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PROSPECTS AND PROBLEMS OF DEVELOPMENT OF CASPIAN REGION

Abstract. In the Republic of Kazakhstan, the development of the oil and gas sector is one of the most important branches of the national economy, which has its own historical roots and traditions, in connection with that, it is possible to trace the patterns and features of the functioning of the national economy.

The article has a literature review conducted by Kazakhstani and foreign authors, which had a research on the issues of economic and environmental development of the national economy, including the oil and gas complex in various aspects. The article explores one of the topical issues of Kazakhstan's economy - prospects and problems of development of the western region. The characteristic features of modern management processes in the field of industry development are shown.

The authors of the article conducted a study of the oil and gas industry in Kazakhstan as a component of the national economy, there is analyzed the current state of the industry, taking into account the innovative processes taking place in the development of the region. As a result of the studies, the theoretical and methodological aspects of the development of the oil and gas complex are systematized, on the basis of which conclusions are drawn.

Key words: Caspian Sea, ecology, investments, national economy, oil and gas complex, region.

1. Introduction. The global oil and gas sector as a whole remains the most attractive area for direct investment. First of all, the inflow of investments into the oil and gas sector is caused by the stable growth of the world demand for oil. The average annual rate of world oil consumption (including gas condensate and other liquid hydrocarbons) exceeded 90 million barrels per day.

At the same time, according to forecasts, in the next few years demand for oil will continue to grow by an average of 1.3-1.5% per year. Leaders in attracting foreign direct investment (FDI) as well as the world's major investors in the world have traditionally been the United States and China. Russia increased the inflow of FDI into its economy by 84%, coming out on the third place in the world. At the same time, the events of the current year in Ukraine dramatically changed the trend of the past year: there was started a massive outflow of investments from Russia (Intymakova A.T., 2015).

The Caspian Sea is the second Persian Gulf, therefore many energy corporations were interested in bringing investments to these countries for large-scale development, primarily of oil and gas fields. And such investments have come to the Caspian region. Nowadays many world economic entities are involved in subsoil development of the Caspian states, and they are engaged not only in subsurface operations, but also provide services and provide infrastructure for the fields. Such a rapid invasion of world energy companies, influential financial lobbyists, representatives of the highest governmental circles of the West in the Caspian region is explained by the following:

1) the ever increasing importance of energy resources in the economies of developed countries compelling them to ensure their energy security;

2) the disunity of the Caspian states with insufficiently developed political systems, insecurity with an effective collective agreement, for example, as the OPEC countries. All of them are experiencing the political and economic difficulties of the protracted transition period;

3) profitability of the oil business and the presence of fierce competition in the sphere of capital application in this sector.

At the same time, despite some stabilization of the situation in the oil and gas industry, a number of problems of the current period remain in the industry. The logic of further environmental and economic transformation in the sectoral component requires a transition to a qualitatively new level of environmental management.

Oil pollution differs from other human impacts with its "immediate" load to environment, causing a rapid response. In assessing the effects of such pollution, we cannot always surely state if the ecosystem will return to a steady state or continue irreversible degradation. Self healing and land restoration are inseparable biogeochemical processes (Sainova G.A., Bayseytova B.A., Kurbaniyazov S.K., 2016).

2. Materials and methods. Currently Kazakhstan needs to determine the optimal aggregate level of oil production in the country. The most effective methods in solving the issue under study are public administration, from the point of view of state support, in the development of a promising sector of the economy.

The state regulation of the oil and gas sector is based on the methods and forms of state participation in the implementation of macroeconomic policies. There are two main forms: administrative methods of state regulation through expansion of state ownership of material resources, management of state enterprises, lawmaking and economic methods of state regulation through various macroeconomic policies. With direct intervention, the state has capital in a variety of forms, provides loans, takes equity participation, owns enterprises, and adopts legislative acts designed to streamline and develop relations between all elements of the market system.

Indirect intervention involves the implementation of state regulation through the use of the main instruments of state economic policy, which are fiscal and monetary policy. Currently, the Government of the Republic of Kazakhstan actively adopts various methods for improving the state regulation of the oil and gas sector.

