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https://orcid.org/0000-0003-0337-1539
https://orcid.org/0000-0001-6208-3292

THE ROLE OF INVESTMENT ATTRACTIVENESS OF THE GEOLOGICAL EXPLORATION INDUSTRY IN ACHIEVING SUSTAINABLE DEVELOPMENT OF THE STATE

F.M. ISATAYEVA,
PhD, Head of Geology and Development of mineral deposits,
isataeva.farida@gmail.com

G.M. AUBAKIROVA,
doctor of Economic Sciences, Professor,
rendykar@gmail.com

NPJSC " ABYLKAS SAGINOV KARAGANDA TECHNICAL UNIVERSITY"
56, N. Nazarbayev ave., Karaganda, 100008, Kazakhstan

Kazakhstan is making a transition to low-carbon development to achieve sustainable development and to form an export-oriented model of economic growth. The transformation of the economy has improved the investment climate in the country making Kazakhstan one of the key recipients of foreign direct investment in Central Asia. In view of the above, the need to increase the scientific validity of measures taken by the state for increasing the investment attractiveness of the geological exploration industry, on the progress of which changing the resource-export model of development largely depends and building up the energy security of Kazakhstan, is updated.

The article identifies the key factors constraining the strengthening of the market positions of the geological industry in Kazakhstan and negatively affecting its investment attractiveness. It has been substantiated that the sectoral problems accumulated over the entire post-Soviet period hinder the further advancement of all the extractive industries and require the activation of new measures of state support. The author analyzes the actions planned by the state to reduce socio-economic tension in single-industry towns caused by the depletion of the mineral resource base near their location.

The analysis of the state regulation mechanisms of the subsoil use and the mining and metallurgical industry that are especially attractive for investors, leads to the conclusion that it is necessary to reform the Kazakhstan model of financing geological exploration using the principles of public-private partnership. An example of adaptation by Kazakhstan of the leading countries experience in attracting junior companies to geological exploration is considered. The difficulties that

hinder the advancement of juniors in the Kazakhstan market, the opportunities for overcoming and opening up prospects have been identified. It has been substantiated that in the medium term one of the new investment policy guidelines in the geological exploration industry should be an innovative and technological course towards digital transformation of production and management processes.

At the same time, Kazakhstan, like other countries with the transit economy, will have to overcome the risks and challenges that have emerged as a result of global digitalization. The article shows that to stimulate digitalization of geological exploration, significant investments are needed, which will require, alongside with government regulation, searching for new forms and mechanisms of public-private partnership.

KEYWORDS: *Kazakhstan, sustainability, investment, government regulation, exploration industry, digitalization.*

РОЛЬ ИНВЕСТИЦИОННОЙ ПРИВЛЕКАТЕЛЬНОСТИ ГЕОЛОГОРАЗВЕДОЧНОЙ ОТРАСЛИ В ДОСТИЖЕНИИ УСТОЙЧИВОГО РАЗВИТИЯ ГОСУДАРСТВА

Ф.М. ИСАТАЕВА, PhD доктор, заведующий кафедрой Геология и разведка МПИ, *isataeva.farida@gmail.com*
Г.М. АУБАКИРОВА, доктор экономических наук, профессор, *rendykar@gmail.com*

НАО «КАРАГАНДИНСКИЙ ТЕХНИЧЕСКИЙ УНИВЕРСИТЕТ ИМЕНИ АБЫЛКАСА САГИНОВА»
Республика Казахстан, 100008, г. Караганда, проспект Н. Назарбаева, 56

Для достижения устойчивости развития и создания экспортно ориентированной модели экономического роста Казахстан осуществляет переход на низкоуглеродное развитие. Трансформация экономики улучшила инвестиционный климат в стране, сделав Казахстан одним из ключевых получателей прямых иностранных инвестиций в Центральной Азии. В свете сказанного актуализируется необходимость роста научной обоснованности мер, предпринимаемых государством для роста инвестиционной привлекательности геологоразведочной отрасли, от прогресса которой во многом зависит изменение ресурсно-экспортной модели развития и наращивание энергетической безопасности Казахстана.

В статье установлены ключевые факторы, сдерживающие укрепление рыночных позиций геологической отрасли Казахстана и негативно влияющих на ее инвестиционную привлекательность. Обосновано, что накопившиеся за весь постсоветский период отраслевые проблемы тормозят дальнейшее продвижение всех добывающих отраслей и требуют активизации новых мер государственной поддержки. Проанализированы планируемые государством действия по уменьшению социально-экономической напряженности в моногородах, вызванной истощением минерально-сырьевой базы вблизи их местонахождения.

