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Environmental and socio-economic aspects of sustainable development in Kyzylorda Region

Abstract. In this article the ecological-socio-economic aspects of sustainable development of Kyzylorda region are investigated. In the author's work scientific aspects to the study of sustainable development of the region, the urgency of which is due to the need for greening the economy and adopted by the UN Sustainable Development Goals for 2016-2030 years are argued. In this regard, the source determining the basis of a broad assessment, was the general use of methods of inter-regional and inter-sectoral comparisons. Background information of the study is formed by the data of the official statistical reporting. The objectives of the study are aimed at approbation of a general assessment, through which it is possible to identify not only the level, but also its socio-environmental and economic balance. The article argues the composition of the fundamental indicators for the principal components of sustainable development: economic, environmental and social. The paper outlines the trajectory of sustainable development of Kyzylorda region, conducted with the help of a matrix of aggregate analysis, which combines studies of the level of development of the region with assessments of the degree of socio-environmental-economic balance. The study made it possible to identify the main problems of the region and steadily manifesting dynamic socio-environmental-economic discrepancies, which will require rational and effective interventions from the state authorities.

Keywords: sustainable development, social factors, standard of living, atmospheric emissions, population, gross regional product, indicators of sustainable development of the region.

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Introduction

Theoretical and methodological basis of the study were the works of domestic and foreign scientists. Source of information - materials of the statistical authorities of Kyzylorda region, the Committee on Statistics of the Ministry of National Economy of the Republic of Kazakhstan, the National Report on the state of the environment and on the use of natural resources of the Republic of Kazakhstan. In writing the research paper, various methods were applied to the environmental and socio-economic aspects of sustainable development in Kyzylorda region. Thus, in the presentation of theoretical and methodological aspects of sustainable development of the region, observation and collection of factual information, method of scientific abstraction, analysis and synthesis and graphic methods of economic research were used. Statistical and economic, the method of scientific abstraction, the method of analysis and synthesis gave a comprehensive assessment of the main indicators of sustainable development of Kyzylorda region.

In the process of studying the main environmental-socio-economic indicators that ensure sustainable development of the region, monographic and abstract-logical methods of research were used.

Methods

The paradigm of sustainable development assuming a dynamic process of consecutive positive changes, ensuring a balance of economic, social, environmental aspects of society should be the basis for the formation of approaches to solving large-scale problems of territorial formations. This is especially relevant in modern conditions, when the center of gravity of economic reforms is transferred to the level of its regions and their role in the implementation of the economic policy of the state is increasing. The priority approach in the implementation of reforms at the regional level should be the conviction that we should abandon the identification of the territory's development with its economic growth observed so far. A region cannot be considered sustainable on the basis of an increase in economic indicators. Sustainable development of the region should be aimed at achieving high quality of life, with positive dynamics of the complex of different indicators. In general, we can talk about the shared requirement of balanced, safe and effective development, ensuring the achievement of the planned goals and priorities of social, environmental and economic nature [1].

Results

An important aspect of the environmental and economic sustainability of modern regions is their economic and geographic location, which largely determines the list of development factors and growth points. In addition, many climatic and geographical (for example, the amount of precipitation, the duration of the cold period, the presence of a developed network of rivers and lakes, etc.) impose a number of restrictions, forming certain "corridors" of development, within which the sustainability of the regional environmental and economic system can be improved [2]. Kyzylorda region is located in the southern part of Kazakhstan within Turan lowlands, in the lower reaches of the Syr Darya River. It borders the South Kazakhstan region in the east and southeast, Karaganda region in the north, Aktobe region in the northwest, and the Republic of Uzbekistan in the south. The region is located in a zone of sharply continental climate. The number of sunny days per year is more than 300 days, summers are hot, dry, long, winters are short, snowy. The amount of precipitation varies from 100 to 175 millimeters. The main waterway in Kyzylorda region is the Syr Darya, the longest and the second most water-abundant river in Central Asia after the Amu Darya. Its length in the region is 1,280 km. The region has a large number of saline lakes: Zhaksy-Kylysh, Kamystybas, Arys, which often dry up in summer. Kyzylorda region has a significant potential of mineral resources. There are 15.1 % of zinc reserves, 9.6 % of lead, 13.7 % of uranium, 4.7 % of oil, gas and condensate, 3.4 % of underground waters of total Kazakhstani reserves concentrated in this region. The most important minerals of the region are hydrocarbons, non-ferrous metals (lead and zinc), uranium, vanadium, table salt and underground water. The region ranks first in the country for vanadium reserves and third for zinc, uranium and lead. The region provides about 15%: of all oil production in Kazakhstan. The table below shows the main figures on production of the main mineral resources of Kyzylorda region in dynamics for the last seven years (2014-2020).

Table 1

Production of industrial products in mining and quarrying in volume by Kyzylorda region

	2014	2015	2016	2017	2018	2019	2020	2020/2019, %
Oil, including gas condensate, thousand tons	9919.8	8974.2	7669.3	6813.9	6393.0	5564.6	4605.1	-17.2
Natural gas in liquid or gaseous state, mln. cu. m.	1476.0	1320.1	1281.3	1151.7	1051.7	910.6	779.5	-14.3
Salt and sodium chloride pure, sea water, tons.	308744	358205	447929	539871	611013	738688	841489	13.9
Note: compiled by the author								

The table shows that the volume of oil production, including gas condensate, has almost halved in 2020 compared to 2014 and amounted to 4,605.1 thousand tons. Compared to 2019, there is also a steady decline in the level of production in 2020 and amounted to – 17.2%. The production of natural gas in liquid or gaseous state in 2020 in the region is also markedly reduced by almost 2 times compared to 2014 and amounted to 779.5 million cubic meters. Of course, the main reason for the decrease in the production of these mineral resources is the depletion of oil reserves, and the growth rate in this industry will be reduced. In order to further develop the mineral resource base of the industry, prospecting and exploration works are carried out with the government support in Syr Darya, Shiyeli and Zhanakorgan regions and the drilling of a 3.500 meter deep well in Karmaksha region has been approved. On the contrary, there is a significant increase of salt and sodium chloride production and it amounted to 841489 tons in 2020. It is connected, first of all, with a great demand for this type of raw materials in the domestic market.



