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Assessment of financial support for the green development of Kazakhstan and its regions based on OECD indicators[1]

Abstract. *The article analyzes the availability of financial and investment resources for the green development of the economy of Kazakhstan and assesses the effectiveness of the investment policy of the republic and its regions. The data of the Bureau of National Statistics of the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan, the Department of Statistics of the East Kazakhstan region, socio-political publications of the republican and regional levels, Internet resources of the OECD, the EBRD, and other sources were used as the information base of the analysis. The study revealed the relationship between the level of costs and investments for environmental protection with the amount of greenhouse gas emissions and climate change. An assessment of the effectiveness of the environmental taxation policy and the mechanism for compensating losses from negative environmental impacts is given.*

The positive and negative aspects of the investment policy of environmental protection both at the republican and regional levels are revealed. It is concluded that there is insufficient financial support for «green» development in the Republic of Kazakhstan and that it is necessary to further improve the financial mechanism of environmental protection management.

Keywords: *green investments, green economy, greenhouse gases, current environmental protection costs, environmental taxes, OECD indicators.*

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Introduction

Green development issues are now generally seen primarily in the context of climate change. By the Paris Agreement, the world community's goal is to keep temperatures rising beyond 1.5 - 2 ° C about the pre-industrial period. Consequently, by the end of the 21st century, countries that have signed the Paris Agreement are ordered to reduce global greenhouse gas emissions to zero.

How relevant are the issue of climate change and the reduction of greenhouse gas emissions in Kazakhstan? What contribution the Republic can make to solve this problem in its territory? Does it have enough of its financial resources for this? What investment potential does it have and how

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attractive is the investment climate in Kazakhstan for foreign investors willing to finance green projects? We will try to get answers to these questions in this scientific study. The regional aspect of these issues, as the least studied, will be of particular interest to us.

Methodology

The study mainly used economic and statistical analysis to identify trends in expenditure and investment about environmental policy outcomes. Data from the Bureau of National Statistics of the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan (including the data contained in the National Report based on the OECD green growth indicators [1]), the Department of Statistics of the East Kazakhstan region, legal acts of the government of the Republic of Kazakhstan, Internet resources of republican and regional socio-political publications, EBRD, World Bank, OECD, were used as sources of information. The article compares analytical indicators calculated for the republic as a whole and its individual regions. Particular attention was paid to the East Kazakhstan region as a region with high industrial potential and the resulting problems associated with significant emissions of greenhouse gases and other pollutants into the atmosphere. The analysis of the effectiveness of the green investment policy pursued in Kazakhstan was based on the use of green growth indicators recommended by the Organization for Economic Cooperation and Development (OECD) [2].

In writing the article and discussing the issues raised in it, the authors used expert assessment methods based on the opinions of local and foreign scientists expressed in published conference papers and scientific articles.

Graphical methods were widely used to illustrate the dynamics of green growth indicators; comparative assessment, synthesis, analogy, and retrospective methods were used to ensure the completeness and relevance of the research results.

The authors of this article sought to adopt a systematic approach, looking at green development about the social and economic dimensions of ESG-based sustainable development.

Discussion

Every year, the problem of environmental protection is becoming more acute and urgent in most countries as the quality of all elements of the environment is deteriorating. It is understood that neither scientific and technological advances nor digitization alone will bring economic benefits to society if it is considered in isolation from the solution of environmental and social problems. The warning expressed by Engels in "The Dialect of Nature" today has not lost its relevance: "We will not, however, be too impressed by our victories over nature. Every time it wins, it gets back at us. Each of these victories has, however, first of all, the consequences that we expected, and second and third, completely different, unforeseen consequences, which very often destroy the significance of the former" [3]. Today, there is not a single aspect of the problem of environmental protection that would not be reflected in foreign and domestic literature. The issues of financial support of the green development process, including in the Republic of Kazakhstan, were no exception. Articles by Mushtaeva L.A. [4], Selischeva T.A. [5], Baizholova, R.A., Orynkanova J.M. [6], Kuchukova N. [7], Yakovlev I.A., Kabir L.S. [8], Yerbulatova D.O. [9], Tereshina M.V. [10] and several other authors cover these issues. T.A. Selischeva in her work «Green» economy as a model of sustainable development of the EEU countries» [5] provides a detailed analysis of the arguments put forward by supporters and opponents of the development of a green economy and its priority investment. According to the author of the article, «... with the expansion of the green economy, the number of green jobs will grow…» The author believes that the so-called "decoupling effect" can be achieved in the EEC countries; economic growth without environmental damage will be achieved through increased investment in green technologies. The phenomenon of decoupling arises from the application of modern scientific

and technological developments that offer the best combination of criteria for achieving environmental protection objectives, the quantity of resources per unit of production is reduced, thereby reducing pressure on the environment. In the article by T.A. Selischeva the idea is expressed that "... to achieve the decoupling effect, changes in the state industrial and innovation policy, the transformation of growth models are required". As well as "… a transition to the sixth technological paradigm is necessary, in which green technologies are a priority, and investments are an order of magnitude higher than the investments of the fifth technological order» [5, p. 8]. A similar approach to considering the development of a green economy from the standpoint of its strengths and weaknesses is contained in the article by R.A. Bayzholova, Zh.M. Orynkanova «Green Economy» in Kazakhstan: Challenges and Development Prospects»[6]. The authors conducted a SWOT analysis, which made it possible to identify promising directions for the further development of the green economy in Kazakhstan.

The article by Mushtaeva L.A. «Efficiency of Investment Management in the Republic of Kazakhstan: Analysis, Problems and Main Tendencies» emphasizes that the main conditions for increasing the attractiveness of the investment environment are favorable tax, Government policies on capital and credit, as well as political and financial policies. In addition, potential investors assess these conditions not only based on the current situation but also considering expected changes in the future. To enhance investment activity the author of the article recommends the following: « ... the establishment of special tax regimes, protection of the interests of investors, provision of preferential conditions for the use of land and other natural resources to the subjects of investment activity". In addition she offers "adoption of antitrust measures, expansion of opportunities for the use of deposits in lending, development of financial leasing and creation of own investment funds" [4, p. 48].