Анализ механизмов государственного регулирования особо привлекательных для инвесторов сферы недропользование и горно-металлургической промышленности приводит к выводу о необходимости реформировать казахстанскую модель финансирования геологоразведочных работ с использованием принципов государственно-частного партнерства. Рассмотрен пример адаптации Казахстаном опыта передовых стран по привлечению к геологоразведке юниорских компаний. Выявлены трудности, тормозящие продвижение юниоров на казахстанском рынке, возможности преодоления и открывающиеся перспективы. Обосновано, что в среднесрочном периоде для геологоразведочной отрасли одним из новых ориентиров инвестиционной политики должен стать инновационно-технологический курс на цифровую трансформацию производственных и управленческих процессов.

При этом, Казахстану, как и другим странам с транзитной экономикой, предстоит преодолеть риски и вызовы, появившиеся в результате глобальной цифровизации. В статье показано, что для стимулирования цифровизации геологоразведки необходимы существенные инвестиции, что потребует наряду с государственным регулированием, поиск новых форм и механизмов государственно-частного партнерства.

КЛЮЧЕВЫЕ СЛОВА: *Казахстан, устойчивость, инвестиции, государственное регулирование, геологоразведочная отрасль, цифровизация.*

МЕМЛЕКЕТТІҢ ТҰРАҚТЫ ДАМУЫНА ҚОЛ ЖЕТКІЗУДЕГІ ГЕОЛОГИЯЛЫҚ БАРЛАУ САЛАСЫНЫҢ ИНВЕСТИЦИЯЛЫҚ ТАРТЫМДЫЛЫҒЫНЫҢ РӨЛІ

Ф.М. ИСАТАЕВА, доктор PhD, Геология және ПҚКО барлау кафедрасы меңгерушісі, *isataeva.farida@gmail.com*
Г.М. ӘУБАКІРОВА, экономика ғылымдарының докторы, профессор, *rendykar@gmail.com*

КЕАҚ "ӘБІЛҚАС САҒЫНОВ АТЫНДАҒЫ ҚАРАҒАНДЫ ТЕХНИКАЛЫҚ УНИВЕРСИТЕТІ"
Қазақстан Республикасы, 100008, Қарағанды қ., Н. Назарбаев даңғ., 56

Тұрақты дамуға қол жеткізу және экономикалық өсудің экспортқа бағдарланған моделін құру үшін Қазақстан төмен көміртекті дамуға көшуді жүзеге асырады. Экономиканың трансформациясы Қазақстанды Орталық Азиядағы тікелей шетелдік инвестициялардың негізгі алушыларының біріне айналдырып, елдегі инвестициялық ахуалды жақсартты. Жоғарыда айтылғандарды ескере отырып, геологиялық барлау саласының инвестициялық тартымдылығын арттыру үшін мемлекет қабылдаған шаралардың ғылыми негізділігін арттыру қажеттілігі өзекті болып отыр, оның прогресіне көбінесе дамудың ресурстық-экспорттық моделінің өзгеруі және Қазақстанның энергетикалық қауіпсіздігін арттыру байланысты болады.

Мақалада Қазақстанның геологиялық саласының нарықтық позицияларын нығайтуды тежейтін және оның инвестициялық тартымдылығына теріс әсер ететін негізгі факторлар белгіленген. Бүкіл посткеңестік кезеңде жинақталған салалық проблемалар барлық өндіруші салалардың одан әрі жылжуын тежейді және мемлекеттік қолдаудың жаңа шараларын жандандыруды талап етеді. Моноқалалардағы олардың орналасқан жеріне жақын орналасқан минералды-шикізат базасының сарқылуынан туындаған әлеуметтік-экономикалық шиеленісті азайту бойынша мемлекет жоспарлаған іс-әрекеттерге талдау жасалды.

