Measures of JSC "Uzbekneftegaz" contributing to sustainable development

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ABSTRACT

Thanks to the implementation of the program, Uzbekistan managed not only to ensure its energy independence, but also to strengthen its gold and foreign exchange reserves. For example, in 2008, at the expense of its own funds, as well as funds from the Fund for Reconstruction and Development of Uzbekistan, JSC «Uzbekneftegaz» mastered more than 1.860 trillion. Sum of capital investments. The growth rate of natural gas production amounted to 103.7%. One of the principles of the new water legislation is the priority of the protection of water bodies over their use, in which there should be no negative impact on the environment. Oil and gas industry facilities are mainly located in regions with limited water resources. Therefore, their rational use can rightly be attributed to one of the largest environmental problems. Data analysis showed that in recent years, oil and gas industry facilities have carried out oil and gas operations in accordance with the legislation of the Republic of Uzbekistan in compliance with generally accepted standards in the international oil and gas industry.

Keywords: JSC "Uzbekneftegaz", technological development, environmental development, sustainable development, safety

Introduction

Research In the 1960s and 1980s, when drilling for oil and gas wells began, these black gold reserves were located in very narrow boulders of the earth's crust [1]. This did not require a simple airborne cellulose containing high molecular weight of almost the entire drilling melt and various components that were modified. At the same time, the probability of destruction of drilling fluids continuously directed into the wells was significantly lower; during drilling, the temperature was 80–1200 °C [2]. At such temperatures, the decomposition of elementary rings of macromolecules of a natural polymer occurs; on the basis of ether, drilling fluids practically did not work. Years later, oil and gas reserves began to be extracted from deep underground layers.

During drilling, there was a significant drop in the heat release of the stabilizer and additional components in the solution. In addition, various agglomerators were required to ensure penetration of drilling fluids into deep layers [3]. High sharp temperatures led to the use of inhibitors in the phase to prevent the destruction of elementary rings in the macromolecule. To overcome these side effects, we have been consistently developing barite agitator modification technology with improved properties for drilling mixtures over the years [4]. Barite concentrate is a mineral with a density of 4.10-4.20 g/cm2, which meets the requirements of GOST 4682-84 in KB-3, and is widely used as a raw material in the national economy and various industrial sectors. enterprises. The mixture concentrate is used as a raw material in the development of this innovative design, in the development of a barite agitator modification technology that has improved properties for drilling mixtures in the oil and gas industry [5]. The need of JSC «Uzbekneftegaz» for barite agglomerations for

drilling fluids is 30,000 tons per year. This was accompanied by the supply of large currency from the Republic of Kazakhstan to meet this demand [6].

One should have an idea about the main production assets, their physical and spiritual depreciation and factors affecting their effective use, it is necessary to determine ways and methods to increase the efficiency of their use, reduce production costs, increase labor costs and productivity. Therefore, attention will be paid to improving the structure of fixed production assets in the formation of fixed production assets at the enterprises of JSC «Uzbekneftegaz» [7, 8].

If we approach the activities of JSC "Uzbekneftegaz" analytically for the period 2011-2021, then there is an upward trend in the initial cost of fixed assets, by 2021 it has grown 5.2 times compared to 2011 [9]. During this period, the factors of production of fixed assets in 2021 increased by 4.9 times compared to 2011, and non-productive fixed assets increased by more than 5.1 times [10].

During the period under review, there were significant structural changes in fixed assets, where the cost of buildings increased by 2.5 times, and the cost of structures by about 6.2 times. The volume of transmission equipment increased by 4.4 times, machinery and equipment by 7.1 times, computers and computer technology by 1.9 times, vehicles by 2.1 times [11]. The analysis shows that some types of fixed assets, structures, transmission equipment, machinery and equipment have grown significantly.

When determining profit and fixed capital growth in JSC Uzbekneftegaz from 2011 to 2021, the growth rate over the past three years has decreased compared to the previous year. Compared to 2011, the real profit of JSC «Uzbekneftegaz» in 2021 increased by 86%.

Economic development - JSC «Uzbekneftegaz»

Since the first days of independence, the development of the oil and gas industry has been identified as one of the priority areas of the national economy. Thanks to the implementation of the program, Uzbekistan managed not only to ensure its energy independence, but also to strengthen its gold and foreign exchange reserves. For example, in 2008, at the expense of its own funds, as well as funds from the Fund for Reconstruction and Development of Uzbekistan, JSC «Uzbekneftegaz» mastered more than 1.860 trillion. Sum of capital investments. The growth rate of natural gas production was 103.7% [12].

