

# Information support for land management in territories with special land management conditions

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**Abstract.** When managing land resources at various administrative and territorial levels, cadastral, monitoring and land management information is of great importance. Information from the real estate cadastre and the unified state register of real estate objects is the basis for creating a database on land resources and real estate objects, and predicting changes in their state. As far as the land management system is complex, the systematic approach to the management and protection of land resources is required; organizational and technological conditions should be linked with possible environmental and economic consequences within the boundaries of territories, including territories with a special land management regime. The boundaries of these territories do not coincide with the ones of settlements and are established on the basis of research materials used to determine the subject of a special land management regime. The article examines features of the system of information support for land management in territories with a special land management regime. The authors identified the main participants in the information space of land management, the composition of information and applied software solutions containing such information. A unified information system that integrates information for the purpose of coordinated management and coordination of functions should be created for territories with a special land management regime. Classification of some territories with special land management conditions as objects of the unified state register of real estate objects will improve the quality of land management decisions. The studies conducted on the example of the Ples cluster showed that the share of cadastral cost in the total land management cost is insignificant and entails a greater number of benefits (economic, environmental, informational, etc.).

## 1. Introduction

Information activities are designed to ensure access to the information, produce and disseminate information, and participate in the land management process [1].

Information support for land management is a process of providing appropriately processed information on land plots and real estate objects, other information services to interested users (government bodies, individuals or their groups) in accordance with their information needs to resolve land management issues [1].

In all territorial units in the land management system, there are those ones on whose territory there are various land management regimes (legal, economic, etc.); for example, cultural heritage sites, zones with special land management conditions, territorial clusters.

In recent decades, all over the world, including in Russia, ideas about methods of preserving the historical urban environment have changed due to a combination of three approaches - economic,



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social and environmental, which characterize the concept of sustainable development. There is a growing need to integrate heritage conservation into the urban development and renewal. According to Article 59 of the Federal Law "On Cultural Heritage Objects (Historical and Cultural Monuments) of the Peoples of the Russian Federation" No. 73-FZ dated June 25, 2002, the historical settlement is a settlement or part of it included in the list of federal or regional historical settlements, within which there are cultural heritage objects included in the register, identified cultural heritage objects and objects that are the subject of protection.

In July 2010, in accordance with the Order of the Ministry of Culture of the Russian Federation, the Ministry of Regional Development of the Russian Federation No. 418/339 dated July 29, 2010 "On approval of the list of historical settlements", the number of historical cities of Russia was reduced from 478 to 41. In 2016, Sevastopol was included in the list.

According to E.A. Shevchenko "identification of a clearly localized volumetric-spatial and planning integrity, characterized as a historical settlement, is still a serious problem" due to the ambiguousness of the concept of historical settlement [2,3].

Territories develop within conditional boundaries, which are not delimited and recorded in the Unified State Register of Real Estate.

In order to preserve and protect the objects included in the register, requirements are established for urban planning, economic and other activities aimed at ensuring the safety of cultural heritage objects included in the register and identified objects of cultural heritage.

## 2. Methods

When managing land resources at the federal, regional and municipal levels, in addition to cadastral and monitoring information, information about real estate, economy, infrastructure, population and other data are used. Land management is complex, as it affects interests of a large number of subjects of land relations [4]. This requires a systematic approach to the management and protection of land resources, organizational and technological conditions should be linked with possible environmental and economic consequences when managing land resources within the boundaries of historical settlements.

The main tasks of land management in historical settlements are to take into account various aspects of city life, including cultural, social, and economic ones; to improve existing resources and attract new ones; to establish a dialogue with numerous participants in the urban development; to take into account long-term transformations; to monitor and update data.

Since the most efficient management of land resources is possible only if all real estate objects are included in the unified state register of real estate objects, the authors suggest applying the mechanism of complex cadastral works (including the establishment of zones with special management conditions). One of the main methods of information support for land management is the unified state register of real estate objects, containing a set of reliable systematized information in a text form (semantic information) and a graphical form (graphic information), and consisting of a register of real estate objects; a register of rights, restrictions on rights and encumbrances of real estate; a register of information on the boundaries of zones with special land management conditions, territorial zones, boundaries of public easements, boundaries of cultural heritage objects, specially protected natural areas, special economic zones, hunting areas, advanced socio-economic development areas, territorial development areas, gambling zones, forestries, borders between the Russian regions, municipalities, settlements, coastlines (boundaries of water bodies), boundaries of the Baikal natural territory and its ecological zones, as well as information about land-surveying projects).

This statement is true for the land management in historical settlements.

## 3. Results

The information space consists of the following components: information resources containing data, information and knowledge; organizational structures that ensure the functioning of the information space, in particular collection, processing, storage, search, dissemination of information; means of

information interaction between citizens and organizations, including software and hardware tools and regulatory documents that provide access to information resources [1, 5–8]. As for cultural heritage sites, in order to determine the boundaries of a historical settlement, the concept of the territory of a historical settlement was introduced - the territory within the boundaries of a settlement recognized as historical. At the same time, the territory of a historical settlement may not coincide with the administrative-territorial boundaries.