In this regard, at the level of state management of the economy, specialists developed long-term strategic directions of the state policy of oil production until 2050.

At the present stage, the possibility of accelerated oil recovery from the first years of development of the Kashagan field, as well as high production at Tengiz from 2020 to 2021, is being considered in connection with the expansion of production.

Thus, according to the forecast, a significant increase in oil production is expected in the next 10 years.

Under this scenario, by 2020, production growth may increase to 106.5 million tons, while the peak of Kazakhstan's production will reach 134.7 million tons (2.7 million b/s) by 2026 (figure 1) (These ministries of energy of RK, 2014).

However, after passing the peak of production, the indicators will rapidly decline and by 2037 the production will drop to 97.8 million tons, and by 2050 the production will decrease to 40.9 million tons (the level of 2001), which in the future may lead to negative social and economic consequences.

In the optimal scenario, subject to the implementation of Phase 2 of the development of the Kashagan field and the TCO future development project, taking into account the optimal annual oil production, and without considering the development of new fields currently in the early stages of exploration or not yet open, the largest the volume of oil production is expected in 2031 and should be about 113 million tons. After 2031, a moderate decline in oil production is expected, and in the years 2040 and 2050, oil production in the country as a whole is projected at 91.5 million tons and 62 million tons, respectively.

Under the Optimal scenario, it is planned to exceed the production level of 100 million tons by 2020 (as in the Forced scenario), by 2024 the figure will reach 109.8 million tons, and the peak of production will be in 2030-2031 - 112.7-113.5 million tons, followed by a smooth decline to 62 million tons per year by 2050 against 40.9 million tons in the Forced version.

At the same time, with the successful implementation of the Eurasia project, annual oil production in Kazakhstan can be maintained at 100 million tons per year for a longer period (Figure 3) (These ministries of energy of RK, 2014).