Figure 1 – Oil production, including gas condensate, thousand tons

According to Figure 1, we can conclude that the decline in oil production, primarily due to a decrease in reserves.

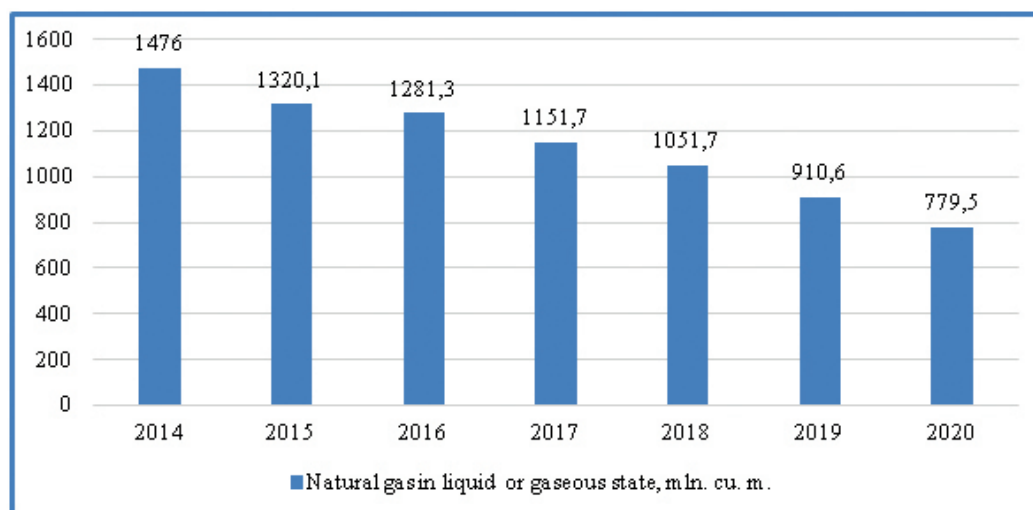


Figure 2 – Natural gas in liquid or gaseous state, mln. cu. m.

Analysis of the dynamics of natural gas production or gaseous states showed (Figure 2) that in the period from 2014 to 2020, the production of this natural resource steadily decreased to 1.476 million cubic meters in 2014 and decreased to 779.5 million cubic meters in 2020. For the extraction of salt and

sodium chloride, seawater (Figure 3), there is a large increase in production growth associated with high demand for this resource in the whole country and large reserves located in Kyzylorda region. So if in 2014 production amounted to 308,744 tons, then in 2020 this figure reached the level of 841,489 tons, respectively, the increase amounted to 532,745 tons.

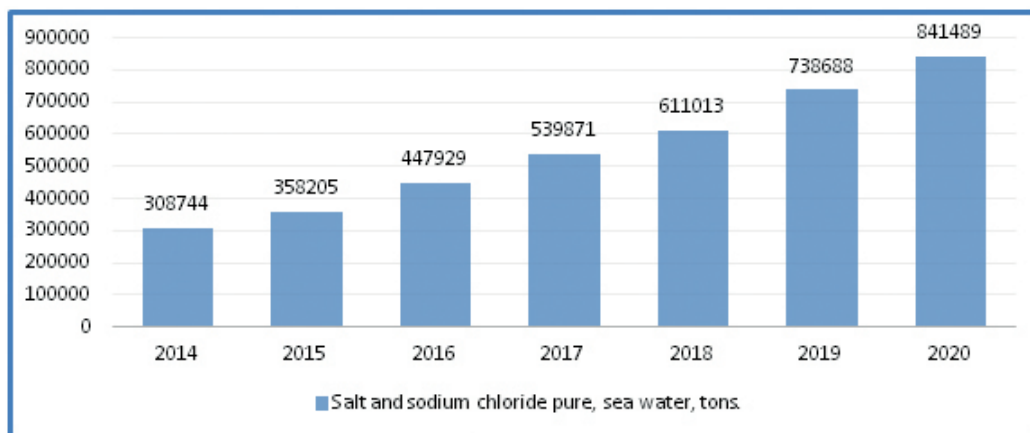


Figure 3 – Salt and sodium chloride pure, sea water, tons.

In January-December 2021 compared to 2020 index of physical volume of industrial production was 100.8% (Figure 4). The growth was observed in all districts of the region, except for Aralsk region and Kyzylorda city. In the mining industry in January-December the index of physical volume was 96.0%. In manufacturing industry, the production increased by 14.5%. Mainly positive dynamics was formed due to production of food products, light industry, production of chemical industry products, production of other non-metallic mineral products, etc.