In some articles (for instance, in the article by N. Kuchukova [7]), devoted to the formation of the investment climate in Kazakhstan, due attention is not paid to green investment as a priority direction of the investment policy of the republic.

This is not surprising, since even in the program for attracting investments «National Investment Strategy», developed in the Republic of Kazakhstan in 2015 and adjusted in 2017 and 2019 [11], the terms *green investment, green development, green economy, environmental protection* are not mentioned at all. On the contrary, in the study conducted by Russian scientists I.A. Yakovlev and L. Kabir green economy is seen as a priority of national development [8, p. 10]. However, we cannot agree with the opinion of these authors that the fact that the Russian Federation does not have an integral Strategy for financing sustainable development and a green economy as a separate document "... should not be taken negatively but should be recognized as an objective reflection of the current situation in this area". The absence of such a strategy, in our opinion, cannot but hurt the entire course of the implementation of a more general strategy - a sustainable development strategy. The authors of the article emphasize that "the financing «green» investments are constrained not so much by conceptual difficulties as by the lack of public agreement on which sectors of the national economy should be recognized as hurting the environment, leading to a non-sustainable existence, and which ones on the contrary" [8, p. 19].

Most of the publications of the above authors contain statistical information describing the state of the green economy and its development. However, due to its rapid obsolescence, the conclusions made in the works have almost lost their relevance and require clarification. To date, the most objective view of the state of the environment, in our opinion, can be obtained from the National Report based on the OECD Green Growth Indicators [1]. The analysis of the financing policy of green growth indicators according to the OECD, among which there are both traditional indicators and indicators calculated for the first time by the Kazakh state statistics bodies, is undoubted of scientific interest and determines the scientific novelty of

the research presented in this article. Particular attention was paid to the following indicators characterizing «green» (international and domestic) financial flows and their effectiveness:

- international financial flows that are important for «green» growth;
- investments aimed at the «green» economy (investments aimed at environmental protection) and their structure;
- R&D expenditures related to «green» growth, including in the field of renewable energy;
- intensity of waste generation per unit of GDP;
- total greenhouse gas emissions per unit of GDP;
- increase in emissions of pollutants into the atmosphere;
- the share of investments aimed at environmental protection in total investments;
- the volume and dynamics of environmental taxes;
- indicators of the share of environmental taxes, investments, and expenditures on environmental protection in terms of percentage of GDP.

The last indicators from the above list can be indirectly considered as relative

Results

To begin with, according to the Bureau of National Statistics of the Agency for Strategic Planning and Reform of the Republic of Kazakhstan (hereinafter referred to as the BNS), from 1990 to 2019, the average annual temperature in Kazakhstan increased from 6.5°C to 7.3°C, i.e. over the past 30 years – by 0.8°C [12]. For comparison in the Russian Federation, warming went up by 0.45°C over 10 years, and in general on the globe-by 0.17 degrees [13]. Therefore, if Kazakhstan does not make efforts to curb the negative impact of anthropogenic factors on nature, it will have to face the problem of global warming in a few decades. Anthropogenic climate change is primarily caused by greenhouse gas emissions into the atmosphere. By the UNFCCC Kyoto Protocol, the list of greenhouse gases includes carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF6). Total emissions (in CO2 equivalent) increased by 27.4 % in the Republic of Kazakhstan from 2010 to 2018 [14].

According to the National Report of the Republic of Kazakhstan on the inventory of anthropogenic emissions from sources and removals by sinks of greenhouse gases not regulated by the Montreal Protocol for 1990-2016: the largest contribution to the total volume of greenhouse gas emissions was made by the energy sector - 79%, agriculture - 10%, industry - 6%, waste sector-2% [1]. In 2018, the share of energy increased to 82.4%, industry - 5.6%, agriculture, land use and forestry - 10.3%, waste - 1.7% [15]. At the same time, according to the National Report based on the OECD Green Growth Indicators [1], investments in environmental protection in Kazakhstan accounted for the largest share of investments in the industry (72% in 2016 and 87% in 2019) including electricity, gas, steam, and air conditioning (24% and 58%, respectively). The share of agriculture, forestry, and fisheries accounted for only 0.26% in 2016 and 0.012% in 2019, which is discordant with the participation of these industries in the formation of greenhouse gas emissions.

It can be assumed that it was the disproportionate impact on greenhouse gas emissions of sectoral environmental investments that negatively affected the relative emissions of greenhouse gases per capita, per country area, and per unit of GDP (Fig.1).

In the Republic of Kazakhstan, the amount of carbon dioxide in the atmosphere is growing from year to year. From 2010 to 2018, it increased by almost 1.3 times. The environmental statistics indicate that the total emissions of greenhouse gases are also growing both per capita and per unit area of the country (Fig.1). An upward trend is also observed in terms of specific aggregate greenhouse gas emissions per unit of GDP. If in 2011 the last indicator was 8.1, then, in 2018 its value was 8.6 t CO2-eq / 10,000 dollars.

Trends in recent years in the growth of indicator data, according to the OECD National Growth