One of the main focuses of the created strategy was placed on the consolidation of existing assets. This idea arose from the fact that only very large companies can really compete in the global industrial and energy markets. This meant that Uzbekistan, striving to take its rightful place in this system, needed to create a powerful company capable of adequately representing internal interests abroad. JSC “Uzbekneftegaz” became such a company [13]. And she managed to ensure the fuel and energy independence of the country and build a full-fledged system of export supplies of extracted fuel. Today, the capacities of Uzbekneftegaz allow the production of hydrocarbons in the amount of 87 million conventional units of fuel.

At present, the republic has an extensive and sufficiently powerful system of main gas pipelines. Their total length is more than 13 thousand km [14]. In order to increase the volume of exports and transit of natural gas, within the framework of the program, work is being carried out to reconstruct and modernize the existing gas transmission system at its own expense.

Technological development - JSC «Uzbekneftegaz»

Of great importance is the development of a strategy for the technological renewal of production at JSC «Uzbekneftegaz». The fact is that the technological renewal of production through the creation of new equipment and technology is not a short-term matter [15]. This work is designed for a long-term period, since the effectiveness of technological renewal does not appear momentarily, but gradually. The main goal of implementing the technological development strategy of JSC «Uzbekneftegaz» is to increase the efficiency of the innovation system that ensures the technological modernization of the economy and increase its competitiveness based on advanced technologies and the transformation of

scientific potential into one of the main resources for economic growth.

The strategy of technological renewal of production can lead to the following results [16]:

- Creation of a balanced, sustainable research sector of the existing optimal institutional structure that ensures the expanded reproduction of knowledge that is competitive in the world market;
- Creation of an effective innovation system built into the global innovation system, ensuring the interaction of the research sector with the domestic business sector and corresponding in terms of basic parameters to the innovation systems of developed foreign countries;
- Technological modernization of the economy and increasing its competitiveness based on advanced technologies.

The implementation of the strategy is ensured by the following activities [16]:

- Support for the formation and development of a system of state scientific, technical and innovation funds;
- Development of production and technological infrastructure (technoparks, innovation and technology centers, technology transfer centers, engineering centers, etc.);
- Assistance in the development of ties in the field of innovations and "diffusion" of knowledge, support for joint research at the pre-competitive stage;
- Training of personnel for the innovation sphere, training in innovation management;
- Encouraging companies to diversify production, technological renewal, R&D;
- Assistance in the formation of stable cooperative ties and innovation clusters;
- Systemic influence of the state on the formation of subject-oriented innovation demand in the business sector;
- Development of public-private partnership mechanisms in the implementation of the main promising areas of innovative development;
- Formation of an effective management system in the innovation sphere, including the development and implementation of a long-term state innovation policy.

Thus, the technological renewal of production at JSC "Uzbekneftegaz" provides, based on the analysis of the activities of companies in the implementation of innovations, allows to increase the competitiveness of products and production efficiency, the entry of companies into the world market.

Ecological development - JSC “Uzbekneftegaz”

The entry of pollutants into the atmosphere occurs at all stages of the economic activity of the facilities of JSC "Uzbekneftegaz": exploration of deposits, production of hydrocarbon raw materials, oil and gas processing, transportation [17].

According to the analysis of the state of the environmental situation in joint-stock companies in 2019, the total volume of pollutant emissions from stationary sources by enterprises in the industry amounted to 352,387.734 tons, with a standard of 511,125.340 tons.

The specificity of the oil and gas industry is associated with air pollution by substances such as carbon monoxide, hydrocarbons, methane, nitrogen oxides, sulfur dioxide, soot and a number of other ingredients, which are shown in Figure 1.