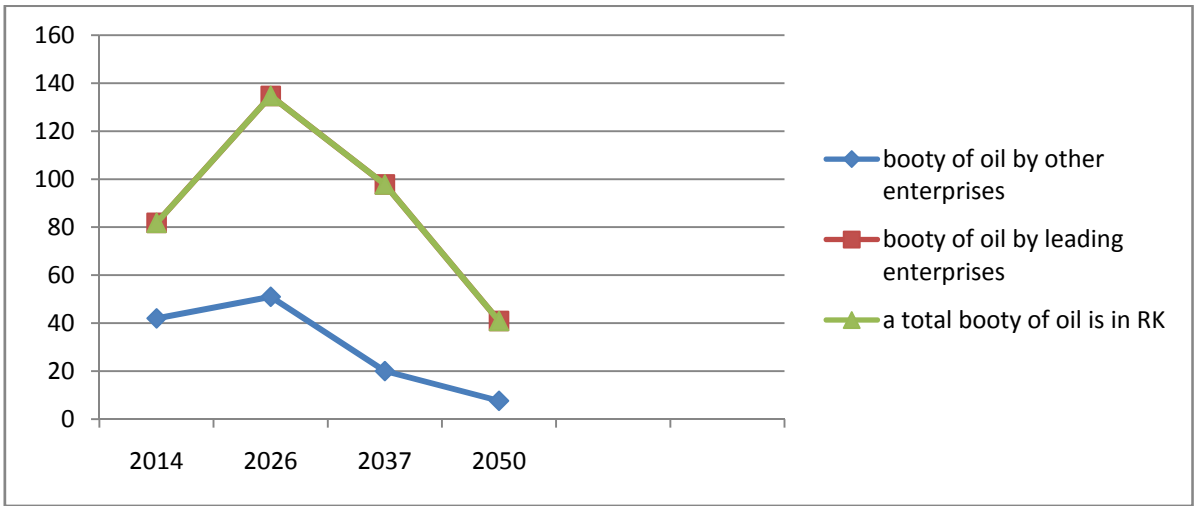

Figure 1 – Forced oil production up to 2050, million tons

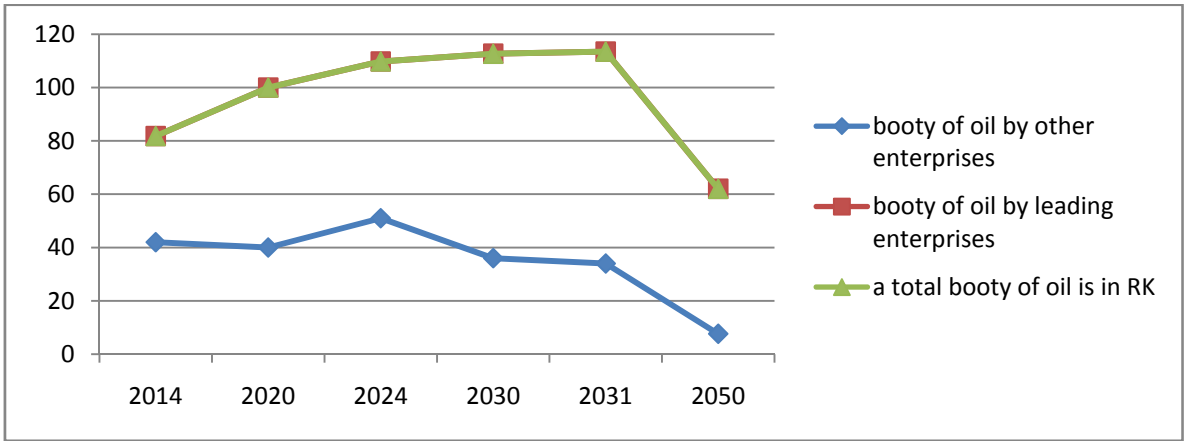

Figure 2 – Optimal oil production up to 2050, million tons

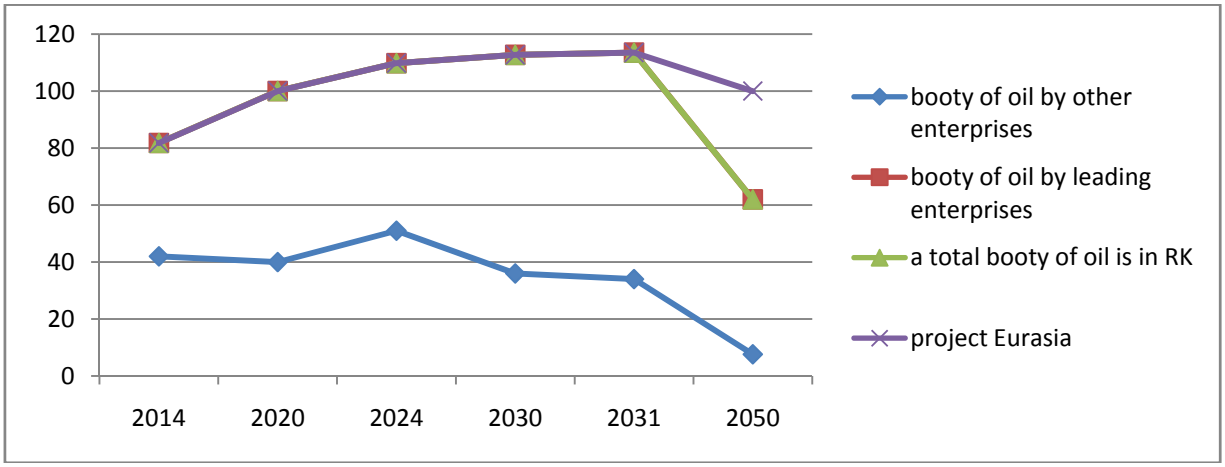

Figure 3 – Optimal oil production up to 2050, taking into account the project "Eurasia", mln.tons

Thus, the most effective scenario will be the Optimal scenario, in which oil production will be at the level of 2 million barrels per day.

This option is more effective from the point of view of price trends, since the main growth of quotations is planned for the horizon 2025-2030 (These ministries of energy of RK, 2014).

3.Results. The problem of the Caspian Sea is very actual today, but regardless of how the question of the international legal status of the Caspian Sea and the division of oil resources between the Caspian states will be resolved, the Caspian remains a common ecological object of the region. The crisis in one of its parts will result in a common, inseparable ecological catastrophe, which, ultimately, will affect the personal plans of each state and its development prospects.

