Legal regulation of subsoil use when placing and constructing facilities for development of subsoil sites

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Abstract. Energy Strategy of Russia for the period until 2035 contains a note that Russian Energy Industry is one of the main sources of environmental pollution. More than 50 per cent of polluted matter emissions into the atmosphere, more than 20 per cent of dirty discharge into surface water reservoirs and more than 70 per cent of total emissions of greenhouse gases account for this industry. Issues of environmental safety of the subsoil use are always under consideration in the academic community. However, huge amount of problems concerning this area still remain unresolved. For instance, bankrupt subsoil users often do not satisfy requirements set by the government on mothballing or removing facilities aimed at development or reclamation of used land parcels when the land leasehold is over. This indicates the need to enshrine additional measures in the Russian legislation on ensuring compliance with certain requirements. The authors mention that providing the regeneration of raw material base and its reasonable using for the benefit of current and next generations of nations inhabiting the Russian Federation are among the primary tasks of governmental regulation of relations on the subsoil use. The government should ensure the most efficient and consistent usage of resources obtained from already provided land parcels, complete development of mineral deposits and compliance with appropriate terms of subsoil use.

1 Introduction

The subject of the study is public relations regarding development of subsoil sites, particularly placing, construction, mothballing and removing of facilities and assignment of rights for them. The aim of the study is to elaborate theoretical provisions and practical recommendations for improving the legal regulation of public relations regarding development of subsoil sites. Moreover, special attention is paid to the development of provisions and recommendations that contribute to creating conditions for rational use and protection of subsoil and the environment.

To place the facility, a subsoil user needs to take a number of actions, including the selection of a place for location and preparation of a site (plan of the territory) taking into

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account documents of territorial planning and urban planning zoning. It is worth mentioning that, in accordance with Section 25.1 of the Subsoil Law, land parcels owned by the state or municipality and necessary for performance of works related to subsoil use are provided to a subsoil user only after getting a license for the use of subsoils and processing a geological allotment and (or) mining allotment, as well as after approving project documentation for performing specified works.

Some authors have considered in their scientific researches certain issues of ensuring the fulfillment of obligations for mothballing and removal of facilities by subsoil users, as well as reclamation of land parcels [1-6]. The requirements imposed by the legislation of the Russian Federation to the preparatory stage of placing and constructing facilities are also investigated in previous works of the authors of the present paper [7-13].

2 Materials and Methods

The research methodology is based on general and private scientific methods of cognition. The authors applied the historical method, methods of comparative and system analysis and generalization that regard to general scientific methods. The empirical base of the study contains law enforcement practice including judicial practice, administration bills, reports of federal executive authorities, specifically data obtained from statistical observations. The regulatory framework of the study comprises legal acts regulating the public relations under consideration: The Constitution of the Russian Federation, the Law of the Russian Federation "On Subsoil", other federal laws and sublegislative regulatory legal acts.

The main objective of the study is the scientific assessment of gaps in legal regulation of relations regarding the subsoil use during the assignment of rights for facilities, of ways to ensure the fulfillment of obligations on the mothballing and removal of facilities by subsoil users, reclamation of used land parcels when the right to use subsoil is over, of legal mechanisms to ensure the safety of removed underground facilities.

3 Results

The inventory accounting of issued subsoil use licenses led by the Ministry of Natural Resources of Russia in 2018 showed that subsoil users hold in mothballed condition every second land deposit they received, see table 1.

Table 1. Information on the availability of mineral reserves in physical terms and their change (2018)

Name of mineral resource	Availability of mineral reserves in physical terms by type		Change in mineral reserves for the year
	by the beginning of the reporting year	by the end of the reporting year	
oil (thousand tons)	903764.0	9825269.8	7876218
gas (million m^3)	14466220.7	14986740.7	520520.0
gold (kg)	1406781.3	1301458.6	-105322.7
copper (thousand tons)	8326.5	8921.9	595.4
iron ore (thousand tons)	4480210.0	3916620.2	-563589.8
coking power-generating coal (thousand tons)	3658092.7	2674035.5	-984057.2
brown coal (thousand tons)	596015.9	451266.0	-144749.9
diamonds (thousand carats)	375354.0	291744.8	-83609.2

