Information support of management of the land resources of the Russian Federation

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Abstract. Informational support is an integral part of effective land management. At the present stage, the Unified State Register of Real Estate (hereinafter - EGRN) is an informational database, which management decisions are based on. However, the quantity and quality of the information contained in the EGRN is not enough to pursue an effective management policy related to the country’s land resources. This work presents a model of interaction between various informational systems, which allow adjusting and supplementing the EGRN database, thereby ensuring an increase in the quality of management related to the country’s land resources.

1. Introduction
The management of the land resources is a global process, its implementation at the present stage involves various components of power from local governments to various ministries and the Government of the Russian Federation.

Thus, each structure deals with a separate aspect in the overall complex of land resources management processes, which use different registers of specific information and special informational systems for the management.

From the point of view of informational support of land resources management processes, there is a number of supporting measures, software packages, various information systems and registries, its usage nowadays has a very narrow direction [1, 2].

2. Materials and methods
The use of the EGRN as an informational database for land management is the most promising from the viewpoint of various aspects. However, the analysis of the current status of the EGRN, its informational content and data quality showed the necessity of supplementing its database with the information contained in other informational systems [3]. The relevance of creating an integrated informational support of land resources management processes was identified based on the interaction of information registers of various ministries and departments.

Management targets set new tasks for informational systems, the solution of which is possible if there is sufficient, objective, reliable information about the objects of management. The analysis of the existing informational systems of various ministries and departments revealed the presence of information relevant for the purposes of carrying out an objective and rational policy in the area of the country’s land resources [4, 5]. Thus, the issue of a rational policy in the area of the country’s land resources can be considered by the interaction of different ministries and departments with interdepartmental informational support [6].
The analysis of the EGRN database as well as other informational resources was carried out, such as: Register of Federal Property (The Federal Agency for State Property Management, aka Rosimushchestvo), FGIS "Demetra" (The Federal Service for Veterinary and Phytosanitary Surveillance, aka Rosselkhoznadzor), AIS GRR (The Federal Agency for Fisheries, aka Rosrybolovstvo), FGIS ESIMO (The Federal Service for Hydrometeorology and Environmental Monitoring of Russia, aka Roshydromet), FGIS PTK State Control, PTO UONROS (The Federal Service for Supervision of Natural Resources, aka Rosprirodnadzor), Forestry Register (The Federal Forestry Agency, aka Rosleskhoz), Consolidated State Register of Subsoil and Licenses (The Federal Agency for Subsoil Use, aka Rosnedra), GIS TEK (The Ministry of Energy of the Russian Federation, aka Minenergo of Russia), register of transport, infrastructure and vehicles (The Ministry of Transport of the Russian Federation), AIS “Tax-3” (The Federal Tax Service of Russia), the register of military facilities and territories (The Ministry of Defense of the Russian Federation).

Combining information in a single informational system that meets the functions of rational management of the land resources creates the necessity of implementing integrated information support in this area. To solve these problems, a model of integrated information support was developed for the land resources management in the Russian Federation [7].

During the development of the model, abstract-logical, economic-statistical, historical (in retrospective study of modern problems, for example, systems of land management bodies), graphical (in identifying the dynamics of the processes studied) methods were used which allowed identifying certain patterns and interdependence of some elements of the presented model [8].

3. Study of the integrated informational support model for the land resources management in the Russian Federation

In order to effectively manage the land resources, the application model of integrated informational support is needed, by means of interaction between the Government of the Russian Federation, self-governing authorities, federal ministries and their subordinate organizations, presented in Figure 1.

It should be noted that the Russian State Register, as the department responsible for maintaining the EGRN, is a subordinate institution of the Ministry of Economic Development of the Russian Federation. For clarity, on the scheme the Russian State Register is separated from the Ministry of Economic Development of the Russian Federation.

From the point of the informational correlation, there is a great diversity between the agencies represented in the model (Table 1).

Greater interdependence between registries of information is noticed between the EGRN and the registries of the Ministry of Agriculture of the Russian Federation (Rosselkhoznadzor), the Ministry of Natural Resources and Environment of the Russian Federation (Rosprirodnadzor, Rosleskhoz, Rosnedra), that is to say that for the effective implementation of the powers assigned to these institutions to manage the land resources, the information of the EGRN is important and vital. At the same time, the data transmitted to the EGRN from these organizations will be of great importance in terms of fullness, relevance of the registry of agricultural lands, status and usage of lands of other categories.