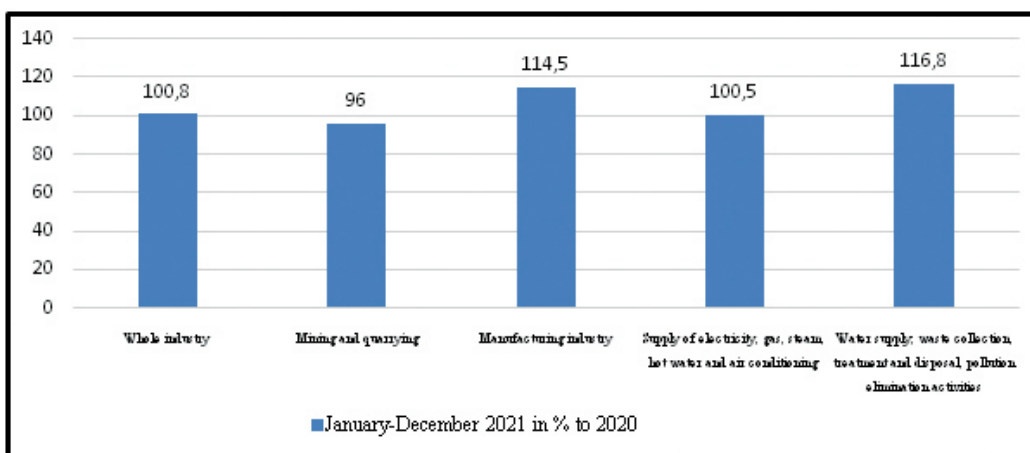


Figure 4 – Indices of physical volume of industrial products

In the supply of electricity, gas, steam, hot water and air conditioning index of physical volume was 100.5%. In water supply, waste collection, treatment and disposal, pollution elimination activities in January-December 2021 index of physical volume was 116.8%. We can conclude that the decline in output in the mining industry, definitely has a negative impact, which affects almost all sectors of the economic sector and complicate the financial condition of most major oil and gas companies in the area. In Kyzylorda region the index of industrial production was 88.5% due to the reduction in production of crude oil, production of Portland cement, hydrocarbon liquefied gases, building prefabricated structures made of concrete. Kyzylorda region is one of the last places in Kazakhstan in the ranking of regions by this indicator [3].

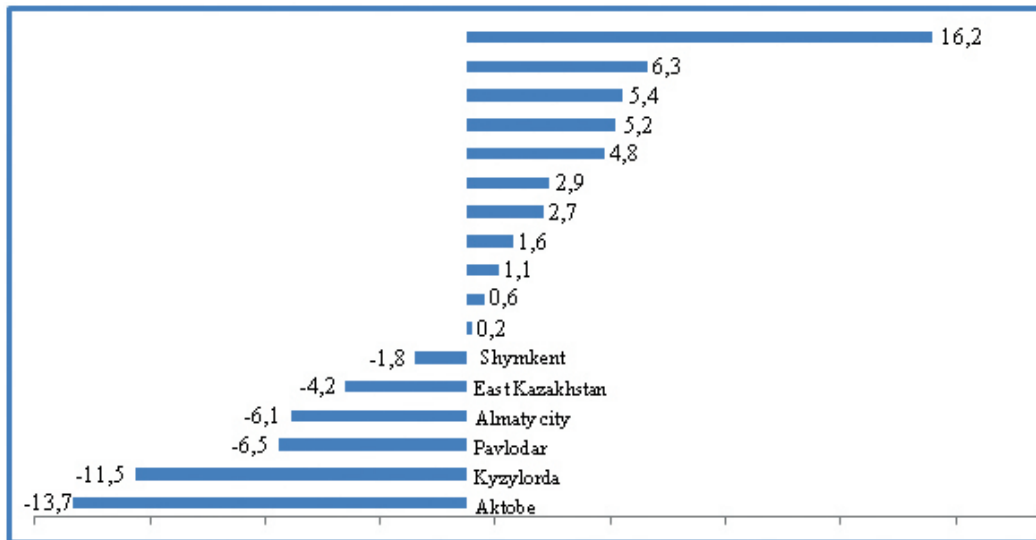


Figure 5 – Change of industrial production indices by regions of the Republic of Kazakhstan in 2020 in % to the corresponding period of the previous year, increase +, decrease -

The data in Figure 5 shows the study in the dynamics of the indicator of gross regional product in recent years from 2012 to 2021 (September - October). The analysis shows that compared to 2012 in 2020 this rating has changed to 375,083.7 million tenge. Although the data for 2021 in the statistical data is not reflected for the full calendar period, we can see that the last year in our opinion there is no significant increase in this indicator. In general, according to the diagram we can clearly see unstable growth indicators of gross regional product development in Kyzylorda region for 2012-2021. In our opinion, the complication of the situation in the region is primarily due to decline in crude oil production, which is the main driver of the region development.

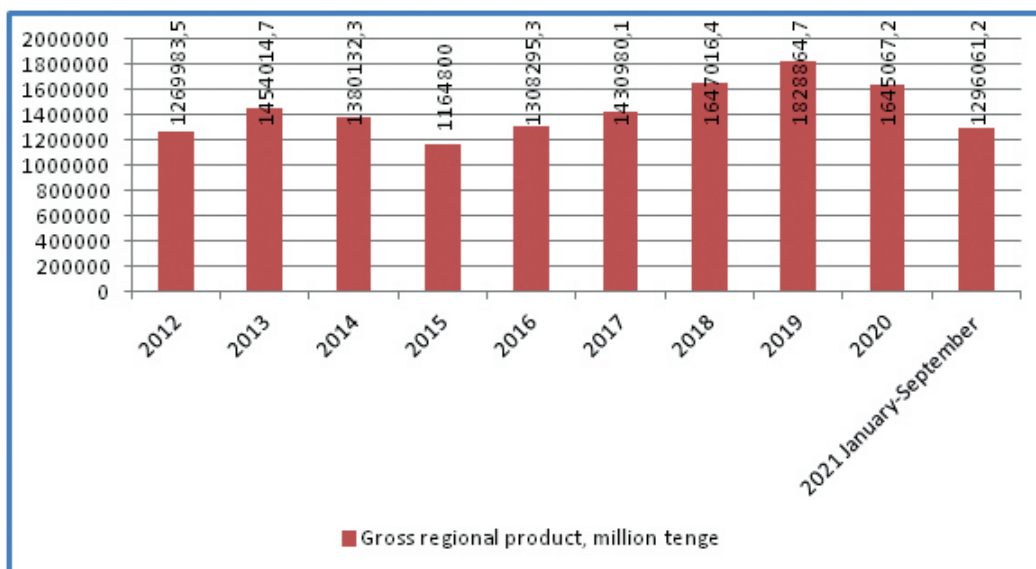


Figure 6 – Dynamics of gross regional product in Kyzylorda region for the period 2012-2021

The social component of regional development reflects the peculiarities of social life of territories, includes moral, cultural and educational needs, characterizes the dynamics of demographic processes [4]. In the Kyzylorda region the population in 2012 was 726.7 thousand people. Compared to 2021 the population of the region increased by 101.3 thousand people.

