

USE OF DATA OF INVENTORY AND MONITORING OF LANDS IN THE COMPLEX DEVELOPMENT PROGRAM OF TERRITORIES



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S.V. Semchenkova,

G.V. Chulkova,

O.L. Lukasheva

The development of areas through the land management system is a systematic, conscious, purposeful impact of the state and society on the use of land resources, therefore, at each territorial level of management, the tasks of using land resources are determined by their purpose. The tasks facing the municipalities in managing the land fund depend on the vital activity of the territory and the prospects for its development, which makes it possible to determine the place of each management entity in the general land-use system. In accordance with the tasks facing the authorities, the main directions for improving land management methods should be the long-term development plans of territories for individual land plots, settlements and, accordingly, the municipality as a whole; development of regulatory documents in the financial, economic, tax and other areas on the formation of

a favorable sphere of development of business structures; development and implementation of programs for monitoring and land protection.

Keywords: *land monitoring, land inventory, inventory measures, violation of land legislation, development of the territory.*

The basis for the formation of a land management system is a land information subsystem, on the basis of which the authorities monitor the object of management; control of executive decision-making mechanisms is ensured and their effectiveness is determined; on the basis of analytical information data on external and internal factors of influence on the control object, decisions are made and the development of processes is projected in accordance with the decisions made; provides access to remote sources of information and data funds on real estate.

The main problems of an informational nature that affect management decisions include the following: difficulties in conducting a comprehensive analysis based on classification and the legal hierarchy; numerous unrecorded objects (land shares, unallocated land).

The management of real estate objects, and especially land plots, is possible only through the conduct of such a process as inventory. Inventory is one of the types of land management works and is carried out only on land plots put on cadastral registration with certain characteristics: address and location, cadastral number, category of land, permitted use and form of ownership.

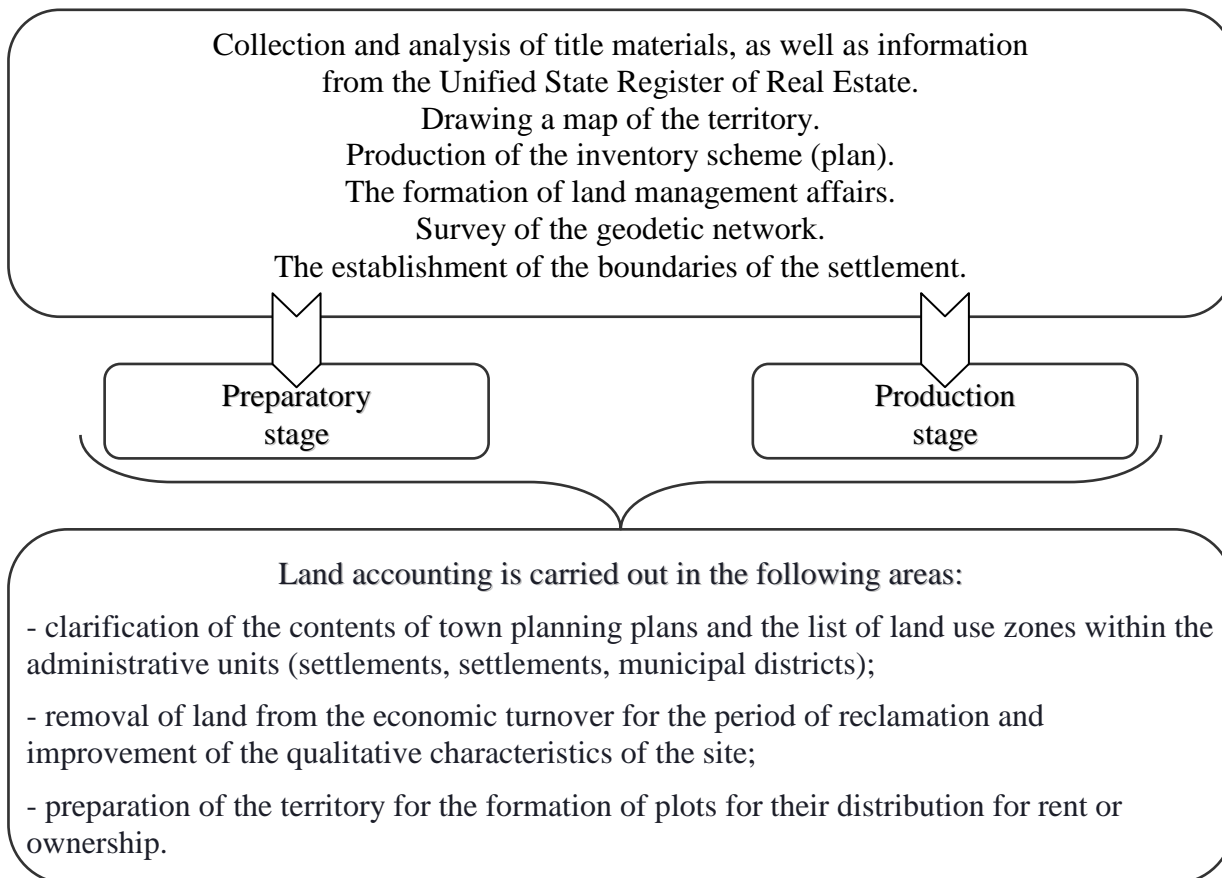
The main reason for the appointment of inventory measures is the timely identification of cases of negative impact on the quality of the area, and the adoption of measures to eliminate them. In this regard, land accounting after the inventory is carried out in such areas as clarification of the composition of town-planning plans and land use zones within administrative units (settlements, settlements, municipal districts, etc.); removal of land from the economic turnover for the period of reclamation and improvement of the quality characteristics of the site; preparation of the territory for the formation of plots with their distribution in rent or property.

