

UNDERGROUND STRUCTURE RIGHTS IN RUSSIA: ACTUAL PROBLEMS

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Abstract

The topicality of this paper is predetermined by the public interest in the theme of the underground structure rights in Russia. The article deals with the specifics of subsurface structures as objects of law, actual problems of Cadastral Registry and State registration of real property rights for the mentioned facilities are analyzed. The purpose of the article is to consider the impact of various factors on the underground structure rights including the state-legal regulation of relations. Methods include case study, comparison, legal norm interpretation, methods of formal logic and others. The novelty of the research can be seen in clarifying the problem of the absence of a legal definition of a subsurface structure, also in a new view of the relationship between a land plot, a subsurface site and things either in the form of subsurface structures or an entire complex that forms a complex thing. In this case, the subsurface plot will not enter as an integral part of a complex thing, and it will not cease its legal existence accordingly. The peculiarity of the right to use subsoil for the purposes of construction and maintenance of subsurface structures is not only in a stable and termless nature of use but also in the strong connection between the rights to the subsurface parcel, surface plot and subsurface structures. The underground sites and underground structures should be identified as three-dimensional objects of law. At the moment, such conditions in Russia have not been created yet. The paper concludes that it is necessary to begin preparation of an integrated amendment package to improve the mining and civil legislation, including the Law dated February 21, 1992 No. 2395-1 "On Subsoil" modified by the Law of August 3, 2018 No. 342-FZ with regard to the legal mechanisms for registration the ownership for subsurface facilities. In the cadastral information system, conditions for three-dimensional registration of facilities should be created.

Keywords: *subsurface structures, subsoil plot, underground space, ownership, cadaster, state registration, real property*

I. Introduction

The rapid growth of population in the world and increasing level of the resource requirements demand a new innovative approach to the projects of the development of underground space and construction of underground facilities. The cities and the countries are forced to develop the space under the Earth more thoroughly, as integral area, factually facing Municipal, State, Forest land property right, ownership and other legal and philosophical aspects of the problem [9, pp.358-362, 24, pp. 358-361]. The awareness of the benefits underground space can bring is a first step towards a systematic legal view of underground space using [3, pp.245-248]. This concerns Even in populous China, underground rights representing a special form of land use are the cause of ownership disputation nowadays [36, pp. 224-237].

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Currently, the Russian legal regulation of the mentioned relationships does not fully take into account the features of subsurface structures as objects of law. It does not establish sufficient conditions for attracting investments or increase economic efficiency of the subsoil use [25, p. 840-853, 37, pp. 12471-12485]. This leads to a in the whole space, the emergence of conflicts of interests of stakeholders involved [36, p. 167-176]. In this regard, an urgent scientific problem is a comprehensive study of the problems of legal regulation of underground structures and the formation of a system of legal means for the development and promotion of underground space

This leads to the inefficiency of subsoil use in general, to the environmental problems and to the emergence of conflicts of interests of the concerned parties. Inevitably, different problematic issues related to the ownership title, other rights and restrictions arise. In this regard, an actual problem is the formation of an integrated system of legal means aimed at the proper stimulating the development of underground building.

II. Methodological framework

The whole systematization of the empirical material involved, ending with its systematic and holistic presentation is used. The materials of the study are legal norms, normative acts, laws, judicial practice and doctrine. Methods include empirical methods of comparison and interpretation, methods of analysis and formal logic; legal dogmatic method, legal comparison and method of legal norm interpretation.

There are also used the following methods: 1) case study — analysis of a particular cases connected with the subsurface structures; 2) binary comparison — study of two phenomena in order to identify the general and particular in them; 3) regional comparison — comparison of groups of regions, States in terms of similarity and difference of some parameters; 4) cross-temporal study, dynamic analysis.

A). Problems of defining

In most countries the emergence, change and termination of rights in real property is traditionally connected with the moment of the state registration. The Roman cadastral system is based on a deeds system where the transaction is recorded, the English and German title system - where the title itself is recorded. As for the last one using the case of Russia, some difficulties began to arise regarding the legal issues of identifying the subsurface structures as real estate objects, as well as issues of the state registration and determination of the legal nature of the rights to subsurface structures. These questions remain without any definitive and clear answers.

At the present time, despite the introduction of the new Law No. 218-FZ "On the State Registration of Real Property" started from the January, 2017, there is still no legal definition of a subsurface structure and regulation of its registration. This circumstance causes difficulties in the practice. At the same time, the current Federal Law dated December 30, 2009 "The Technical Regulations on the Safety of Buildings and Structures" provides for a legislative definition of a more general concept "construction". According to Article 2 of the Law, a construction is a result of civil engineering work representing a planar or linear extensional construction system having ground, above-ground, and (or) underground parts consisting from framings and, in some cases, from enclosing building constructions, and intended for performance of production processes of a various kind, for the storage of the products, for the temporary accommodation of people as well as for the movement of persons and goods. From the legal point of view, the constructions are objects put into operation, or objects recognized by the State as finished construction facilities if a commissioning permit is not required.

