Effectiveness of Regulatory Mechanisms of the Oil and Gas Industry in the Context of Environmental Problems

Tatyana Butova[1] , Vasiliy Varzin[2], Shakizada Niyazbekova[3(✉)] ,
Zeinegul Yessymkhanova[4] , and Svetlana Anzorova[5]

[1] Siberian Federal University, Svobodny Pr., 82A, 660041 Krasnoyarsk, Russia
[2] The Kosygin State University of Russia, 33, Sadovnicheskaya Street, 117997 Moscow, Russia
[3] Moscow Witte University, 2-i Kozhuhovski proezd, 12 Stroenie 1, 119454 Moscow, Russia
shakizada.niyazbekova@gmail.com
[4] Turan-Astana University, 29, Ykylas Dukenuly Street, 010000 Nur-Sultan, Republic of Kazakhstan
[5] Synergy University, Leningradsky Prospect 80, Buildings E, G, J, 125190 Moscow, Russia

Abstract. According to experts, the volume of world oil production will soon reach a maximum, after which it will begin to decline. Other studies show that oil reserves are not running out, but are becoming less accessible. The future is uncertain, it is impossible to plan it accurately. Nevertheless, this industry is one of the most profitable in the Republic of Kazakhstan, where oil production is constantly growing, all regulatory mechanisms have been created, and although their effectiveness is low, nevertheless, a mechanism for interaction with all sectors of the economy has been created. The main problems were found in the regulation and environmental management of the oil industry, it should be noted that in the processing industry of industrial enterprises there is no interaction with many sectors of the economy. The authors compared the effectiveness of regulatory mechanisms in the oil and gas industry and the industrial waste processing industry. Subsequently, it turned out that there are practically no mechanisms for regulating the industrial waste processing industry, and the problems arising in this industry are ignored by state authorities. Thus, avoiding the problems of the industrial waste processing industry leads Kazakhstan to an environmental disaster.

Keywords: The fuel and energy complex · Oil and gas industry · Environmental problems · Industrial waste processing industry

1 Introduction

The fuel and energy complex also occupies a leading position in attracting foreign direct investment to Kazakhstan [1–6]. At the same time, in order to ensure the rational use of rich energy resources and sustainable development of the country for the long term, today – as always – it is extremely important to have a thorough, coordinated and carefully thought-out regulatory framework in combination with effective mechanisms for implementing the requirements provided for by it [7–9].

Kazakhstan is purposefully following the path of increasing its gas potential, including production and export capacities. At the same time, gas supplies to the domestic market are the main priority in this area. The dynamic development of the gas industry is extremely important for the entire economy of Kazakhstan [10–14].

2 Literature Review

To assess the effectiveness of regulatory mechanisms for the oil and gas industry and the industrial waste processing industry, open official sources were used: statistical information Agency for Strategic Planning and Reforms of the Republic of Kazakhstan Bureau of National Statistics; statistical information of the State Revenue Committee of the Ministry of Finance of the Republic of Kazakhstan; press releases of the Ministry of Energy of the Republic of Kazakhstan; analytical information of the Ministry of Labor and Social Protection of the Population of the Republic of Kazakhstan; reference materials of the Committee for Control in the Field of Education and Science of the Ministry of Education and Science of the Republic of Kazakhstan; reference materials of the Committee of Geology and Subsoil Use of the Ministry of Investment and Development of the Republic of Kazakhstan; materials on the oil and gas industry (press releases, analytical and reference information, reports of state bodies, national companies, etc.); analytical materials; statistical data and others [3].

3 Methods

The methodological basis of the research is a complex of scientific methods of cognition and research: dialectical, historical, structural-system, legal, statistical, formal–logical and other methods widely used in legal science [4–6].

General scientific methods of system, logical and comparative analysis, analogies and generalization, cognitive modeling, expert assessments, hierarchy analysis, retrospective and variational, as well as scientific approaches: integration, situational and synergetic, etc. were used.

A comparative analysis of the oil and gas industry and the industrial waste processing industry was carried out from the point of view of the effectiveness of the regulatory mechanism by assessing their condition.

4 Results

There are more than 250 oil and gas fields operating in Kazakhstan, where 104 enterprises are producing. For comparison, in 2018 their number was 100 enterprises, and in 2017 – 99 [3].