Currently, taking into account amendments into the legislation, to the objectives of land inventory include identifying unused land allotments; identification of areas used for non-intended purposes and not in accordance with the type of permitted use; identification of qualitative and quantitative characteristics of land, such as the presence of vegetation, the presence of buildings, soil fertility. According to the results of the inventory works, land and

their characteristics are recorded with the introduction of real estate into the unified state register (Fig. 1).

Figure 1 - Complex inventory measures

Compiled by the authors based on the source [1]



All types of work are carried out at various stages: preparatory and production. At the preparatory stage, the collection and analysis of documents containing initial information about land plots and territories are carried out. The production phase includes a survey of the territory on the ground, the definition of points of the geodetic network; identification of quality characteristics and parameters of land allotments; making diagrams and plans, as well as inventory statements; drawing up a final inventory act, submitting it to the customer for approval. After completion of the work, land should be accounted for in accordance with the approved act, and the results of the inventory should be published on the official resource of the authority.

The object of the study was the lands located on the territory of the municipality "Rudnya district" of the Smolensk region [2]. Rudnya district is located in the north-west of the Smolensk region, is a strategic area because it borders with the Republic of Belarus. The rapid development

of the Rudnya district occurred in the thirties of the 20th century due to an increase in the volume of the industry: flax plants appeared, enterprises for processing dairy products, the latter are still functioning today. The administrative center of the district is the city of Rudnya. Currently, the Rudnya District is represented by two urban (Rudnyanskoe and Golynkovskoe) and eight rural settlements (Kazimirovskoe, Klyarinovskoe, Kruglovskoye, Lyubavichskoe, Perevolochskoe, Ponizovskoe, Smoligovskoe, Chistikovskoe). The total number of villages, settlements, cities is 210 units. Rudnya district is characterized by good soil and environmental conditions and is the sixth out of 25 districts of the Smolensk region. The district has a high level of renewal of production capacity, including in the agricultural sector (flax production and animal husbandry).

Despite the preserved potential, the land is not very productive, many lands are abandoned or used for other purposes. The lands of the Rudnya district need special measures aimed at restoring the fertility of the land, the use of chemical fertilizers and new high-tech means of tillage. The Rudnya District Municipality has a well-developed transport system: the R-120 Orel-Bryansk-Smolensk main road of federal significance, the border with the Republic of Belarus, and the Moscow Railway. The length of asphalt roads is 102.23 km and ground 353.86 km. The population of the Rudnya district in 2018 is 22.7 thousand people. The urban population is 12,823 people, and the rural population is 9828 people. From this, we can conclude that most of the population is inclined to the administrative centers, where more comfortable conditions have been created for them. The majority of rural residents live near a farmer and recreational organizations.