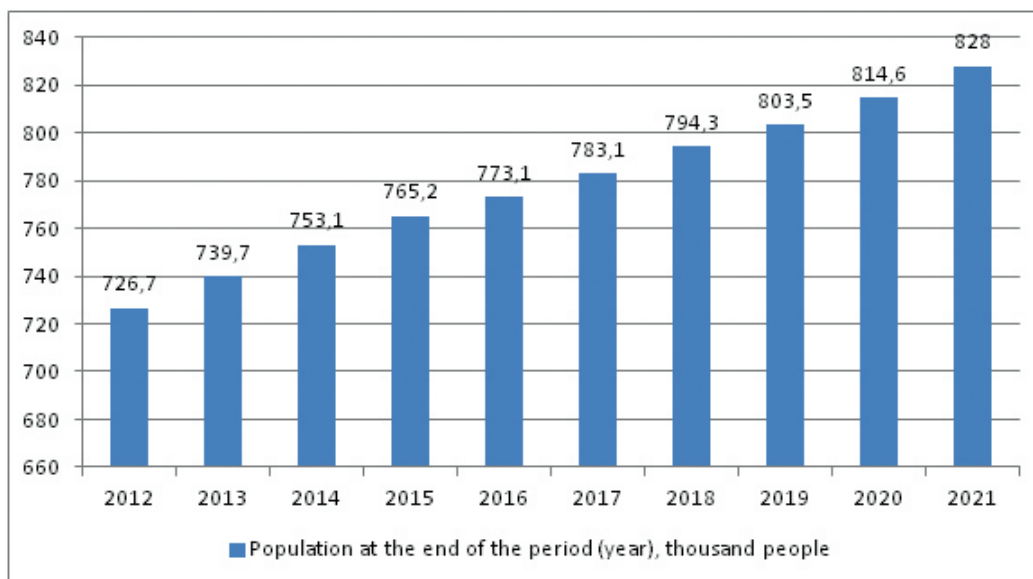


Figure 7 – Dynamics of the population in Kyzylorda region for the period 2012-2021

In general, for Kyzylorda region the number of population in the period from 2012 to 2021 was stable and continuously increasing, indicating a positive trend in this indicator. This dynamic of increase corresponds to the average national level in the country as a whole.

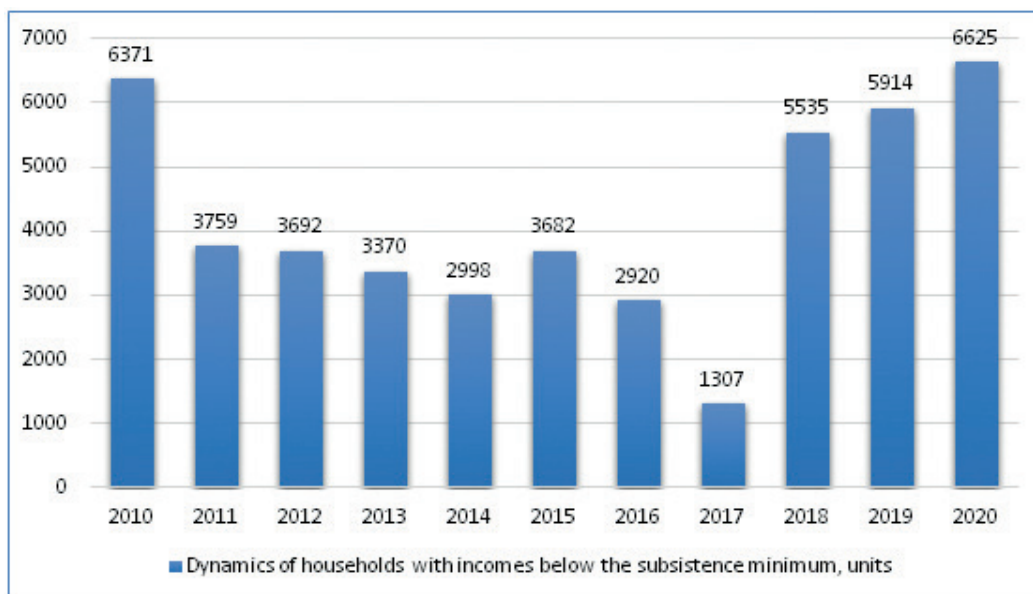


Figure 8 – Dynamics of households in Kyzylorda region with incomes below the subsistence minimum, units

According to the figure the following conclusion can be made that there is a significant separation of the proportion of the population with incomes below the minimum wage in urban and rural areas. So, if for Kyzylorda region in 2020 this value was 6,625 units of households. Since 2018, this figure has increased dramatically by several times. The lowest value of this indicator was recorded in 2017 and amounted to 1307 units of households.

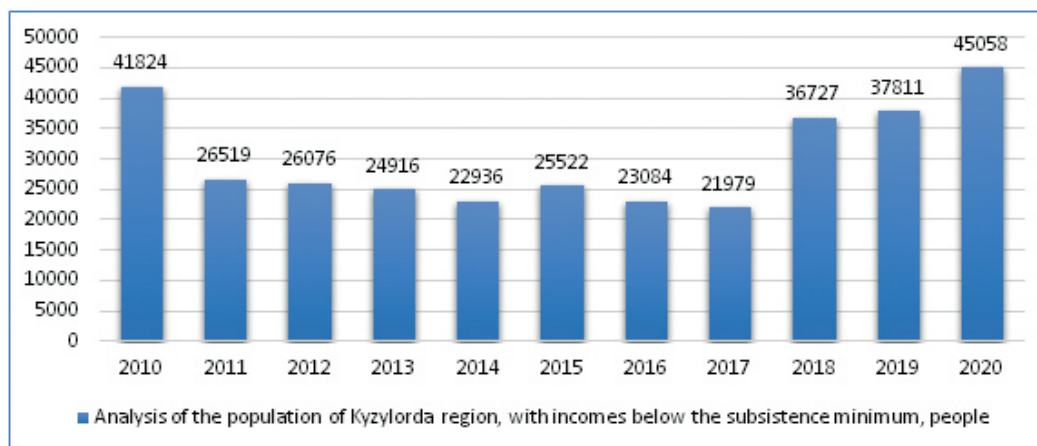


Figure 9 – Analysis of the population of Kyzylorda region with incomes below the subsistence minimum, people

The increase in the population of Kyzylorda region, had a positive impact on the dynamics of real money income of the population, where the number of people with incomes below the subsistence minimum decreased from 2011 to 2017. Negative dynamics began to emerge from 2018 to 2020, where this indicator in 2020 increased by 2.1 times compared to 2017 and amounted to 45058 people (Figure 9).