In 2018, after the modernization of the country's largest oil refineries was completed, the volume of oil and gas condensate production reached a record figure of 90.4 million tons, and in monetary terms—12.2 trillion KZT (an increase of 33% compared to 2017) (Fig. 1).
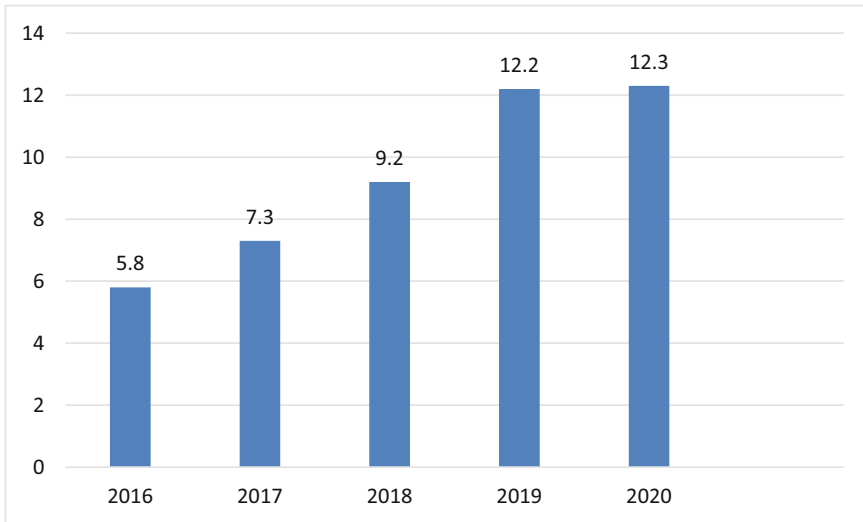
Fig. 1. The volume of crude oil production, trillion KZT. Source: developed by the authors based on materials. The internet resource of the Bureau of National Statistics of the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan. www.stat.gov.kz

In 2019, despite major repairs at major projects (Tengiz, Karachaganak, Kashagan), the volume of oil production amounted to 90.5 million tons, and in monetary terms—12.3 trillion KZT [13–16].

At the same time, for the whole of 2018, Kazakhstan exported 72.5 million tons of oil [14–17].

That is, the oil and gas industry in Kazakhstan has become a profitable branch of the economy, but the industry of processing industrial waste has not become such. Domestic experts have identified 12 basic elements for the development of the oil and gas industry and the industrial waste processing industry. What these industries have in common is that they are all closely related to the territory, its resource and potential [18–20].

After all, it makes no sense to invest money in a field without knowing the boundaries of the allotment and the territory necessary for development. It is within these boundaries that the volumes and construction of the necessary infrastructure and its costs will be considered [21, 22].

To do this, you need to develop a functional zoning of the territory: where will the production zone be, where are the roads, where are the shift settlements, etc. The main element, of course, will be technological, which directly dictates its place to all other elements of the model. In the oil and gas industry, this is production, raw materials, in waste–the sources of their formation.

With the development of civilization, the amount of waste released into the environment increases.

There are two most acute environmental problems in Kazakhstan – the quality of the environment (air, water, soil) and solid household waste. There is an annual increase in emissions, and if no measures are taken, then, according to the forecast, in 2030, the

actual emissions of pollutants will amount to 3.6 million tons, that is, they can grow by 1.5 times in 10 years.

The issues of formation and accumulation of solid household waste (MSW) in the Republic of Kazakhstan are one of the acute environmental issues. The impact of solid waste on the environment and the volume of their formation require the development of approaches and measures to solve the problems of handling them [23–26].

Every year, 5–6 million tons of solid household waste are generated in Kazakhstan [27–34].

Sorting and processing of solid waste in the country today does not exceed 15%, while in world practice this indicator is 70%. It is impossible to process all solid waste, so some of the waste–and this is from 30 to 50% – must be disposed of using waste-to-energy technology with the generation of electric and thermal energy at stations that use solid waste as a resource.