**Table 1.** Formation of the information space for land management in historical settlements

Participants in the information space	Composition of information	Information systems applied
Government of the Russian Federation	Formation of a regulatory framework in the field of protection, preservation and popularization of historical settlements, inclusion of a historical settlement in the register of settlements Information on the classification of the settlement as historical, information on the subject of protection of the historical settlement, information on the boundaries of historical settlement, development of the draft borders of the historical settlement, establishment of the border of the historical settlement of federal significance, coordination and approval of the draft rules of land management of the federal historical settlement	Information and legal system "Legislation of Russia", "Unified system of interdepartmental electronic interaction", System of interdepartmental electronic document management Automated information system "Unified information space in the field of culture", Electronic document management system "Delo", Internal portal of the Ministry of Culture of the Russian Federation, Automated information system for collecting statistical reports, AIS Unified integration platform of the Ministry of Culture of Russia, AIS Unified information space in the field of culture, AIS Unified State Register of Cultural Heritage Objects, Geographic Information System of the Ministry of Culture of the Russian Federation
Ministry of Culture of the Russian Federation		Integrated information system of the Ministry of Construction and Housing and Communal Services of the Russian Federation, Information System for Urban Planning Activities
Ministry of Construction, Housing and Utilities of the Russian Federation	Information on urban planning zoning and functional division of territories	
Federal Service for State Registration of Cadastre and Cartography	Information on the accounted territories and zones with special conditions	Federal State Information System for Maintaining the Unified State Register of Real Estate
Federal Agency for Tourism	Information on historical settlements in the list of attractions, information on tourist and recreational clusters Information on the subject of protection of the historical settlement, information on the boundaries of the territory of the historical settlement, development of the draft borders of the historical settlement, establishment of the border of the federal historical settlement, coordination and approval of the draft rules of land management for regional historical settlements	Automated information system "Tourism", Official website of the Federal Agency for Tourism Automated information system "Unified information space in culture", AIS Unified State Register of Cultural Heritage Objects (EGROKN), Geographic Information System of the Ministry of Culture of the Russian Federation (GIS MK RF), Electronic Document Management System "Delo"
Authorized regional bodies	Development of the project of boundaries of the historical settlement, ensuring and monitoring of fulfillment of requirements in terms of compliance with the regulations established for the territory and zones with special conditions	Information system for ensuring urban planning activities, Federal State Information System for Territorial Planning
Local government bodies		
Individuals and legal entities		Internet terminals for access to the information system

Table 1 contains information about participants in the information space, composition of information and applied software solutions containing such information. An information system "historical settlement" should be created. It integrates information from all the information sources -

an interconnected set of individual information systems with developed information interaction which ensure the coordinated management, coordination of functions, and access of many users to information resources.

Historical settlements can be correlated with tourist and recreational clusters, since they are often the center of attractiveness and development of tourist activities. The research conducted by D.V. Antropov and A.V. Fomina on the Ples shopping and entertainment complex, which is both a historical settlement and a tourist and recreational cluster, showed that about 30 percent of the territory was registered in the cluster, the cost of cadastral works is 34.5 million rubles, and the ACS cost is 64.9 million rubles. However, the economic effect exceeds the cost of such works by more than 14 times. After complex cadastral works, the annual amount of the land tax will be 100.9 million rubles, which is 40 percent more than before these works (58.9 million rubles). It allows for recovering the cost of cadastral works.

In addition, information about zones with special land management conditions, territorial zones, borders of public servitudes, objects of historical and cultural heritage, special economic zones and other objects will also be of particular interest [9].

An integral part of the land management of a historical settlement is regulation of urban planning activities.

Regulation of urban planning activities in a historical settlement involves the analysis of the state of a historical settlement, identification of problems and directions for its sustainable development, taking into account the need for preserving cultural heritage objects included in the register, identified objects of cultural heritage, determination of measures for the sustainable development of the territory; development of urban planning measures for restricting construction, reconstruction of capital construction facilities, establishing restrictions on the use of land plots and capital construction facilities, taking into account the requirements for preserving the planning structure of a historical settlement, size and proportions of buildings, color schemes, prohibiting and restricting the placement of parking lots, advertisements and signs.

#### 4. Conclusion

Information from the real estate cadastre and the unified state register of real estate is the basis for creating a data bank on the state of land resources and real estate objects, and predicting changes. Historical settlements (small cities or centers of large cities) are socio-cultural objects where traditional and innovative forms of culture are studied. According to the concept of development of historical settlements, support and popularization of cultural and tourist opportunities, development of the economy of cultural heritage for the period up to 2030, "these objects are laboratories for preserving and developing the spatial environment, folk traditions, ways of life of the urban and rural population". It is necessary to integrate the heritage protection policy into the system of general urban planning policies for developing the historical urban environment in order to improve the quality of life of the population.

It is important to create an information space at each administrative-territorial level that could satisfy the needs of management bodies (databases, maintenance technologies, information - telecommunication networks and systems based on general principles according to the rules that ensure information interaction between organizations and citizens).

However, the territory of a historical settlement may include various real estate objects; it may not coincide with the boundaries of settlements, the territory is established on the basis of research materials used to determine the subject of protection and boundaries.

Nevertheless, calculations performed for the tourist and recreational cluster "Ples" showed that the share of such costs is insignificant and entails a greater number of benefits (economic, environmental, informational ones). It can improve the quality of land management which will have a beneficial effect on the level of development of land relations and quality of tourism activities. These measures are crucial for preserving the historical and cultural heritage, developing the territories, and creating conditions for the sustainable development of the region.

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