At the same time, the monostructure of the regional economy, i.e. the dependence on basic industries, such as crude oil production, led to an increased exposure to crisis phenomena. The depletion of the region's oil resources and thus the reduction of their production slowed down economic growth.

Table 2

Dynamics of physical volume of GRP and dynamics of physical volume of production in Kyzylorda region and NWFD

Territory	Year								2020 to 2014, in p.p.
	2014	2015	2016	2017	2018	2019	2020	2021	
GRP growth index, on an accrual basis by 2020, %									
Average GRP in the Republic of Kazakhstan	103.7	100.9	101.3	103.9	104.5	104.3	98.81	-	-4.89
Kyzylorda region	98.7	95.9	95.2	100.4	99.9	101.5	89.2	-	-9.5
Index of physical volume of production, on an accrual basis by 2020, in %									
NWFD	100.3	98.4	98.9	107.3	104.4	104.1	99.5		-0.8
Kyzylorda region	97.1	91.3	90.7	96.1	94.3	89.8	87.1	100.8	-10

Thus, in the region the physical volume of regional product in Kyzylorda region decreased by 9.5%, which is lower than the national level almost twice. The same negative decrease goes on the index of physical volume of production. For the region as a whole, this indicator decreased by 10%, which is 10 times lower than the national level.

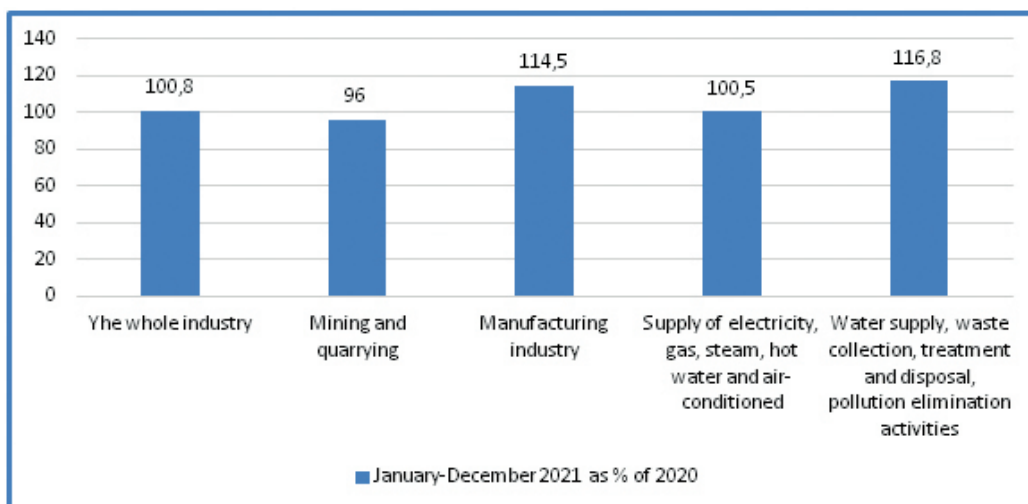


Figure 10 – Indices of physical volume of industrial production in Kyzylorda region in 2021

Considering the results of industrial development in Kyzylorda region in January - December 2021 compared to 2020 index of physical industrial production was 100.8%. In the mining industry in the reporting period, this indicator amounted to 96%. In the processing industry production increased by 14.5%. There is a noticeable dynamic in the production of food products, light industry, production of chemical products, processing of non-metallic mineral products, etc. In the provision of electricity, gas, steam, hot water and conditioned air, the physical volume index reached the level of 100.5%. The index of water supply, treatment and disposal of waste, activities to eliminate pollution in 2021 was 116.8%

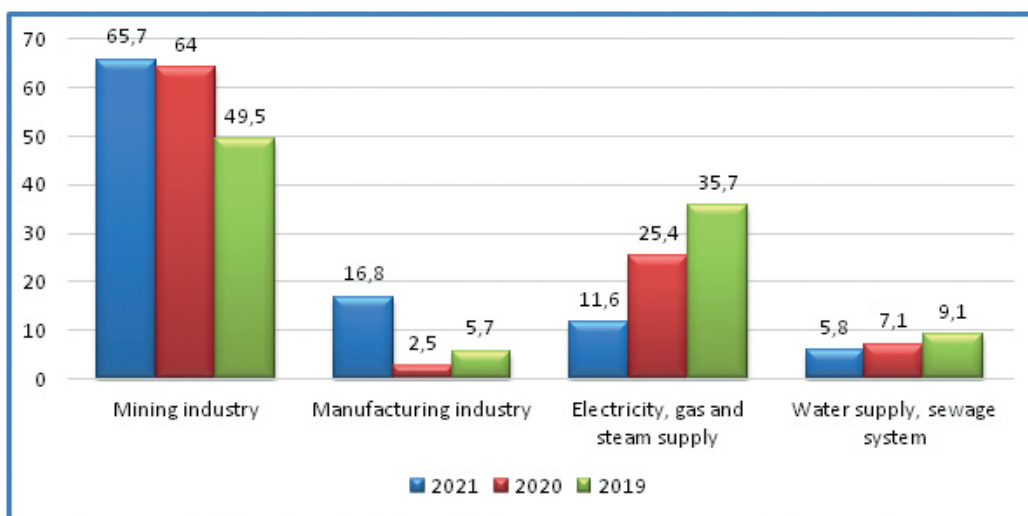


Figure 11 – The share of industries in the total volume of investment in fixed capital in 2019-2021, %

Analysis of the specific weight of industries in the total volume of investment in fixed capital in Kyzylorda region showed that in the last 2019-2021 years the largest specific weight prevails in the mining industry, which in 2021 was 65.7% (Figure 9). The lowest specific weight in manufacturing in 2021 was 16.8%, the supply of electricity, gas and steam in 2021 was 5.8%. The study of this indicator confirms that in Kyzylorda region there is a predominance of oil and gas production.

