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The Economic Environmental Systems And Their Effective Management

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ABSTRACT

This article identifies the economic and ecological systems of the regions and the factors affecting their sustainability. The article also analyzes the indicators of economic and environmental sustainability of the Fergana region and develops proposals for the sustainable development of economic and environmental systems. This allows for the effective management of economic and environmental systems.

KEYWORDS

Economy, ecology, economic-ecological system, economic-ecological system stability, management, environment, ecological control, ecological safety.

INTRODUCTION

Sustainable development of regions around the world is seen 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. The impact of the economic, social and ecological environment on the economic-ecological system and its interdependence encourages the study of the issue of integrated

regulation and management.

LITERATURE REVIVE

Different approaches to the management of economic and ecological systems have been developed by scientists. According to the Russian scientist A.A. Malyshev and others, the management of the economic-ecological system is a process of targeted influence in this area, a process capable of supporting and developing activities aimed at maintaining the structural structure [1].

In his description, the author approaches from the point of view of environmental protection, that is, from an ecological point of view. According to OP Siromyatnikova, "Management of the economic and ecological system - the activities of government agencies aimed at increasing the responsibility of economic entities in accordance with the law through the system of rational use of natural resources and environmental protection" [2].

This definition implies that the management process is carried out on the basis of administrative methods. Other studies focus on increasing human capital in the management process that ensures the sustainable development of the region, noting that the balanced development of economic and ecological systems is based on the human factor [3]. The work of R. Kaplan [4], H.R. Fridag and V. Schmidt [5] also focuses on management issues in ensuring the sustainable development of regions. That is, these studies address research issues related to ensuring sustainable and balanced development of

regions, prevention and management of their crisis situation. D.Medouz's research also focuses on macroeconomic and regional policies aimed at increasing the quantity and quality of factors of production for sustainable development [6].

However, in the research of researchers such as J.Put [7], R.Harris [8], R.Capello and U.Fretesi [9], the economic development of regions was assessed on the basis of economic-mathematical methods.

It emphasizes the importance of economic policy in the sustainable and long-term development of the regions, the management of the effective use of factors of production, that is, the joint coverage of economic and environmental issues.

MATERIALS AND METHODS

Particular attention in the study of the management of the economic and ecological system is in its geographical scope. This is not always in line with the administrative-territorial nature. However, the method of managing economic-ecological systems consists of administrative, financial-economic and market mechanisms.

In practice, the management of economic and ecological systems is carried out based on administrative-territorial units. There are several methods in the regulation of economic-ecological systems, which can be divided into economic, legal and administrative types (Figure 1).

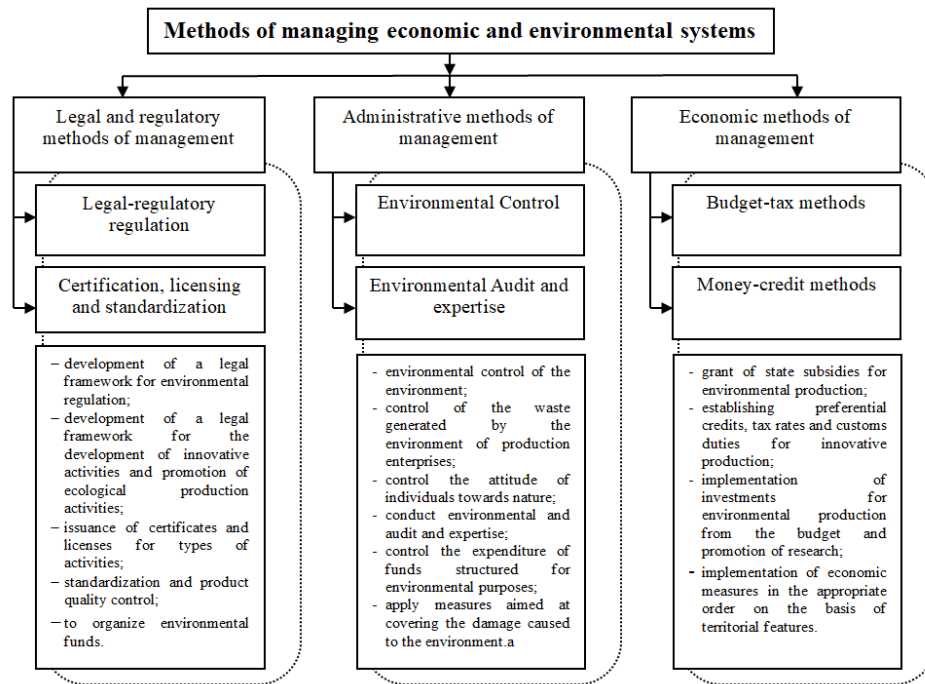


Figure 1. Methods of management of economic and ecological systems

Methods of managing economic and ecological systems allow for the rational and efficient use of natural resources, ensuring environmental protection and implementing economic reforms. At the same time, it is necessary to intensify innovation and investment activities at the regional level, to direct the economic system in accordance with environmental standards. While ensuring sustainable economic growth has always been a priority in the management of economic and ecological systems, the issue of environmental protection needs to be taken into account. That is, the effective management of this system requires the organization of optimal and efficient ways of meeting the needs of striving for infinity, taking into account the limited resources. In general, the management of economic and

ecological systems, ensuring their balance, regulating the location of productive forces in the regions leads to the sustainable development of the regional economy, maintaining environmental cleanliness and improving the welfare of the population.

