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OIL AND GAS INDUSTRY OF ASTRAKHAN REGION (1970–1990)

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Abstract

In 1960s, the discovery and exploration of a number of oil and gas deposits in Astrakhan region led to development of a new sector of regional economy– oil and gas production. However, the biggest event related to building the energy potential of Astrakhan region happened in 1976 with the discovery of a unique – in terms of resources and composition – Astrakhan sulfur gas condensate field, and the erection of a gas processing plant on its basis. This construction project was one of the biggest in the country's fuel and energy industry. The first stage was launched in 1986. The engineering and construction of the industrial complex were carried out concurrently and in a very short time. The article analyzes the role of the oil and gas sector in economic and socio-cultural development of Astrakhan region in 1970–1990. Based on the archived data, the paper considered some objectives set by the start of the field industrial exploration – a need to provide the accommodation for the personnel that arrived to explore the field; strengthening the energy capacity of the region to provide the industries and new housing estates with electricity; expansion of transport infrastructure and intensification of suburban services. The above-mentioned tasks were completed, although with different extent of success. It's worth noting that during the period under study, a big industrial hub was built in the region, and its activity led to re-profiling of the regional economy and fostered new industries and the development of socio-cultural life of the population.

Keywords: Production, processing, social policy, regional development, Astrakhan.

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1. Introduction

Studying the ways of optimal operation of the oil and gas industry in Russia is considered a topical scientific issue. Building production and processing capacity is a priority in the conditions of direct dependence of currency earnings of the state from the sales of carbohydrates (Turitsyn, 2012a). These conditions lead to a problem of keeping the economic and social balance during the exploration of new fields and development of the existing ones. The social component of economic development is becoming the most important factor for a progressive growth of the society and a decent standard of living of the population. Addressing the Russian historical experience of the development of the oil and gas industry and associated sociocultural infrastructure will allow avoiding mistakes in exploring new deposit fields in future, for example in Extreme North and shelf areas, which are gradually becoming centers of oil and gas production. Besides, studying the historical experience in addressing organizational and socio-domestic challenges, occurring during new field exploration, will contribute to further studies on the history of the oil and gas industry. Moreover, a scientific and theoretical analysis and summing up of the experience of operation of the oil and gas complex of Astrakhan region – a constituent entity of the Russian Federation – which hasn't become a subject of special historical studies so far, is of relevance and doubtless research importance.

2. Problem Statement

Development of the oil and gas industry is one of the top-priority areas of the Russia's economy. The industry is important not only for ensuring the strategic security of the state or as a source of foreign-exchange reserve replenishment, but also as an essential factor that has an impact on sociocultural life of the regions that are active participants of the country's hydrocarbon programme implementation (Turitsyn, 2012b).

The authors assess the role of oil and gas industry in economic and sociocultural life of the region from the perspective of the local approach, using the example of Astrakhan region. Special significance of the oil and gas industry here is connected with a specific geopolitical status of the region, being a frontier entity of the country in the Caspian Sea region, a strategically important area for Russia (Turitsyn & Mullakaev, 2016).

Such a choice of the territorial framework is also explained by the fact that the oil and gas industry of Astrakhan region has unique features that distinguish it from other Russian regions. Firstly, it is specificity of the oil production, which also takes place on the Caspian shelf. Secondly, it is production and processing of gas from the Astrakhan gas condensate field, which is unique in terms of its composition. It required the application of innovative exploration technologies that had no compatibles in the national practice of gas production and processing. Such specificity of gas production caused certain socioeconomic problems, and their successful solution determined further state of the industry and economic well-being of the region.

The chronological framework of the study is a period from the mid-1970s (from the discovery and start of exploration of the Astrakhan gas condensate field, the largest gas condensate field of the European part of Russia) through the early 1990s – the start of exploration of oil and gas deposits in the Russian

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segment of the Caspian shelf, a new technological level of the oil and gas production and, as a consequence, an increase of hydrocarbon production in the region.

3. Research Questions

The history of formation and development of the oil and gas industry in Russia and its certain regions has a wide historiography. However, identifying direct correlation between the industry progress and living standards of the population has rarely become a subject of historical research. It also should be noted that the historiography of the issue under study is still being formed, which is connected with modernity of the considered period. Consequently, despite a large number of papers, dedicated to general tendencies of the development of the Russian oil and gas industry, some regional aspects have not been analyzed in detail yet.

4. Purpose of the Study

The purpose of the research is to analyze the role of the oil and gas sector in the economic and sociocultural development of Astrakhan region in 1970–1990.

5. Research Methods

According to the authors the most adequate concept that facilitates the purpose achievement is the theory of modernization, which allows considering the issues of regional development in the context of nation- and global-wide tendencies. This theory has been developed in papers of Ural and Moscow researchers of the Russian oil and gas industry (Alekseev, 1999; Bodrova et al., 2013; Bodrova et al., 2014); it also has been reflected in articles of historians that have studied the development of the West Siberian oil and gas sector (Karpov, 2005; Karpov et al., 2011).