According to the open statistical compilation of the BRICS countries for 2017, the Russian Federation has significant reserves of mineral resources, including oil (29.7 billion tons), natural gas (70.0 trillion m3), coal (275 billion tons), and iron ore (110 billion tons), manganese ore (230 million tons), copper (97.8 million tons), lead (17.8 million tons), zinc (59.8 million tons), bauxite (1.407 million tons), tungsten (1,335 thousand tons), tin (2165 thousand tons), antimony (348 thousand tons), gold (13.8 thousand tons), silver (119 thousand tons), graphite (90.4 million tons) (table 2). For the period 2010-2015 for most mineral resources, an increase of reserves of 1-13% was observed, these include reserves of crude oil (from 28.2 billion tons in 2010 to 29.7 billion tons in 2015, or 5%), natural gas (from 67.8 trillion m3 in 2010 to 70.0 trillion m3 in 2015, or 3%), coal (from 273 billion tons in 2010 to 275 billion tons in 2015, or 1%), iron ore (from 99 billion tons in 2010 to 110 billion tons in 2015, or 11%), copper (from 89.6 million tons in 2010 to 97.8 million tons in 2015 g., or 9%), antimony (from 315 thousand tons in 2010 to 348 thousand tons in 2015, or 10%), gold (from 12.2 thousand tons in 2010 to 13.8 thousand tons in 2015, or 13%), silver (from 112 thousand tons in 2010 to 119 thousand tons in 2015, or 6%), graph the one (from 88.1 million tons in 2010 to 90.4 million tons in 2014, or 3%). For a number of mineral resources, the decrease in reserves is observed: manganese ore (from 232 million tons in 2010 to 230 million tons in 2015, or 1%), lead (from 19.6 million tons in 2010 to 17 , 8 million tons in 2015, or 9%), zinc (from 60.7 million tons in 2010 to 59.8 million tons in 2015, or 1%), bauxite (from 1.437 million tons in 2010 up to 1.407 million tons in 2015, or 2%), tungsten (from 1.481 thousand tons in 2010 to 1.335 thousand tons in 2015, or 10%), tin (from 2 262 thousand tons in 2010 to 2 165 thousand tons in 2015, or 4%).

Table 2. Reserves of the main types of mineral resources in the Russian Federation in 2013-2015

Indicator	2013	2014	2015
Crude oil (Billion Tons)	29.2	29.4	297
Natural gas (trillion m^3)	69.3	70.3	70.0
Coal (billion tons)	274	274	275
Iron ore (billion tons)	106	109	110
Manganese ore (million tons)	230	230	230
Copper (million tons)	90.8	91.9	97.8
Lead (million tons)	19.3	19.4	17.8
Zinc (million tons)	60.3	60.3	29.8
Bauxites (million tons)	1.421	1.1414	1.407
Tungsten (thousand tons)	1.571	1.557	1.335
Tin (thousand tons)	2168	2167	2165
Antimony (thousand tons)	312	344	348
Gold (thousand tons)	12.9	13.1	13.8
Silver (thousand tons)	121	122	119
Graphite (million tons)	88.1	90.4	-

In the Russian Federation, more than 30 types of minerals are mined. According to Rosnedra (Federal Agency on Subsoil Usage) and Rosstat (Federal State Statistics Service), extraction of the following minerals increased for the period of 2010-2017: oil (from 506 million tons in 2010 to 546 million tons in 2017, or 8%), natural gas (from 651 billion m3 in 2010 to 692 billion m3, or 6%), coal (from 322 million tons in 2010 to 411 million tons in 2017, or 28%), iron ore (from 306 million tons in 2010 to 357 million tons in 2017, or 9%), aluminum (from 5412 thousand tons in 2010 to 6000 thousand tons in 2017, or 11%), copper (from 846 thousand tons in 2010 to 850.9 thousand tons in 2017, or 1%), lead (from 139.8 thousand tons in 2010 to 280 thousand tons in 2017, or 2 times), zinc (from 354.3 thousand tons in 2010 to 450 thousand tons in 2017, or 27%), tin (from 0.5 thousand tons in 2010 to 2.2 thousand tons in 2017, or more than 4 times), titanium (with 89 thousand tons in 2010 to 369 thousand tons in 2017 ., or more than 4 times), gold (from 256.5 tons in