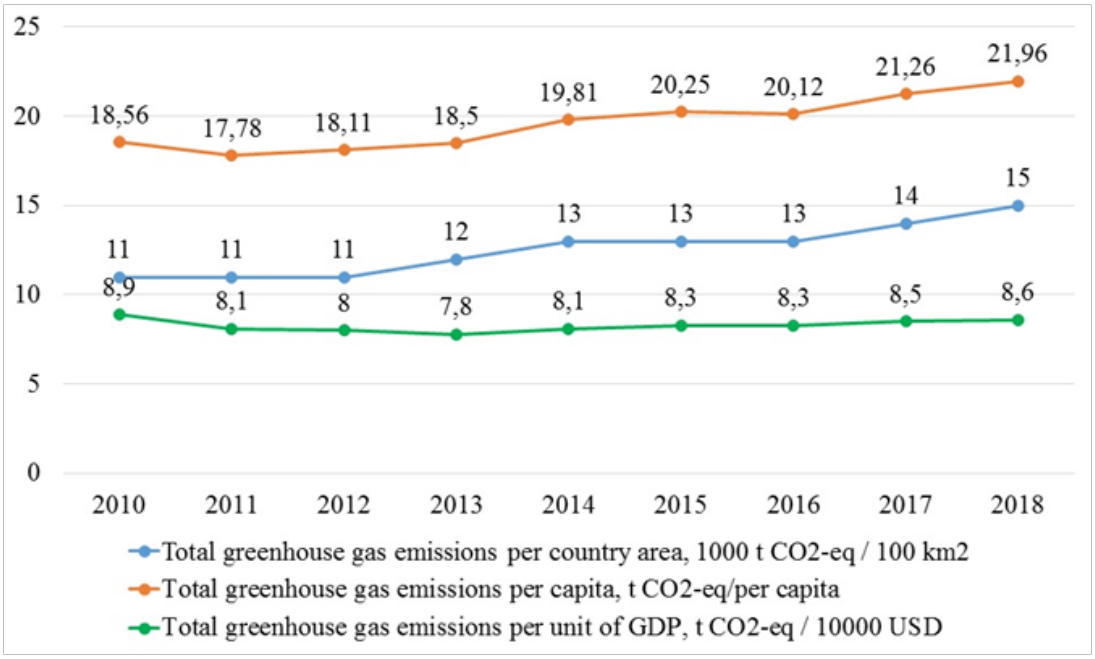

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Figure 1 – Dynamics of specific total greenhouse gas emissions in Kazakhstan for 2010-2018

Report, make it necessary ..." to take systematic measures to reduce CO2 emissions in all sectors of the economy and to develop a low-carbon strategy by the Paris Climate Agreement"... [1].

There are also negative trends in emissions to the atmosphere of all pollutants in general. Between 2010 and 2019, they rose by 11.5 percent, with growth in 10 entities of the public service (oblasts and directly administered cities) [16]. The exceptions are Almatinskaya oblast, West Kazakhstan oblast, Karagandinskaya oblast, Kyzylordinskaya oblast, Mangistauskaya oblast, North Kazakhstan, and East Kazakhstan oblasts.

On a per-capita basis, emissions of atmospheric pollutants have remained unstable throughout Kazakhstan over the past 10 years, tending to increase and decrease. Atyrauskaya, Karagandinskaya and Pavlodarskaya oblasts are the leaders of this. In contrast, East Kazakhstan oblast has experienced a decline of 10.9 percent. As in the country as a whole, emissions of gaseous and liquid wastes are prevalent in East Kazakhstan. In 2019, they accounted for 79.6 percent in Kazakhstan and 77 percent in East Kazakhstan. More than 42 percent of the total was attributable to sulphur anhydrite and 33 percent to carbon monoxide (compared to 44.8 percent and 24.7 percent respectively for the Republic of Kazakhstan as a whole). Let us turn to other environmental indicators of environmental monitoring assessed in the Republic of Kazakhstan and its regions. First, note that in 2018, the Kazakh government signed an agreement with the Organization for Economic Cooperation and Development (OECD) on the implementation of a project to introduce green growth indicators [17]. By this agreement, in 2019, in the published National Report based on the OECD green growth indicators [1], 44 indicators of "green" growth out of 54 proposed by the OECD were presented, including 6 new indicators were used for the first time. However, some of these indicators are presented in the report at the national level without a breakdown by region. Among many indicators, we will be primarily interested in those that characterize the investment policy of Kazakhstan and its regions in the field of environmental protection.

One such indicator is the current cost of environmental protection. Fig. 2 shows the rate of increase in current environmental protection expenditure over 10 years from 2010 to 2019.

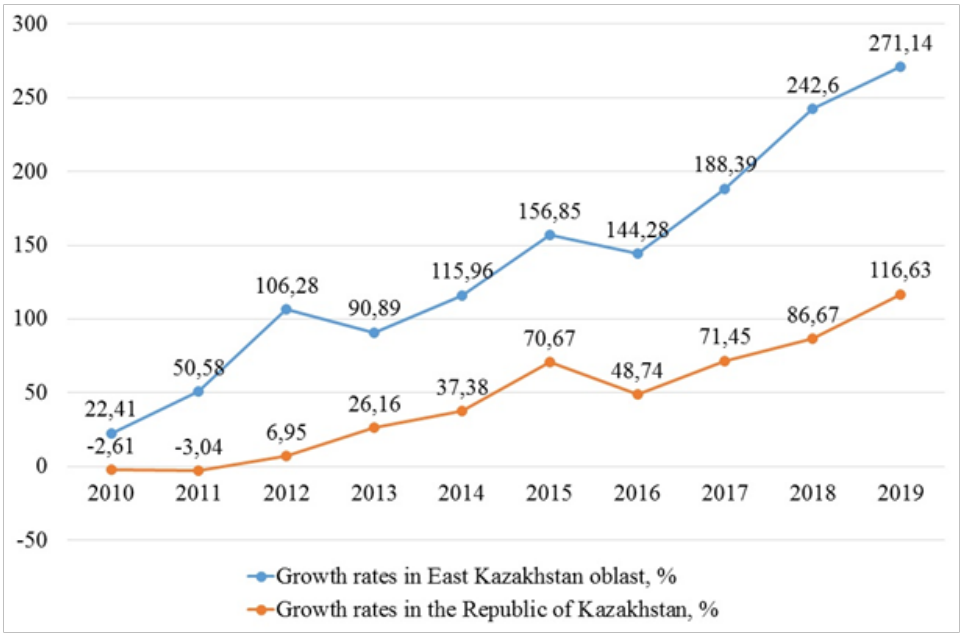

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Figure 2 – Growth rates of current expenditures for environmental protection, %

As can be seen from Fig. 2, the rate of growth of current environmental expenditure calculated by the base method relative to 2009 showed an upward trend, with the rate of increase for the East Kazakhstan region. This is considerably higher than the republican level for the entire period. It is due to the relatively high potential (above the national average) of industrial production in East Kazakhstan, which inevitably accompanies significant emissions of pollutants, including greenhouse gases.

