

New Economic Development of the North of Irkutsk Region: Socio-Ecological Consequences

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Abstract. The processes of economic development of the territories in the modern world change under many factors. Significant transformation of approaches to the development of new territories has occurred in Russian practice in recent decades. The differences between the Soviet period (planned economy) of the development of new territories and the modern period (market economy) are tremendous. The consequences of these transformations have an impact on the formation of benefit sharing frameworks in Russian resource sector. The research was performed on the example of three new economic development districts located in the North of Irkutsk region (Ust-Kutsky, Kirensky, and Katangsky). The following objectives were made: to identify the local population's opinion about active development of a new sector of the economy such as oil and gas extraction; and to determine the influence of new economic branch on the life quality of population and socio-ecological consequences of new industry in the study area. The research has shown that the new industrial development not only fails to have the aspect of settling the territory but is partly the cause of the migration of population from small northern settlements of the North of Irkutsk region. The questionnaire survey and interviewing of the population on the impact of new oil and gas industry on life quality and the socio-economic and ecological environment made it possible to identify four main aspects of the impact: economic conditions, environment accessibility, environmental safety and confidence in the future.

1. Introduction

The informational stage [1] of preparation for the development of oil and gas resources in the northern areas of Irkutsk region began in the middle of the 20th century when active exploration work was launched there. The rate of increase in proven hydrocarbon reserves in industrial volumes was insignificant. The first oil and gas condensate field (Markovskoye) was discovered in 1962 in the Ust-Kutsky district. This discovery was of great importance for confirming the prospects of the territory and the intensification of exploration work. By 1978, the Yarktinskoye, Ayanskoye, Dulisminskoye, Danilovskoye, and Verkhnechonskoye fields had been discovered, and a number of promising oil and gas areas were registered in the Ust-Kutsky, Kirensky, and Katangsky districts. The next stage - the infrastructural development [1] of the territory for the extraction of hydrocarbon resources was constrained by the inaccessibility of open oil and gas fields, requiring tremendous financial investments. Therefore, all discovered fields for many years remained mothballed or were exploited for local needs in a crisis situation in Russia, when funding for the delivery of fuel to remote northern settlements was insufficient. This situation persisted until the mid-2000s when it was finally decided to build the first oil pipeline in Russia to the eastern direction – Eastern Siberia – Pacific Ocean



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(ESPO). The main tasks of the ESPO oil pipeline project were: 1) strengthening the geopolitical influence in the East and increasing the role of Russia in the Asia-Pacific market; 2) the revitalization of oil companies in the East Siberian region; 3) improving the socio-economic situation in the areas of pipe construction [2]. The project became an incentive for significant capital investments in the oil and gas production infrastructure of Eastern Siberia and the intensification of more thorough exploration work, both by private and state-owned companies. The connection of oil fields in the Irkutsk region to the ESPO pipeline began in 2009. Over the 10 years of the pipeline's operation, the project successfully coped with the first two tasks assigned to it, but the third task to improve the socio-economic situation in the areas of the pipeline's construction had a short-term effect during the construction period only. Due to the intensification of oil production, the volumes of extracted regional raw materials have grown and regional revenues from this sphere of activity have increased significantly, for example, in 2018 over 20 % of the regional budget revenues fell to this sector of the economy. In the paper, the influence of the oil and gas extractive activities on the life quality population and socio-ecological consequences of this industry in districts of its active development are studied.

2. Theoretical embedding and methods

The process of economic development of territories in the modern world has ceased to be in the nature of its mandatory settlement. The development of techniques and technology allows to develop resources in adverse environmental and climatic conditions, and the involvement of workers is carried out mainly by the shift method. The significant transformation of approaches to the development of new territories has occurred in Russian practice. The differences of the Soviet period (planned economy) of the new territories development and modern (market economy) are significant. The main differences are the lack of complexity of development and the loss of the demographic component of this process [3, 4]. Moreover, these consequences have a significant impact on the formation of benefit sharing frameworks in Russian resource sector [5]. Of particular interest, both scientific and practical, is the study of the consequences of such transformations at all levels: national, regional and local. This topic is becoming most relevant for the Arctic and Northern territories involved in rapid industrial development, for example, the influence of the Soviet legacy on establishing relationships between companies, governments, and locals. The Soviet legacy of state paternalism has an important role in establishing such relationships [5]. Nevertheless, the consequences of active industrial development in the North of the Irkutsk region have significant similarities with analogous situations in other regions of the world: increased dependence on industrial companies and, as a result, reduced quality of administrative management; deterioration of the economic situation, including the problem of economic diversification, etc. [6].

The methods of statistical analysis, comparative geographical analysis, and social research: questionnaire survey, participant observation, and interviews were used. Field data were collected during 2016-2018 in Ust-Kutsky, Kirensky, and Katangsky districts of the North of the Irkutsk region.