In this sense, household waste is an important resource used for the extraction of valuable fractions, energy, and compost production. Thermal disposal of household waste allows reducing greenhouse gas emissions, which is especially important for Kazakhstan to fulfill its obligations under the Paris Climate Agreement. However, even after all the adopted programs for sustainable development in Kazakhstan, the industrial waste processing industry also does not have the basic components of the economy.

Without determining the costs (economic element), the production / raw material potential of the territory, we will not be able to get a financial and economic element that determines the return on costs and profit.

Without an organizational model and a legal mechanism for interaction of all participants in the process of this production, the industry will not be able to function: after all, it is necessary to build connections and determine the «rules of the game» of all participants, and in particular for all elements of the model reflected in Table 1.

As we can see from Table 1, the oil and gas industry interacts with all sectors of the economy of the Republic of Kazakhstan, however, the environmental industry is weak in interaction, since oil-containing waste or oil sludge is formed during the production, transportation and processing of oil.

Oil sludge poses a danger to the environment, polluting the soil layer of the earth, surface and underground water and air, therefore, the processing and disposal of oil sludge is one of the most important components of the oil production process. At the same time, oil producing and refining companies cannot put all the oil sludge available in the country on the balance sheet, since only the volume of environmental payments for them will significantly exceed the profit indicators.

On the other hand, these fines should encourage them to create favorable tender conditions for contractors or dispose of pollution on their own. But practice shows that in many cases it is more profitable to pay environmental fees or even hide the amount of pollution. Moreover, the logic of the oil giants, who are willing to pay huge penalties for accumulated waste instead of dealing with their disposal, is incomprehensible [29–34].

In this case, it is necessary to support state bodies and partially or fully finance the disposal of oil sludge from the state budget. The state should move from targeted and spontaneous actions to a comprehensive and balanced action program, including a system of environmental monitoring and audit of accumulated damage, the number and volume

Table 1. Comparative model of the current state of the basic components of the oil and gas industry and the processing industry of industrial enterprises

Basic components of the economic sector	Branches of the economy of Kazakhstan	
	Oil and gas	Processing of industrial waste
Territorial	+	
Functional	+	
Technological	+	+
Legal	+	Partly
Economic	+	+
Financial	+	
Social	+	
Ecological	+	
Educational	+	Partly
Organizational (institutional model)	+	−
Territory marketing + branding	+	Partly
Communications	+	Partly

of sludge barns, the terms of mandatory disposal and penalties for non–compliance with regulations.

As you know, the state influences the economy by adopting appropriate regulatory legal acts, implementing various programs and developing certain strategies. Unfortunately, the state's capabilities in the civil law regulation of relations related to emergency oil spills are not fully realized.

At the same time, the industrial waste processing industry has a positive indicator with only 2 industries, in particular, technological and economic. Partial interaction between the legal and educational spheres, territory marketing + branding and communications in the industrial waste processing industry.

With the rest of the industries that make up the branches of the economy, there is a complete lack of interaction, regarding the territorial aspect, there is no concept of zoning for the industrial waste processing industry. Functionality is completely not taken into account. The financial and social industries, which are usually the engines of any industry, do not have interaction with these industries.

The organizational branch takes place, but not from the point of view of an institutional approach. The most negative thing in this situation is that the Environmental industry weakly interacts with the industrial waste processing industry. Although environmental problems have long passed into the sphere of planetary strategic goals for the survival of mankind. In addition, oil production is not only a big income, but also a constant threat to the environment.

The main factors hindering the timely solution of problems in the industrial waste processing industry in Kazakhstan are:

- lack of the necessary legislative framework, including the lack of technical regulation;
- lack of administrative and methodological tools to prioritize the assessment and elimination of pollution;
- lack of financial investment mechanisms to eliminate or partially reduce the impact of the industrial waste processing industry on the environment.

According to Table 1, if one of the elements of the oil and gas industry model is removed, the consequences may not be predictable. However, in Kazakhstan, the industrial waste processing industries are ignored, that is, they develop by themselves, which means that the territory where we develop the industrial waste processing industry lives and develops by itself.

In the absence of an integrated and systematic approach, it is impossible to create an effective industry, especially one that corresponds to the world experience in handling and managing the industrial waste processing industry, but we do not get and will not get the economic effect that we dream of.

5 Discussion

Resource conservation and increasing the level of resource efficiency of the use of hydro-carbon raw materials are priority issues, the solution of which will help to implement a set of energy and environmental–economic tasks for the transition to "green" development.