The inventory work carried out in the Rudnya district of the Smolensk region showed the whole range of problems that have been systematically accumulated over the past decades (Table 1).

Table 1 - The share of identified unused land in the process of inventory in Rudnya district

Land categories	Total area, thousand hectares	Including		The ratio of the area of unused land to the total area, %
		is used	not used	
Agricultural land	117,8	109,32	8,480	7,2
Earth settlements	13,4	13,343	0,057	0,4

Industrial and other special-purpose lands	1,4	1,3996	0,0004	0,03
Lands of Forest Fund	48,3	48,30	0	0
Lands of Water Fund	0,64	0,64	0	0
Reserve land	26,8	26,8	0	0

Compiled by the authors based on the source [2]

The main category of land Rudnya district is agricultural lands. According to the data of 2018, they amount to 117.5 thousand hectares. In their structure, the largest share is occupied by agricultural land (arable land, hayfields, pastures, perennial plantings), the land occupied by various production facilities and linear objects (roads, runs), as well as land occupied by forest vegetation. The lands of settlements occupy 13.4 thousand hectares, with the highest percentage of use characteristic of rural settlements. In the lands of industry and other special purposes, most of it is allocated to the land of transport. The lands of specially protected natural territories occupy the smallest area of 2 hectares. The lands of the water fund are represented by numerous reservoirs (rivers, lakes, streams). Their total area is 640 hectares. The reserve lands on the territory of the Rudnya district make up more than 26 thousand hectares, which is the maximum indicator throughout the region. Also, the reserve lands include agricultural land, the land occupied by forest vegetation.

The largest number of unused areas is represented by agricultural land. In addition, on the area of 193 thousand hectares (or 91.4% of the area of region as of 2016), negative erosion processes were revealed, which appeared as a result of non-use or improper economic activities.

In the course of the analysis of the land fund of the Rudnya district, according to the Code of Administrative Offences of the Russian Federation (hereinafter referred to as the Code of Administrative Offences) [3], the following types of signs of violation of land legislation were identified:

1. Unauthorized occupation of a land plot or its part, including the use of a land plot by a person who does not have the rights to the specified land plot stipulated by the legislation of the Russian Federation (Article 7.1 of the Administrative Code of the Russian Federation). The unauthorized occupation was revealed on land plots intended for economical use and construction, which were not within the established boundaries or were outside the established boundaries on the neighboring plots. Signs of this type were determined on the basis of satellite imagery materials.

2. The use of a land plot not for its intended purpose in accordance with its belonging to one or another category of land and (or) permitted use (Article 8.8 of the Administrative Code of the Russian Federation). The second type of violation was determined on the land plots, the

permitted use of which did not correspond to the established in law and did not correspond to the use fixed in the information of the unified state register of real estate. The actual use was determined at the stage of decoding satellite images.

3. Non-use of a land plot intended for agricultural purposes, as well as housing or other construction (article 8.8 of the Administrative Code of the Russian Federation). In this case, the land plots that have been in use for more than three years were considered. On they did not carry out the economic activity or any construction according to the permitted use. This type of violation is characterized by the absence of a finished object or signs of construction on a land plot intended for construction, and on agricultural lands, it manifests itself in the form of the overgrowing or degradation of land areas due to the lack of plowing, mowing or cattle grazing. All these signs were revealed at the stage of cameral deciphering.

4. Failure or untimely fulfillment of obligations to bring the land into a condition suitable for use for its intended purpose (Article 8.8 of the Administrative Code of the Russian Federation). These land plots were in temporary use or lease and after the expiration of their use they were not brought into a suitable condition. For example, agricultural land was cluttered with household waste, which led to a decrease in soil fertility. Elimination of this type of violation provides for land reclamation. It is aimed at preventing land degradation and (or) restoration of their fertility, as well as at bringing the lands into a state suitable for their use in accordance with the intended purpose and permitted use. Reclamation is carried out by eliminating the effects of soil pollution, restoring the fertile soil layer, creating protective forest plantations.