In this regard, of particular interest is the comparative analysis of the trends in air pollution emissions in the Republic of Kazakhstan and East

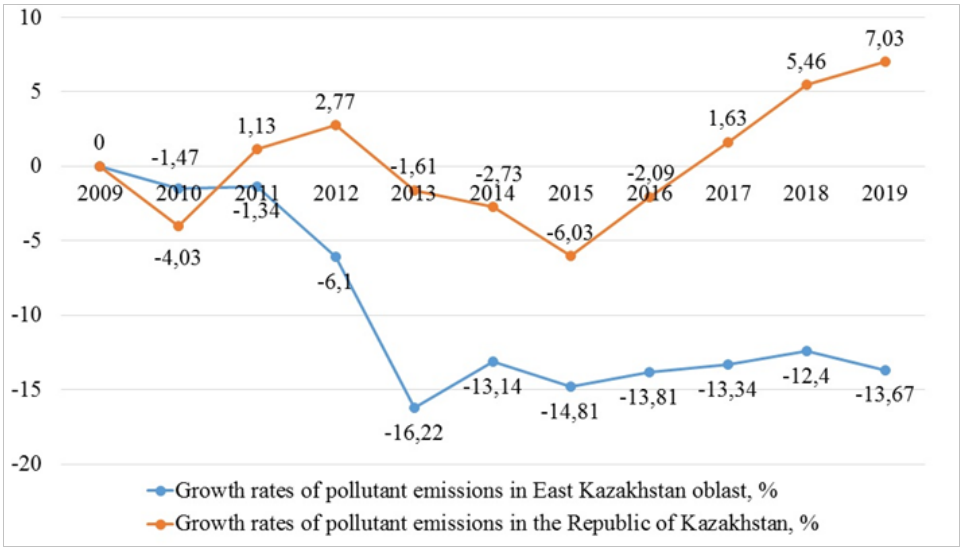

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Figure 3 – Dynamics of the growth rate of air emissions of pollutants in the Republic of Kazakhstan and East Kazakhstan region, %

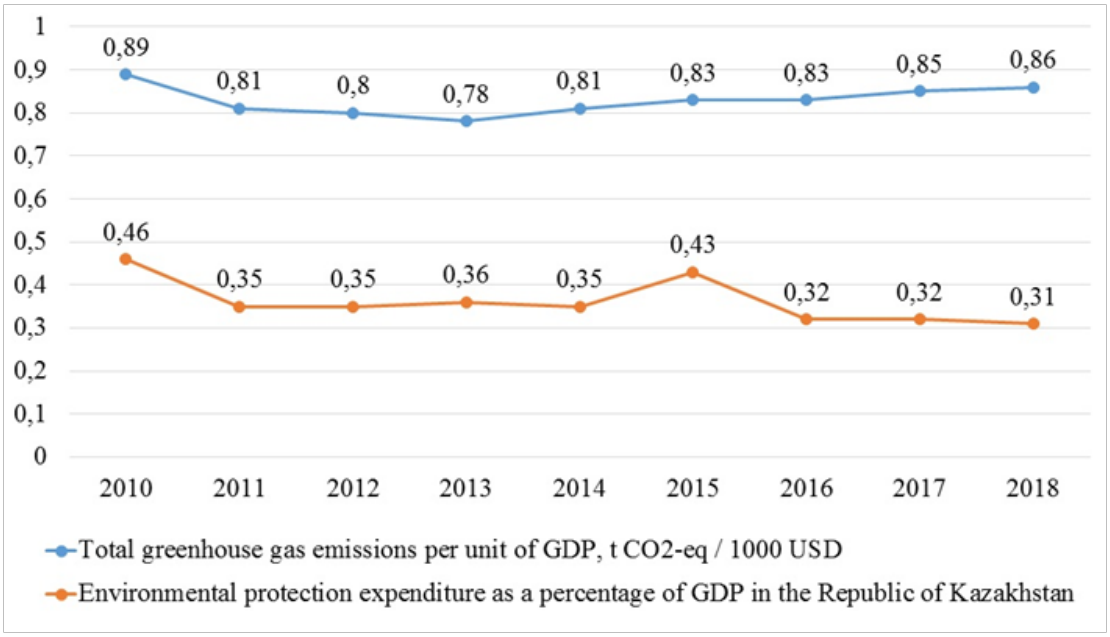

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Figure 4 – Dynamics of indicators of total greenhouse gas emissions and environmental protection expenditures per unit of GDP in the Republic of Kazakhstan for 2010-2018

Kazakhstan Oblast (Fig. 3) and the results obtained with the nature of changes in expenditures for environmental protection (Fig.2).

The graph (Fig. 3) clearly shows that for all 10 years East Kazakhstan region experienced a negative growth rate of emissions about the selected base year 2009, while for the Republic as a whole, the periods of decline were followed by the periods of increase. At the same time, the rate of decline in East Kazakhstan has always been more significant than in the country as a whole.

The analysis suggests that higher environmental protection costs are accompanied by higher emission reductions. Thus, the policy of financing environmental protection carried out in Kazakhstan is fully justified. However, it should be noted that at least 10 cities of Kazakhstan are included in the list of cities with a high atmospheric pollution index (7 or more) in 2019, including the regional center of East Kazakhstan, Ust-Kamenogorsk [15].

The Republic of Kazakhstan is witnessing a positive trend of increasing expenditure on environmental protection. It is accompanied, as noted earlier, by a decrease in total greenhouse gas emissions per unit of GDP, measured in tons of CO2-eq /1000 dollars. Since 2011, there have been negative values of the growth rate of this indicator, which indirectly indicates the effectiveness of the policy of financing green development in Kazakhstan. It can be assumed that it is the growth of expenditures on environmental protection, and at an increasingly high rate from year to year, that had a positive impact on the specific indicator of greenhouse gas emissions per unit of GDP. However, when comparing the specific indicators of total greenhouse gas emissions and environmental protection expenditures per unit of GDP, which are less affected by the inflation factor, the situation is diverse (Fig. 4).

In the period from 2011 to 2013, with a stable level of unit costs, specific greenhouse gas emissions decreased (from 0.81 to 0.78 tons of CO2-eq /1000 dollars). Since 2015, the reduction in specific environmental protection costs has been accompanied by a gradual increase in specific greenhouse gas emissions, which seems quite logical.

A certain role in the effectiveness of the use of environmental protection funds is played by the structure of their distribution by types of environmental protection activities.

