

# Socio-economic development of territories based on the principles of public-private partnership in the sphere of comprehensive mineral exploration

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**Abstract.** The article explores the possibility of using instruments of public-private partnership for a paradigm shift in subsoil use in the fuel and energy complex of Russia. The modern Russian fuel and energy complex (FEC) is characterized by high depreciation of production assets, technological inferiority compared to the developed countries, etc. The solution to all these problems seems to be closely connected with the transition from extensive use of natural resources to comprehensive mineral exploration (CME), with a stable socio-economic development of territories and mutually beneficial partnership between science, business and government based on the principles of public-private partnership (PPP). The article discussed the three main directions of PPP projects development in subsoil use. The first direction comprises the projects aimed at the establishment of core mineral resource businesses on the basis of concession agreements and production sharing contracts. The second direction concerns the projects focused on the development of territories and objects of industrial and social infrastructure in resource regions. The third direction is formed by the projects aimed at the development of new industries, focused on the creation of centers of innovative development, formation of markets for innovative products and innovative clusters in the energy industry.

## 1. Introduction

The modern Russian fuel and energy complex (FEC) is characterized by high depreciation of production assets, technological inferiority compared to the developed countries, high level of dependence on import of equipment, materials and services, excessive dependence on unstable foreign energy markets. The solution to all these problems seems to be closely connected with the transition from extensive use of natural resources to comprehensive mineral exploration (CME), with a stable socio-economic development of territories and mutually beneficial partnership between science, business and government based on the principles of public-private partnership (PPP) [1].

## 2. Methods of research

The research methodology consisted in the methods of analysis, comparison, generalization and expert assessment.

## 3. Results and discussion



Within the FEC, PPP can focus on such objects as deposits of minerals, industrial (energy, railway transport, highway facilities, ports, airports, utility systems, etc.) and social (housing, public buildings, education and health institutions, etc.) infrastructure in the territories where active mining and processing of minerals take place [2, 3].

The market for PPP projects in Russia began to formally develop after the adoption of the Federal Law of 21.07.2005 No 115-FZ “On concession agreements”. Despite the fact that most of the Russian projects are concession agreements in the infrastructure and social sector, there still is some positive experience of PPP projects implementation and in industries involved in mining, processing and transportation of mineral resources. The share of such projects is not large. They are implemented through major programs of development of branches and regions, and financed through the Investment Fund of the Russian Federation, and are not officially considered PPP projects.

Two official Russian databases of PPP projects (the PPP Information portal and the official website of the Ministry of Economic Development where the projects cofunded by Investment Fund of the Russian Federation are registered) contain the information about only 12 PPP projects related to subsoil use, which makes less than 1% of all PPP projects registered on both sites. Only 6 projects can be directly attributed to the fuel and energy complex, namely: Development of project documentation for the implementation of the investment project “Comprehensive development of South Yakutia” (coal mining, enrichment, energy), Development of the transport infrastructure for the exploration of mineral resources in the south-east of the Transbaikalian Krai (enrichment, transportation), Complex of refineries and petrochemical plants in the city of Nizhnekamsk (oil refining), Complex development of the Lower Angara region (transport, power industry, nonferrous metallurgy), Development of a complex for processing of Northern Caspian gas into ethylene, polyethylene and polypropylene (I phase) (gas processing, energy and transport infrastructure), Construction of the Kyzyl – Kuragino railway line in the context of the exploration of the mineral resources of the Tyva Republic (transport) [4, 5, 6, 7].

The small number of projects in the FEC sphere in Russia is largely due to legislative restrictions. Article 3 Part 1 of the Federal Law of 13.07.2015 No 224-FZ “On public-private partnership, municipal-private partnership in the Russian Federation and amendments to certain legislative acts of the Russian Federation” prohibits the establishment of PPP agreements in subsoil use. The licensing nature of subsoil use also restricts the establishment of PPP projects in fuel and energy complex in the framework of the Law on Concessions.

Another legislative barrier to PPP development in the energy sector is the definition of the private partner in PPP projects given in Article 3 Part 3 of the Law on PPP, under which state and municipal unitary enterprises, state-owned companies and non-profit organizations and subsidiaries of state companies can not be private partners in PPP projects. This restriction automatically makes it impossible for the most part of major oil and gas companies, where a significant share is owned by the state, to participate in PPP projects.

The organizational structure of the companies constituting the FEC is another serious constraint to PPP development in that sphere. Most regional energy companies are not independent, as they make part of large vertically integrated groups that are registered and have profit centres in Moscow and Saint-Petersburg; thus the regional companies are limited in their ability to decide the issues about the volumes and directions of investments on their own.

