic and ecological systems, and in order to expand the scope of assessment, it was identified the need to develop an assessment methodology. The new assessment methodology that needs to be developed will expand the possibilities for determining and increasing the level of efficiency in the assessment and management of economic and environmental systems.

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