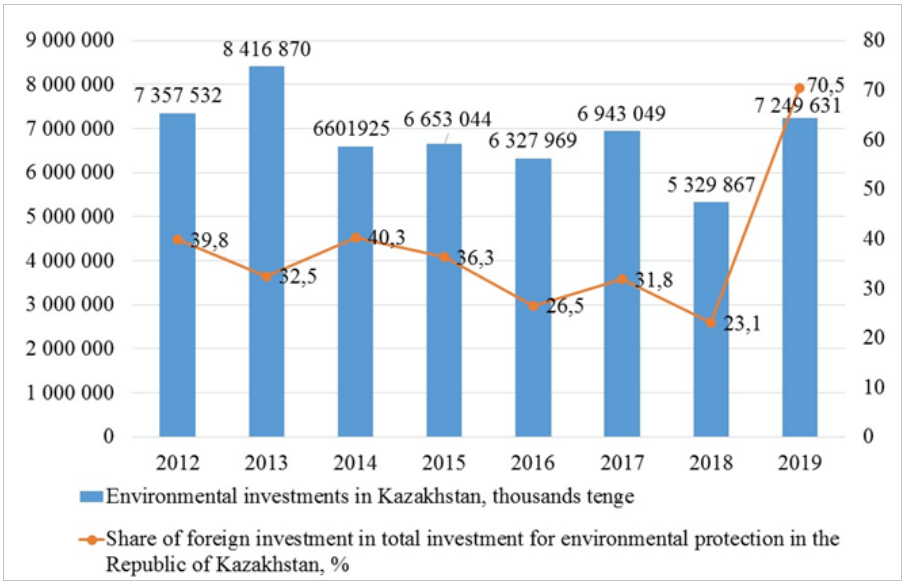

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Figure 5 – The volume and structure of investments aimed at environmental protection in the Republic of Kazakhstan

According to 2019 data, environmental protection expenditures were formed mainly with a focus on the priority of atmospheric air and climate protection: at the national level, the share of expenditures for these purposes was 33.6 %, at the level of East Kazakhstan oblast – 51.6 %. The next most important (in terms of cost) are such types of environmental protection activities as wastewater treatment management (25.2 % in the Republic of Kazakhstan and 23.1 % in East Kazakhstan oblast) and waste management (29.9 % and 19.9 %, respectively) [19].

An important role in green finance policy, along with current expenditures, is played by investments in fixed assets aimed at protecting the environment, assessed using some indicators according to the OECD [1], namely:

- The indicator "International financial flows relevant to green growth". In 2017, the Republic of Kazakhstan received official assistance in the form of "tied" grants for projects focused on "green" growth for 1.8 billion tenge in 2014, 265.2 million tenge in 2015, 727.9 million tenge in 2018. In 2017, 0.71 million US dollars were allocated for water supply and sanitation in the republic as official assistance; more than 3 million US dollars were allocated for the conservation and rational use of biodiversity and ecosystems. The inflow of official funds to agriculture in the same year amounted to 43 million US dollars.

The National Report based on the OECD green growth indicators for 2014-2019 provides 2016 data on foreign direct investment-related to environmental protection: they accounted for 0.2% of the gross inflow of foreign investment [1].

Domestic investments[2] prevail in the structure of environmental protection investments. Their share in different years ranged from 59.7 % to 76.9 %. And only in 2019, external investments * increased sharply, their share amounted to 70.5 % (Fig. 5).

To finance "green" technologies, Kazakhstan plans to continue using the resources of international funds and private investments

[2] In accordance with the methodological explanations of the BNS, domestic investments are investments of own or borrowed capital by investors of a given country (residents) in newly created or existing fixed assets within the country. External investments are investments of foreign capital owned by foreign investors in newly created or existing fixed assets located on the territory of the Republic of Kazakhstan [15]

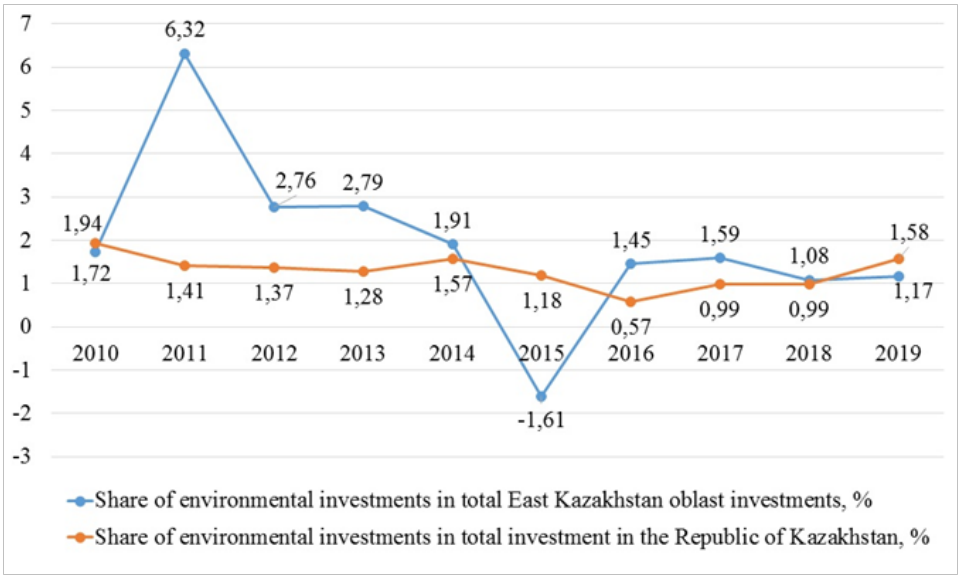

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Figure 6 – Dynamics of the investments share indicator aimed at environmental protection in the total volume of investments for the period from 2010 to 2019 in the Republic of Kazakhstan and East Kazakhstan oblast

along with the funds of the national and local budgets. In particular, it is planned to attract investments through the "Green Climate Fund", specially created to help developing countries in reducing greenhouse gas emissions and adapting to the effects of climate change. Kazakhstan intends to use its financial centers to attract foreign investors, using the infrastructure of AIFC and the International center for "Green" technologies and investment projects;

– The indicator "Investments aimed at a green economy /Investments aimed at environmental protection". The sources of such investments are budget funds, all types of pollution charges, private investments, investment of enterprises themselves, as well as fund investments received from the transfer of carbon units.