RESULTS AND DISCUSSION

During our research, the factors affecting the economic and ecological systems of the Fergana region were analyzed. Among the economic indicators in the region, such as mining and open-pit mining, as well as transportation, have a special impact on both economic and environmental impact. It can be seen that the average growth of mining volume in the open round has developed in recent years (Table 1).

Table 1. The state of development of the open-pit mining industry and the volume of freight traffic in the Fergana region

Nº	Years	Mining industry and performance of open fields (billion. sum)	Change rate (in%)	Freight and freight turnover by modes of transport (mln. T/km)	Change request (in%)
1	2010	0,7	100,0	492,1	100,0
2	2011	1,3	185,7	496,4	100,9
3	2012	2,5	192,3	539,0	108,6
4	2013	6,8	272,0	572,8	106,3
5	2014	16,3	239,7	610,6	106,6
6	2015	12,2	74,8	658,7	107,9
7	2016	21,3	174,6	800,5	121,5
8	2017	31,6	148,4	705,2	88,1
9	2018	49,2	155,7	715,4	101,4
10	2019	116,5	236,8	785,5	109,8
11	2020	127,8	109,7	845,2	107,6

An analysis of the interval of periods revealed that in 2020 it increased by 109.7% compared to 2019, and in 2019 by 2.4 times compared to 2018. We can observe the same situation in the transportation of goods. The average growth of freight turnover in the period between periods is 7-8%. If we look at the years, in 2018 it increased by 101.4% compared to 2017, in 2019 by 109.8% compared to the previous period, and in 2020 by 107.6% compared to the period under review. An increase in the volume of open-pit mining is economically desirable, but from an environmental point of view, an increase in the concentration of various dusts

and other rock bodies in the air and their spread to different areas by winds is detrimental to environmental cleanliness. Indicators of the stability of the economic and ecological systems of the region, such as labour resources, economically active population, employment growth rates and unemployment rates, which allow assessing the social situation, were studied. The change in the average values of these indicators reflected the decline in the second period compared to the first period (Table 2). There is an increase in the unemployment rate, which means that the change is negative.

Table 2. Analysis of indicators for assessing the social status of Fergana region (in per cent)

Name of indicators	Employment growth rate		Unemployment rate		The growth rate of labour resources		The growth rate of the economically active population	
	Average for 2010-2014	Average for 2015-2019	Average for 2010-2014	Average for 2015-2019	Average for 2010-2014	Average for 2015-2019	Average for 2010-2014	Average for 2015-2019
By region	102,2	101,6	5,13	6,7	103,0	100,9	102,1	101,6

Margilan	102,3	102,0	4,72	6,2	102,9	100,9	101,9	101,7
Fergana city	102,8	100,9	3,84	5,8	103,0	101,0	102,0	101,9
Quvasoy	102,6	101,9	5,41	5,8	102,8	100,8	102,2	101,7
Kokand	102,8	100,9	4,55	6,4	103,0	101,0	102,1	101,8
Baghdad	102,1	101,7	4,96	6,6	103,0	101,5	101,9	101,5
Beshariq	102,1	101,9	4,74	6,2	103,0	100,9	101,7	101,6
Buvayda	102,3	101,9	5,18	6,8	103,0	101,0	102,3	101,6
Dangara	102,1	101,8	5,98	7,3	102,9	101,0	101,5	101,5
Yozyovon	101,1	101,4	7,09	8,1	102,9	100,8	100,7	101,4
Altiariq	102,0	101,8	5,55	7,0	102,9	101,6	101,8	101,4
Rishton	102,1	101,7	5,33	6,7	102,9	101,0	102,1	101,6
Sox	102,0	102,7	7,46	8,4	103,1	100,9	101,3	101,7
Stone	102,1	101,8	5,35	6,9	102,9	100,8	101,9	101,6
Uchkuprik	102,0	101,9	5,81	7,4	103,0	101,0	101,9	101,6
Fergana district	102,1	102,1	5	6,8	103,0	101,1	102,2	101,7
Furqat	102,3	101,3	5,62	6,6	102,9	101,2	101,6	101,4
Uzbekistan	102,3	101,7	5,29	7,4	102,9	101,0	102,2	101,7
Quva	102,0	101,8	4,13	6,1	102,9	101,0	102,5	101,7
Qoshtepa	102,0	101,8	5,62	7,1	103,0	101,0	101,6	101,5
High value	102,8	102,7	7,5	8,4	103,1	101,6	102,5	101,9
Lower value	101,1	100,9	3,8	5,8	102,8	100,8	100,7	101,4