All considered types of violation entail administrative responsibility in the form of the imposition of a fine. When studying the land fund of the Rudnya district, 634 land plots were identified that contain signs of violation of land legislation. The total area of plots with violations amounted to 8561.5 hectares or 4.05% of the total area of the district. This indicator is large enough for the municipality (Table 2).

Table 2 - Information about the identified signs of violation of land legislation in the territory of the Rudnya district

Signs of violations for each type of violation of land legislation	Plots with signs of violations		Structure of violations, %
	number of units	area, hectares	
Unauthorized occupation of land plots	8	1,5	0,02
The use of land plots not for its intended purpose	13	19	0,22

Non-use of land plots intended for agricultural production, housing or other construction	609	8537,4	99,7
Failure to perform duties to bring the lands to a condition suitable for its intended use	4	3,6	0,06
The total number of plots with signs of violations	634	8561,5	100,0

Compiled by the authors based on the source [2, 3]

In connection with the non-use of land plots, negative processes begin to act on them. These are mostly natural processes (water erosion, excessive soil moisture, underflooding, waterlogging, flooding, burning) and anthropogenic impact (formation of quarry dredging, garbage dumps, possible sources of pollution, deforestation). On the territory of the Rudnya district similar sites are also represented. Information about the areas of degraded land is presented in table 3.

Table 3 - The total area of development of negative processes in the territory of the Rudnya district

Type of negative process	Area of negative process	
	hectares	share of the area of the district, %
Water erosion	160,5	0,08
Excessive soil moisture	36759,9	17,41
Underflooding	71,1	0,03
Waterlogging	7861,8	3,72
Flooding	1933,0	0,92
Burnt land	45,0	0,02
Quarry dredging	18,2	0,01
Littered land	17,2	0,01
Possible sources of pollution	25,1	0,01
Deforestation	41,1	0,02
Total	46932,9	22,23

Compiled by the authors based on the source [2, 4]

The inventory data indicates that a fifth of the territory is subject to strong negative processes and cannot be used for its intended purpose. Consequently, these lands are subject to withdrawal from circulation and further restoration.

Although the main violation of land legislation is the deterioration of the soil (a practically irreplaceable resource), responsibility for this is not provided, since there is not enough information to issue a prescription. Therefore, based on land inventory and monitoring, the quality of the soil should be determined, and administrative resources should be directed to the development of more stringent forms of influence on the owner or user. In case of violation,

they must not only pay the fine but also restore the level of soil fertility of the land plot they owned to the maximum.

Ensuring the safety of soil resources through inventory and monitoring involves changing the structure of the management apparatus of both the municipality and the regional authorities involved in ensuring the implementation of the principle of rational use of land resources. This system requires significant financial costs. However, without carrying out large-scale checks of the state of the soil, the application of forms of responsibility both about owners and authorities is difficult.

The results of our land inventory are presented below. They allow determining the directions that provide the forms of impact on land users. In the process of land inventory in the Rudnya district, 59 unused land plots from the land category of settlements provided for individual housing construction and 549 land plots of agricultural land were identified. The calculation of penalties is based on the average cadastral value of the land. For the study area within the urban settlement, it was for individual housing construction - 178.9 thousand rubles, for industrial purposes - 7185.6 thousand rubles. The cost of ownership of public legal entities is 2,620.9 thousand rubles. On the territory of rural settlements, the average cadastral value for individual housing construction is 58.6 thousand rubles, for manufacturing purposes - 9562.3 thousand rubles.

During the inventory, the ownership form was not determined for 254 agricultural plots and 4 plots intended for individual housing construction. Land plots, the ownership of which is not delimited, are subject to seizure in the municipal property for holding further auctions. Auctions are held to sell land plots or lease them.

Based on the conducted research, we see the allocation of the most promising plots from unused land, the ownership of which is not demarcated, as follows (Table 4-5). Plots of land that are most promising for use in the coming years, in the category of land settlements are presented in table 4. These land plots will be provided to legal entities and individuals based on a lease agreement.