198,721.626 million tenge was invested in the Republic of Kazakhstan in 2019, for environmental protection, which amounted to 1.58% of the total investment in fixed assets. East Kazakhstan oblast directed only 1.17% of all investments in the region to the green economy in the same year. However, 2019 was rather an exception to the general rule. For 10 years, only in 2015 and 2019, the share of investments in East Kazakhstan Oblast was significantly lower than in the republic as a whole. The dynamics of this indicator for the period from 2010 to 2019 are shown in Fig. 6.

If we consider the dynamics of the total volume of investments, then it should be noted that in 2019 there was a significant 36% growth in investments in environmental protection in the East Kazakhstan oblast.

In general, there was even more significant growth in Kazakhstan – by 78.8 % [16]. Compared to 2009, the growth of investment in environmental protection in 2019 amounted to 1.2 times and 2.7 times, respectively, i.e., the growth rate of investments in the green economy over the past 10 years in East Kazakhstan oblast were significantly lower than in the whole country. Indeed, in 2019, East Kazakhstan oblast ranked only 7-th among all the subjects of the republic in terms of investment in environmental protection. The peak of green investment in East Kazakhstan oblast (15.260 billion tenge) occurred in 2011. Investment in air protection and climate change problems (2,579. 7 million tenge), wastewater treatment (1,666.4 million tenge), and waste management (2,615. 8 million tenge) was a priority in East Kazakhstan oblast in 2019 [15].

A significant increase in investment in the republic as a whole was due to the dynamic growth of investments in renewable energy sources. According to BNS (bulletin "Investment and construction activities in the Republic of Kazakhstan for 2015-2019"), renewable energy sources (RES) were invested in the amount of 162.4 billion tenge in 2019, which is 120% more than in 2018 (70.9 billion tenge).

Compared to 2015, investments have increased by about 22 times. As a result, more than 20 renewable energy facilities were built and put into operation in the republic by 2019. These are solar power plants in Almaty oblast ("Eneverse Kunkuat" LLP), Kagand oblast ("KazSolar 50" LLP), wind installations in Atyrau oblast (VetroEnregoTechnologies LLP) and Mangystau oblast (KT Redkometalnaja Kompanija LLC), and others [19].

In accordance with the concept of transition to a green economy adopted in Kazakhstan, the share of alternative energy sources in the republic should reach 30% by 2030. To date, the volume of energy generated by Kazakhstan's renewable energy sources has reached 3 %.

A somewhat different situation is in East Kazakhstan oblast. The last investment in renewable energy sources, according to statistical sources, was made in 2016 in the city of Altai. For 2015-2016, they amounted to 742.4 million tenge [20].

Currently, a large solar power plant with a capacity of 30 megawatts, the only one in East Kazakhstan oblast, is located in Zharma district in the village of Zhangiztobe. The European Bank for Reconstruction and Development invested 17.5 billion tenge in the construction. In the future, when the solar power plant is connected to the networks of JSC "VK REC", it will be able to cover the electricity demand of East Kazakhstan oblast by 2 percent.

In addition, there are point examples of the use of solar panels in Ust-Kamenogorsk. These are three warm bus stop complexes in Ust-Kamenogorsk equipped with solar panels, 53 pedestrian crossings with solar-powered LED signs, a greenhouse with a solar split system, and other facilities [21].

The construction of larger facilities focused on the production of solar panels (such as, for example, "Kazakhstan Solar Silicon" LLP) failed due to the lack of competitiveness of domestic product samples. Today, China is the recognized world leader in the production of solar panels. It can only be defeated in the competition by offering the consumer a superior quality, more technologically advanced product at reasonable prices. Then Kazakhstani enterprises will be able to take advantage of renewable energy sources, especially since there are quite a lot of traditional stations in East Kazakhstan oblast that mediate the transmission of electricity generated by solar power plants. These are such energy companies as "NP Ust-Kamenogorsk HPS" LLP, "NP Shulbinskaya HPS" LLP, "Ust-Kamenogorsk HPS" LLP, "Teplokommunenergo State Enterprise, "Sogrinskaya HPS" LLP, and "Ridder HPS" JSC.

The competitive advantage of East Kazakhstan oblast is the availability of maneuverable capacities, such as large and small hydroelectric power plants, as well as the presence of unoccupied large areas that can be allocated for the construction of solar power plants. Taking into account all the pros and cons, East Kazakhstan oblast has a fairly high potential for the development of solar energy.

Another promising direction for the development of the green economy in East Kazakhstan oblast will be the implementation of the international program "Green Cities". Currently, two cities have joined the program: Ust-Kamenogorsk and Semey. The financing is provided by EBRD. It is planned to attract 30 million euros. The program provides for the modernization of the solid waste management system. In addition, it is planned to direct part of the "green" investments for the technical re-equipment of urban utilities. The innovations will also cover the housing maintenance and utility complex, public transport, and the energy sector. In general, in Kazakhstan, from 2015 to 2020, EBRD financed 12 ongoing investment projects totaling 74.7 billion tenge [22].

– Indicator "Environmental taxation". Environmental taxes include taxes on energy,

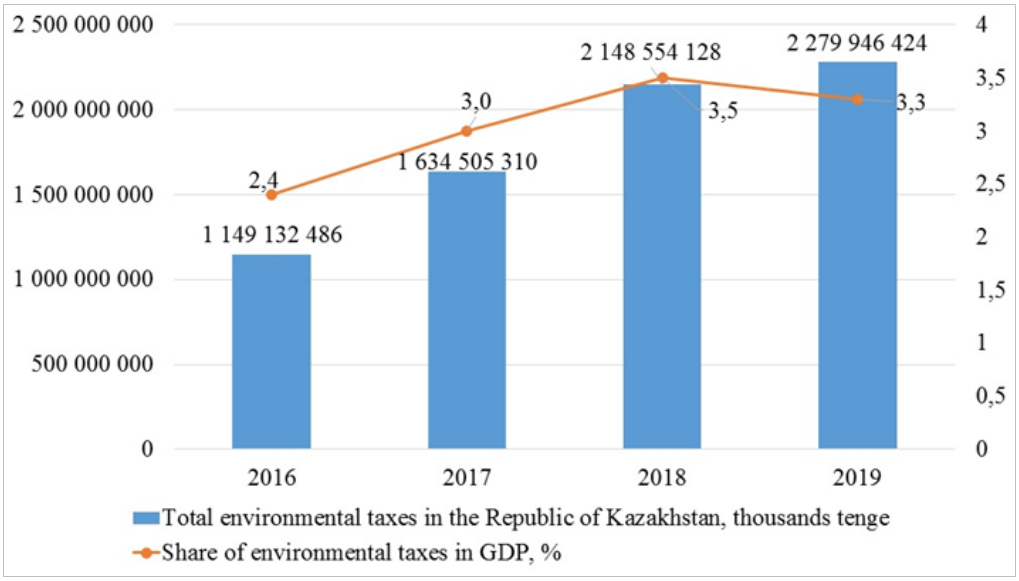

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Figure 7 – Dynamics of environmental taxes in the Republic of Kazakhstan for the period from 2016 to 2019