2010 to 335 tons in 2017, or 31%), silver (from 1885 tons in 2010 to 2200 tons in 2017 ., or 17%), rare-earth metals (from 84.2 thousand tons in 2010 to 115.8 thousand tons in 2017, or 38%), phosphorus (from 292 thousand tons in 2010 up to 357.0 thousand tons in 2017, or 22%), potassium salts (from 7.1 million tons in 2010 to 8.5 million tons in 2017, or 20%), cement raw materials (from 89.8 million tons in 2010 to 91.9 million tons in 2017, or 2%), natural sands (from 123 million m3 in 2010 to 265 million m3, or 2.2 times), pebbles, gravel, crushed stone (from 177 million m3 in 2010 to 247 million m3, or 1.4 times). Mining of uranium decreased (from 3.5 thousand tons in 2010 to 3.0 thousand tons in 2017, or 14%), chrome ores (from 526 thousand tons in 2010 to 509 thousand tons in 2017, or 3%), manganese ores (from 75 thousand tons in 2011 to 1 thousand tons in 2017, or 99%), nickel (from 376.2 thousand tons in 2010 up to 298 thousand tons in 2017, or 21%), tungsten (from 4.1 thousand tons in 2010 to 3.5 thousand tons in 2017, or 15%), molybdenum (from 5.78 tons in 2010 to 4.23 tons in 2017, or 27%), diamonds (from 42.9 million carats in 2010 to 40.3 million carats in 2017, or 16%)), zirconium (from 26 thousand tons in 2010 to 20.8 thousand tons in 2017, or 20%) and fluorspar (from 100 thousand tons in 2010 to 7 thousand t in 2017, or by 93%) (table 3, 4, 5).

Table 3. Dynamics of mining in the Russian Federation in 2015-2017

Indicator	**2015**	**2016**	**2017**
Oil (million tons)	535	548	546
Natural and associated gas (billion m^3)	634	641	692
Coal (million tons)	372	386	411
Uranium (thousand tons)	3.2	3.1	3.0
Iron ore (million tons)	334.0	333.8	335.0
Chrome ores (thousand tons)	471	448	509
Manganese ores (thousand tons)	9.0	0.0	1.0
Aluminum (thousand tons)	5661	6095	6000
Copper (thousand tons)	870.1	848.1	850.9
Nickel (thousand tons)	309.4	289.4	298
Lead (thousand tons)	171.2	272.4	280.0
Zinc (thousand tons)	388.8	42.3	450
Tin (thousand tons)	1.6	1.2	2.2
Tungsten (thousand tons)	4.1	4.0	3.5
Молибден (t)	4.76	4.43	4.23
Molybdenum (thousand tons)	348	368	369
Gold (t)	286.6	324.8	335.0
Silver (t)	2297	2261	2200
Platinum Group Metals (t)	143.2	134.8	137.3
Diamonds (million ct)	42.1	40.1	40.3
Zirconium (thousand tons)	25	25.5	20.8
Rare earth metals (thousand tons)	96.1	96.1	115.8
Phosphorus (thousand tons)	336	347.7	357.0
Potassium salts (million tons)	8.4	8.1	8.5
Fluorspar (thousand tons)	1	3	7
Cement raw materials (million tons)	96.6	87.2	91.9
Natural sands (million m^3)	193	228	365
Pebbles, gravel, crushed stone (million m^3)	224	224	247

Table 4. Production Indices for Mining and Quarrying

	2018			2019	
	1st half	9 months	Year	Q I	1st half
percent of corresponding period of previous year					
Mining and quarrying – total including:	101.9	102.9	104.1	104.7	104.0
mining of coal and lignite	102.3	103.1	104.2	103.1	101.5
extraction of crude petroleum and natural gas	100.6	101.8	102.4	104.5	103.8
mining of metal ores	102.5	103.6	104.6	110.9	108.1
other mining and quarrying	104.6	103.1	104.0	96.5	99.0

Table 5. Volume of Shipped Own Produced Goods, Works and Services by Economic Activity Mining and Quarrying (at current prices)