In theory, the subsurface structures are also called some subsurface facilities created in rock massifs for certain purposes. So, D. Konyukhov refers to the subsurface ones only the structures with main parts located beneath the ground for exploitation reasons [14, p. 74]. E. Boltanova defines a subsurface structure as a construction system having an underground part located below the Earth's surface, intended for people's placement, storage of property, products and other economic (including production) activity [2, pp. 14-22]. As I see, the three-dimensional aspects in the definitions are not affected at all. So, no doctrine, no legislator can give us an understandable, clear concept of subsurface structure reflecting its volumetric nature and also legal specifics connected not only with "horizontal" but "vertical" ownership rights. As the saying goes, no definition of the object – no undisputed right to it. Nevertheless, there is also a point of view that the three-dimensional property is less a problem of legal definition and more a problem of delineation [18, pp. 256-268].

Within this framework, the next coterminous issue is delineation. While exploiting underground facilities, questions about boundaries raise, according to which land users (other title owners) and users of subsoil as subjects of legal relations could establish that material object which their power and authority extend to. So, N.A. Syrodoev suggests that the surface of the Earth could be considered as the upper boundary of the subsoil [31, p. 127-130]. Then it is necessary to solve the question: what is the Earth surface and the land plot. Paragraph 3 of Article 6 of the Land Code of the Russian Federation stipulates that a plot of land as an object of ownership and land relationships is a part of ground surface the boundaries of which are attested in the established manner. At the same time, paragraph 3 of Article 3 of the Code envisages that the property relationships of possession, use and disposal of land plots are to be governed by the civil legislation unless otherwise specified by the land, forestry, water, subsoil legislation. The law recognizes a land plot as the two-dimensional object, so the question is in its possible admission as a part of the Earth surface (subsurface). In N. Mukhitdinov's opinion, the Earth surface can be viewed as the upper boundary of the subsoil only when the minerals located in the depth of the earth have underground exits [17, p. 223-226]. It is thought, such formulation of the question was urgent only for the Soviet legislation which did not stipulate a special type of subsoil use for the construction and maintenance of underground objects (with emphasis on underground space).

The current legislation, particularly, Article 25.1 of the Law of the Russian Federation dated February 21, 1992 No. 2395-1 "On Subsoil" modified by the Law of August 3, 2018 No. 342-FZ is referential and does not solve the problem. This norm provides that the land plots necessary for carrying out works related to the use of subsoil resources are provided "in due order and in line with the terms specified by the land legislation", that is seemingly, the rule refers to the appropriate way and conditions established by the Land Code of the Russian Federation. However, neither the norms of this Code nor other normative acts regulate such an order.

Thus, I find two problematic issues which need to be addressed.

B). Complex Thing. Case Study

According to Article 130 of the Civil Code of the Russian Federation, to the immovables shall be referred the land plots, subsoil plots and all the facilities closely connected with the land so that their movement without disproportionate prejudice to their purpose is impossible. Other things shall be regarded as the movables. As for subsurface structures, no current Law dated February 21, 1992 No. 2395-1 "On Subsoil" modified by the Law of August 3, 2018 No. 342-FZ, no current Civil Code of the Russian Federation contains the rulings referring to them (directly) as to "immovable property".

Considering not only close connection with the land plot, but also with the subsurface parcel, the underground objects under discussion can be attributed to the realty, to a certain extent. If the buildings are traditionally regarded as real estate in the Russian civil-law doctrine, since the same cannot be said about the structures [35, pp. 180-182]. The

structures in general (including underground ones) constitute a different kind of facilities that may or may not be the immovables. The most often used decisive criterion of the real estate in the form of the manmade nature and the fact that they cannot be shifted without causing enormous damage to their purpose, can be also applied to them. But it is not enough when considering the features of subsurface facilities entirely located deep in the subsoil, losing their important to real estate object so called "close connection with the land plot". In this regard, the assignment of the subsurface structures to the immovable property remains controversial.

O. Burlachenko expresses an opinion that the special role of the land plot in the immovable property system arises from the physical impossibility of exploitation of other real estate facilities without using a surface, and this causes a certain "priority" of the land plot over another absolutely unmovable property object in the form of subsurface parcel. In his view, mentioned impossibility and other interconnections do not arise in relation to subsurface plot at all [4, pp. 9-10]. The author does not take into account the interrelationships between the objects involved. The immovable property system factually deals with a deepening (under the Earth's surface). So, the subsoil parcel (not the land plot) plays the main role in the system. Therefore, the subsoil parcel right has to get the priority. This assumption corresponds to the norms of paragraph 1 of Article 22, Article 25 and 25.1 of the Law of the Russian Federation dated February 21, 1992 No. 2395-1 "On Subsoil" modified by the Law of August 3, 2018 No. 342-FZ, as well as Article 10 of the Town Planning Code of the Russian Federation.