Despite the problems listed above, PPP projects in the sphere of subsoil use and the FEC can be created in Russia in three main areas.

The first direction comprises the projects aimed at the establishment of core mineral resource businesses on the basis of concession agreements and production sharing contracts. Examples of this kind of PPP in Russia are the projects of the exploration of Elga coal deposit (Republic of Sakha, Neryungri district), oil and gas fields in Evenkia (Yurubcheno-Tokhonskoe field, Kuyumbinskoe field, Nizhneangarsk group, Sobinsk-Teterinsky group). The examples of PPP projects in the energy industry with participation of foreign capital are (with certain reservations) the projects of hydrocarbons exploration in the form of the sharing agreement: the Sakhalin-2 project (the Piltun-

Astokhskoye oil and gas field and the Lunskoye gas-condensate field); the Sakhalin-1 project (Chaivinskoye, Arkutun-Daginskoye and Odoptinskoye oil and gas fields); ‘Kharyaga’ project; Samotlor oil and gas condensate field development project [8].

It is important to note that such PPP projects do not make serious changes to the paradigm of subsoil use and retain a predominantly intensive character of FEC branches development, fixing the dependence of ‘host regions’ on resource extraction and limiting their development.

The second promising direction of PPP development in the energy industry are projects aimed at the development of territories and creation of the objects of industrial and social infrastructure in resource regions. That is where the terms of subsoil use in Russia are formed. The examples of kind of projects are the large investment and infrastructure projects with the participation of business and government, focused on integrated development of territories, creation of industrial production oriented at consumption and processing of energy resources and the development of transport and energy infrastructure. Those are the quasi-PPP projects in the sphere of comprehensive mineral exploration, namely the integrated mega-projects “Ural Industrial – Ural Polar”, “Complex development of the Lower Angara region”, “Comprehensive development of South Yakutia”, and others [5].

The third direction is formed by the projects aimed at the development of new industries, focused on the creation of centers of innovative development, formation of markets for innovative products and innovative clusters in the energy industry. Only those projects are directly aimed at creating conditions for a paradigm shift of subsoil use. Such projects are very few all over the world. According to the IPP Journal, in 2016, 68 innovative PPP projects using the PPP mechanisms in the energy industry were implemented all over the world, of which were registered 15 in the USA, 4 in the UK, and 3 in Australia [8]. Most of the projects are undertaken in the energy sector (the construction of modern power plants), while in the oil and coal chemistry they are much fewer.

The examples of the attempts at implementing the third group of the PPP projects in the FEC in Russia to serve are three technological platforms for the extraction of natural resources and oil and gas processing, approved by the Government Commission on high technologies and innovations in 2011: the 22nd technology platform for solid minerals focused on deep processing and upgrading of Russian processing enterprises with high technologies; the 23rd technology platform for the extraction and use of hydrocarbons, the result of which should be the development and implementation of new technologies for the extraction, preparation, refining and transportation, drilling, etc.; the 24<sup>th</sup> platform for deep processing of hydrocarbon resources, involving the creation of conditions for technological modernization and increase of competitiveness of oil and gas processing, petrochemical industry and organic synthesis using the foresight procedures. The main aim of those technology platforms is the selection of ideas in basic research and using them as the basis for exploratory research, scientific research and the development of innovative business concepts [9, 10].

The main difference between PPP projects of the third group is that the recipients of investment are not the producing and processing companies but the companies operating in the FEC, forming the internal and external selling markets, developing the resource, production and scientific bases and the human capital. This limits the ability of the large vertically integrated energy companies to accumulate all the resources and leads to a synergistic effect: a larger number of competing highly- specialized small and medium-sized innovative companies are created around the basic PPP project, and the conditions for the development of scientific and social infrastructure are formed. Ultimately, this creates the conditions for the transition to sustainable model of subsoil use by the FEC companies, changing the vector of resource territories development and breaking the vicious circle of the “resource curse” [11, 12].

#### **4. Conclusions**

Russia has enormous energy resources which are affordable, competitive and highly demanded. Of all the existing forms of PPP projects implementation, the projects focusing on the innovative model of comprehensive mineral exploitation, are the most promising. They are able to fundamentally solve the

problems of the FEC and the socio-economic development of territories. The attempt to integrate the government and business by means of the science can be a successful experience and a platform for further development of PPP projects in the third direction.

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