Table 4 - The land plots of the category of land settlements, which is possible to use for its intended purpose

Cadastral number of land	Cadastral value of land, thousand rubles	Area, hectare	Permitted use
67:16:0150132:12	9786,02	0,529	gas station design and construction
67:16:0150104:2	4141,7	3,75	location of the workshop for the production of containers

67:16:0150302:3	4109,1	1,35	for production purposes
67:16:0150133:1	18499,1	1	for the design and construction of a combined gas station with road service facilities

Compiled by the authors based on the source [5]

Unused agricultural land is represented by 549 plots. Of these, almost half are subject to negative processes. The plots, the ownership of which is not delimited, are represented in the amount of 254 land plots. Of these, 245 are subject to the overgrowing forest vegetation according to data from a survey of satellite images. An example of this overgrowth is presented in Figure 2.



Figure 2 - Example of unused agricultural land plots subject to forest vegetation overgrowing

A source [6]

These land plots require significant costs for their restoration. The remaining nine plots are promising for future use. They are presented in table 5. These land plots can be put up for auction, organized by the Administration of the Municipal Formation "Rudnya District".

Table 5 - The land plots of the category of agricultural land, which may be used for its intended purpose

Cadastral number of land	Cadastral value of land, thousand rubles	Area, hectare	Permitted use
67:16:0020103:375	579,6	17,83	agricultural production
67:16:0020103:383	413,1	12,71	
67:16:0020103:386	233,2	7,18	
67:16:0020103:389	508,9	15,96	

67:16:0020103:397	344	10,58	
67:16:0020102:796	1007,5	31	
67:16:0020102:797	786,5	24,2	
67:16:0020103:380	343,6	10,57	
67:16:0020103:390	500,5	15,4	

Compiled by the authors based on the source [5]

The expected result in the form of an increase in the budget of the Municipal Formation "Rudnya District" of the Smolensk Region from the proposed activities is presented in Table 6.

Table 6 - Expected results of the increase in the budget of the Rudnya district

The name of indicators	Year 2019 (plan), thousand rubles			Project, thousand rubles	
	budgets of the municipal districts	budgets of urban settlements	rural settlement budgets	additional income	total budget of the municipal district
Budget revenues - total	361811,8	37990,9	39992,9	+38770,92	478566,52
including:					
- tax and non-tax revenues	89597,8	29994,6	15596	+38770,92	173959,32
- property tax	-	8542,4	5709,4	+7592,9	21844,7
including land tax	-	6352,4	4704,2	+7592,9	18649,5
Revenues from the use of state and municipal property	2562,2	1372,7	499,8	+ 1886,8	4449
including incomes received in the form of rent	1178,8	831,3	-	+ 1301,02	2479,8
Monetary fines for violation of land legislation	-	-	-	+ 27990,2	27990,2

Compiled by the authors based on the source [2, 4, 7]

These revenues can be distributed among the following groups of district expenses: capital investments in objects of state (municipal) property, subsidies to legal entities, individual entrepreneurs, individuals who produce goods, works and services, landscaping settlements (destruction of unauthorized dumps, grass mowing, tidying up recreational recreation zones).

In turn, in this territory, some areas are not put on cadastral registration. It is necessary to conduct their survey to establish the boundaries of the site, its area, location and configuration. This will make a more complete report on the inventory of land. For this procedure, cash investments are required primarily from local governments.

For land plots not to remain abandoned and unused, local administration needs to carry out checks. Checks should be organized at the expense of funds received in the local budget.

Payment for land should form the fund of financial resources of the municipality. From the means of the fund, it is necessary to ensure the implementation of measures for the protection and conservation of land not involved in circulation (Fig. 3).