The State program for the development of the Kazakh sector of the Caspian Sea provides for special studies to determine the maximum possible level of hydrocarbon production without damaging marine and coastal ecosystems, perform geodynamic monitoring, liquidate abandoned oil wells and other historical pollution, take measures to stop associated gas flaring and unauthorized disposal of oil pipes and equipment with radioactive contamination.

The oil and gas future of Kazakhstan is directly connected with three deposits - Tengiz, Karachaganak and Kashagan. It is Kashagan with reserves of about 7-9 billion barrels will be the main engine of economic growth, when Tengiz and Karachaganak pass the peak production level. In addition, in the long term it is planned to increase gas production in Karachaganak to 25 billion cubic meters per year, and on Tengiz - to 8-9 billion cubic meters per year. By this time, Kashagan should become the largest source of gas in the RK, as its recoverable reserves amount to 1 trillion cubic meters. At Kashagan, associated gas, like Tengiz, has a high sulfur content. The deposit itself is characterized by high temperature and pressure. Drilling is conducted from an artificially created island.

One of the main sources of pollution in the process of exploration and exploitation of oil, gas and gas condensate fields are products from flaring associated petroleum gas in flares, therefore, utilization of associated gases in oil and gas fields of the country has acquired state significance in recent years.

In accordance with the Law of the Republic of Kazakhstan "On Subsoil and Subsoil Use" dated June 24, 2010 No. 291-IV 3PK, the Ministry of Energy of the RoK constantly monitors the implementation of approved programs for utilization of associated gas by subsoil users of the RK.

According to paragraph 8 of Article 86 of the Law of the Republic of Kazakhstan "On Subsoil and Subsoil Use," subsoil users are obliged to envisage programs for the development of associated gas processing, which must be updated every three years, in order to rationally use associated gas and reduce the harmful impact on the environment by reducing the volume of its combustion or Re-injection into the formation (disposal).

Thus, in recent years, the implementation of measures for the utilization of gas has contributed to a reduction in the volume of combusted gas from 3.1 to 0.9 billion cubic meters, i.e. by 2.2 billion cubic meters, with the increase in oil production from 64.9 million tons over the past period to 81.8 million tons for the current time and gas from 27.0 to 42.3 billion cubic meters, respectively . At the same time, the volume of utilized gas increased from 23.9 billion cubic meters to 41.4 billion cubic meters, i.e. by 17.5 billion cubic meters.

During the reporting period. in the course of the Program implementation, the volume of flared gas fell by 70% compared to the expired period and amounted to 0.9 billion cubic meters.

4. Discussion. Diversification of the economy is a serious challenge for many oil-exporting countries. However, for Kazakhstan, the diversification of the economy is a vital necessity, especially given the limited oil reserves and ambitious goals of the country's entry into the world's 30 most developed countries by 2050.

In this regard, great importance is given to the current state of the Caspian region.

The Caspian region belongs to the main oil and gas bearing belt of the earth: the Persian Gulf, the West Siberian and Caspian regions. Russian scientists have estimated the significant resource potential of the Caspian depression. According to their data, up to 40 billion tons of conventional fuel is located in the Caspian Sea, and there is also the possibility of detection for as yet undiscovered, lying in great depths. In the Caspian depression, experts predict the discovery of about two dozen large hydrocarbon deposits with reserves of up to 300 million tons.

In Kazakhstan, the extraction of "light" oil is coming to an end. Since the 1970s. in the RK, wells were drilled to a depth of 5 km. Thus, the Tengiz and Karachaganak fields were discovered at a depth of 4 to 5.5 km. At present, resources and open fields at this depth have been depleted, and the main emphasis in the development of deep deposits was made on the Caspian Basin, the main region where oil and gas are extracted, both in Kazakhstan and in Russia (Dodonov V. (2017).