Инвесторлар үшін аса тартымды жер қойнауын пайдалану және тау-кен металлургия өнеркәсібі саласын мемлекеттік реттеу тетіктерін талдау мемлекеттік-жекешелік әріптестік қағидаттарын пайдалана отырып, геологиялық барлау жұмыстарын қаржыландырудың қазақстандық моделін реформалау қажеттілігі туралы қорытындыға әкеледі. Қазақстанның геологиялық барлауға юниорлық компанияларды тарту бойынша озық елдердің тәжірибесін бейімдеу үлгісі қаралды. Қазақстандық нарықта юниорлардың алға жылжуын тежейтін қиындықтар, еңсеру мүмкіндіктері мен ашылатын перспективалар анықталды. Геологиялық барлау саласы үшін орта мерзімді кезеңде инвестициялық саясаттың жаңа бағдарларының бірі өндірістік және басқару процестерін цифрлық трансформациялауға арналған инновациялық - технологиялық бағыт болуға тиіс екендігі негізделген.Бұл ретте, Қазақстанға, транзиттік экономикасы бар басқа елдер сияқты, жаһандық цифрландыру нәтижесінде пайда болған тәуекелдер мен сын-қатерлерді еңсеру керек болады. Мақалада геологиялық барлауды цифрландыруды ынталандыру үшін елеулі инвестициялар қажет екендігі көрсетілген, бұл мемлекеттік реттеумен қатар мемлекеттік-жекешелік әріптестіктің жаңа нысандары мен тетіктерін іздестіруді талап етеді.

ТҮЙІНДІ СӨЗДЕР: *Қазақстан, тұрақтылық, инвестициялар, мемлекеттік реттеу, геологиялық барлау саласы, цифрландыру.*

Introduction. Against the background of such events in recent years as the developing pandemic and the reduction in consumption in the world oil markets, the competition for new investments in the exploration and production of minerals has intensified in many respects. In the current situation, the role of the state is strengthening in regulating the investment attractiveness of the mining sectors of the economy, as a guarantee of the future stability and economic security of Kazakhstan, the transition from an economic model largely based on carbon-intensive export products, environmentally negative and energy-intensive processes to building another model of economic progress, creating an export-oriented economy with high added value [1-6].

Kazakhstan adapts the experience and standards of the countries of the Organization for Economic Cooperation and Development (OECD), strives to achieve the most important goal of sustainable development - to provide conditions for the comprehensive development of human capital and environmental protection. The country has ratified the Paris climate agreement, making a voluntary contribution to reduce greenhouse gas emissions by 2030 (328.3 million tons), by 15% from the level of 1990 (386.3 million tons), having developed a long-term policy to transition to a low-carbon economy by 2050 [7].

Achieving sustainable development of Kazakhstan, increasing transparency and predictability of the sphere of subsoil use is facilitated by the country's transition to international standards CRIRSCO, the annual report of city-forming enterprises on sustainable development in the format of the international set of GRI standards [8].

The promotion of Kazakhstan in the world market as a promising platform for attracting investment in the exploration industry implies the intensification of actions in a variety of areas. This concerns the organization of scientific research works of a geological orientation; business motivation to invest in low-carbon technologies; introduction of relevant methods of forecasting, selection and exploration of deposits based on the digitalization of production and management processes [8,9].

A review of the scientific literature indicates a growing interest in various aspects of the relationship between the investment attractiveness of the extractive industries and the state's achievement of sustainable development. Thus, numerous studies summarize the role of investment policy for the industry of developing countries, including the mining and metallurgical industries [10-14]. The authors of [15,16] assess the impact of various factors that determine the importance of foreign direct investment for industrial growth. For developing countries, the relationship of foreign direct investment in the mining sector and environmental regulation is becoming relevant. In particular, we are talking about the intensification of competition between developing countries for attracting investment in mineral raw materials. The issue of justifying legal protection measures for investors, including access to international arbitration, is relevant [17]. In the study [18], the authors focus on changes in the sustainability of enterprises under the influence of foreign investment.

The above confirms the importance for the world economy of studying the role of the investment attractiveness of the exploration industry in achieving sustainable development of the country, the relevance of the identified problem for Kazakhstan, the objective need for its consistent and in-depth study.

Within the framework of the article, the authors aim to show the role of the investment attractiveness of the exploration industry in the context of Kazakhstan's approach to countries with sustainable development.

Materials and research methods. The theoretical and methodological basis of the study was the methods, concepts and concepts traditionally used in the study of state regulation of the investment policy of the real sector of the economy. The scientific and methodological apparatus includes a retrospective, causal, current and prospective analysis of open access statistical data characterizing the investment policy in the exploration industry of Kazakhstan.

Results and discussion.