The oil-producing regions (Aktobe, Kyzylorda, West Kazakhstan, Mangistau, and Atyrau regions) have a significantly high share of the mining industry compared to other sectors. Their high consumption of natural resources, due to the prevailing share of the extractive sector in the economic structure, will soon lead to the depletion of natural wealth. At the same time, it should be understood that the export of resources extracted in the regions - outsiders is an important source of budget revenues, and therefore the basis for the welfare of the region [5]. The decline in the production of crude oil and natural gas in Kyzylorda region had a negative impact and reduced the revenues of the region budget. Of course, for the transition to environmentally sustainable development it is necessary to change the current type of development, to reverse the "anti-sustainable" trends in the economy. The key role in this process should be played by the transition from the extensive export-raw model of economic development to the model of sustainable development, large-scale ecologization of the economy [6]. The main goal of ecological sustainable development is human well-being by ensuring the integrity and viability of biological and physical natural systems their ability to self-regulation and self-recovery, the preservation of the environment as a source of resources [7].

Table 3

Gross air emissions of pollutants from stationary sources by regions of the Republic of Kazakhstan for 2011-2020

№	Regions	Years							
		2014	2015	2016	2017	2018	2019	2020	+/- 2020 by 2014
1	Republic of Kazakhstan	2256.7	2180.0	2271.6	2357.8	2446.7	2483.1	2441.0	184.3
2	Akmola	84.6	85.6	94.5	86.9	84.5	76.7	77.2	-7.4
3	Aktobe	121.8	134.3	155.6	169.5	158.1	136.6	135.1	13.3
4	Almaty	51.6	55.0	50.3	43.4	50.2	48.1	46.3	-5.3
5	Atyrau	109.1	110.7	167.1	177.0	172.3	164.5	153.9	44.8
6	West Kazakhstan	44.7	42.4	42.5	41.5	48.2	41.2	30.8	-13.9
7	Zhambyl	38.2	41.9	52.4	51.9	52.1	55.8	55.0	16.8
8	Karaganda	603.6	596.4	593.0	598.7	587.5	641.3	627.7	24.1
9	Kostanay	103.8	91.6	98.7	114.8	124.0	130.5	123.4	19.6
10	Kyzylorda	30.8	30.1	30.1	27.5	26.0	24.4	28.3	-2.5
11	Mangistau	88.3	72.5	65.8	62.6	64.5	64.5	72.5	-15.8
12	South Kazakhstan	59.9	69.0	72.1	68.2	-	-	-	-
13	Pavlodar	610.2	552.9	542.7	609.8	709.3	721.5	723	112.8
14	North Kazakhstan	72.0	74.9	77.7	76.4	75.5	74.7	76	4
15	Turkestan	-	-	-	-	30.0	33.5	28.1	-
16	East Kazakhstan	129.6	127.1	128.6	129.3	130.7	128.8	127.2	-2.4
17	Nur-Sultan city	65.1	56.3	61.6	59.2	56.4	65.1	62.4	-2.7
18	Almaty city	43.5	39.1	38.8	41.1	43.0	46.1	44.5	1
19	Shymkent city	-	-	-	-	33.4	29.8	29.6	-

Note: compiled by the author

In the context of regions of Kazakhstan Kyzylorda region demonstrates a good performance on gross discharge into the atmosphere of pollutants emitted by stationary sources and compared to 2014 in 2020 this figure decreased by 1.7 tons and amounted to 28.3 tons. The data in the table show that in regions with a very strongly developed industry, the volume of gross emissions of pollutants into the atmosphere is several times higher. Especially noteworthy are the industrially developed regions of Aktobe, Atyrau, Karaganda, Pavlodar, East Kazakhstan, Kostanay, and Mangistau regions. In 2020 Kyzylorda region ranked 15th by gross emissions of pollutants by regions. In the previous year 2019 the region was on the 17th place.

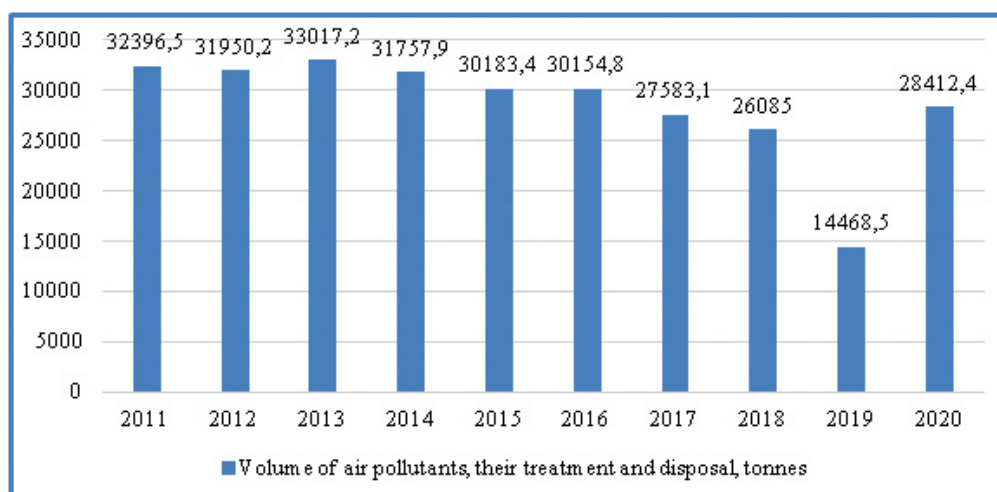


Figure 12 – Volume of pollutants emitted from all stationary sources of pollution in Kyzylorda region within the period from 2011 to 2020