Taking into account the long-term development prospects of the country's oil and gas industry and the need to replenish the reserves of hydrocarbon resources, Kazakhstan initiates a new international project "Eurasia" to explore the deep-lying horizons of the Caspian depression, both onshore and offshore in Kazakhstan and Russia. It is planned to create a consortium of oil and gas companies to participate in the project and finance the program. The development of the project "Eurasia", conducted by two countries - Russia and Kazakhstan will create reliable data on reserves.

Nowadays Kazakhstan successfully develops oil production projects on the Caspian shelf. Therefore, the first confirmation of the presence of hydrocarbon resources on the sections of the Pearl project, where the exploration work of NC KazMunayGas, Shell and Omanoil are being conducted as part of the work program, has already been received. Based on the results of the exploration, the oil and gas content of the Khazar and Auezov structures was also proved.

The commissioning of a number of large projects, as well as the expansion of oil production to existing ones, will allow to significantly increase of the oil export potential of Kazakhstan.

The project "Eurasia", the implementation of which is scheduled for 2015-2020. includes 3 stages: collection and processing of geological and geodetic materials of the past years of the Soviet period, carrying out large-scale geodesic research on new projects and the last stage - drilling of a new support-parametric well of the Caspian Sea. The estimated cost for these works will be about 500 million dollars. The Caspian depression is 2/3 in Kazakhstan, and 1/3 in Russia. It is one of the richest deposits in Kazakhstan.

Great prospects are also associated with the increase in production capacity at the Tengiz field as part of the project of future expansion. After its completion in 2019-2020, it will provide an opportunity to increase oil production in the field from 26.5 million tons to 38.6 million tons per year.

At the same time, further geological studies of the remaining sedimentary basins are required, where significant hydrocarbon reserves are forecasted, and systematic geological studies of the oil and gas potential of the Kazakhstan shelf of the Caspian Sea should be continued. At the present stage of the development of Kazakhstan's oil and gas sector, positive changes are observed, but from the standpoint of oil and gas production, there are significant negative indicators of environmental pollution.

The environmental problems of the Caspian and its coasts are a consequence of the whole history of extensive economic development in the countries of this region. Both long-term natural changes and acute social and economic problems of the day are superimposed on this.

During the development and production of hydrocarbon deposits, about 70-80% of the vegetation is destroyed in a radius of 500-800 m. The emissions of pollutants into the atmosphere and oil spills represent the greatest threat of pollution during the development of the field. Large volumes of associated gas associated with oil production remain one of the most serious environmental and human health problems. Over 800 million cubic meters are burned annually in Kazakhstan. m associated gas. The main reason for bottling oil is associated with corrosion, construction defects and installation work. The loss accounting system at various stages of production, collection, storage, transportation and processing does not meet modern requirements for resource efficiency.

At present, the Caspian's ecological situation is in a difficult state. In the shelf zone of the sea, the situation is more unfavorable, since Dead zones were formed on these territories. In some places, pollutant estimates are 10-20 times higher than normal. In addition to oil proper, associated water is an important risk factor for biota. As a rule, separation (separation of water and oil) takes place on land, after which the water merges into so-called 'evaporation ponds', which are used as natural relief depressions (takyrs and solonchaks, less interbarhanic depressions). Since the associated waters have high mineralization (100 and more g/l), they contain oil residues and heavy metals, instead of evaporation, there is a spill on the surface, slow percolation into the ground, and then along the direction of groundwater movement to the sea.

The share of river pollution tends to decrease, to a lesser extent due to a reduction in production in the river valleys, to a greater extent by increasing offshore oil production. It is expected that in the future 2010-2020. the ratio of river-sea pollution will reach 50:50.

Analysis of the situation with pollution shows that they have relatively little impact on the development of environmental legislation, the introduction of modern technology, the availability of emergency equipment, improvement of technology, the presence or absence of environmental authorities, etc. The only indicator with which the level of Caspian pollution is correlated is the volume of industrial production in its basin, primarily the extraction of hydrocarbons.

At the same time, the logic of further economic and environmental transformations in the industry requires a transition to a qualitatively new level of management.

5. Conclusion. To further strengthen the status of the Republic of Kazakhstan as one of the leading players in the global oil and gas market, an increase in hydrocarbon reserves is required.