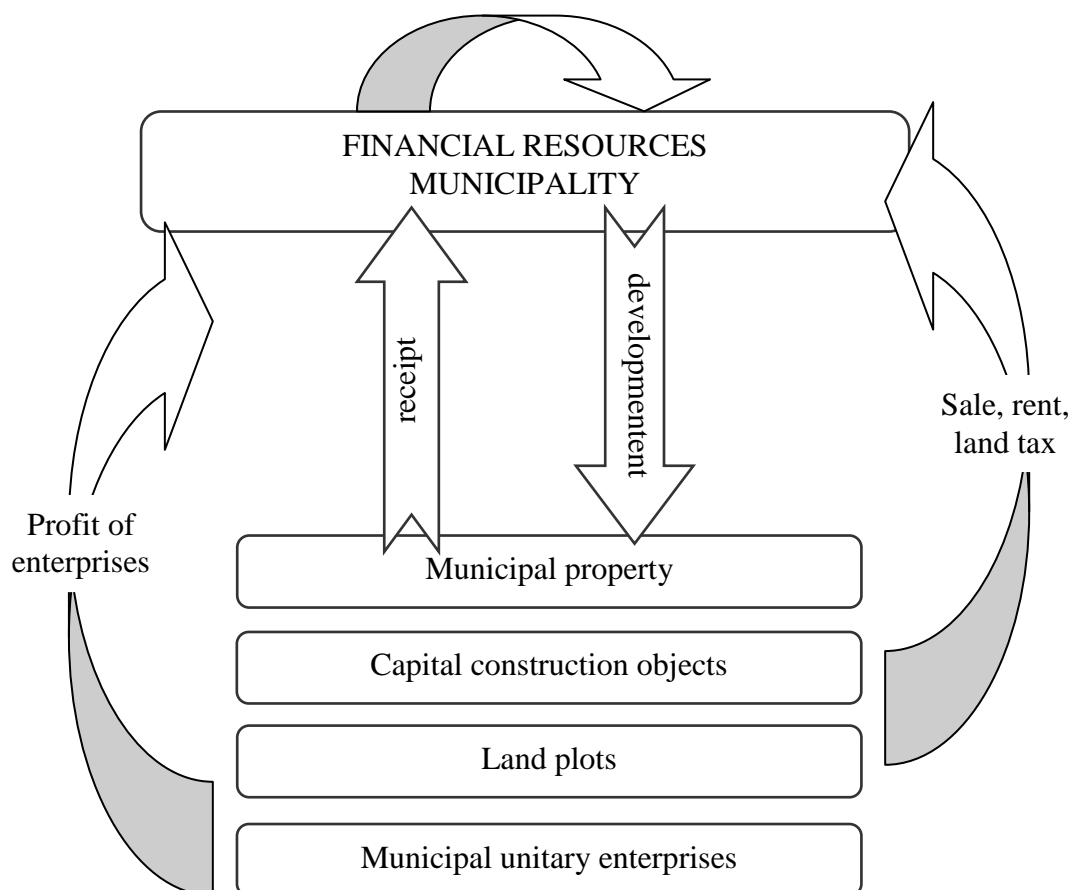


Figure 3 - Formation of income of the municipality

Compiled by the authors based on the source [7]

In the structure of own revenues are the following groups of income related to the use of land resources:

- land tax;
- income from the use of state and municipal property, which can be divided into two parts: revenues from the use of land and income from the use of another real estate;

- compensation of agricultural production losses associated with the withdrawal of agricultural land located in the territories of rural settlements;
- payment for the use of natural resources in terms of land use.

In the cost structure, it is possible to suggest more specific items of expenditure. For example, the creation of a fund to ensure the rational use of land resources. From it can allocate financial resources for the following activities:

- land surveying, land management and registration of land plots that are in municipal ownership;
- education and retraining of persons who are interested in the efficient use of land resources;
- financing activities aimed at conservation and restoration of land plots located at territory the district.

Thus, land monitoring is necessary for systematic monitoring of the state and use of land, for identifying negative processes occurring in a given territory, for forecasting and evaluating land resources. Currently, state monitoring of land is carried out in order to assess the state of land resources, create forecasting programs to eliminate the effects of a negative impact on the surface layer of the earth's crust, and also to substantiate the feasibility of introducing new methods for studying land resources. The development of cadastral activities and on its basis of valuation activities will allow the administration of districts to stimulate the creation of investment sites. This will lead to the development of effective solutions for territorial planning of the use of the resource potential of the municipality and the region as a whole. In the end, this will allow to increase the creation of business units, jobs and reduce social tensions.

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