The main direction of Kazakhstan's transition to "green development" is to increase the complexity of the use of raw materials, increase the depth of processing, the Nelson complexity coefficient, i.e. the most complete, economically justified extraction of all useful components contained in raw materials.

This is a clear example of the fact that in order to increase resource efficiency, deep processing of oil–containing waste is becoming an urgent problem more than ever, which can be solved by using economically feasible and environmentally efficient technologies that allow returning high–value hydrocarbon raw materials to circulation and obtaining products with high added value from it.

In order to better understand what is the state of the regulatory mechanism of the oil and gas industry and the industrial waste processing industry, we will consider the emissions of the oil industry. Thus, according to the basic scenario of IHS Markit4, a slight increase in demand for gasoline and diesel fuel is predicted in the period up to 2030, which will lead to an increase in the aggregate demand for petroleum products.

The apparent consumption of gasoline will grow from 4.1 million tons in 2016 to 4.5 million tons in 2030, and the consumption of diesel fuel will grow from 5.1 million tons in 2016 to 6.5 million tons in 2030. It is expected that in 2030, the total apparent demand for petroleum products will be about 14.1 million tons. An increase in production volumes will increase sludge emissions into the environment.

Studies of oil sludge indicate a fairly wide range of indicators of their quality, so sampling from sludge accumulators revealed its composition (Table 2).

As we can see, the «oil sludge» of the middle layer contains the largest amount of waste accumulations from oil activities, this is primarily due to the structure of the earth, which means that the processing of these layers of the earth has a development perspective.

Table 2. Approximate composition of oil sludge from different regions

Composition	Content, % by weight		
	The upper layer is flotation sludge	The middle layer is water emulsion	The lower layer is bottom sludge
Fur. impurities	10–15	30–40	15–5
Petroleum products	25–40	15–20	10–15
Asphalgens	Less than 5	5–15	20–45
Resins	–	5–10	15–25
Paraffins	–	Less than 5	5–10
Water	Other		

Source: developed by the authors based on materials [1–10]

The investor invests funds where the "rules of the game" are defined for all participants in the process, that is, where a legal mechanism for interaction has been developed. Moreover, not only at the initial stage of investing money, but also further – at the stage of operation. To assess the regulation of the oil waste processing industry and to understand what the conditions are for investors, we will analyze its mechanism and state [30].

Table 3. Enterprises of Kazakhstan providing services for the collection, export, disposal and processing of waste

Company name	Services/works provided	
	Collection and export	Processing
"West Dala" LLP ("West Dala")	–	Integrated waste management (collection, disposal/processing of mercury–containing, medical, oil–containing waste, used oils, chemical waste, drilling waste, solid and construction waste, liquid household and industrial waste, archival documents)
"Factory of nonwovens" LLP «S.M.F.–System»	–	– Collection and processing of PET, PPE, polyethylene, polyeth waste covers
Atameken 4 plus LLP	– Separate collection and sorting of solid household waste	–
Peasant farm LLP	– Burial, destruction	Recycling of hazardous waste
KZ Brothers LLP	– Collection and export of secondary raw materials (cardboard, white paper, transparent polyethylene, colored polyethylene, PET bottles, plastic HDPE boxes, newspapers, stretch film, HDPE canisters, bottles of household chemicals, aluminum can, transparent glass)	–

Table 3. (*continued*)

Company name	Services/works provided	
	Collection and export	Processing
Help–Ekoil LLP	–	– Collection, export, disposal/ processing of drilling mud, wood waste, used workwear, cartridge filters for water, medical waste, scrap metal, metal shavings, oil sludge, used household appliances, used air filters, used fluorescent lamps, used office equipment, used alkali catalyst solution, paraffin–resinous deposits, oiled rags, casing protectors, containers from under paint and varnish materials
Oral Taza Service LLP	– Collection and removal of solid household, construction, large–sized waste	–
TuranPromResurs LLP	–	– Collection, export, disposal/recycling of all types of waste filters, plastics containing waste, computer office equipment waste
LLP «Kazakhstan Waste Recycling»	– Collection and export of waste paper, PET containers, white paper, book and magazine products and archival waste paper, polyethylene, tetrapack throughout the territory of the Republic of Kazakhstan	–
LLP «LS KOKSHETAU»	– Production of products from secondary raw materials	– Collection, export, disposal/recycling, waste paper, plastic, polyethylene, glass;
LLP «Eco–Techs»		– Collection, removal, disposal/processing, placement/disposal of oil sludge, drilling waste, well backwash waste, oil–contaminated land, smeared soil