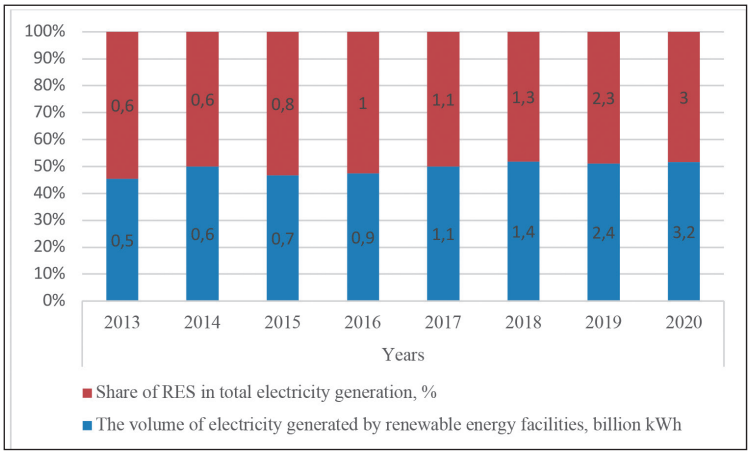
The current state of the exploration industry in Kazakhstan.

To strengthen its competitive position in the global market, Kazakhstan is stepping up steps to reach sustainable development targets with the involvement of subsoil users in social and environmental work, updating the concept of natural resource management, and transforming various processes of geological exploration.

Despite the fact that an updated emissions trading system has been introduced in Kazakhstan since 2018, at the beginning of 2020, 124 renewable energy sources (RES) facilities were operating, focused on reducing greenhouse gas emissions, and there is an increase in the production of "green" energy, formally reducing emissions there are no greenhouse gases through these installations (Picture 1). So far, no renewable energy installation has received a certificate on the reduction of greenhouse gas emissions. The steps taken by the state authorities to adapt the institutional framework of Kazakhstan to EU standards have not yet led to significant results in optimizing greenhouse gas emission management systems.

During the post-Soviet period, the situation in the geological industry of Kazakhstan has become much more complicated. The key mineral resource base, and namely the mineral reserves, developed by Kazakhstan over the past thirty years, was proved back in the Soviet period. During 1991-2019, not a single large deposit of solid minerals was discovered in the country, and only in 2020 it was planned to open 10 new deposits, including 7 in the mining sector. The overwhelming number of functioning deposits has been brought to complete depletion, the results of ongoing work on finding new deposits of solid minerals with a low status of discovery, as well as deep-seated (7-10 km) deposits, are extremely insignificant. Therefore, in the near future, the revision of existing deposits will be activated, the emphasis is on the study of more promising deposits, the development of unused deposits for solid minerals and common minerals. Otherwise, in the next decade, the country will face a shortage of copper, lead and other metals, for example, in such major deposits as Orlovskoye, Maleevskoye, Tishinskoye and Ridder-Sokolnoye.

One of the most pressing problems is related to the non-replenishment of the mineral resource base: the replacement factor for solid minerals is extremely low and equals 0.13, for hydrocarbon raw materials - 0.9. At the moment, the extraction of raw materials significantly exceeds the growth of reserves, the time period between the discovery and subsequent launch of a new field can stretch for ten years. Against the background of the depletion of the studied resource base for the bulk of minerals, socio-economic tension in the regions where they are developed is exacerbated [19,20].



Picture 1 - **The effectiveness of the use of renewable energy facilities in Kazakhstan**

Source: Bureau of National Statistics of the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan https://www.gov.kz/memleket/entities/stat?lang=ru /

In 2020, as a result of the state geological additional study of areas, geological-mineragenic and deep geological mapping of promising areas, a forecast estimate was made for resources: gold - 12.656 tons; copper - 161.6 thousand tons; silver - 176.257 thousand tons; lead - 968 thousand tons; zinc - 1157.4 thousand tons [21]. Due to the low maintenance of the reproduction of gold, the state stimulates exploration for it, while simultaneously supporting the national currency. Kazakhstan is also increasing the amount of gold in international reserves: for 2016-2020. the share of gold in Kazakhstan's savings doubled from 29.7% to 65.6%.

For 2017-2020, 65 deposits were recorded for the first time on the state balance, including solid minerals - 43 (14 - gold, 1 - copper, 4 - iron ore, 1 - tungsten ore, 3 - manganese ore, 1 - chrome ore, 1 - nephritoids, 1 - coal-bed methane, 2 - coal, 15 - technogenic mineral formations), hydrocarbon raw materials - 22 [22]. The total recoverable hydrocarbon resources of the country are estimated at 76.4 billion tons of oil equivalent, out of 15 sedimentary basins, 5 have been worked out, 5 are unpromising, and 5 have been little explored, requiring a thorough study as well. A large-scale study of subsoil areas of the Aral Basin is being activated, where hydrocarbon reserves are predicted, a unified online monitoring system for oil production at each field and individual well has been launched, with control over its further transportation and use.

