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Anna Komarova

Approaches to the land evaluation and practice of their application in developed countries

Wise land use is an essential basis for steady economic growth. In many developing countries, land usage policy is one of the most troubled areas. An important issue of land usage policies is the process of land value appraisal. It is necessary to study the experience of developed countries in order to make recommendations for the ones which are still developing.

Current views on the management of land resources in foreign countries mainly developed in the 1980s - the late 1990's. Then the cadastral area had a lot of changes. Thus, in 1999, Bathurst Declaration was signed, prepared the by UN jointly with the International Federation of Surveyors, which currently remains one of the basic elements of the legislation in the field of land resources at the international level. This declaration stated the need to improve the treatment of land and documented trend of movement to the concept of sustainable development of land resources. Other important documents at the international level include the Statement on the Cadastre (1995) of the International Federation of Surveyors and Bogor Declaration on the cadastral reform (1996).

According to a new vision on the land administration system, which was stated in the above documents, Cadastre is a constantly updated inventory information system with data on land, which contains information on rights to land (as well as the limitations and responsibilities of the owner). As a rule, the inventory includes geometric characteristics of the land, the details of its cost and property located on it. The main objectives of the inventory are tax collection and collection of information for land management in the area.

Systems of administration and management of land resources

There are a few common approaches to land use, construction, land administration, taxation and payment of taxes. According to the classification there are two distinct models: the Anglo-Saxon and Continental.

The Anglo-Saxon model is applied in the UK, USA, Canada, India, Australia and New Zealand. This approach is characterized by a high degree of autonomy of local government, elections and the citizens' control, the lack of local administrations in the form of government.

Continental (Romanic) model is common in continental Europe, most of Latin America, the Middle East. In this model the local government is combined with the presence of local authorities (governments at the local level), local government included in the system of government, in addition, this model is characterized by limited autonomy of local government.

From the point of view of establishing taxes local administrations in Anglo-Saxon countries have more freedom in determining the amount of tax and interest rates, therefore, most of the tax goes to the local budget. Speaking of cadastral systems and the definition of land ownership, there is another classification of countries, which involves the selection of the four categories:

- Countries with Napoleon's administrative system (France, Spain, Italy, Greece, etc.), where cadastre and real estate registry are allocated a separately. Information necessary for the taxation is stored in the land cadastre; data on the characteristics of the land fund is stored in the information systems of government; real estate registers are used for the registration of ownership of land.
- Countries with the German model (Germany, Austria, Switzerland), where there are several interrelated systems: cadastral, surveying and registration. For example, in Germany there are a register of real estate (includes cadastral maps, certificates of ownership) and the Bank of cadastral maps (includes documentation of surveying).
- Countries of northern Europe (Sweden, Denmark, Norway, Finland, Iceland and the Baltic countries), where there is a more or less unified complex of large-scale topographic maps, multi-purpose cadastre with the registry of property. Records of property rights and the register are centralized by government agencies, mapping is the responsibility of the administrative-territorial units.
- English-speaking countries (UK, USA, Canada and Australia partly). These systems focus on the registration of property rights, and not accounting of the land. In the UK, the official source of cartographic information is Ordnance Survey, originally released in 1853. It is constantly and rapidly updated to reflect all changes.

Real estate appraisal in developed and developing countries

Process of the mass appraisal of real estate in different countries is controlled by the state and implies obligatory participation in the process of public bodies. In most countries the evaluation is based on statistical analysis of sales prices of land and other real estate. The

cadastre provides information on real estate (land area, the nature of its use, etc.) on the buildings (type of use, size, date of construction, quality, etc.) and other objects. Here or in the other database there is information on the cost of different types of real estate in certain areas as well as the model for evaluation. Using the cadastre information in the evaluation model, it is possible to calculate the value for all types of real estate. This calculation is carried out, as a rule, using personal computers. If the type of property does not fit into the evaluation model, the value adjustment is manual. The most important in the process of mass real estate appraisal is to collect and update the cadastre inventory data. The new data come from municipalities, state governments, urban and regional services from the owners of real estate and other organizations.