The fact that not only a new physical thing has been created in the form of a subsurface structure, but a new object of civil rights appear in this connection, makes it necessary to analyze it from a perspective of a *complex thing*. Article 134 of the Civil Code of the Russian Federation provides for the rule on combining several diverse objects used for a single purpose into a complex thing, considered as one thing and one object of law. The effect of a deal made with respect to the complex thing concerns all its component parts, unless otherwise stipulated by the contract.

The complex thing cannot consist of such "natural" real property units as a land plot and subsurface plot. The last one, along with the land plot, is called upon to serve as an organizational center with legal linkages for the facility (subsurface construction) in space. Mostly, in fact, the upper boundary of the subsurface site provided for the construction of an underground structure happens to be the lower boundary of the surface above it. And although the current legislation of the Russian Federation "tears" the subsurface site and related land plot, that is, identifies them as separate objects of law, nevertheless, the subsurface site has its own mission to maintain the newly constructed subsurface formation.

These "natural" immovable property items (subsurface site and adjoining land plot) may be used as the basis or territory (space), where the location of any complex thing is possible. S. A. Stepanov believes that the underground building activity for commercial purposes (for instance, creating shopping center or manufactory owned by an individual or collective merchant on the right for private ownership) inevitably requires fundamentally different legal regulation in the sphere of the subsoil use [29, pp. 119-120]. He cites a case, an example from judicial practice illustrating the fact of existence of the underground construction which leads, in his opinion, to the termination of the legal fate of a subsurface site as single immovable object, and includes in the free civil-law turnover another object, namely a subsurface structure.

By the Resolution of the Presidium of the Supreme Arbitration Court of the Russian Federation dated July 16, 2002 a dispute between the Prosecutor of the Omsk Region and JSC "El-PortiK" has solved. The case concerns some transactions connected with facility in the form of the pumping station and the underground well. As it follows from the materials of this lawsuit, the borehole and the pumping station constitute a set of the things forming a single whole used for a common purpose. They are exploited as a single property complex (a hydraulic engineering structure) pursuant to Article 134 of the Civil Code. The Court has stated that in accordance with article 1.2 of the Law "On Subsoil" the

underground mineral water supplies form a state property and cannot be a subject of purchase, sale or alienation in other form. Granting a subsoil parcel in use assumes obtaining the license by the user according to the procedure established by law. The mineral water well in the form of a hydraulic construction does not belong to the category "subsoil" and such kind of facility are not to be excluded from the civil circulation. As follows from the case, recognition of a subsurface parcel as an integral part of a complex thing would mean not only its "legal death" that is end, discontinuance of an object of law, but also the termination of the subsoil use right, the main purpose of which is the construction and maintenance of a subsurface structure.

Nevertheless, the current legislation (covering the Law of the Russian Federation dated February 21, 1992 No. 2395-1 "On Subsoil" modified by the Law of August 3, 2018 No. 342-FZ) does not provide for a legal ground for the termination of the subsoil use right and de lege lata does not stipulate any conveyancing (circulability) of such objects. The last aspect matters. Under any circumstances, underground space without or with a subsurface structure in it, has its own strategic importance.

In my view, the subsurface site should not form a part of a complex thing, and, respectively, should not cease its legal existence, because we must consider the "ratio legis" of the norm about complex thing provided by Article 134 of the Civil Code: as stated above, the assembly of the components is recognized as one thing, and the effect of the transaction, made with respect to the thing, concerns all its integral parts. Here the subsurface parcel just performs the same organizational and spatial functions for the any complex located within it, as the ones performed by the land plot for complexes located above the surface. In addition, it must also be noted that the assignment of a subsurface parcel to the complex thing would be contrary to Article 1.2 of the Law "On Subsoil", according to which the subsurface sites cannot be the subject of purchase, sale, donation, inheritance, deposit, pledge or alienate in another form. The lawmaker himself considers the subsurface structure and the serving subsurface site as various independent objects of law.

Apparently, there is a need for a further land-subsurface restructuring and legal regularization of this issue, taking into accounts the close interconnection between the land plot, subsurface site and the real estate thing in the form of subsurface structure or, maybe, a whole assembly that forms a complex thing.

C). Registration Problem

The growing interest in the complex development of urban underground space in the world is largely due, on the one hand, to the need for intensive development, on the other hand, to the properties of subsurface structures that allow providing for the natural protection of underground objects [12, p. 25]. The factors influencing the location of objects created in the underground space are different. They can be city parameters (area, length, altitude, etc.), relief, natural, geological and hydrological conditions; functional purpose of different zones and patterns of built-up areas. In turn, these factors are closely related to the solution of the issue of legal regulation and cadastral registration. The allocation of land plots for the placement of underground constructions requires the registration of rights to the land plot and cartographic mapping. But, in accordance with the current Russian legislation, a land plot is a part of the Earth surface, and the ground part of land plots is not necessarily granted for the functioning of subsurface facilities.