The industry was revived by a radical reform in 2018 of domestic legislation in the field of subsoil use, the establishment of the principle “First come - first received”, when a company that discovers a new field automatically receives a priority right to exploit it. Interest from foreign investors has increased, thanks to investors, local service organizations have been developed, participating in the execution of contracts and subcontracts of foreign companies. In addition, transfer processes involving new technologies have intensified.

Attracting investments made it possible to carry out comprehensive geological exploration using new technologies, which gave not only a reliable picture of the deep geological structure of the entire territory of the basins to the maximum depth, but also a

detailed assessment of the enterprises' own potential, opened up opportunities to develop both old deposits and new horizons, and create jobs.

In particular, the lead-zinc deposits of eastern and central Kazakhstan, located near the single-industry towns of Zyryanovsk, Ridder, Serebryansk, Zhezkazgan and Satpaev, have been worked out. The prospects of sites for the discovery of gold deposits in the Kostanay region, in the territory between Central and Eastern Kazakhstan, the southern part of Kazakhstan, adjacent to Kyrgyzstan, are substantiated. The expediency of opening new lead-zinc deposits in Rudny Altai, in the center and in the south of Kazakhstan was confirmed. Options for the development of new deposits rich in tungsten, molybdenum, aluminum and tin are being considered. The Caspian Basin is of interest to investors from the standpoint of geological exploration, which requires modern seismic exploration to update geological information.

To increase the degree of exploration of promising territories and increase their investment attractiveness, in 2019-2020. the resources of the republican budget and the National Fund are directed to finance new regional oil and gas prospecting, in particular, geophysical surveys along two geological traverses and drilling of two reference parametric wells. A certain contribution to the compensation of the mineral resource base was made by subsoil users.

Almost three-quarters of investments are assigned to the oil and gas sector, and objects of copper, polymetals (lead, zinc), gold, iron, manganese, chromites, aluminum and phosphorites have also become priority areas for investment. The largest increment in mineral reserves was obtained for iron ores - 1 billion tons; oil - 188 million tons; gas - 78.3 billion cubic meters. m.; coal - 170 million tons and copper - 2.7 million tons.

One of the key deterrents to the discovery of new deposits remains to ensure the flow of investment, both from the state and from the private sector. Due to the high cost and riskiness of investments in exploration, support measures from the state are especially necessary, the direct role of which should be reduced to stimulating investment activity, rather than competing with business. Thus, in order to attract investors, several problems of the mining and metallurgical complex have to be solved: the maximum simplification of the procedure for obtaining the right to use subsoil use and the exclusion of any fiscal obligations at the exploration stage were partially resolved, since, for example, the developed taxation model focused on the mining and metallurgical complex needs improvement.

In the past period, the promotion of the market for geological exploration services was influenced by the following factors: the need to use modern methods in the additional study of deposits at the final stages of production; the need for a reliable objective assessment of new deposits, the use of the latest technological solutions in the face of growing geological uncertainty and the growing risk of prospecting and appraisal and exploration work.

In many respects, equipping geological exploration with digital technologies and investing in the industry was held back by the inherited Soviet approach to secrecy of gravity data. Due to the rare use of airborne geophysical research methods and geological exploration by gravity survey, despite the magnitude of the territory of Kazakhstan, opportunities for investors to be interested in domestic exploration are missed, since they start with the analysis of geological information using advanced methods of exploration operations for mineral deposits.

One of the reasons for the crisis situation in geological exploration, along with the depletion of the fund of closely located surfaces regarding very accessible deposits and the need for deep study of the subsoil to discover new deposits that require innovative research methods, is the difficulty in adapting borrowed technologies to local conditions.

Problems remain unresolved: attempts to monopolize geological activity to one degree or another, lack of a digital database, long payback periods for investments, high capital and capital intensity of mining processes.

Despite all the opposition, Kazakhstan has reason to increase the sustainability of development, both political and economic security, as well as the investment attractiveness of exploration. The country has a powerful raw material potential, oil and gas transportation infrastructure with the ability to enter the world markets, intentions to activate the early stages of geological work at the expense of the state budget, as a result of which it is possible to identify promising areas of minerals.

Medium-term prospects for the growth of investment attractiveness of exploration in Kazakhstan

Achieving the reproduction of the most important types of mineral raw materials, depending on the established and forecasted demand, will be determined by the achieved increase in mineral reserves, commensurate with the degree of their redemption.