3. Results and discussion

The study area includes three administrative districts located in the North of the Irkutsk region: Katangsky, Ust-Kutsky, Kirensky. Each of them has its own peculiarities of economic development, starting from the historical and geographical prerequisites. However, despite the significant differences in the levels of socio-economic development, the influence of the actively developing oil and gas extractive activities occurs according to a similar pattern. This is especially noticeable in the context of key economic indicators statistics. In these districts, there is intensive growth of shipped domestic production volumes and consolidated budget revenues, investment in fixed assets and average wages are increased, etc. At the same time, the share of workers in the extractive industry sector is growing, mainly due to external labor resources. This can be clearly seen on the example of the Katangsky district, where the number of employees of all organizations has already twice exceeded the population of the district. The main production capacities of oil and gas companies are

located in the Ust-Kutsky and Katangsky districts. Industrial exploitation of hydrocarbon deposits is carried out by the following companies: LLC "Irkutsk Oil Company", PJSC "Verkhnechonskneftegaz", PJSC "NK Rosneft", LLC "Gazpromneft-Angara". Active exploration works are being performed in the Kirensky district, while oil is being produced at two small fields operated by LLC "IOC-NeftegazGeologiya" and CJSC "NK Dulisma".

In previous research, a number of factors contributing to the limited influence of the oil and gas industry new development on the socio-economic environment of the north of Irkutsk region were identified: the enclave nature of the process of developing oil and gas resources; the narrow-sector nature of the economy of the developed territories; the lack of skilled labor among the local population; existing highly qualified specialists leave local companies to work in the more profitable extractive industry, etc. [7]. In fact, all these factors are the result of transformations of the approach to the territory economic development, which has lost its complexity in the new economic conditions. Therefore, similar problems of obtaining a comprehensive positive effect for the socio-economic environment of the areas where large investment projects are located are also inherent in other regions of Siberia [3]. The process of industrial development of hydrocarbon resources of the Irkutsk region does not only demonstrate the loss of the demographic component (or its settlement) but also creates the conditions for accelerating the migration of people from remote settlement. It happens because of the high importance of trickle-down benefits, such as employment in this profitable economic branch, for locals in the conditions of low transport accessibility of many settlements in the north of the Irkutsk region.

The questionnaire and interviewing of the population on the impact of new oil and gas production activities on life quality and the socio-economic and ecological environment made it possible to identify four main aspects of the impact: economic conditions, environment accessibility, environmental safety and confidence in the future. The direct influence of the new branch of the economy appears when respondents assess their economic condition, in cases of their or their family members' employment in this field of activity. Nevertheless, in the view of the low involvement of the locals in the oil and gas industry, this is not decisive for improving the material situation of the studied area population. Although in the official statistic data these districts occupy the leading region positions in average wages, the vast part of this money being exported outside these districts by shift workers. In addition, numerous respondents note the problems of injustice in the distribution of income from this economy sector between budget levels. For example, the Ust-Kutsky district is the donor of the budget of Irkutsk region, but the indicator of the budget provision of the district per person is significantly lower than the average regional indicators and amounts to only 55.1 against 74 thousand rubles per year [8].

Accessibility of environment means, most importantly, transport accessibility, which determines access of northern settlements to high-quality medical services, educational institutions, etc. The problems of transport accessibility to various degrees are experienced by all residents of the study area. For a number of settlements, there is no possibility of year-round road access. At the same time, transport accessibility of industrial shift camps at hydrocarbon fields is much higher, including year-round roads built in many of them. The influence of the oil and gas industry on environmental safety was considered from two perspectives: a change in the criminal situation and environmental consequences of industrial work. The phenomenon of the increased crime with the influx of shift workers into the area is noted in various industrial regions [9, 10]. The problem of increasing crime rates has not yet been registered officially here, but when respondents were assessing the level of the criminality, they noted concerns about such consequences of the development of the oil and gas industry, as some examples of these already exist. According to the second aspect of environmental safety (ecological consequences of industrial work), the link was established: then smaller the settlements, then more locals are worried about the conservation of the natural environment due to the type of activity of rural residents. This problem is especially acute for the indigenous people involved in traditional types of nature land use (hunting, fishing, gathering) since the oil and gas industry

reduces the area of territories suitable for their activity through the violation of the natural habitat of animals and their migration routes.

Confidence in the future of the study areas population is closely related to issues of accessibility and safety of the environment. For indigenous people, first of all, this connection is due to ecological consequences of the development of the oil and gas industry, as under the current conditions they do not see the prospects of preserving traditional types of the nature land use.

4. Conclusion

New industrial development of northern territories of Irkutsk Region takes place in new economic conditions. The lack of complexity of new economic development of territories is the reason of the weak positive impact of new economic branch on the socio-economic environment of northern districts. Among benefit sharing mechanisms [5], at the local level mandated benefits are presented to a lesser degree since the main taxes from the oil and gas extractive industry go to the federal and regional budgets. District authorities and local residents are unsatisfied with this circumstance but do not have enough power to change it. According to the research, several more important socio-ecological consequences of new industrial development affecting vital interest of the locals of the northern districts of Irkutsk region can be highlighted: the appearance of social inequality and injustice, the limitation of rights of indigenous people to do traditional activity due to the land takeover for industrial use, and the increase of accessibility of remote areas that lead to reduction of pristine taiga, and the decline of its ability to produce ecosystem services. Generally, this is not a unique situation, it also appears in other regions of the world, but in each different case, there are local causal relationships, which must be taken into account when preparing development programs for such territories in order to increase the sustainability of local communities.

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