In terms of methodology, the study is based on the guiding principles of historicism, objectiveness and consistency of material presentation. The principle of objectiveness allowed avoiding ideological predetermination in the analysis of historical processes and phenomena and to take the most balanced approach to the analysis of the source base of the study. Studying sources of different types made it possible to identify some achievements and shortcomings in the set of measures for building respective housing, cultural and recreation infrastructure during the oil and gas exploration of the region.

The principle of historicism allowed considering the role of the oil and gas sector for the socioeconomic and cultural development of Astrakhan region in historical retrospect with regard to the specificity of nation-wide political and economic processes that happened in the period under study. The principle of consistency implied consideration of the scientific issue as an aggregate of its components like addressing the issue of housing provision, transport support, etc. A set of special historical and general scientific methods was used during the study. The historical and genetic method allowed identifying cause-and-effect relations and regularities in the development of the sociocultural sphere and oil and gas enterprises of the region. The comparative historical method made it possible to analyze changes in the life of the population of Astrakhan region from the discovery of large deposit fields on the territory of the region until the period of active integration of the region into the system of the Russian oil

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and gas industry. The problematic and chronological method allowed marking out the main challenges in the development and functioning of the social and domestic infrastructure.

The study also used such general scientific methods as analysis, synthesis, induction, deduction and systematization.

6. Findings

The development of the Astrakhan gas condensate field, discovered in 1976, had a number of objective difficulties. The field was of interest not only due to the presence of significant gas reserves, but also due to the possibility of producing technical sulfur used in a number of important sectors of the national economy (chemical, military, etc.). The development of the field implied not only construction of a high-tech territorial production complex, which was to become the engine of the regional economy, but it was also accompanied by the development of a whole scale of related industries and research institutions. The construction gave a powerful impetus to the development of social infrastructure in Astrakhan region – housing construction, development of transport communications, start of gasification of residential and industrial facilities in the region, etc.

The USSR Ministry of the Gas Industry was approved as the main customer for the construction of facilities for the development of the Astrakhan gas condensate field, and the YuzhNIIgiprogaz Institute (Donetsk) was the general design engineer of the complex. The scientific substantiation, development and engineering of the complex facilities were carried out by more than 50 research and engineering organizations. The difficulty was not only in the fact that in an extremely short time there was a huge amount of work to be performed, but also in the fact that local construction organizations had no experience in building industrial plants of this scale. In this regard, the USSR Ministry of Construction, the general contractor for the construction of the complex main facilities, sent mobile specialized units to Astrakhan region. These were several hundred highly skilled workers and engineers from Orenburg, Tula, Volgograd, Grozny, Belorechensk. In addition, about 400 earth digging and construction machines and mechanisms, as well as automobiles, were delivered.

The uniqueness of the Astrakhan field, located 60 km away from the regional centre, is associated with abnormally high pressure, presence of a large amount of hydrogen sulfide, carbon dioxide and other highly toxic components in the gas. This created special requirements for the organization of production, processing and transportation of products, for the implementation of special measures to ensure safety of builders and workers of the complex and to protect the environment. These factors were the basis for engineering and construction of the complex. In particular, the placement of production facilities for gas production and processing was provided for in the Aksaraysky industrial hub, while housing and social facilities for the field development participants were to be constructed in Astrakhan.

The first consistent program for the construction of housing and social facilities was reflected in the draft resolution of the Central Committee of the CPSU and the Council of Ministers of the USSR “On Measures to Ensure the Construction of Residential Buildings and Cultural, Domestic and Communal Facilities in Astrakhan for Workers Engaged in the Construction and Operation of the Astrakhan Gas Condensate Field” (Demidova et al., 2016). The draft resolution was under consideration by the USSR Ministry of the Gas Industry, after which it was submitted for approval to the Council of Ministers. The

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decision determined the list of line ministries responsible for the construction of residential and social facilities in Astrakhan region. According to the decree, it was supposed "to carry out the construction and commissioning of residential buildings, utilities, education, healthcare, culture, trade, public catering and other facilities in Astrakhan in 1986-1992" in accordance with the developed plan.

In 1983, the construction of housing for the participants of the field development program began. Inconsistency in the actions of the line ministries hindered engineering and construction of residential complexes and housing estates, in particular, along Sophia Perovskaya and Nikitinsky Bugor streets. That is why a targeted program for the construction of housing and social facilities to the year 1992 was adopted. Its implementation began in 1986, but was not fully completed due to the economic crisis that began in the late 1980s and the dissolution of the Soviet Union.