The growth rate of employment and the unemployment rate is the result of the measures taken. These figures reflect the negative change in the second period of 2015-2019 compared to the first period of 2010-2014. In particular, the average value of the growth rate of employment in the first period decreased by 102.8%, in the second period by 102.7% to 0.1 per thousand. A similar situation was observed in the smallest averages, with 101.1 per cent in the first period and 100.9 per cent in the second period. While the highest value of the unemployment rate in the first period was 7.5 per cent and the lowest value was 3.8 per cent, a negative change was

observed in the second period, reflecting 8.4 and 5.8 per cent for the corresponding periods. Environmental indicators play an important role in the system of indicators representing the sustainable development of regions. The number of pollutants and harmful gases emitted into the atmosphere is important in the composition of these indicators. When these indicators were analyzed, it was found that the number of toxic gases released into the atmosphere increased (Table 3). In particular, the amount of hydrogen fluoride in toxic gases containing carbon dioxide increased by an average of 0.4-0.5 per thousand per year, nitrous oxide by 0.2 per thousand and methane by 1.1 percent.

Table 3. Analysis of air pollutants in Fergana region

№	Years	Pollutants released into the atmosphere, thousand of tons	Change status (in%)	Greenhouse gas emissions (total value of emissions (in CO ₂ equivalent))			
				Excluding carbon dioxide (CO ₂) YFYFO'OX (million tons. CO ₂ -eq. / Year)	Nitric oxide (CO ₂), excluding YFYFO'O'X (mln. T. CO ₂ -eq. / Year)	Methane (CH ₄), excluding YFYFO'OX (million tons. CO ₂ -eq. / Year)	Hydrofluorocarbons (GFU) (million tons of CO ₂ - eq. / Year)
1	2008	38,56	100,0	12,541	0,824	8,124	0,051
2	2009	40,46	104,9	11,921	0,859	6,990	0,034
3	2010	43,0	106,3	11,278	0,902	6,749	0,034
4	2011	42,8	99,5	11,644	0,954	6,827	0,119
5	2012	73,5	171,7	11,699	0,971	6,866	0,160
6	2013	40,2	54,7	11,712	0,984	6,898	0,187
7	2014	38,4	95,5	11,741	0,995	6,932	0,238
8	2015	38,9	101,3	11,748	1,008	6,982	0,255
9	2016	103,2	265,3	11,760	1,029	7,000	0,306
10	2017	60,1	58,2	11,778	1,043	7,013	0,340
11	2018	53,2	88,5	11,805	1,056	7,142	0,357
12	2019	49,6	93,2	11,825	1,068	7,184	0,372
13	2020	50,9	102,6	11,664	1,036	7,145	0,357

Emissions of harmful gases in to the atmosphere are affected by the negative consequences associated with the activities of the population and industrial enterprises living in the region. The constant increase in the concentration of toxic gases on the environment complicates the ecological situation in the region.

All countries differ from each other on the basis of factors such as the level of development, the level of population growth. This situation also exists among the regions of the country. This has a negative impact on the sustainable and balanced development of the

country. There are a number of problems related to the economic and ecological system of the region.

1. Uneven distribution of resources. In the Fergana region, the factors of production are unevenly distributed, which has a negative impact on the formation of the economic and ecological system.
2. There are mainly traditional industries and sectors in the region. Insufficient development of industries related to the development of the value chain, the creation of capital goods.
3. Spiritual obsolescence of existing fixed

assets. Most of the existing industrial enterprises in the region (except for joint ventures) have obsolete machinery and equipment, both spiritually and physically.

4. Lack of development of networks and intersectoral links. Mutual economic relations (exchange of goods and services) are not sufficiently developed in the existing industries and sectors in the region.

In solving these problems, first of all, it is necessary to move from the development of today's traditional industries to a non-traditional, modern management system, that is, to the knowledge economy, to innovative development. At the same time, special attention should be paid to the development of human capital in the management of regional sustainability. This process is directly related to management activities. In particular, as a result of the management and development of human resources, the productive forces are properly organized, social and environmental stability is ensured [10].

Thus, we have developed the following proposals to ensure effective management and sustainable development of the economic and ecological system of the Fergana region: establishment of logistics centres aimed at developing infrastructure and expanding trade relations in it; organization of clusters by industries and sectors with advanced production.

CONCLUSION

In this case, the organization of clusters, taking into account the specialization of the regions;

It is necessary to organize the specialization of

the border districts of the region, taking into account the networks of neighbouring regions. In general, it is advisable to take into account the strong influence factors obtained on the basis of the conducted research in the management strategy.

As a result, the sustainability of economic and ecological systems is ensured, and their efficiency is increased and balanced development is achieved. This, in general, will ensure the balance of industries and sectors in the region, as well as economic, social and environmental stability in all systems.

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