If we consider the dynamics of the volume of pollutants emitted from all stationary sources of pollution in the region over the past 10 years, we do not notice a significant decrease. In 2019 there is a noticeable downward trend in this indicator, which was 14,468.5 tons, but in 2020, this figure has almost doubled and amounted to 28,412.4 tons. The main reason for the increase in the volume of pollutants is the reduction of environmental costs to 161,131,379 thousand tenge in 2020 compared to the previous year. In 2019 this amount is 34,534,401 thousand tenge. Table 4 below shows the data on the volume of pollutants discharged into the atmosphere in the region, including their treatment and disposal for the period 2016-2020. So, the following conclusion can be made that the volume of pollutants emitted from all stationary sources in 2016 was 30,154.8 tons. We can notice a decrease in this figure, which in 2019 decreased and amounted to 24,468.5 tons. However, this figure significantly increased in 2020 to the level of 28,412.4 tons, which also had a negative impact on the environment of Kyzylorda region. 28,326.9 tons of pollutants were discharged without treatment in 2020. Only 85.5 tons of hazardous pollutants came to the treatment facilities in the same year of 2020, 1.5 tons of pollutants were utilized. If we talk about these figures as a percentage of the total captured to the amount of pollutants for the period from 2016-2020 0.3% respectively in each year. In our opinion, this figure is very low, since a very large number of pollutants are still emitted into the atmosphere without treatment.

Table 4

The volume of pollutants emitted into the atmosphere in Kyzylorda region, their treatment and disposal within the period of 2016-2020 (tons).

	2016	2017	2018	2019	2020
Pollutants from all stationary sources of pollution	30,154.8	27,583.1	26,084.9	24,468.5	28,412.4
Discarded without cleaning	30,076.9	27,513.4	26,011.4	24,387.7	28,326.9
Including:					
from organized emission sources	29,009.9	27,191.8	25,718.9	23,416.1	28,083.1
Comes to the sewage treatment plant	77.9	69.7	73.6	80.8	85.5
Captured and disarmed	77.9	69.7	73.6	80.8	85.5
Of which: recycled	5.5	4.3	2.8	9.0	1.5
Total pollutants released into the atmosphere	30,076.9	27,513.4	26,011.4	24,387.7	28,326.9
Captured as a percentage of the amount of pollutants	0.3	0.3	0.3	0.3	0.3

Note: the Table was compiled by the author

The main sources of atmospheric pollution in Kyzylorda region are the oil and gas industry, thermal power, construction and motor vehicles. Anthropogenic sources that provide the main volume of pollutants on the territory of the region form four groups:

- oil and gas production enterprises: Petro Kazakhstan Kumkol Resources JSC, Turgai Petroleum JSC, JV KazGerMunai LLP, JV KvatAmlonMunai LLP, etc;
- enterprises for heat and electricity production: KTETs, Baikonurenergo SUE, etc;
- vehicles: Keleshek LLP, Kyran LLP, Central Asian Transport LLP, Trans Asia Construction LLP, SKK-Shieli LLP, SayatTransService LLP, etc;
- Other sources: road construction enterprises: Dorstroy LLP, Administration of Automobile Roads LLP, Kyzylordazholdary LLP, Kyran LLP, etc.

All these enterprises emit into the atmosphere pollution in the form of sulfur dioxide, carbon monoxide, nitrogen dioxide, nitrogen oxide, hydrogen sulfide, formaldehyde, benz(a)pyrene, methane, soot, etc. [8]. Table 5 provides information on the emissions of the main pollutants into the atmospheric air for the period from 2016-2020.

Table 5

The total amount of pollutants released into the atmosphere in Kyzylorda region within the period of 2016-2020 (tons)

	2016	2017	2018	2019	2020
Total	30,076.9	27,513.4	26,011.4	24,387.7	28,326.9
Solid	4,426.9	4,513.9	4,189.5	3,834.4	3,186.5
PM 10 (particulate matter with a diameter of 10 microns)	-	-	-	-	-
PM 2.5 (solid particles with a diameter of 2.5 µm)	-	-	-	-	-
Gaseous and liquid	25649.9	22,999.5	21,821.8	20,553.3	25,140.4
Hydrocarbons (without volatile organic compounds)	22.6	21.2	85.7	1,317.7	5,959.8
Volatile Organic (VOC)	2,450.7	891.1	784.0	3,641.4	3,346.3
Nitrogen oxides (converted to NO ₂)	-	-	-	4939.5	6007.1
Other	5,147.2	5,992.6	4,751.8	-	-
Note: compiled by the author					

From the Table we can conclude that the amount of particulate matter with a diameter of 10 microns emitted into the atmosphere in 2016 was 4426.9 tons, and in 2020, this figure decreased by 1240.4 tons and was 3186.5 tons. Given that the Kyzylorda region is an oil-producing region, we can see that the main share of pollutants emitted into the atmosphere are gaseous and liquid substances. Thus, in 2016, their share in the total emissions for the region was 85.3%, and in 2020 this figure was 88.8%, i.e. the increase in the share by 3.5%. We can also note a significant increase in hydrocarbon emissions (without volatile organic compounds) into the atmosphere, which in 2016 was 22.6 tons, respectively, the specific weight was 0.1%, and already in 2020, this figure has increased to 5959.8 tons and in percentage terms the specific weight was 21.03%. In our opinion, a strong anthropogenic impact on the environment of Kyzylorda region is caused by oil and gas companies. It can also be noted that in the region there is a very low level of captured and neutralized harmful pollutants.