In expanding the resource base, it is necessary to combine extensive and intensive approaches. Within the framework of the extensive approach, it is necessary to search for and involve new deposits in the industrial turnover. The intensive approach assumes wide application of methods of increase in resources and oil production on operating deposits. Given the strategic nature of this issue, it is proposed to consider the following measures:

- Increase in financing and/or subsidizing loans for exploration and exploration projects by the National Company in cooperation with the leading oil companies of the near and far abroad;
- Introduction of incentives and incentives for subsoil users who are engaged in geological exploration of mineral resources and receive positive results;
- The introduction of incentives and incentives for subsoil users who are engaged in the extraction of hard-to-recover and marginal reserves.

Considering the strategic importance of maintaining and increasing the resource base, we consider it necessary to establish the following key indicators for authorized bodies/companies:

1. Implementation of the required amount of geological exploration to ensure a stable level of increment of hydrocarbon reserves in a volume that outstrips the extraction of oil, gas and condensate for the relevant period.

2. Implementation of measures to increase economically sound hydrocarbon recovery factors.

The implementation of these proposals will prevent the reduction of hydrocarbon reserves, increase the investment attractiveness and stability of the oil and gas complex and the Republic as a whole.

Environmental protection of the Caspian Sea poses unique legal problems for both governments and private entrepreneurs. Although in some respects the interests of the state and the private sector are significantly different, in the case of environmental protection they have a common interest - to develop a mechanism for regulating the environmental protection of the Caspian Sea based on cooperation and coordination of efforts of all stakeholders. Without such a coordinated approach, it is difficult to imagine how the governments of the countries of the Caspian region will be able to exploit the wealth of the Caspian Sea while ensuring the safety of its unique ecological resources. In developing a rational and coordinated mechanism for environmental regulation, which could be applied by the Caspian littoral states to reduce the number of disputable legal issues, international oil and gas companies conducting operations in the region are also very interested. At the present time, on the way to developing vast oil and gas reserves of the Caspian Sea, there are unsolved legal problems with environmentally sound methods, both for governments and for entrepreneurs.

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КАСПИЙ АЙМАҒЫНЫҢ ДАМУ МӘСЕЛЕЛЕРІ МЕН БОЛАШАҒЫ

Аннотация. Қазақстан Республикасында мұнай-газ секторын дамыту ұлттық экономиканың маңызды салаларының бірі болып табылады, ол өзінің тарихи тамыры мен дәстүріне ие, сондықтан ұлттық экономиканың жұмыс істеу ерекшеліктері мен ерекшеліктерін байқауға болады.

Мақалада отандық экономиканың экономикалық және экологиялық дамуы, соның ішінде мұнай-газ кешені түрлі аспектілер бойынша зерттеулер жүргізілген қазақстандық және шетелдік авторлар жүргізген әдеби шолу бар. Мақалада Қазақстан экономикасының өзекті мәселелерінің бірі – батыс өңірінің даму болашағы мен проблемалары қарастырылады. Индустрияны дамыту саласындағы заманауи басқару процестерінің тән ерекшеліктері көрсетілген.

Түйін сөздер: Каспий, экология, инвестициялар, ұлттық экономика, мұнай-газ кешені, аймақ.

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ПРОБЛЕМЫ И ПЕРСПЕКТИВЫ РАЗВИТИЯ КАСПИЙСКОГО РЕГИОНА

Аннотация. В Республике Казахстан развитие нефтегазового сектора является одной из важнейших отраслей национальной экономики, которая имеет свои исторические корни и традиции, в связи с чем можно проследить закономерности и особенности функционирования национальной экономики.

В статье представлен литературный обзор, проведенный казахстанскими и зарубежными авторами, в котором были проведены исследования по вопросам экономического и экологического развития национальной экономики, в том числе нефтегазового комплекса в различных аспектах. В статье исследуется один из актуальных вопросов экономики Казахстана – перспективы и проблемы развития западного региона. Показаны характерные черты современных процессов управления в сфере развития отрасли.

Ключевые слова: Каспий, экология, инвестиции, национальная экономика, нефтегазовый комплекс, регион.

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