Nevertheless, the adopted programme yielded some results. For its implementation, a new house-building factory as well as a number of enterprises in the construction industry was built, which allowed increasing the volume of housing and civil construction in the region. The construction organizations of Volgograd, Stavropol, Kuibyshev, Kazan, Ryazan, Orenburg and Volgodonsk were involved in solving the housing problem. They built a total of about 40 thousand square metres of housing annually. These were housing estates built along Sophia Perovskaya and Nikitinsky Bugor streets, the South-Eastern housing estate, etc.

Particular attention of the Central Committee of the CPSU, the Soviet government and line ministries to the construction of the Astrakhan industrial hub was connected with a general trend for the development of territorial production complexes of the country. Despite the existing lack of housing for participants in the development of the field, the work on the housing issue resulted in a significant increase in the pace of construction in the regional centre, an increase in the level of improvement of new residential areas and the development of building cooperative societies.

In order to provide heat for future residential quarters, the construction of the Astrakhan Thermal Power Station-2 (TPS-2) began. In the late 1970s and early 1980s, a critical situation with providing consumers with electricity developed in Astrakhan region. It was connected with the growth of production capacities, the construction of new enterprises in Astrakhan region, the use of new household appliances and, as a result, the increase in electricity consumption in residential areas. The Astrakhan gas chemical complex was also planned as a unique fuel and energy enterprise with a powerful system of distribution and consumption of electric and thermal energy. Its technological process needed to increase the reliability and power supply. In addition, in connection with the development of the gas condensate field, the construction of new housing estates was planned in the city. The existing heating and electric networks were not able to provide energy for all future development areas, which therefore required their reconstruction.

The construction of a new plant was aimed at the solution of the specified problems. In 1977, the USSR Ministry of Energy and Electrification approved Order No. 2-PS "On Approval of Technical Project for Construction of Astrakhan TPS-2". Despite the difficulties that arose during the construction process, two power units were put into operation in 1985 at the Astrakhan TPS-2. By February 1986, the Astrakhan TPS-2 was put into operation; its electric capacity reached 50 MW. Commissioning of the power units and two hot-water boilers of the combined heat and power plant, as well as the main heat

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supply networks from TPS-2, significantly improved the heat supply to Astrakhan. The power sector was further developed: the power line on the Volgograd-Astrakhan section was put into operation. The gas complex, which was under construction then, received the required electric power.

The development of the Astrakhan gas complex also required a lot of work to develop railway transport. The entire flow of arrived and transit goods passed by the railway across Astrakhan. The number of people and volume of goods delivered to the site of the complex increased gradually. The capacity of the existing single-track railway was insufficient.

By the start of the field exploitation in 1986, the second railway line was built on the Aksarayskaya-Astrakhan section. At the same time, the USSR Ministry of Transport and Construction carried out the construction of a bridge over the Buzan River, since the existing ferry line could not provide the necessary crossing capacity.

There was an urgent need to build a second electrified track, above all on the site from Astrakhan to the Aksarayskaya station, where the plant was under construction. The Astrakhan junction worked to the limit. Given that situation, the Astrakhan regional committee of the CPSU turned to the Ministry of Railways and the USSR State Planning Committee with a request to develop and construct a detour route from Aksarayskaya station with an access to the right bank of the Volga and further to the North Caucasus. The Ministry of Railways supported this proposal, but the USSR state plan did not approve the initiative.

7. Conclusion

During the period of industrialization of the late 1920s – early 1930s, the Astrakhan district was a kind of a “donor”, supplying actively developing industrial areas due to the rich resources of the fishing industry and agriculture, available on its territory. For almost 40 years (from the Revolution to the end of World War II), mass housing construction and development of social infrastructure were not carried out in the region. It is proved that the construction of the Aksaraysky gas processing plant gave a powerful impetus to housing construction in Astrakhan and Astrakhan region. This entailed the construction of a complex of social facilities and TPS-2, active gasification of the region, including its rural areas, development of transport infrastructure, which manifested itself not only in an increase in the number of routes and modes of city transport, but also in the construction of new railroad tracks, and a launch of commuter rails, which contributed to the activation of suburban traffic. Since the Soviet period, the largest oil and gas companies, involved into field development in the region (Gazprom Dobycha Astrakhan LLC, LUKOIL-Nizhnevolskneft LLC), have sponsored various sports, including youth competitions, performances by creative groups, cultural events conducted in Astrakhan and in the region, contributed to the development of educational institutions, etc. All this allows talking about the significant contribution of the oil and gas industry of the region to the formation of the modern socio-cultural space of the region.

The formation of the hydrocarbon industry in the region required reconstruction of the structure and economy of the region, and contributed to the emergence of new industries and the development of industries that had never been among priority issues before. Further thorough analysis of the issue under study can serve as a basis for preparing social programmes during the development of new areas with

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similar natural and climatic conditions as well as economic and geographical characteristics. Generalized historical experience will help in solving the problem of overcoming the imbalances between the economic and social potential of the regions and can be used in the work of regional state structures.

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