Replenishing the hydrocarbon potential requires significant investment in exploration and the search for new deposits. The main attention is focused on a special procedure for financing the state geological study of the subsoil, analysis of the resource potential of little-studied sedimentary basins, and the provision of preferences for geological exploration.

The priority of the State Geological Exploration Program for 2021-2025, which is planned to be implemented at the expense of the state budget, private investments, companies from the state, quasi-state and corporate sectors, foreign investors with the assistance of Kazakh Invest NC JSC, is the achievement of sustainable development and competitive advantage of Kazakhstan in world hydrocarbon market (*table 1*).

It is planned to attract 100 billion tenge of investments in the geological exploration of solid minerals, the allocation of 680 billion tenge of investments for hydrocarbons. The expected return on investment of 200 billion tenge for geological exploration is estimated at 800 billion tenge: the effective implementation of the exploration program will attract additional private investments of up to four tenge per tenge invested. One of the strategic objectives of the exploration industry is to mobilize over $2 billion of foreign investment.

The set goals are expected to be achieved through: concentration of regional geological and geophysical studies and subsequent prospecting and appraisal work within the limits of little-studied oil and gas promising sedimentary basins with the possibility of increasing hydrocarbon resources; creation of a resource base of hydrocarbons, ensuring the energy security of the country and the stable promotion of the fuel and energy complex in the world market.

Since the goal is to achieve not only a stable growth of geological reserves with proof of the profitability of further development, but also the introduction of new technologies, the possibility of integrating the collected information evidence base into digital field models is being updated. The foregoing is supported by the fact that the limited amount of data on the studies carried out, required for the final adoption of science-based decisions

Table 1 - **Indicators of the development strategy of JSC NC "Kazakh Invest" for 2021-2025**

Indicator	Years				
	2021	2022	2023	2024	2025
Number of established joint ventures with "anchor investors" in priority sectors, cumulative since 2018	10	13	16	19	22
Announced projects in priority sectors with the participation of foreign investors, cumulative number /bln. doll.	43/2	54/2,5	66/3	79/3,5	93/4
PPP projects with foreign direct investment, units	20/1,5	30/1,8	35/2,1	40/2,4	45/2,7
The volume of reinvestment in the economy by existing foreign investors, % to the level of 2016	115	120	125	130	135
Level of investor confidence, %	70	80	85	90	90

Note: calculations of the project for monitoring the economy of Kazakhstan in the format of rankings Ranking.kz according to the Development Strategy of JSC NC "Kazakh Invest" for 2018-2027 https://www.invest.gov.kz/ru/

on their subsequent development, complicates the formation of a reliable geological model of the field as a tool for localizing potentially promising zones.

The most important measures aimed at increasing the geological exploration of replenishing the mineral resource base of Kazakhstan involve strengthening steps to unlock the reserves of ore and non-metallic territories in the context of the National Project to Reform the Exploration Industry. To increase transparency and declassify geological data, it is planned to provide open access for some rare earth metals that were previously recognized as confidential (lithium, tantalum, niobium). To increase the admissibility of identifying previously unknown promising areas and, in general, to promote the national geological study of the subsoil, regulatory and methodological guidelines are being prepared to establish a large-scale regional geological study of the subsoil on a scale of 1: 50,000 using the latest research methods.

As world practice shows, the nationwide regulation of the reproduction processes of mineral resources is based on the principle of state assistance in the implementation of regional geological research works that do not have direct productivity, and the mobilization of individual capital in the prospecting and exploration part related to specific mineral deposits. At the moment, Kazakhstan is significantly inferior to many countries in terms of state financing of geological exploration: for example, in Canada, such funding is $203 per square kilometer, in Australia - $167, Kazakhstan, for example, spent only $35 on exploration in 2019. Doll.