Therefore, there arise the problem of determining the legal status of subsurface spaces and facilities located in them, as well as that of registering the rights to them, taking into account not area but space (volume). At present time, positioning software allows the obtaining highly accurate three-dimensional geospatial data in the real time mode. Three-

dimensional digital models provide for high and visual quality of visualization of terrain at the expense of the volumetric image of a situation, expand possibilities of taking the effective architectural and town-planning decisions.

Underground engineering and technical networks can cross the plots of different owners. The lack of information on the exact location of such objects causes difficulties in the division of plots as well as determining restrictions and rights. In relation to indoor spaces in complex constructions, the right to the size and not to the entire volume is actually registered now. The possibility of determining the rights of the owner for the external space around a building is absent.

Spatial immovable property objects, such as subsurface plots, underground shopping malls cannot be reliably displayed in a flat projection. Subsequently, this makes it impossible to record not only underground but other objects, for example, complexes overhanging above someone's territory. There is a case, in the Vladikavkaz city it was necessary to fulfill an order for surveying (geodesic-cadastral works) of a medieval fortress hanging on a rock and projecting onto a neighboring registered land plot, so this fact impeded the possibility of registering a fortress [20, pp. 114-123].

The Public cadastral map as a reference and information service can show the location of the land plots by adding the flat coordinates of their boundaries to the cadaster, which allows observe the area, configuration, etc. However, information on the relief and vertical boundaries of the underground constructions and parcels involved cannot be reflected. The Russian State Cadaster as a national information system has the most complete and reliable information about the recorded and registered immovable property, but it is executed in a system of flat rectangular coordinates, which does not allow the correct registration of spatial objects, such as underground road junctions, tunnels, subways. In other words, the modern Russian cadaster is two-dimensional. At one point, the registering body had to refuse to provide the information from the official Register to the buyer of one of the Moscow buildings because of the local collector under it, so that it was impossible to identify the object located at the same address in the Registry [26, pp.20-28].

Basically, the situation is similar in Slovenia, Romania, Brazil, Pakistan and most other countries where the two-dimensional Cadaster forms the main type of the State Registry, bearing in mind the presence of historical, political, economic and cultural context [5, 10, 19, 7, 16].

Thus, one of the main drawbacks of the Russian Public Cadaster is the absence of subsurface facilities which are spatial objects. The Register does not allow clearly seeing underground pipes, multilevel complexes of non-standard form. This limits the ability to register rights for them and generates various questions concerning property rights.

III. Discussion

Currently, the cadaster is carried out in a two-dimensional form, which does not allow correctly registration the cadastral records of subsurface facilities and structures located under the immovable property of other owners, as well as multi-level complexes, including immovable property items, owned by different proprietors. One plot of land or subsurface at different levels may include immovable property objects belonging to different individuals and companies. The lack of necessary information can lead to the conflict situations. In this regard, there is a need to develop and implement the three-dimensional cadaster of immovable property, since such conditions in Russia have not fully been created yet [23, pp. 6-10].

In other countries, the options for introducing the information about subsurface facilities into modern information state systems are different. For example, it can be a complete three-dimensional cadaster [32] or three-dimensional maps in the current cadastral system (Denmark) [38], a mixture of these options (Norway) [34], the cadaster of engineering networks (at the stage of pilot projects in several European countries) [33].

Decree of the Government of the Russian Federation "On the Establishment of State Coordinate Systems, the State System of Heights and the State Gravity System" dated November 24, 2016, introduced the new geodetic coordinate system. In this regard, there is a favorable moment for the introduction of 3D cadaster in the territory of the Russian Federation, since all the coordinates calculated by the old system will be recalculated.

From the legal point of view, in order to identify all underground construction rights correctly, the new concept of three-dimensional property should be introduced to the Russian real estate Register, so that the objects can be represented as three-dimensional objects of law.

It seems necessary to begin the preparation of a comprehensive package of amendments to the current legislation of the Russian Federation, including the Civil Code, the Law "On Subsoil" in regard to improve the legal procedures and mechanisms for registering the spatial rights for subsurface facilities.

In our opinion, information on the spatial, technical, legal and social parameters is necessarily to be transferred to the State Cadaster. This information should be clearly formed by conducting the state recording, market and cadastral valuation, state registration of rights for immovable property.

In the State information system and real estate Register conditions for the three-dimensional registration of underground objects should be created. The subsurface site serving the subsurface structure should be identified in a special manner having its own unique registration number and address. The issue of State cadastral recording and subsequent registration of such rights is currently quite acute [27, pp. 110-115]. Therefore, an accurate description of immovable property, preparation of documents necessary for State registration, as well as reliability of the Registers are mandatory components of the process of protecting civil rights.