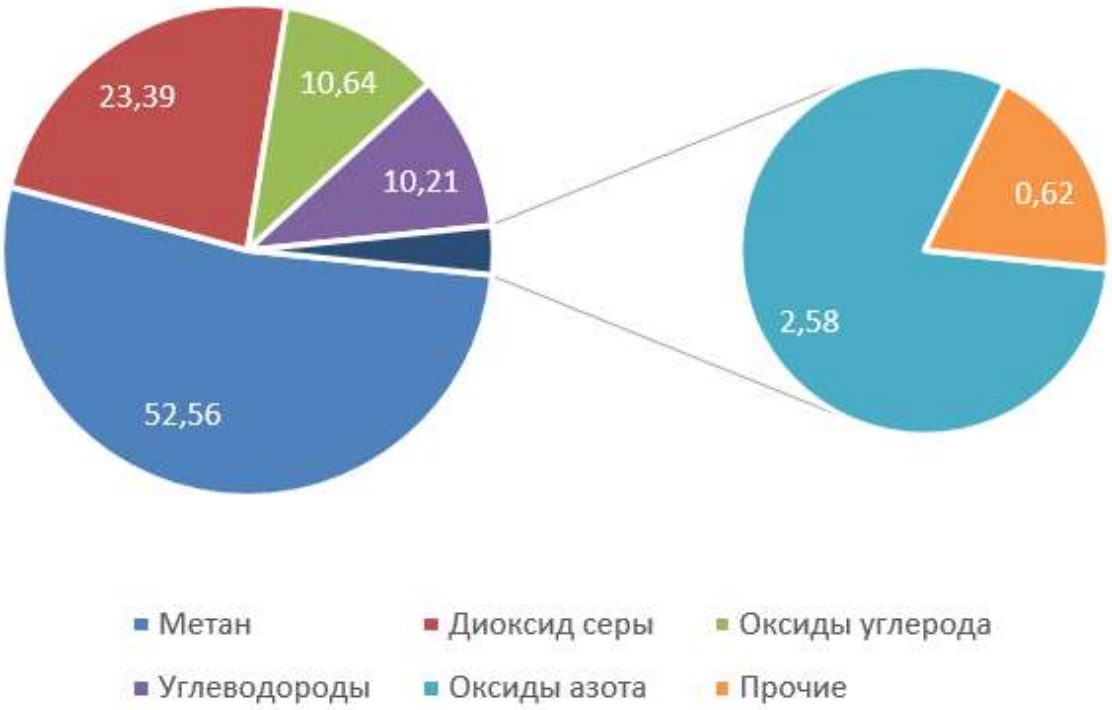

Figure 1. Contribution of subsidiaries of JSC "Uzbekneftegaz" to air pollution

Based on the Decree of the Cabinet of Ministers of the Republic of Uzbekistan dated June 14, 2013 No. 171 “Regulations on the procedure for issuing permits for special water use or water use”, “Permits for special water use or water use were developed and approved for the enterprises of JSC «Uzbekneftegaz».

The Regulation, in accordance with the Law of the Republic of Uzbekistan "On Water and Water Use", as well as the Resolution of the Cabinet of Ministers dated March 19, 2013 No. 82 "On Approval of the Regulations on the Procedure for Water Use and Water Consumption in the Republic of Uzbekistan", establishes the procedure for issuing permits for special water use or water consumption when using surface and ground waters on the territory of the Republic of Uzbekistan.

One of the principles of the new water legislation is the priority of the protection of water bodies over their use, in which there should be no negative impact on the environment. Oil and gas industry facilities are mainly located in regions with limited water resources. Therefore, their rational use can rightly be attributed to one of the largest environmental problems.

As sources of water supply, water is used both from surface water bodies (rivers, reservoirs, lakes) and from underground aquifers (artesian wells). Water is used for industrial, household and drinking, fire-fighting and auxiliary needs. Water treatment is quite efficient. Provides facilities with water of standard quality. In 2019, the total volume of actual water consumption of JSC «Uzbekneftegaz» amounted to 119362.237 thousand m^3 at a rate of 233298.239 thousand m^3.

The distribution shares of water resources are shown in Figure 2. Wastewater is discharged by all water users: into sewers, cesspools and on the ground. Mostly conditionally clean sewage falls on the terrain. There is a problem of oily wastewater treatment, which is solved by a number of treatment methods: biological, physico-chemical and mechanical.