The up to date information from the Ministry of Energy of the Russian Federation, the Ministry of Transport of the Russian Federation and the Ministry of Construction, Housing and Utilities of the Russian Federation, is also largely important for filling the EGRN database; to the much less extent these ministries are interested in downloading information from the EGRN.
Figure 1. Model of integrated information content of the EGRN: the title, authors and affiliation

Table 1. Level of interrelation of information of the EGRN and registers of various departments

| The name of the Department | The importance of the information resource of this Department for the EGRN | The importance of the EGRN information for this Department |
|---------------------------|-------------------------------------------------|-----------------------------------------------------------|
| Rosimushchestvo           | important                                       | important                                                 |
| Rosselkhoznadzor          | important                                       | important                                                 |
| Rosrybolovstvo            | important                                       | moderately important                                      |
| Rosgidromed               | important                                       | moderately important                                      |
| Rosprirodnadzor           | important                                       | moderately important                                      |
| Rosleskhoz               | important                                       | important                                                 |
| Rosnedra                  | important                                       | moderately important                                      |

Relevant information of the EGRN as means of implementing the most effective management policy is necessary for the Ministry of Defense of the Russian Federation, in terms of ensuring the security and independence of the Russian Federation, as well as the Ministry of Finance of the Russian Federation, in terms of ensuring the collection of more comprehensive land tax.

Let us consider the informational systems in details, the interrelation of the FGIS the EGRN which is relevant and necessary for the mutually effective support of the land resources management functions (Figure 2).

The informational systems presented on the scheme already exist and are used in the corresponding departments with the corresponding activity. However, nowadays the complex interaction of these systems does not exist; therefore, the informational support for the land resources management currently has a “lumpy” character. The interaction of the FGIS the EGRN with informational systems
presented in the model will contribute to the formation of integrated informational support for the effective management of the land resources [9].

In the interaction of informational systems, the data of the EGRN will be filled with information about all categories of lands, especially the format of information on agricultural land of particular value will be expanded. In terms of data on forestry and water areas, a decrease in disputable situations is expected with apposition of forestry and water lands on lands of other categories.

Filling the Register with information about the subsoil will allow providing a more efficient and rational policy in the process, including distribution and assignation of land.

Information about the facilities of industry, transport, power grid, energy and other objects will allow adjusting the information of the EGRN in terms of the types of permitted territories usage and the presence of restrictions and encumbrances, which should significantly reduce the number of court proceedings provoked by land disputes in this area. This will provide more comfortable conditions for the development of the land market in the country that guarantees the buyer's rights [10].

Reliable information about the lands of the Ministry of Defense of the Russian Federation will allow effectively pursuing the policy of ensuring both the internal and external interests of the state.

Improving the quality of data, including the state of the land, will allow adjusting the cadastral value of land parcels, thereby ensuring the charge of the “fair” land tax, based on unbiased monitoring data, and land supervision [11].

Figure 2. Federal state information system of EGRN integrated content model
4. Conclusion
Effective and rational management of the land resources of the Russian Federation is only possible in presence of relevant, reliable and sufficient information. Currently the EGRN is a database for these purposes, its information needs to be improved. The presented model of integrated informational interaction will allow improving the quality, quantity and composition of information in this registry.

References
[1] Demyanova A D and Schastlivetskaya E A 2017 Land Management, Land Monitoring and Cadaster [in Russian – Zemleustrojstvo, kadastr i monitoring zemel] 11(154) 55–8
[2] Lipski S A and Demyanova A D 2018 Property Relations in the Russian Federation 2(197) 40–5
[3] Boltanova E S 2016 Property Relations in the Russian Federation [in Russian – Imuschestvennye otnoshenija v Rossiiyskoy Federacii] 7(178) 14–23
[4] Petrogradskaya A A 2018 Theoretical and Legal Implications of the Adoption of FL-218 “On State Registration of Real Estate” Bulletin of Volzhsky University named after V N Tatishchev 4 42–50
[5] Popov E V and Semyachkov K A 2018 Region economy [in Russian – Economika regionala] 4(14) 1088–99
[6] Sinenko V A, Shiyapov T I and Parpura D I 2018 Russian University’s of Peoples Friendship J. of Agronomy and Animal Industries 13(1) 45–53
[7] Stepanov O A 2018 Law. Journal of Higher School of Economics [in Russian – Pravo. Zhournal Vysshey shkoly ekonomiki] 3 4–23
[8] Shagaida N I and Alakoz V V 2017 Earth for People (Moscow: Tsentr strategicheskikh razrabotok. Economic Development)
[9] Motlokhova E A 2015 Bulletin of Khabarovsk State University of Economics and Law 6(80) 166–72
[10] Varlamov A A, Gal’chenko S A, Antropov D V, Komarov S V and Shapovalov D A 2018 Interexpo Geo-Siberia 3(2) 237–51
[11] Sinenko V A 2018 Bull. of Science and Practice [in Russian – Bulleten nauki i praktiki] 10(4) 384–404