The change in the normative framework for the most effective implementation of the tools of the three-dimensional cadaster is one of the most difficult tasks of this stage. The legislation of the Russian Federation in the sphere of state cadastral recording and state registration of rights for immovable property does not contain references to the three-dimensional objects. At the same time, it is not an impediment for cadastral recording and state registration of such objects. Underground construction should be entered in the official database by a description of boundaries with coordinates that define an object as three-dimensional system.

Moreover, in our opinion, future State Register may provide for not only a possibility of registration of geometrical data, but also the rights with temporal-spatial nature. The duration of the title is a determinant of the permanence of an isolated register object, and it defines the fourth dimension of a Cadaster [13]. So, the temporal-spatial real estate Register should be characterized by both spatial and temporal aspects. It can reflect the underground objects in x, y, z coordinates and determine, for example, how deep under the surface the right for them reaches. Such kind of state Register may operate by recording the legal status at different levels of immovable properties in general (on, through or above Earth surface).

As for other legal systems, I must mention a positive experience of Canada, where in province of British Columbia property can be "measured" as a three-dimensional solid unit, and experience of Sweden where such units can refer to a building [5]. In Australia, in different jurisdictions including Victoria, New South Wales and Queensland it is possible to register the volume parcels since 2011 year [28, pp.112-124]. Three-dimensional technologies as powerful tool for highlighting interesting aspects of spatial objects which otherwise would remain invisible are also applied in Italy [11, p.68-76]. In Germany, a new Cadaster functions as a link between cadastral and topographic models [15], and in the Netherlands there is a special form of pilot projects [18, pp.256-268].

IV. Solution

The need for three-dimensional and four-dimensional Registers requires not only financial, organizational but also legal changes. In the present Civil Code of the Russian Federation as well as in the legislation of other countries the new conception of three-dimensional and four-dimensional property, as well as a new concept of spacial plot and spacial structure, including underground one, must be developed properly. It is also necessary to improve legislative regulation of the three-dimensional cadasters functioning and, therefore, improve in that way the corresponding work of the real estate Registers.

The property law in European Civil-law tradition is mostly based on unitary conception of ownership coming from Roman law [22, pp.263-341]. I can observe the imprint of unitary concept of ownership in the German and French Civil Codes that is reflected in the prevalence of the common-law tenure of freehold. Here we must remember the main traditional property rule, originated in Roman principle *superficies solo cedit*, that everything permanently connected to the earth is considered a part of it and shares the same legal fate as the earth. This approach cannot accommodate vertical real property exploitation. Only three-dimensional property rulings may solve more complex problems securing proper exploitation of immovable property.

The underground objects acquire their legal status only through the right to subsoil use. The subsoil itself remains in State ownership. Any transfer of the right for a subsurface structure is closely connected with the termination of the subsoil use right requiring a license.

Paragraph 4 of Article 6 of the Law of the Russian Federation dated February 21, 1992 No. 2395-1 "On Subsoil" modified by the Law of August 3, 2018 No. 342-FZ provides for a special type of right – the right to use subsoil for the construction and maintenance of underground structures. The content of the entitlement includes the authority to build the metropolitan, different tunnels, oil and gas storages, irrigation facilities and then to exploit them. The placement of subsurface structures in a rocks massif after minerals extraction is allowed only after the end of the process of the Earth surface displacement. Its duration is calculated in accordance with the rules for protection the buildings from negative effect of mining. The main function of this right consists in creating new underground facilities resulting in the change of the substantive characteristics of the communicating subsurface plot. The purposive nature of the entitlement leaves its imprint on its sustainability, as according to general rule, it is without time limit. For Russia it is a legal phenomenon, as timeless rights usually present only ownership interest. The right to use subsoil for the construction and maintenance of underground structures reminds it partly, but it is just a right to use a State subsoil plot for a certain purpose, for all underground space and subsoil plots remain in the public ownership. It manifests itself not only in a stable, permanent and long-term nature, but also in a strong connection with surface property, and has some features of the right in rem [1, p.73-77].

So, one of the proposed solutions applicable for Russian subsurface structures is creating three-dimensional legal space and referring from the cadaster system to the corresponding three-dimensional descriptions in external registrations of representations of the physical objects [6, pp.1173-1189]. In this way “gaps” in the registration where no rights are registered on the parcel could be avoided, and the legal situation above, on and under land is better reflected in the Register [31]. This implies a temporal aspect where one registration refers to the subsurface structures in another, and referred facilities may change over time. The registered objects may not be the same as their physical counterparts. The subsurface and surface entitlements for underground structure dislocation may give not only the ownership to these facilities, but also the rights for a certain space around the objects constructed, for example, a new kind of mining space servitude. So,

such approach can be used for other immovable objects and, maybe, for other legal systems tailored to the national context.

As for the problem with boundaries, it is expedient to fix in the Law of the Russian Federation dated February 21, 1992 No. 2395-1 "On Subsoil" norms that every subsoil user is obliged to conclude an arrangement with the landowner on the use of communicating land plot or other natural resources necessary for subsoil use. At the same time, it is necessary to consolidate the priority of the legal regime of the subsurface site, provided for the construction and maintenance of underground structures, over the land plot's legal regime. For example, if a landowner intends to change his irrigation and other systems, which might affect some subsurface structure characteristics, he should reach an agreement upon this with the subsoil user.