Table 6

Air emissions of pollutants from stationary sources by industry
thousand tons

	2015	2016	2017	2018	2019
Total for the region	30.1	30.1	27.5	26.0	24.4
Industry	19.6	19.8	16.5	15.7	15.1
Construction	0.9	0.9	0.8	0.5	0.4
Transportation and communications	0.9	0.6	0.8	1.3	1.9
Education	3.8	3.8	3.7	3.8	3.4
Health and social services	1.4	1.4	1.5	1.4	0.8
Note: compiled by the author					

Finally, the most characteristic problem of anthropogenic impact on the environment of the region is air emissions of pollutants from industry and transport and communications. If in 2015 the volume of atmospheric emissions of the industry sector was 30.1 thousand tons, the same indicator in 2019 is 24.4 thousand tons. The main reason for the decrease in atmospheric emissions is the reduction of oil and gas production in the region. The increase of this indicator is observed in transport and communication in 2015 - 0.9 thousand tons and in 2019 - 1.9 thousand tons.

Discussion

The analysis showed generally positive trends in the socio-environmental and economic development of Kyzylorda region. The growth of real GRP, labor productivity, life expectancy is recorded, the level of impact of anthropogenic impact on the environment is reduced. At the same time, a number of problems peculiar to the Kyzylorda region have been found. The volume of crude oil and gas production in the region decreases from year to year, due to the depletion of natural reserves. Production of energy resources in Kyzylorda region is one of the priority industries in the territories, which is one of the main sources of the revenue part of the regional budget. In 2020 the index of physical volume of industrial production increased in comparison with 2019. There is a decrease in the index of dynamics of physical volume of GRP and dynamics of physical volume of production in the region.

In the social sphere, the number of people in the region as a whole is increasing every year, which in 2020 was 828 thousand people, but at the same time the number of households in the region with income below the subsistence level has increased, which also has a negative impact on the socio-economic situation in the region.

In the environmental sphere in terms of gross emissions compared to other regions of Kazakhstan, the study area was in 17th place in 2020.

Conclusion

In contrast to theories of economic growth, the concept of sustainable development pays equal attention to three aspects of population and territorial development: economic, social and environmental. Sustainable development is a long-term goal, so the condition of preserving the resource base and the growth of human capital are as important components as increasing economic well-being.

The need to coordinate all three directions leads to the emergence of a large number of approaches to the creation of indicators of sustainable development. The approaches differ mainly in the set of analyzed indicators, the degree of transformation of initial statistical data, the use of expert assessments, as well as the fundamental decision to build a single integral indicator or a system of indicators [9].

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Эколого-социо-экономические аспекты устойчивого развития Кызылординской области

Аннотация. В данной статье исследованы эколого-социо-экономические аспекты устойчивого развития Кызылординской области. В авторской работе аргументированы научные аспекты к исследованию устойчивого развития региона, острота которого обусловлена необходимостью экологизации экономики и принятыми ООН Целями устойчивого развития на 2016-2030 гг. В связи с этим источником, определяющим основу широкой оценки, составило общее использование методов межрегиональных и межотраслевых сравнений. Исходные сведения исследования сформированы данными официальной статистической отчетности. Цели изучения направлены на апробацию общей оценки, с помощью которой можно выявить не только уровень, но и ее социо-эколого-экономическую сбалансированность. В статье приведен аргумент состава основополагающих индикаторов по принципиальным компонентам устойчивого развития: экономическому, экологическому и социальному. В работе изложена траектория устойчивого развития Кызылординской области, проведенная при помощи матрицы совокупного анализа, где сочетаются исследования уровня развития региона с оценками степени социо-эколого-экономической сбалансированности. Исследование дало возможность выявить основные проблемы региона и устойчиво проявляющиеся динамические социо-эколого-экономические несоответствия, которые потребуют рациональных и эффективных мер вмешательства со стороны государственных органов власти.

Ключевые слова: устойчивое развитие, социальные факторы, уровень жизни, выбросы в атмосферу, численность населения, валовый региональный продукт, индикаторы устойчивого развития региона.

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Қызылорда облысының тұрақты дамуының экологиялық-әлеуметтік-экономикалық аспектілері

Аңдатпа. Бұл мақалада Қызылорда облысының тұрақты дамуының экологиялық-әлеуметтік-экономикалық аспектілері зерттелген. Авторлық жұмыста өңірдің тұрақты дамуын зерттеудің ғылыми аспектілері дәлелденген, оның өткірлігі экономиканы экологияландыру қажеттілігімен және БҰҰ қабылдаған 2016-2030 жылдарға арналған Орнықты даму мақсаттарымен негізделген. Осыған байланысты кең бағалаудың негізін анықтайтын дереккөз аймақаралық және салааралық салыстыру әдістерін жалпы қолдануды құрады. Зерттеудің бастапқы мәліметтері ресми статистикалық есептік деректерімен қалыптастырылған. Зерттеудің мақсаттары жалпы бағалауды сынауға бағытталған, оның көмегімен деңгейді ғана емес, сонымен бірге оның әлеуметтік-экологиялық және экономикалық тепе-теңдігін де анықтауға болады. Мақалада тұрақты дамудың негізгі компоненттері: экономикалық, экологиялық және әлеуметтік бойынша негізгі индикаторлар құрамының дәлелі келтірілген. Жұмыста әлеуметтік-экологиялық-экономикалық теңгерімділік дәрежесін бағалаумен өңірдің даму деңгейін зерттеу үйлесетін жиынтық талдау матрицасының көмегімен жүргізілген Қызылорда облысының тұрақты даму траекториясы баяндалған. Зерттеу аймақтың негізгі проблемаларын және мемлекеттік органдардың ұтымды және тиімді араласу шараларын қажет ететін тұрақты көрінетін динамикалық әлеуметтік-экологиялық және экономикалық сәйкессіздіктерді анықтауға мүмкіндік берді.

Түйін сөздер: орнықты даму, әлеуметтік факторлар, өмір сүру деңгейі, атмосфераға шығарындылар, халық саны, жалпы өңірлік өнім, өңірдің орнықты даму индикаторлары.

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