In the U.S.A., registration of land is carried out mainly by private companies which collect information about the market value of any land. For a long time there was no state system of land inventory, as well as records were not kept of land not privately owned in the U.S.A. At the moment, there is a special structure within the U.S. Department of Interior, which is responsible for state land cadastre - The Bureau of Land Management. Bureau collects information on land, which includes features such as address, survey data and an evaluation index. It is also engaged in cadastral surveying and maintains registration records. It should be emphasized that the system of land management is highly decentralized and differs significantly from state to state.

Due to similar ways of economic development of various countries and intensive interaction of economies there is a trend towards convergence of certain elements in the management of land resources. In other words, due to continuous reform in this area is becoming increasingly difficult to separate "pure" types.

At the beginning of XXI century, the problems of reform of land administration systems were actively discussed in the scientific community and among experts in the field of public and municipal administration. This period was marked by a number of reforms of cadastral systems in the various countries of the world. Thus, a comparative study of cadastral systems, which was conducted in 2007, showed that during the reform and suggests areas of developing and developed countries are faced with a similar set of problems. The study was based on an analysis of the descriptive information on the cadastral systems of 36 countries in Africa, the Americas, Asia, Europe and the Middle East.

If to allocate the main problems in the system of cadastral registration in developing countries, they are the following:

- The problem of legal registration of land. Illegal land use occurs more frequently in rural areas than in cities. Fragmentary information in this case leads to the inadequacy of land inventory and the lack of relevant information for the calculation of the tax base.
- Lack of coordination between the different levels of the system of land management, the contradictions in the legal regulation and the lack of coordinated data collection and processing system.

As a specific factor that complicates the process of reform, the researchers often referred to the federal structure of the state and different levels of management. In this context, questions about the separation of powers between the different levels of government, and the division of responsibilities between different government agencies are raising. Obviously, the idea of transferring the responsibility for the performance of functions on a single agency, recently enjoyed some popularity among researchers, from a practical point of view does not stand up to criticism.

Considering the situation in indicative federal states of Western Europe, the examples of Germany and Switzerland should be noted. Thus, in Germany, a land register keeps at the national level, and legal regulation of the cadastral system keeps at the level of administrative units. In addition, the structures the purpose of which is to control the unification of the cadastral system are used. Information is collected at the level of administrative units and transferred to the national level to produce the total inventory database and maps. In Switzerland, the responsibility for maintaining cadastral inventory is split between national level and the cantons level. Cantonal agencies gather information, engage in registration of property rights, and the main purpose of government at the state level is to control the activities of these agencies.

An important indicator of the high level of cadastral system of the state can be considered as the number of surveyors to 1000. The highest values recorded in the states with the dynamic and developed land markets (e.g. Germany), the lowest - in countries with established ownership structure, not active and undeveloped land market. Lack of specialists or their low qualifications is one of the factors hindering the reform of land administration of the state. Hence support of the geodesic education and training programs for staff are especially important.

In general, priority direction in the reform of the cadastral systems is sustainable development. Special value is attached to the integration of land management in the overall management and the constant search for ways to meet the needs of the residents of a

particular area. A separate direction is the active use of information technology in management, the creation of relevant databases, as well as the active use of automated control systems. Developing countries should take into account the above opportunities and challenges in the reform of local government. According to comparative studies, in addition to the previous experience success of the reform depends on such factors as the form of government structure and the number of management levels, the degree of cooperation established between the different spheres of government, the degree of elaboration of the legal framework.

Based on an analysis of international experience two main approaches for the mass appraisal of land can be distinguished.

The first approach focuses on the formalization of the opinions of experts (specialists) about the nature of the market value relation to its parameters. The basis of this approach is the personal opinion, qualification and experience of an expert appraiser. There are various techniques that are designed to facilitate a more accurate and objective work of the appraiser, however, the main drawback is the subjectivity of the appraiser. Another disadvantage is the relatively high costs, and advantage - high accuracy and applicability in a situation with lack of information and the evaluation of unique objects.