Concerning the resolution of disputes between subsoil users and landowners, it is advisable to make amendments to the current Law of the Russian Federation dated February 21, 1992 No. 2395-1 "On Subsoil" modified by the Law of August 3, 2018 No. 342-FZ and provide for the right of the subsoil user for judicial protection, if the subsoil user and landowner failed to reach an agreement upon land use or upon an access to the necessary land parcels.

The land plots should be granted for the period of validity of the license. It seems to us, that in order to obtain the right to use the connected surface parcel, the subsoil user should also be obliged to provide for a copy of the subsoil use license together with its application as an integral part of it containing the coordinates of the corner points of the plot. The readjustment and correcting of the land parcel location should be made after the adoption of the technical plan (prospect). Additionally, it may be necessary to establish a supplementary period for the landowner to examine all submitted documents.

The solution of any problem concerned is impossible without further improvement of legislation, development of a scientifically grounded methodology in relation to subsurface structures and a new scientific approach to their study. At the same time, this methodology should be based on the system approach, according to which the subsurface structures are to be considered as an entire system consisting of a set of objects interacting on the basis of the corresponding relationships. For example, the spacial peculiarities of the objects involved cause the need to comply with environmental requirements for placing, designing and reconstructing of the subsurface structures. So, it should be implemented in the rulings of the Law "On Subsoil" that the licensee is to make additional measures for protecting natural resources, and environmental protection terms and conditions should be included in the arrangements (contracts). Participation of representatives of authorized bodies in the commission for the parcel selection is also mandatory.

As for the definition problem, the concept of underground structures should be enshrined in the rules of the federal legislation. Otherwise, as the higher courts repeatedly point out, the lack of the clear legal concepts in the federal legislation would give rise to many abuses and would be subject to varying interpretations by the interested parties that would not contribute to the uniform application of the law.

For instance, Article 2 of the Federal Law dated December 30, 2009 "The Technical Regulations on the Safety of Buildings and Structures" may be supplemented with a new category "underground construction" which represents a spacial, volumetric result of construction having partly or entirely underground parts consisting from framings and, in some cases, from enclosing building constructions, and intended for performance of production processes of a various kind, for the storage of the products, for the accommodation of people as well as for the movement of persons and goods.

As soon as a problem of complex thing concerned, due to the fact that the subsurface structures are located under the earth surface fully or partly, and they are always connected with the subsurface, and consequently, with all subsurface matters, the issues of delineation of such objects should be within the competence of the bodies that grants the subsoil use

licenses. But nowadays, under the current legislation, however sad, the matters of treatment of the object as a complex thing (regardless subsurface it or not) are within the jurisdiction neither of bodies exercising state registration of rights for immovable property nor of mining licensing authorities. This means the impossibility of applying of civil law norms (regulating "complex thing" relations) to the subsurface plots granted for the purposes of construction and maintenance of the subsurface structures.

Thus, Article 7 of the of the Russian Federation dated February 21, 1992 No. 2395-1 "On Subsoil" should be amended by the provision that "the creation of a new thing in the form of an subsurface structure (a simple thing) or a complex of heterogeneous subsurface structures united by a single purpose (a complex thing) does not cease the existence of the serving subsurface parcel as an object of law and does not entail a change in its targeted use".

The change in the substantive characteristics of the subsurface site in this connection *de lege ferenda* should not cease the right to use the subsoil.

V. Conclusion

The current two-dimensional registration system, prevailing in most countries, including Russia, in situations with multiple uses of space has shown its limitations. The entire procedure of registration of three-dimensional objects covering subsurface ones, as they occur in the reality should be developed in the nearest future. The technologies are changing, and citizens, companies, authorized bodies require new forms of access to the legal information on their real property rights, including subsurface structures rights.

In conformity with the "Cadastre-2034", a comprehensive 10-year cadastral strategy, published by the Intergovernmental Committee on Surveying and Mapping, the existing digital cadasters do not adequately represent the three-dimensional nature of real property. So, there is a need for further normative regulation of the functioning of a new three-dimensional federal cadaster and therefore, further improving in appropriate way the corresponding work of the real estate Register in Russia.

In order to stabilize the subsurface structures rights turnover, the Law of the Russian Federation dated February 21, 1992 No. 2395-1 "On Subsoil" should propose sharpening the definition of underground structure and setting out the State's position with regard to the legal concept of such kind of object and its legal regime. The act also should provide a clear concept for the development of underground space reflecting the fundamental principles on the legal capacity of the subsurface structure owners and users, the legal system of transfer and registration of mining rights, as well as the limitations and encumbrances, including the legal policy for construction and maintenance of the subsurface facilities.