	2018			2019	
	1st half	9 months	Year	Q I	1st half
billion roubles					
Mining and quarrying – total including:	8471	13452	18267	4643	9375
mining of coal and lignite	691	1098	1549	392	744
extraction of crude petroleum and natural gas	6188	9796	12962	3384	6765
mining of metal ores	483	821	1198	275	630
other mining and quarrying	297	448	615	134	269
percent of corresponding period of previous year					
Mining and quarrying – total including:	129.1	134.6	131.3	119.9	110.7
mining of coal and lignite	116.2	124.0	126.1	118.3	107.7
extraction of crude petroleum and natural gas	137.0	43.5	139.6	121.0	109.3
mining of metal ores	108.7	113.5	116.7	129.2	130.6
other mining and quarrying	101.9	104.2	107.0	88.7	90.7

4 Discussion

Environmental pollution coming from subsoil use occurs because of accidents taking place when oil is extracted or transported, at hazardous production facilities of coal industry enterprises or at mining facilities. Closed up mines located in coal mining areas also can negatively impact the environment.

Since recently, lands or land parcels owned by the state or municipalities, except for land parcels provided to citizens or legal entities, can be used for the purpose of geological exploration of mineral resources without providing those land plots. However, this rule is not applicable for the purpose of developing subsoil sites, since it does not cover the construction or reconstruction of capital construction facilities.

The legislation of the Russian Federation contains special requirements besides general ones regarding facilities, however does not introduce a uniform term for designating such facilities and does not sufficiently take into account their specificity. Doctrinal sources also do not have unity in the identification of such objects. The authors assume that facilities as a legal concept in the legislation on mineral resources need to be paid more attention due to

their importance for the process of subsoil use. Moreover, relations on the development of subsoil sites are an integral part of the process of subsoil use.

Although the action of urban planning regulations does not apply to land provided for mining, as well as land occupied by linear facilities (subparagraphs 3, 4 of paragraph 4 of Article 36 of the Town Planning Code), land of the forest fund (paragraph 6 of Article 36 Town Planning Code), they can extend their effect to other lands, within the boundaries of which other facilities can be located.

The specificity of urban planning regulation implies the definition of the legal regime basis for land parcels, as well as for everything placed above and below the land surface and used in construction and subsequent operation of buildings and structures (paragraph 2 of Article 85 of the Land Code).

5 Conclusions

In order to create conditions for the rational use and protection of subsoils and environment in general, the legislation of the Russian Federation should use a uniform concept of facilities for developing subsoil sites (hereinafter: the facilities), which being placed, constructed, operated, maintained and removed imply special requirements in subsoil legislation. The Law of the Russian Federation “On Subsoil” should introduce the appropriate term and define it as underground (partly or completely placed in the subsoil) capital objects, the construction and operation of which require a license for subsoil use, and other capital construction objects meant by design documentation for the performance of work related to the use of subsoil sites. The legal norm-definition, which is to assign the concept of "facilities", will serve as the basis for the development of the primary group of legal norms ("association of norms") governing relations for the development of subsoil sites.

Public relations on the development of subsoil sites directly impact the efficiency and safety of subsoil use. Allowing for free dispose of the facilities may lead to a violation of the principle of rational use of mineral resources and to additional environmental risks when using subsoils. In this regard, the turnover of the facilities should be limited through enshrining in the Law of the Russian Federation “On Subsoil” of the obligatory requirement for subsoil users to get the permission of the issuing authority for making transactions with such facilities. To get permission, the subsoil user should submit the substantiation of the fact that the certain transaction will not lead to the significant decrease in the efficiency of the subsoil site usage or to failure in meeting the set terms of subsoil using, as well as will not entail the violation of technological processes of the subsoil use. It is proposed to prohibit issuing permissions for transactions with underground facilities located in solid mineral deposits until the development of such deposits is fulfilled, since such development is possible to perform only by using the already existing facilities. Therefore, in article 25.2 of the Law of the Russian Federation “On Subsoil”, it is proposed to provide the possibility to buy out the underground facilities located in deposits of solid minerals for state or municipal needs. At the same time, the needs of the State are predetermined by its right for the subsoil and all contained minerals.

Since article 46 of the Land Code of the Russian Federation allows a lessor to terminate the lease of a land parcel, which was used out of accordance with the intended purpose, it is proposed to establish the obligation for the issuing authority to send notifications to lessors of parcels being in state or municipal ownership in case of termination of the right to use the certain subsoil site.

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