The second approach is based on modern economic and mathematical methods, models and algorithms. Through statistical analysis of the available information about the parameters of a large number of similar objects, the mathematical dependence on the parameters that best fits the available information is determined. The obtained results depend largely on the processing of information provided and to a lesser extent - on the selected standard methods of treatment. One of the main advantages of this approach compared to an expert evaluation is objective, because there is no influence of personal biases and misconceptions of the expert. Other advantages are relatively low cost, the ability to quickly evaluate a large number of objects, the ability to keep track of such trivial factors as seasonal price fluctuations, the local centers of influence, etc. Disadvantages of this approach are less accuracy in terms of lack of information, a simplified approach to the assessment, the inability to assess the unique objects, the complexity of model building. But these disadvantages disappear if necessary to carry out a genuine mass estimate.

Most common in international practice are techniques based on the second approach, because, all other conditions being equal the result obtained with the use of statistical methods, has a high degree of reliability in comparison with the results obtained by means of expert analysis.

Main evaluation approaches and their application in developed countries

Due to standard practice, property is evaluated using three main methodological approaches: comparable sales, cost analysis and income analysis. Techniques of one approach can be used as well as combination of the methods. The choice of method depends on the object of evaluation, available information, type of property usage and others.

During mass valuation of real estate comparable sales and income analysis approaches should be preferred in case of assessing the value of multi-family housing when sufficient data on sales and income is available. Approach, based on a comparison of sales, is best suited to evaluate the single-family housing. The cost analysis approach is a good complement to these approaches. As a primary approach it should be applied in the event when there is no sufficient data on sales transactions. The income approach is not suitable for mass estimates of individual single-family housing, as most of this type of property is not rented.

Method of determining the value of the land in the developed countries commonly are based either on a comparison of sales, which implies the study of market transactions prices of real estate (Australia, Denmark, Sweden, Indonesia and Japan), or capitalization of income from the potential of the best and most profitable use of real property (some Swiss cantons, some real estate in Denmark and Sweden), or the cost analysis method, which is based on calculating the costs that would be required for a full reconstruction of the property (Indonesia, Japan and South Korea - for buildings), or a combination of all three these methods (U.S., Canada, the Netherlands).

But the practical application of a method of evaluation depends on the type of the object, available information as well as the degree of the market development.

In South Korea, some of the provinces of Canada, as well as for buildings, for which there is no market in the Netherlands and Sweden, the method of the cost of reproduction of similar object at current market prices for construction in the area is used. In some cantons of Switzerland and some states of the USA, Denmark this method is used as a reference for the correction and comparison with the estimation with method based on the selling price of the property.

In Australia, the approach calculating profitability per unit area of the object is used to assess property in the mining industry. The same applies to agricultural real estate in Switzerland and some U.S. states and Canadian provinces.

Annual rental value of the property is used in France and the UK. In France, the buildings related to the housing stock are taxed separately from the commercial and industrial facilities. In this case, the totality of housing is divided into eight groups, each of which uses its own cost per unit area of the object, calculated on the basis of the annual rental value of the base year, increased by the conversion rate set annually. The land on which the residential premises are located is divided into twelve groups, with a similar approach to the definition of the unit value of its area. To assess the value of commercial buildings, either the annual rental value of the base year or the current annual rental value is used. In some cases, the value of sales of similar properties is calculated. The cost of reproduction of similar object method is used only for industrial properties.

In the UK, the valuation of property for tax purposes using the market value of the rent is used only for non-residential properties. The scale of cost is set for housing, which is calculated based on the rental value and each of the scale schedules apply their own rates.

All developed countries have a system of cadastre or real estate inventory in general and. Therefore, most countries regularly appraise cadastral land value. Analyzing the experience of the developed countries on land evaluation it can be said that all three main methodological approaches are used. But the practical application of a method of evaluation depends on the type of the object, available information as well as the degree of the market development.