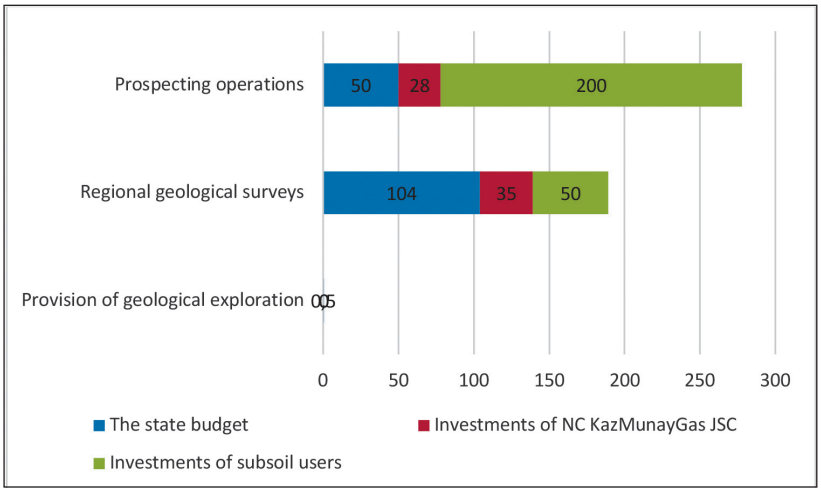
In the medium term, the state plans to finance all types of exploration work. Resources will be primarily focused on organizing the implementation of the early stages

of exploration activities, for example, regional, exploration, prospecting and appraisal activities, which require vast territories, but the probability of finding a deposit at the designated stages is not high. To increase the geological exploration of local territories, along with the classical analysis of geological exploration, progressive methods of geophysical investigations, remote sensing of the Earth are planned, which make it possible to identify ore objects located at deep horizons.

At the same time, the emphasis is on digitizing the initial geological data, increasing general educational scholarships for geological specialties, and strengthening the material and technical equipment of colleges and universities. Search and adaptation of advanced technological approaches, cost-effective technologies, collaboration with research organizations will expand the possibility of involving the most complex fields in the development with an increase in their economic attractiveness and return on investment.

The state provided support measures for some elements of the industrial innovation infrastructure. The state supports enterprises interested in increasing labor productivity and promoting digitalization by reimbursing them for expenses aimed at building competence, mastering digital technologies, modernizing technological processes, and increasing the effectiveness of production coordination. For the first time, the introduced criteria for state incentives for subjects of industrial and innovative work affected the provision of industrial grants and subsidizing the bonus rate on loans and ongoing leasing agreements by second-tier banks, the Development Bank of Kazakhstan, and other legal entities engaged in leasing activities https://kazpravda.kz/fresh/view/v-prioritete-glubokie-peredeli.

Funds will be allocated from the state budget for scientific, methodological and technological support for geological exploration, a review of the mineral resource base, geological research at the regional level, exploration and prospecting and evaluation workflows. The implementation of geological developments on a regional scale will also be invested by the National Company "KazMunayGas" and other subsoil users (*picture 2*).



Picture 2 - **Sources of financing for geological exploration (hydrocarbons and groundwater), billion tenge**

Source: Development Strategy of the JSC National exploration company "Kazgeology" for 2016 - 2025. Approved by the Decree of the RK Government dated November 15, 2016 No. 703. https://legalacts.egov.kz/npa/view?id=3819674

The national company "KazMunayGas" is investing about 500 million dollars in the international project "Eurasia" for deep-sea geological development of the structure of the Caspian depression, the deep-lying reserves of which are estimated at 67 billion tons of standard fuel, and the extracted reserves - at 27 billion tons. The project involves the processing of geological and geophysical materials of previous years using digital technologies, the organization of large-scale geophysical work. Subsequently, the location and drilling of an ultra-deep reference-parametric well with a depth of approximately 14-15 kilometers in the central section of the Caspian depression will be determined.

There is work to be done to promote Kazakhstan's mining projects on the Toronto Stock Exchange and to increase domestic companies listed on the stock exchange, which will have a positive impact on transparent projects that can really increase the investment attractiveness of the country.

In this regard, hopes are pinned on a geological exploration project to identify new deposits, implemented by National Mining Company Tau-Ken Samruk JSC in partnership with Kazakhstan Fortescue LLP, a wholly owned subsidiary of the Australian Fortescue Metals Group Ltd, which is interested in diversifying and decarbonizing the economy Kazakhstan. As part of the project, prospecting work is planned for promising areas in the Karaganda, Almaty, Aktobe and Kyzylorda regions.

In general, for 2021-2025. in the promotion of geological exploration is expected to spend about one trillion. tenge, with 15% allocated to the state budget, and the rest - investments of private enterprises. In 2021-2025 annual financing of geological exploration is planned in the amount of 11 billion tenge, attracting investments of about 824 billion tenge [23]. For 2022 alone, 101 objects of subsoil study are planned, seven exploratory studies will affect areas of single-industry towns, and work is being intensified at 12 objects to identify rare and rare-earth metals. 13.7 billion tenge was allocated to solve the designated tasks of the country's budget.