As we can see from Table 3, there are 11 enterprises in Kazakhstan that provide services for the collection, export, disposal and processing of waste, of which 2 enterprises are engaged in the processing and disposal of oil sludge, the remaining enterprises are engaged in other types of services that provide services for the collection, export, disposal and processing of waste (Fig. 2).

However, the share of environmental protection costs in 2019 in the EU countries will be about 2% of GDP, in the USA – 1.47%, in Japan – 1.25%, in Russia it is only 0.8%, and in Kazakhstan the share of environmental protection costs in 2018 was 0.5% of Kazakhstan's GDP. These figures, perhaps, can measure the level of ecological culture of the country.

The need for an inventory of all objects of historical pollution with an assessment of their impact on the environment was identified for the first time in 2004 in the Concept
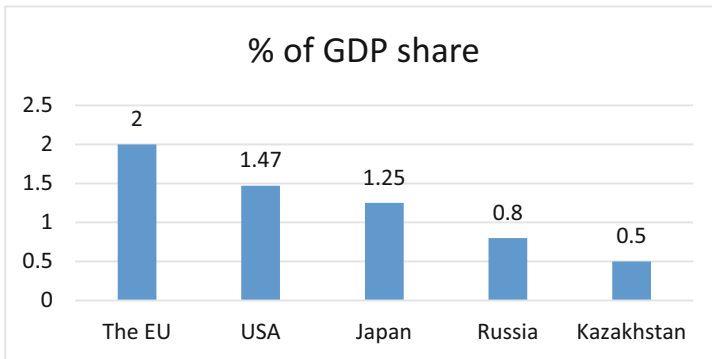
Fig. 2. Share of environmental protection costs in 2019. Source: developed by the authors based on materials. The internet resource of the Bureau of National Statistics of the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan. www.stat.gov.kz (URL: 10.06.2021)

of Environmental Safety of the Republic of Kazakhstan, however, a single state program for universal inventory has not been developed.

Many objects have been installed, including bulk pesticides, warehouses of mineral fertilizers, pesticides (granozane), containers with bitumen, warehouses of petroleum products, etc. All of them are owned by local executive bodies, but no work is being carried out on them to date.

From the above problems, we can conclude that Kazakhstan has a huge potential with low environmental friendliness and a desire to break the law, since impunity entails a systemic violation of the law [28–34].

A comparative assessment of the effectiveness of regulatory mechanisms for the oil and gas industry and the industrial waste processing industry has shown that any industry can be effectively developed to a highly profitable state, in the case of an integrated approach to business. And also, the fact that even any profitable branch of the economy can be turned into an environmental disaster, in case of an irresponsible attitude to it.

This assessment was carried out in order to find out and answer the question why some industry in the country has a great economic success in its development, and some sectors of the economy are lagging behind, while state bodies loudly announce that there has been regulation on their part.

6 Conclusion

Thus, avoiding the problems of the industrial waste processing industry leads Kazakhstan to an environmental disaster. A way out of this situation is possible if the Authorized state bodies turn their faces to these problems and try to solve them based on the balance of interests of both parties.

It is important not only to use existing modern technologies and competent selection of technological equipment that will solve the difficult environmental problem of industrial waste processing, and this type of large–tonnage waste can be considered as a valuable secondary raw material of enterprises, but also without working regulatory legal

acts and an effective effective mechanism for regulating the industrial waste processing industry, it will be impossible to develop this industry, especially to attract investors from abroad.

Monitoring of regulatory legal acts in Kazakhstan should be carried out by identifying outdated, corrupt and inefficiently implemented legal norms that contradict the legislation of the Republic of Kazakhstan and should be executed to the fullest extent of the law.

