

# LAND MANAGEMENT ACTIVITIES IN THE CONTEXT OF THE DEVELOPMENT OF MODERN BUSINESS ACTIVITY

**Tatyana V. Tsvetikova, Kaluga College of National Economy and Environmental Engineering**

**Yuri A. Bokov, Volgograd State University**

**Evgeniy P. Kochetkov, Financial University under the Government of the Russian Federation**

**Irina G. Reshetnikova, Tyumen Industrial University**

## ABSTRACT

*Aim of the study: Land management is a necessary procedure for determining the location of real estate objects in the space and further registration of rights to them by legal entities or individuals, both having a special legal status and not differing in it.*

*Methodology: In this regard, there are needs to improve the accuracy of determining the boundaries of the relevant real estate objects assigned to citizens, enterprises and organizations or under the jurisdiction of public-territorial entities, including those of foreign origin; individualization of records about the studied real estate objects to specify the legal regime of their use; literacy of calculations of cadastral value, lease payments, taxes on land and capital construction objects.*

*Conclusion: To optimize the research process, new types of equipment began to appear. The original models of theodolites, total stations, and levels have been replaced with electronic analogues; space technologies for determining the location and properties of real estate objects are being introduced. The article describes the evolution of instrumental equipment for land management and registration of their results.*

**Keywords:** Entrepreneurship, New Types of Geodetic Equipment, Automated Information System of the State Real Estate Cadastre, Materials for Cadastral Registration and Registration of Rights to Real Estate Objects, Practical Significance of Cadastral Activity for the World Community.

## INTRODUCTION

Land resources have a number of practical meanings in the surrounding world: they are the basis of life for biological beings, including humans; they form the basis for any material production; they are a necessary component of the ecosystem. Therefore, the state and society pay special attention to the problems of their preservation and restoration. With the emergence of a variety of forms of ownership of land plots, it became necessary to introduce a fee for using them (Baumol, 2010). There were such types of payments as land tax and rent. In this regard, mechanisms have been developed for accurately determining the location of each unit of the corresponding type of real estate and fixing its boundaries in nature and in a documented form. Of course, this practice existed in ancient times. Thus, under Ivan IV the terrible, there was such

a form of recording information about lands in the Russian state as patrol and scribal books (in the latter case, the document was named after the position of the person responsible for its maintenance). In XX Century, there were cadastral books that distributed objects by districts, administrative districts, and quarters. To prevent duplication of information about real estate objects, each of them was assigned an individual number that is not repeated in time and space. If a land plot was transformed by merging with a neighboring one or was divided into several parts, then the newly formed accounting units received new designations that were not recorded before (Grupe, 2005).

## METHODOLOGY

The presented publication uses materials on the structure and functional purpose of theodolites, total stations, and levelers; it reveals the features of satellite systems in different countries of the world. The necessary information is presented through descriptions of the main parts of the above devices; analysis of the activities and results of research of real estate objects; generalizations of the practical significance of land management works (Belitskaya, 2018).

If we turn to the history of the formation of land management activities, then initially the main measuring device was a pedometer. Land plots were divided into "*Versts*" and "*Tithes*", the latter of which were the main taxable unit in Russia. Information about real estate objects was recorded in scribal or patrol books, which had the form of scrolls and were extremely inconvenient to store. The first repositories of land management information were temples and monasteries, which were also not reliable, due to frequent fires and floods, from which the building materials of that time could not protect. As a result, information about land plots had to be periodically restored, sending to the places of responsible persons who do not differ in special education both in determining the boundaries of real estate objects, and in identifying their qualitative and quantitative properties. All this led to the lack of expediency and use of the land Fund as a whole and its individual parts. Replenishment of lost resources was carried out in an extensive way, most often by increasing the territory as a result of unauthorized seizures or wars (Bonnet, 2012).

## RESULTS AND DISCUSSION

The regularization of land registration began to be observed from the period of "*Serfdom*" in connection with the need to establish per capita taxation in farms by the number of men of working age.

A real "*Revolution*" in the field of land rights can be considered as agrarian reform P. A. Stolypin, when it was first selected property in land and their distribution by categories and types, despite the fact that the relevant terminology yet transpired.

During the revolutionary period, all land resources became the property of the state and land management activities became the prerogative of authorized structures (Butler-Bowdon, 2017).

The revival of land management as a branch of the national economy was noted only in the 90s of the XX Century., in connection with the abolition of the state's monopoly on land resources. The first transformation was the introduction of the principle of payment for the use of land. For this purpose, land plots should be divided into categories and types of permitted use. Previous tools were not intended for this purpose. New types of geodetic equipment are being

introduced, which include theodolites, total stations, and levels. Let's turn to the principle of operation of each of them.

Theodolites are the simplest devices used in geodesy to determine the values of vertical and horizontal angles. The only difficulty in working with the specified equipment is the correct configuration (Hulsink, 2008).

The device itself consists of six elements, each of which has its own functional purpose:

- A telescope for viewing both the object of study and the surrounding environment;
- The limbs are designed for circular counts;
- The alidada is connected to the limbs and is a rotary ruler;
- Screws: lifting and Stanovoy; serve to bring the limb in a horizontal position for shooting the studied property. With this device, the theodolite is set up smoothly and its location is fixed;
- Optical plumb line is used to determine the coordinates of the object of study, available in advanced models of theodolite;
- The tripod is intended for installation of the device on the ground for carrying out measuring procedures with its help.

In practice, several types of such equipment are used, which are distinguished depending on the following criteria:

- Degree of accuracy;
- Method of readout of the vertical scale;
- Design;
- Principle of operation.

The most primitive of the devices of this class is the mechanical theodolite, the main advantage of which is the ease of adjustment. However, the device does not differ in the accuracy of the measurements made, which requires additional research, including similar equipment of more advanced designs (Li, 2013).