Emphasis is placed on the effective interaction between the state and a potential subsoil user regarding the implementation of geological developments by consistently approximating the detail of the study of the subsoil from regional areal works to exploration operations for a specific deposit of productive minerals. Investors are known to invest in exploration of deposits where the state has financed or organizes the initial stages and an array of promising areas with predicted reserves has been identified.

Public-private partnership is based on the principle of cooperation in the discovery of mineral deposits, both public investment and private investment. The involvement of private enterprises in increasing the competitiveness of geological services is supported by the organizational system of subsoil use and ongoing activities in the field of taxation, creating conditions for the introduction of innovations. As world experience shows, the market environment and a suitable investment atmosphere contribute to an increase in the number of signed exploration licenses [24].

Kazakhstan is adopting the experience of Canada and Australia, which have relied on junior companies: in 2021 alone, over 1,700 licenses were issued and 800 junior companies were formed. They are distinguished by efficiency in making decisions regarding the exploration of previously unknown mineral deposits, do not require large administrative costs, are focused on exploration projects of the initial stage of development, and are engaged in them using personal or mobilized resources. Often, the designated companies,

having identified new deposits, sell the project to more significant subsoil users or cooperate with them, mobilizing investments for the subsequent development of the field.

In Kazakhstan, the formation and promotion of junior companies encountered problems related mainly to the insufficient amount of own funds and the elaboration of issues regarding the protection of subsoil use rights, unavailability of funding sources, administrative barriers, underdevelopment of financial institutions, lack of tax incentives.

Over the period of the State Program, it is planned to increase the employment of those working in geological exploration to 60 thousand. If the planned 10 deposits are discovered, it is possible to obtain a positive result at subsequent stages related to production and the creation of mining and oil and gas enterprises: investments of about 6.3 trillion. tenge and providing up to 20 thousand newly created jobs. In order to identify potentially promising areas, assess the future resource potential of minerals with the involvement of subsoil users in the subsequent exploration of the area, actions are planned for analytical work with oil and gas reserves of poorly explored sedimentary basins. This will mainly affect the territory near mining areas and single-industry towns, which will positively affect the country's sustainable development and relieve social tensions in the regions.

In general, at the beginning of 2026, it is expected to achieve indicators that give a multiplicative result in a number of industries. For example, improving the territorial survey from 25.8% to 37% of the area possible for research; monitoring the predictive capabilities of solid minerals and selecting about 50 promising targets; an increase in the level of exploration of sedimentary developed basins from 30% to 80% and of poorly explored basins to 10% [25]. According to calculations, the increase in predicted resources for gold, copper and polymetals will be 50%, for hydrocarbons - 30%, the number of personnel involved in geological exploration at the expense of the state budget will increase from 1,000 to 1,500 units, within the framework of subsoil use contracts - from 190 thousand to 250 thousand units.

Conclusions. Summing up, we emphasize the following. Despite the fact that Kazakhstan ranked 59th in the Global Sustainable Development Goals Ranking for 2021, it loses to almost all EAEU countries. The above again confirms the need to strengthen work to achieve all the goals of sustainable development, including ensuring the energy-saving development of the national economy.

In the article, the authors focused on the accumulated problems in the mining industries of Kazakhstan and their impact on the investment attractiveness of the country in the context of creating a circular economy based on decarbonization and renewable resources.

It has been established that the most important factors hindering the strengthening of the market positions of the geological industry of Kazakhstan require a systematic approach in attracting foreign investors.

It has been determined that the continued dependence of the country's economy on energy leads to the fact that the decline in commodity prices on world markets will continue to negatively affect not only the situation in the fuel and energy complex, but related industries. Under the current conditions and taking into account the fact that Kazakhstan still demonstrates relatively high levels of energy intensity on a global scale, the promotion of all extractive industries requires, on the one hand, the activation of new effective measures of state assistance, on the other hand, the activation of public-private partnerships, the involvement of business in solving urgent problems.

One of the key areas of the country's investment policy in the foreseeable future regarding the exploration industry is intended to be digital transformation, affecting both production and management processes. This will make it possible to diversify the fuel balance of the electric power industry and reduce the share of coal-fired generation, which currently accounts for the bulk of greenhouse gas emissions. In general, state regulation, coupled with advanced technologies, will help attract foreign investment in the geological industry.

The provisions and conclusions contained in the article can be used for an in-depth study of the influence of the state on the investment development of various industries in countries with economies in transition.

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