transport taxes, taxes on environmental pollution, and taxes on the use of resources. The largest share in the structure of environmental taxes in 2019 taxed on energy (74.8 %), the second-largest was taxes on the use of resources (17.3%), the smaller share was taxes on environmental pollution (4.4%) and transport taxes (3.4%) [23]. The dynamics of environmental taxes in absolute and relative terms (as a percentage of GDP) are shown in Fig. 7.

A comparison of the share of expenditures and investments aimed at protecting the environment and environmental taxes as a percentage of GDP in the Republic of Kazakhstan (Fig. 8) indicates a clear underutilization of environmental taxes for the green economy purposes, i.e., the availability of reserves for financing environmental protection.

The amount of environmental taxes in 2019 amounted to 17,701,447. 4 tenge per 1 ton of pollutant emissions into the atmosphere, that is, it many times exceeded the specific investmentы and environmental protection costs, which also confirms the likelihood of misuse of funds collected in the form of environmental tax.

The National Report based on the OECD green growth indicators [1] recommends the reform of the environmental taxation system based on the principles of targeted use and transparency. It is also planned to introduce a system of incentives for integrated environmental permits instead of command and administrative regulation of enterprises that pollute the environment, based on a system of penalties and fines. Moreover, today the level of fines for environmental pollution is unreasonably small in comparison with the costs and investments for environmental protection. Thus, over the past 10 years, from 2010 to 2019, the total amount of funds for claims and fines collected in compensation for damage caused by violations of environmental legislation in the East Kazakhstan Region amounted to 2,441.5 million tenge [23], or 1,831.4 tenge/ton in terms of emissions per ton. These amounts are incomparably small compared to the investment and current environmental protection costs per 1 ton of emissions: 2,775,538. 47 tg./t and 110,498 tg./t, respectively. This indicates that the amount of fines levied is insufficient.

Among the newly introduced indicators of "green" growth on the recommendation of OECD, the indicators that characterize the research component in the development of the "green" economy deserve attention. These are indicators such as:

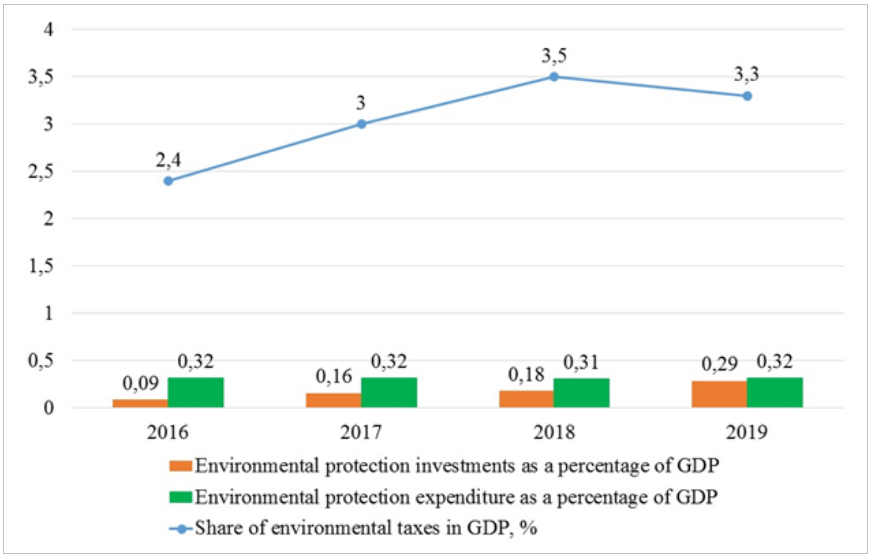

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Figure 8 – Dynamics of the share of environmental taxes, investments, and environmental protection expenditures as a percentage of GDP in the Republic of Kazakhstan

- Expenditures on scientific projects related to the "green economy", including in the field of renewable energy sources. Such expenses amounted to 1,286,137.8 thousand tenge in Kazakhstan in 2019, that is, 0.58% of all expenses for environmental protection;

- The number of patents issued in the field of environmental protection (including environmental and energy technologies). Their number increased by 74% in the five years from 2014 to 2018, mainly due to patents for environmental (by 81%) and energy (by 58 %) technologies [1].

Conclusion

The analysis of various aspects of the green investment policy based on individual indicators recommended by OECD and implemented in the statistical practice of the Republic of Kazakhstan and its regions allowed us to identify and evaluate both positive and negative aspects of this policy. Considering that East Kazakhstan oblast was chosen as the object of the study and its indicators were compared with environmental indicators for the Republic of Kazakhstan as a whole, the trends inherent in these indicators were not always evaluated equally at the national and regional levels

Thus, the positive aspects of the investment policy in the field of green development include:

- Growth in fixed capital investment and current environmental protection costs;

- Reducing air emissions of pollutants from stationary sources in East Kazakhstan oblast, both in absolute terms (by 12.4 %) and in relative terms per capita (by 10.9 %) in 2019 compared to 2010;

- Growth of investments in renewable energy in the Republic of Kazakhstan (from 9,042,494 thousand tenge in 2013 to 162,448,828 thousand tenge in 2019, i.e. almost 18 times);

- Sufficiently high investment attractiveness of renewable energy development projects in East Kazakhstan oblast;

- Active involvement of EBRD funds in the implementation of environmental projects at both the national and regional levels.