The basis for the introduction of the three-dimensional cadaster may be Charter 6 of the Civil Code of the Russian Federation representing a new vision in the spatial extent of civil rights and restrictions related to the real property, and the Federal Law dated July 24, 2007 "On the State Real Property Cadaster", as its norms do not prevent the reflection in the technical plan the spatial information about immovable property items.

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References

1. Allanina L.M., 2011. Grazhdansko-pravovoe regulirovanie otnosheniy nedropolzovaniya [Civil regulation of subsoil use relationships]. Tyumen: TSOGU, 140 p.
2. Boltanova E.S., 2016. Predostavleniye zemelnykh uchastkov sobstvennikam objektov nedvizhimosti (materialno-pravovye voprosy) [Granting of the land plots to the owners of immovable property items (substantive law issues)]. Laws of Russia: experience, analysis, practice. Volume 12: 14-22.
3. Broere W., 2016. Urban underground space: Solving the problems of today's cities. Tunnelling and Underground Space Technology. Volume 55, May: 245-248. Doi: <https://doi.org/10.1016/j.tust.2015.11.012>.
4. Burlachenko O.V., 2006. Zemelny uchastok v sisteme nedvizhimogo imushchestva [Land plot in the system of immovable property (Doctoral dissertation)]. Ekaterinburg. Pp. 9-10.
5. Drobez, P., Grigillo D., Lisec A., Fras MK, 2016. Remote Sensing Data as a Potential Source for Establishment of the 3D Cadastre in Slovenia. Geodetski Vestnik. Volume 60 (3): 392-408. DOI: 10.15292/geodetski-vestnik.2016.03.392-422.
6. Doner F., Thompson R., Stoter J., Lemmen C., Ploeger H., van Oosterom, P., Zlatanova S., 2011. Solutions for 4D Cadastre - With a Case Study on Utility Networks. International Journal of Geographical Information Science. Volume 25 (7): 1173-1189. DOI: 10.1080/13658816.2010.520272.
7. Hamid Q., Chauhdry M., Mahmood S., Farid M., 2016. Arc GIS and 3D Visualization of Land Records: A Case Study of Urban Areas in Punjab. National Academy Science Letters-India. Volume 39 (4): 277-281. DOI: 10.1007/s40009-016-0442-4.
8. Hamilton-Hart N., 2017. The legal environment and incentives for change in property rights institutions. World Development. Volume 92. Pp. 167-176.
9. Huang PF., Huang HL, 2018. Legal defects and perfection of collective forest land property right system. Proceedings Of The 2018 2nd International Conference On Economic Development And Education Management (ICEDEM 2018). Volume 290. Pp. 358-361.
10. Ienciu I., 2016. Forest management – Part of the Cadastre in Romania. Water Resources, Forest, Marine and Ocean Ecosystems Conference Proceedings, SGEM. 16th International Multidisciplinary Scientific Geoconference, Vienna, AUSTRIA. Volume III (November): 431-438. WOS:000391653600055.
11. Gatta G., Ariotti E., Bitelli G. 2017. Geomatics Science Applied to Cartographic Heritage and Archive Sources: A New Way to Explore the XIXth Century Gregorian Cadastre of Bologna (Italy), an ante-litteram 3D GIS. Journal of Cultural Heritage. Volume 23: 68-76. DOI: 10.1016/j.culher.2016.06.009.
12. Kartoziya B.A., Korchak A.V., Lagutkin A.V., 2013. Some Scientific, Production, Legal and Educational Tasks of Construction Geotechnology and Development of Underground Space. To the XXth anniversary of the First All-Union Scientific Conference on Problems of Development of the Underground Space. Moscow: Moscow State Mining University. P. 25.
13. Konieczna J., Trystula A., 2014. Real Estate Cadastre - New Challenges's. 9th International Conference Environmental Engineering. Selected Papers. Vilnius, Lithuania. DOI: 10.3846/enviro.2014.218.
14. Konyukhov D.S., 2004. Ispolzovaniye Podzemnogo Prostranstva: Uchebnoye Posobiye [Use of Underground Space: Training Manual for Higher Schools]. Moscow: Arkhitektura-C. P. 74.