References

1. Agafonov, D.V., Fine, B.I., Mozgovaya, O.O.: Prospects for improving the Russian state tariff policy in the field of water supply. Econ. Manage. **2**(37), 42–52 (2021). https://doi.org/10.21777/2587-554X-2021-2-42-52
2. Afanasyev, S.V., Kravtsova, M.V., Pais, M.A., Nosarev, N.S.: Analysis of oil sludge processing methods. Problems and solutions Innovations and "Green" technologies, pp. 22–27. IP Zuev Sergey Anatolievich, Togliatti (2019)
3. Alekseev, I.V., Ribokene, E.V.: Basis of the functioning and the role in the economy of Russia international franchise networks. Econ. Manage. **4**(10), 82–85 (2014)
4. Brodunov, A.N., Ushakov, V.Y.: Justification of financial decisions in conditions of uncertainty. Econ. Manage. **1**(12), 30–36 (2015)
5. Baranov, D.N.: Development of a mechanism for identification, evaluating and monitoring the economic development conditions in the arctic zone of Russia. Econ. Manage. **4**(35), 15–23 (2020). https://doi.org/10.21777/2587-554X-2020-4-15-23
6. Barykin, S., Bakharev, V., Mottaeva, A., Aminov, K., Ikramov, R.: Features of a combined approach to corporate innovative strategic planning Academy of. Strateg. Manag. J. **20**, 1–10 (2021)
7. Burykin, E.S.: Specific of coaching methods. Econ. Manage. **2**(25), 83–89 (2018). https://doi.org/10.21777/2587-554X-2018-2-83-89
8. Burykin, E.S.: Algorithm of using competitive advantages of a product in advertising communications. Econ. Manage. **2**(29), 94–100 (2019). https://doi.org/10.21777/2587-554X-2019-2-94-100
9. Gron, V.A., Korostovenko, V.V., Shakhray, S.G., Kaplichenko, N.M., Galayko, A.V.: The problem of formation, processing and utilization of oil sludge. Adv. Curr. Nat. Sci. **9**, 159–162 (2013)
10. Dulambayeva, R.T., Marmontova, T.V.: International experience the administration: analysis of best practices for implementations chances in Kazakhstan. Econ. Manage. **2**(37), 80–86 (2021). https://doi.org/10.21777/2587-554X-2021-2-80-86
11. Dzyuba, A.P.: Role of Russia in development of the global liquefied natural gas market. Econ. Manage. **1**(36), 52–63 (2021). https://doi.org/10.21777/2587-554X-2021-1-52-63
12. Mishina, K.A., Yussuf, A.A.: Advantages of the ecosystem approach in management of organization. Econ. Manage. **1**(36), 64–70 (2021). https://doi.org/10.21777/2587-554X-2021-1-64-70
13. Makovetsky, M.Y., Rudakov, D.V.: Features of the formation of Russian management. Econ. Manage. **1**(36), 79–86 (2021). https://doi.org/10.21777/2587-554X-2021-1-79-86
14. Mushketova, N.S., Burykin, E.S.: Enhancing Russian universities promotion in international educational market. Econ. Manage. **1**(20), 67–73 (2017). https://doi.org/10.21777/2307-6135-2017-1-67-73

15. Ribokene, E.V.: Assessment of the current state of small and medium enterprises in the industry of software development. Econ. Manage. **1**(24), 71–80 (2018). https://doi.org/10.21777/2587-9472-2018-1-71-80

16. Ribokene, E.V., Galygina, I.V.: Features of the development of TNCs in the context of globalization. Econ. Manage. **1**(16), 99–107 (2016). https://doi.org/10.21777/2587-554X-2016-1-99-107

17. Ribokene, E.V.: The Institutional environment of the post-industrial information society. Econ. Manage. **2**(8), 137–139 (2014)

18. Rudyk, N.V.: Features of cottage real estate management in Russia. Econ. Manage. **4**(31), 103–107 (2019). https://doi.org/10.21777/2587-554X-2019-4-103-107

19. Sokolova, O.A.: Problems and prospects of socio-economic development of a large city (on the example of the city of Vologda). Econ. Manage. **1**(36), 30–37 (2021). https://doi.org/10.21777/2587-554X-2021-1-30-37