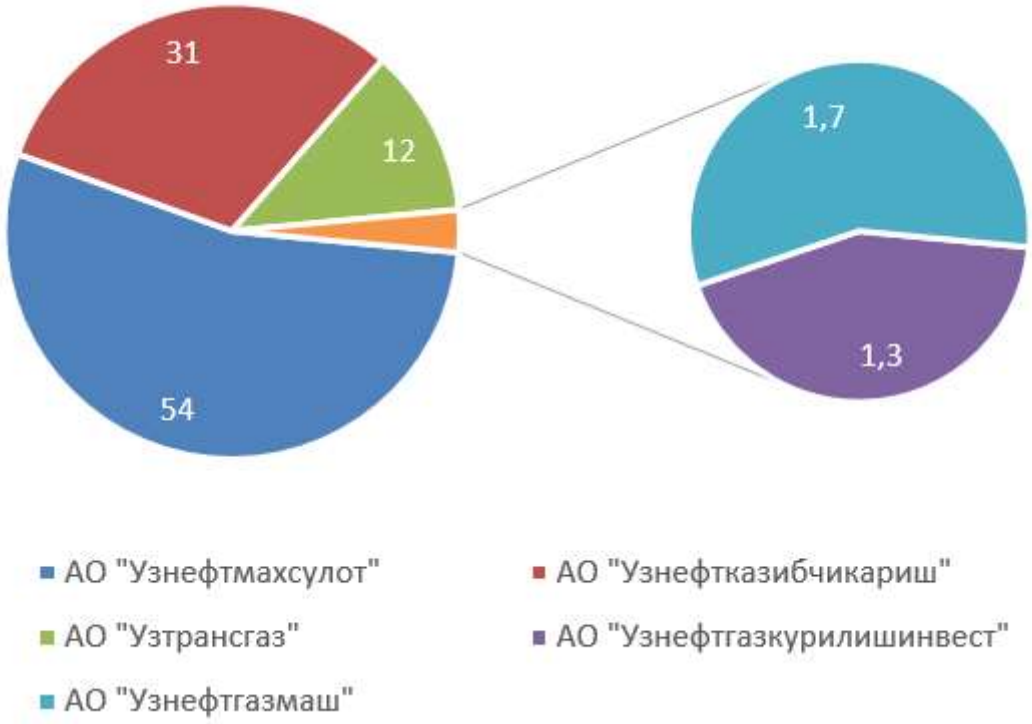

Figure 2. Distribution of water resources between subsidiaries of JSC «Uzbekneftegaz»

Currently, the industry uses modern innovative technologies for the treatment of industrial and domestic wastewater in the construction of new facilities. Reconstruction and repair of morally and physically obsolete equipment of water disposal systems is being carried out at existing facilities. The total volume of actual water disposal for JSC «Uzbekneftegaz» amounted to 35732.367 thousand m^3 at a rate of 80237.289 thousand m^3.

Устойчивое развитие - АО “Узбекнефтегаз”

The problems of protecting the environment from pollution by industrial waste are directly related to the exploration, production, processing and transportation of hydrocarbon raw materials. Waste generation is carried out at all stages of the economic activity of the industry.

According to the Decree of the Cabinet of Ministers of the Republic of Uzbekistan dated January 21, 2014 No. 14 "Regulations on the procedure for the development and approval of draft environmental standards", the degree of waste hazard is assessed by 5 hazard classes. - from extremely dangerous to almost non-hazardous.

The volume of waste generation in industry in 2014 amounted to 255332.525 tons, of which:

• industrial waste – 182616,675 tons (72%);
• municipal waste – 72715,85 tons (28%).

Industrial waste of 5 environmental hazard classes:

• waste of the 1st hazard class – 27711.086 tons (15%);
• waste of the 2nd hazard class – 38930.606 tons (21%);
• waste of the 3rd hazard class – 48490.5 thousand tons (27%);
• waste of the 4th hazard class – 57050.788 tons (31%);
• waste of the 5th hazard class – 10433.695 tons (6%).

Detailed volumes of waste generation for JSC «Uzbekneftegaz» are presented in Figures 3 and 4.

Figure 3. Distribution of waste volumes by subsidiaries of JSC «Uzbekneftegaz»

It should be noted that almost all of these types of waste are recycled. Municipal waste is taken to municipal landfills. The tasks of storing, neutralizing and neutralizing oil and gas complex waste are becoming more complicated due to the tightening of legislation and the strengthening of state control.

One of the largest environmental problems in all regions of the oil and gas complex is the pollution of the natural environment with oil and oil products and, as a result, the formation and accumulation of untreated oil waste. The complexity of handling such waste is determined by the diversity of their types and composition, high environmental hazard, which makes it difficult to create universal technologies for their processing or disposal. These types of waste include liquid hazardous waste, represented by waste oils of all types, oil products that have lost their consumer properties, floating films of sedimentation tanks; pasty, represented by sludge from the cleaning of process equipment, tanks and containers, pipelines, waste from sludge collectors; solid waste - soils contaminated with oil products, sand, adsorbents, rags, sludge from treatment facilities.

Based on the list of waste, it follows that the problem of handling such waste is relevant for industry enterprises. The problem of sludge processing during oil production and refining is difficult to solve. Barns contain a wide variety of solid and inactive inclusions and water, the hydrocarbon part is represented by heavy oxidized fractions containing water, sand, clay, etc.