At the same time, the study revealed the following negative aspects, indicating the presence of unresolved problems in the field of green investment:

1) In the Republic of Kazakhstan, total greenhouse gas emissions increased significantly:

by 23.83% in 2018 compared to 2010. Over the past 10 years, there has been an annual increase in carbon dioxide in the atmosphere;

2) The average annual temperature in the republic has increased by 0.8°C over the past 30 years, from 1990 to 2019, which is higher than the global average growth rate;

3) Emissions of pollutants from stationary sources increased by 11.5 % over the period from 2010 to 2019, while it decreased by 3.4 % for East Kazakhstan oblast over the same period;

4) There was a negative dynamics in the specific indicators of greenhouse gas emissions per capita, per area of the country, and per unit of GDP. The increase in emissions of pollutants in the Republic of Kazakhstan as a whole was disproportionately high compared to the growth in the scale of economic activity in the Republic;

5) The presence of intersectoral imbalances in environmental investment has negatively affected the effectiveness of green development policies. There was a suboptimal structure of the distribution of funds by types of environmental activities;

6) There was a decrease in the total amount of investment in atmospheric air protection and climate change in the republic as a whole (by 2.4 times in 2019 compared to 2013);

7) The green growth indicators statistical report did not reflect 10 of the 54 indicators recommended by OECD. Several indicators in the report are presented at the national level without detailing by region;

8) There is no effective system of fines for environmental pollution;

9) There is no effective system of incentives for enterprises and organizations implementing "green" technologies;

10) There is an underutilization of environmental taxes for their intended purpose;

11) The insufficiently high level of R&D expenditures related to the "green" economy (0.58% of all environmental protection expenditures) hinders the development of green technologies and the creation of "green" products that are competitive on the world market.

In conclusion, we note that the analysis carried out in this study is only the first stage on the way to understanding the current environmental situation in the country and accompanying financing policy. In the future, it should serve as a starting point for developing recommendations for improving the green investment strategy in the Republic of Kazakhstan.

Such recommendations include:

- further deepening of international cooperation on financial support for sustainable and green economic development;
- strengthening of financial support from the state for priority industries in the form of equity participation in the authorized capital of strategically important enterprises focused on the introduction of new environmentally friendly technologies;
- continuation of the practice of targeted state financing of R&D for the creation of environmentally friendly technologies;
- expanding the practice of investing in public-private partnership infrastructure green projects;
- improving the system of trading quotas for greenhouse gas emissions;
- the introduction of tax holidays for newly created «green» enterprises with the simultaneous introduction of an increased tax on products whose production is accompanied by excess greenhouse gas emissions;
- the development of the financial market, accompanied by the introduction of the ESG-assessment of its participants.

Special attention should be paid to improving the environmental literacy of the population and business representatives, allocating more state educational grants for training specialists in the field of environmental protection.

These measures of a financial and economic nature should certainly be accompanied by an institutional reform that ensures an improvement in the quality of public environmental management, as well as the improvement of environmental legislation in the country, which will allow the republic to implement a policy of green investment on a fundamentally new basis, involving the harmonization of socio-economic interests of society with the possibilities of the biosphere.

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ЭЫДҰ индикаторлары негізінде Қазақстанның және оның аймақтарының «жасыл» дамуына қаржылық қолдауды бағалау

Аннотация. Мақалада Қазақстан экономикасы жасыл дамуының қаржылық және инвестициялық ресурстармен қамтамасыз етілуі талданады, республиканың және оның аймақтарының инвестициялық саясатының тиімділігі бағаланады. Талдаудың ақпараттық базасы ретінде Қазақстан Республикасы Стратегиялық жоспарлау және реформалар агенттігінің Ұлттық статистика бюросының, ШҚО Статистика департаментінің, республикалық және аймақтық деңгейдегі қоғамдық-саяси басылымдардың, ЭЫДҰ, ЕҚҚДБ интернет-ресурстарының мәліметтері және басқа ақпарат пайдаланылды. Зерттеу барысында парниктік газдар шығарындылары мен климаттың өзгеруімен қоршаған ортаны қорғауға арналған шығындар мен инвестициялар деңгейі арасындағы байланыс анықталды. Экологиялық салық салу саясатының тиімділігі мен қоршаған ортаға кері әсерінен болған залалдың орнын толтыруды өтеу механизміне баға беріледі. Қоршаған ортаны қорғаудың инвестициялық саясатындағы жағымды және жағымсыз жақтар республикалық деңгейде де, аймақтық деңгейде де айқындалады. Қазақстан Республикасында «жасыл» дамуды қаржылық қолдау жеткіліксіз және қоршаған ортаны қорғауды басқарудың қаржылық механизмін одан әрі жетілдіру қажеттілігі туралы қорытынды жасалды.

Түйін сөздер: «жасыл» инвестициялар, «жасыл» экономика, парниктік газдар, қоршаған ортаны қорғаудың ағымдағы шығындары, экологиялық салықтар, ЭЫДҰ индикаторлары.

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Оценка финансового обеспечения «зеленого» развития Казахстана и его регионов на основе индикаторов ОЭСР

Аннотация. В статье проведен анализ обеспеченности зеленого развития экономики Казахстана финансово-инвестиционными ресурсами, дана оценка результативности инвестиционной политики республики и ее регионов. В качестве информационной базы анализа были использованы данные Бюро национальной статистики Агентства по стратегическому планированию и реформам Республики Казахстан, Департамента статистики Восточно-Казахстанской области, общественно-политических изданий республиканского и регионального уровней, интернет-ресурсов ОЭСР, ЕБРР и других источников. В процессе исследования выявлена взаимосвязь между уровнем затрат и инвестиций на охрану окружающей среды

с величиной выбросов парниковых газов и изменением климата. Дана оценка эффективности политики экологического налогообложения и механизма компенсации потерь от негативного воздействия на окружающую среду. Выявлены положительные и отрицательные моменты в политике инвестирования охраны окружающей среды как на республиканском, так и на региональном уровне. Сделан вывод о недостаточном финансовом обеспечении «зеленого» развития в Республике Казахстан и о необходимости дальнейшего совершенствования финансового механизма управления охраной окружающей среды.

Ключевые слова: «зеленые» инвестиции, «зеленая» экономика, парниковые газы, текущие затраты на охрану окружающей среды, экологические налоги, индикаторы ОЭСР.

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