20. Baranov, D.N.: Improving the methodology of calculation of norms of workers involved in the sanitary maintenance of administrative, public buildings and grounds. Econ. Manage. **4**(23), 75–81 (2017). https://doi.org/10.21777/2587-9472-2017-4-75-81

21. Shcheglakova, A.V., Gavrilova, E.N.: Ways to increase the competitive potential of it corporation. Econ. Manage. **2**(37), 104–109 (2021). https://doi.org/10.21777/2587-554X-2021-2-104-109

22. Shirokova, E.Y.: Problems of activating the high–tech sector of the economy: prospects for achieving the goals of the Russian science and technology development strategy. Econ. Manage. **4**(35), 7–14 (2020). https://doi.org/10.21777/2587-554X-2020-4-7-14

23. Katyukha, P., Mottaeva, A.: Transformation of the global oil pricing structure in the conditions of increasing competition of leading players in the oil market. E3S Web Conf. **258**, 06064 (2021). https://doi.org/10.1051/e3sconf/202125806064

24. Zhidkov, A.S., Litvinyuk, A.V.: Prospects for the use of digital technologies in audit activities. Econ. Manage. **1**(36), 87–93 (2021). https://doi.org/10.21777/2587-554X-2021-1-87-93

25. Zueva, I.A.: On development of the methodology of analysis and assessment of socioeconomic development of regions. Econ. Manage. **4**(23), 27–36 (2018). https://doi.org/10.21777/2587-9472-2017-27-4-36

26. Zueva, I.A.: On the development of the method of analysis and evaluation of the socioeconomic development of regions. Bull. Moscow Univ. S.Yu. Witte. Ser. 1: Econ. Manage. **4**(23), 27–36 (2017). https://doi.org/10.21777/2587-9472-2017-4-27-36

27. Moldashbayeva, L., Kerimkhulle, S., Beloussova, E., Suleimenova, B.: Analysis of the development of renewable energy and state policy in improving energy efficiency. E3S Web Conf. **258**, 11011 (2021)

28. Parfenova MYa (2017) Analysis of the system of standards as the basis for building a strategic it profile of the organization. Educ. Resour. Technol. **4**(21), 40–44. https://doi.org/10.21777/2500-2112-2017-4-40-44

29. Makarov, Yu.N., Babishin, V.D., Kulish, N.S., Parfenova, M.Ya., Kudanova, D.D.: Mathematical model for managing the reliability of a technical system at the development stage using a modified decline method. Educ. Resourc. Technol. **2**(27), 74–84 (2019). https://doi.org/10.21777/2500-2112-2019-2-74-84

30. Zharikov, E.P., Kravchenko, A.A., Sergeeva, O.O., Stetsyuk, V.V.: Econometric estimation of bilateral transboundary trade between Russia and China. Int. J. Econ. Financ. Issues **6**(3), 1068–1071 (2016)

31. Pravikov, O., Stetsyuk, V., Denisov, V.: Strategic change in investment policy rationale of enterprises modernization as a key condition for getting over economic crisis. Investment Manage. Financial Innov. **15**(3), 212–222 (2018). https://doi.org/10.21511/imfi.15(3).2018.18

32. Andarova, R., Khussainova, Z., Bektleyeva, D., Zhanybayeva, Z., Zhartay, Z.: Eurasian Economic Union: potential, limiting factors, perspectives. Int. J. Econ. Perspect. **10**(3), 13–23 (2016)
33. Zhartay, Z., Khussainova, Z., Abauova, G., Amanzholova, B.: Prospects of development of silk road economic belt and new opportunities of economic growth. J. Adv. Res. Law Econ. **8**(8), 2636–2643 (2017). https://www.scopus.com/record/display.uri?eid=2-s2.085055048 336&origin=resultslist&sort=plf-f&src=s&sid=c4fbb991e3b0b576ea069200ca4d895c& sot=autdocs&sdt=autdocs&sl=18&s=AU-ID%2857195557031%29&relpos=2&citeCnt= 1&searchTerm=. Accessed 15 Oct 2021
34. Kalabina, E.G., Gazizova, M.R., Khussainova, Z.S.: Structural dynamics of employment of older people in the Eurasian economic union countries. Econ. Region **17**(3), 842–854 (2021). https://doi.org/10.17059/ekon.reg.2021-3-9