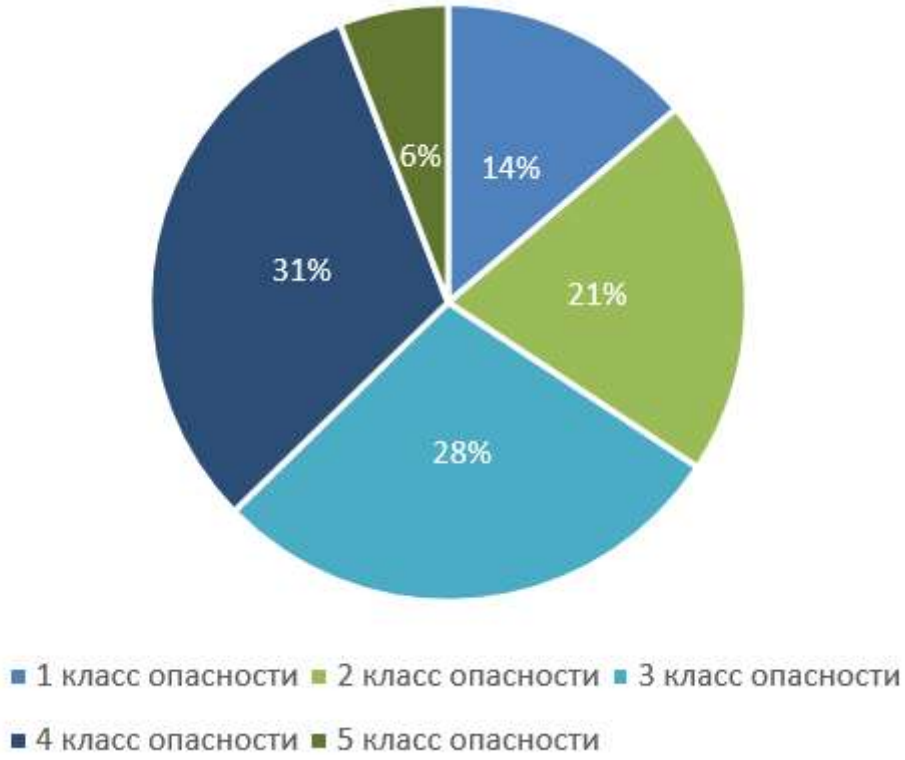

Figure 4. Distribution of waste by hazard class

At the facilities of JSC «Uzbekneftegaz», quarterly reports are compiled on emissions of pollutants into the atmosphere, discharges of pollutants with wastewater into surface water bodies or terrain, and waste disposal. The report was submitted to the Regional Committee for Nature Protection.

Control over emissions of pollutants into the atmosphere, discharges of pollutants with sewage into the area, disposal of waste is carried out both by the enterprises themselves and by the regional committees of nature to protect the environment. Based on the reports, in accordance with the regulatory documentation, compensation payments are made for the special use of natural resources and payments for excess pollution of the environment.

In order to ensure a favorable state of the environment and the rational use of natural resources, the introduction of the environmental foundations of sustainable development in the economy, the Cabinet of Ministers approved Resolution No. 142 dated May 27, 2013 on the Action Program for Environmental Protection of the Republic of Uzbekistan for 2013-2017 and measures for its implementation.

The program was prepared on the basis of the National Action Plan for Environmental Protection of the Republic of Uzbekistan (NEAP, 1998) and is aimed at implementing environmental measures in terms of environmental support for economic reforms in Uzbekistan and creating conditions for socio-economic development and achieving the country's sustainable development goals.

The facilities of JSC «Uzbekneftegaz» are included in the Action Program for Environmental Protection of the Republic of Uzbekistan for 2013-2017 and measures for its implementation.

Conclusions

In order to reduce the likelihood of emergency situations, as well as to prevent possible negative impact on the environment and sustainable development, Uzbekneftegaz annually takes special measures to reduce the negative impact on the components of the natural environment and industry.

Data analysis showed that in recent years, oil and gas industry facilities have carried out oil and gas operations in accordance with the legislation of the Republic of Uzbekistan in

compliance with generally accepted standards in the international oil and gas industry.

It should be noted that the implementation of the policy of ecology and sustainable development at JSC «Uzbekneftegaz» contributes to improving production safety, knowledge about the sources of environmental pollution, improving the quality of commercial products, and reducing the impact on the environment and industry. Therefore, only a reasonable and deeply responsible approach to solving environmental problems will not only reduce the likelihood of a global environmental catastrophe, but also preserve the nature of the planet.

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