Further, an optical theodolite was developed that allows obtaining better readings about the values of the angles of the studied real estate objects.

Finally, laser theodolites are currently the most advanced equipment that performs calculation operations (Semenyutina, 2018).

On the practical specialization distinguish two groups of instruments of this class: phototheodolite and hydrometric. The first are used to measure and fix the value of the angles of objects of interest; the second-in the construction of tunnels and mine development in the process of surveying.

If we talk about the brands of this equipment, Sokkia is widely popular in the Russian Federation, which has optimal modes for studying real estate objects and processing the results obtained (Shmeleva, 2016).

There are several areas of application of total stations as a necessary type of geodetic equipment.

First of all, they are involved in ground topographical surveys, the ultimate goal of which is to make topological maps. When performing such operations, specialists visually set the boundaries of objects; identify reference points for the contours of land plots; recognize individual features that allow you to link land plots to certain categories and types of permitted use, and identify capital construction objects by their practical purpose (United Nations, 2012).

The next direction in the use of total stations is to carry out geodetic and construction breakdown work, which is a necessary step in the transfer of the structure of a building or

structure or land plot from nature to the drawing. In this case, not only the boundaries of the object are clearly drawn, but also adjacent adjacent lands or capital construction objects are shown. On the basis of geodetic and construction breakdown works, the design features and practical significance of the real estate object are identified, regardless of its type (Technonet Asia, 2016).

Determination of rectangular and polar positional values allows you to Orient the property on the ground relative to the surrounding environment.

With the help of total stations, it became possible to measure the main parameters of objects that do not have physical access, which is quite typical for the location of sites in modern suburban cooperatives or industrial, residential and social buildings in urban and rural settlements with a high population density.

The advent of total stations advanced design allowed to use them in carrying out related calculations, for example, in addition to build area, it became possible to determine the height and density of the material from which it is created (Wang, 2016).

The device of modern total stations allows them to be used in such areas of the national economy as construction, archaeological excavations, and road construction. In particular, when conducting archaeological research, this type of geodetic equipment allows you to determine the age of the rock or the earth's crust with maximum accuracy, which is used for making reports and conclusions in such educational fields as paleontology, dendrology, etc..

The accuracy of measurements made by total stations is affected by both external and internal factors. The first group includes the habitat of the area, where work is underway, climate and weather conditions, the qualifications of the expert conducting the measurements; in the second model of the device used in the realization of geodetic activity, its complexity and permissible error of measurement.

## CONCLUSION

In General, the evolution of geodesic technologies, as can be seen from the text of the publication, is aimed at including several instrumental functions in one device: if earlier some types of equipment were engaged in shooting research objects, others-transmitting information to information centers, others were engaged in high-quality processing of the received information, and others made summary reports on the research done, then at the present time all functions are trying to accumulate in one device. For example, electronic levelers not only make a survey of a land plot or a capital construction object, but also give a report on their individual properties and Orient their location in space, including relative to neighboring objects. Thus, the researcher gets an idea not only about the spatial location of a particular real estate object, but also about its categorical affiliation and the type of permitted use, if we are talking about land plots; or about the type and typology, when the properties of buildings or structures are studied.

The complexity of the equipment and the reduction of work time for industrial buildings has led to the emergence of new areas of use of geodetic materials.

## REFERENCES

- Baumol, W.J. (2010). *The microtheory of innovative entrepreneurship*. Princeton University Press.
- Belitskaya, M. (2018). Ecologically adaptive receptions control the number of pests in the ecosystems of transformed at the forest reclamation. *World Ecology Journal*, 8(2), 1-10.

- Bonnet, J., Desjardin, M., & Madrid Guijarro, A. (2012). The shift to the entrepreneurial society: A built economy in education, sustainability and regulation. Edward Elgar.
- Butler-Bowdon, T. (2017). 50 economics classics: your shortcut to the most important ideas on capitalism, finance, and the global economy. Nicholas Brealey Publishing, an imprint of John Murray Press.
- Grupe, C., & Kušić, S.A. (2005). Innovative entrepreneurship in Croatia: Is there a market for venture capital? (1. Aufl. ed.). Nomos.
- Hulsink, W., & Dons, H. (2008). Pathways to high-tech valleys and research triangles: innovative entrepreneurship, knowledge transfer and cluster formation in Europe and the United States. Springer.
- Li P., Gorshkov, M.K., Scalon, M.C., & Sharma, K.L. (2013). Handbook on social stratification in the BRIC countries: change and perspective. World Scientific.
- Semenyutina, A., Svintsov, I., Huzhahmetova, A., & Semenyutina, V. (2018). Regulation of increase of biodiversity of woody plants in protective forest plantings of the Volga region. *World Ecology Journal*, 8(2), 46-59.
- Shmeleva, D.V., & Egorova, M.A. (2016). Organizatsionno-pravovye formy innovatsionnogo predprinimatel'stva v Rossiiskoi Federatsii : monografiia. IŪstitsinform.
- Technonet Asia., Thailand. Krom Songsǎm 'Utsǎhakam., & University of the Philippines. Institute for Small-scale Industries. (1987). Making small enterprises more competitive through more innovative entrepreneurship development programs : proceedings of the 1st Asia-Pacific Symposium on Small Enterprise and Entrepreneurship Development (SEED Symposium), Bangkok, 18-21-February 1987, Manila, 25-28 February 1987. Technonet Asia.
- United Nations. Economic Commission for Europe. (2012). Fostering innovative entrepreneurship: challenges and policy options. United Nations.
- Wang, Z. (2016). Z Hongguo's innovation and entrepreneurship education is the history of innovative entrepreneurship education in China (DI 1 1/2. Quota.). Shehui Science Literature Press.