15. Lisec A., Ferlan M., Čeh M., Trobec B., Drobne S., 2015. Analiza kakovosti Registra nepremičnin in predlog sistema za zagotavljanje kakovosti podatkov. Končno poročilo. Ljubljana, Univerza v Ljubljani, Fakulteta za gradbeništvo in geodezijo. 95 p.
16. Lin Q., Kalantari M., Rajabifard A., 2015. A Path Dependence Perspective on the Chinese Cadastral System. *Land Use Policy*. Volume 45: 8-17. DOI: 10.1016/j.landusepol.2015.01.017.
17. Mukhitdinov N.B., 1972. Pravoviye problemy polzovaniya nedrami [Legal Problems of the Subsoil Use]. Alma-Ata: Nauka, 337 p.
18. Paasch J.M., Paulsson J., Navratil G., Vucic N., Kitsakis D., Karabin M., El-Mekawy M., 2016. Building a Modern Cadastre: Legal Issues in Describing Real Property In 3D. *Geodetski Vestnik*. Volume 60 (2): 256-268. DOI: 10.15292/geodetski-vestnik.2016.02.256-268.
19. Paixao S., Hespanha J., Ghawana T., 2015. Modeling indigenous tribes' land rights with ISO 19152 LADM: A case from Brazil. *Land Use Policy*. Volume 49: 587-597. DOI: 10.1016/j.landusepol.2014.12.001.
20. Parkhomenko D.V., Parkhomenko I.V., 2016. Laser Scanning in the State Cadaster of Immovable Property: Technological and Legal Aspects. *Bulletin of Siberian State University of Geosystems and Technologies*. Volume 1 (33): 114-123.
21. Pevzner M.E., 2016. Gornoye Pravo: Uchebnik [The Mining Law: Textbook]. Moscow: Mining Education. Pp. 127-130. 384 p.
22. Raff M., Taitlin A., 2016. Comparative Perspective on the Concept of Ownership in Russian Law: From the Svod Zakonov to the 1994 Civil Code. *Review of Central and East European Law*. Volume 41 (3-4): 263-341 DOI: 10.1163/15730352-04103003.
23. Repnina N.S., 2016. Trekhmernyy kadastr nedvizhimosti [Three-Dimensional Cadaster of Immovable Property]. *Innovative Activity: Theory and Practice*. Volume 8 (4): 6-10.
24. Prainsack B., 2019. Self-Ownership, Property rights, and the human Body: a legal and philosophical analysis. *Medical Law Review*. Volume 27. Issue 85. Pp. 358-362.
25. Sagynbekova G., Allanina L.M., Babaeva Z., Dzhabrailova N., Gaybatova K., 2018. State-legal regulation of foreign investment: international experience. *Opcion*. 2018. Volume 34. Issue 85. C. 840-853.
26. Shepeleva A.V., Aliev T.A., Zabolotskaya T.A., 2016. Three-dimensional Cadaster of Immovable Property and Development of Modern Urban Territories. *Scientific Forum: Innovative Science: the First All-Union Scientific Conference*. Moscow. Volume 1 (1): 20-28.
27. Shevchenko N.A., Monakhov D.I., 2017. Informatsionnoye Vzaimodeystviye Pri Vedenii Gosudarstvennogo Kadastra Nedvizhimosti [Information Interaction under the State Immovable Property Cadaster]. *Economics and Ecology of Regions*. Volume 1: 110-115.
28. Shojaei D., Olfat H., Rajabifard A., Darvill A., Briffa M., 2016. Assessment of the Australian Digital Cadastre Protocol (ePlan) In Terms of Supporting 3D Building Subdivisions. *Land Use Policy*. Volume 56: 112-124 DOI: 10.1016/j.landusepol.2016.05.002.
29. Stepanov S.A., 2004. Nedvizhimoye Imushchestvo v Grazhdanskom Prave [Immovable property in Civil Law]. Moscow: Statut. 223 p.

30. Stoter J. E., 2004. 3D Cadastre. NCG, Nederlandse Commissie voor Geodesie. Delft, July. 342 p.
31. Stoter J.E., Ploeger H.D., 2003. Registration of 3D Objects Crossing Parcel Boundaries. In: Proceeding FIG Working Week. April. Paris, France. Pp. 1-16.
32. Stoter J.E., Sorensen E.M., Bodum. L., 2004. 3d Registration of Real Property in Denmark. Proc. of FIG Working Week. Athens, Greece. May 22-27.
33. Valstad, T., 2006. Developments of the 3D Cadastre in Norway. Proc. of FIG Working Week. Munich, Germany, October.
34. Valstad T., 2006. How Is the Development in the World of Cadastre towards More than Two Dimensions? Proc. of FIG Working Week. Eilat, Israel, May.
35. Vitryanskiy V.V., 1999. Dogovor Arendy i Yego Vidy: Prokat, Frakhtovaniye Na Vremya, Arenda Zdaniy, Sooruzheniy i Predpriyatiy, Lizing [Rental Agreement and Its Types: Rental, Chartering for a Time, Renting of Buildings, Structures and Enterprises, Leasing]. Moscow: Statut. Pp. 180-182.
36. Zhang Z., Tang W., Gong J., Huan J., 2017. Property Rights of Urban Underground Space in China: A Public Good Perspective. Land Use Policy. Volume 65: 224–237. DOI: 10.1016/j.landusepol.2017.03.035.
37. Zuleva N.V., Allanina L.M., Khairullina N.G., Ruf Y.N., Permyakov A.V., Mikhailova M.N., Aleksandrovich G.V., 2016. Legal Regulation of Subsurface Use - in Russia: Actual Problems. International Journal of Environmental & Science Education, 2016. Volume 11. Issue 11(18). Pp. 12471-12485.