

# Study of the main directions of the cadastral valuation of non-agricultural land in Uzbekistan

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**Abstract.** The current land-use policy in Uzbekistan has not provided clear solutions for different land users related to the cadastral valuation of land resources. Despite several land reforms that have been implemented until now, still, numerous issues can be easily identified in this field. For these reasons, this paper investigates the problems of cadastral valuation of land resources, including non-agricultural land, which are the national wealth of the country. It outlines the goals and objectives and the methods and techniques used to address them. A number of natural, social, economic, environmental, and political factors affecting the consumption characteristics of non-agricultural land, including settlements, have been identified. Using analytical analysis, calculations, and monographic methods, to date, the methods and approaches to land valuation developed in the country as a result of research in this area have been analyzed. Their shortcomings have been identified. They identify a number of specific features that have been overlooked in today’s market economy. Specific scientific recommendations for determining the relative value of land plots based on the type and nature of real estate located in settlements are given. On this basis, the procedure for calculating the market value of land in residential areas is provided.

## 1 Introduction

In the Republic of Uzbekistan, the land is the national wealth of the country [10]. According to official data, the area of the Republic of Uzbekistan is 448924 km<sup>2</sup>. More than 80 % of this area is given to various enterprises, institutions, and organizations, as well as citizens, for use by the state on the basis of established rights [13]. The land involved is a means of production [9]. The rational and efficient use of any means of production in accordance with the market economy depends, first of all, on the depth and comprehensive study of its most important features. This rule applies primarily to land, especially land used for non-agricultural purposes - the full and correct use of which in economic sectors is based on the study of the characteristics of these lands, i.e., their cadastral assessment can be established.

Land valuation has been practiced in Uzbekistan for many years. A number of soil scientists

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and economists [2,5,8,9,11,14] have conducted extensive research on land valuation problems. Today, the country has developed a methodology for the cadastral assessment of agricultural land [6]. Based on this, the results of land valuation work are being used to positively address a number of market problems. However, one of the key issues to be addressed today is to create a comprehensive and simple methodology for cadastral assessment of non-agricultural land and to recommend it to the practice of organizing the use of non-agricultural land.

Furthermore, it is worth emphasizing that historical cadastral materials are useful for land use change investigation [16].

## **2 Materials and methods**

In general, the land is divided into two large groups, i.e., agricultural and non-agricultural land. Non-agricultural land includes forests, thickets, wetlands, buildings, structures, roads, cattle tracks, water, and land occupied by other types of land. In short, plots of land that are not intended for agricultural use, or unused lands, are non-agricultural lands. Thus, the cadastral value of the land in the cities, urban-type settlements, and rural settlements in the territory of the republic can be determined on the basis of studying and strictly adhering to the most important theoretical and practical aspects of the formation of such values.

World valuation practices highlight a number of factors that have a significant impact on the valuation of property, including residential land [2, 7]:

- physical factors - climate, resources, the topography of the land, soil, and human-made buildings, structures, devices, utilities, and the shape and cost of land;
- social factors - population growth rates in settlements, lifestyle, number of family members, crime rate, rate of change in education and wages;
- economic factors - income and employment levels, fiscal policy, interest rates, rental rates, increase or decrease in construction costs and prices;
- political factors - zoning, building codes and regulations, availability of services, health and safety issues, tax policy, and environmental protection.

All of the above factors have an equal impact and play an important role in shaping the cadastral value of land in settlements. With this in mind, the main goal of the study is to develop specific scientific recommendations for the development of a methodology for cadastral assessment of lands of settlements. In order to achieve this goal, the task of the research is to study the various factors influencing the use of such lands, and the existing methods of valuation practice to date, and to develop an improved valuation methodology based on those. Analysis, accounting, and monographic research methods were widely used in solving the issue at hand.

The importance of the development and implementation of the real estate mass valuation system made it possible to have a deeper and better understanding of the market value for property taxation in Slovenia [17]. According to Anna Barańska, there are many differences in the systems of real estate mass appraisal in some selected European countries in comparison with other continents, including in law, institutional scope, etc. [18]. Another research shows that existing authoritative land administration data is extremely important for effective mass valuation information systems for public purposes in Croatia. Because property valuation always plays vital importance in an efficient Land Administration System (LAS), relying on up-to-date and accessing accurate information for each property unit can give fair and correct assessments [19].

### 3 Results

It should be noted that the assessment of the cadastral value of agricultural land is determined by the functions of land as the main means of production, means of labor, and object of labor in agriculture. Therefore, the assessment of such lands is based on the functional factors of land resources (soil fertility, expenditures, revenues, etc.) that affect agricultural production. However, non-agricultural land, unlike agricultural land, has a different functional nature (location of the population, the main means of production, the place of production of various products, services, etc.). At the same time, for example, the nature of individual plots of land in populated areas often changes. For example, a plot of land occupied by individual houses today may, over time, become a plot of land on which cultural and social facilities are located. A piece of land currently in common use could be converted into a plot of land occupied by a manufacturing company in the future, based on land use planning. In addition, the above-mentioned physical, social, economic, and political factors also have a significant impact on the value of residential land. All this indicates that the process of determining the cadastral value of non-agricultural land, including residential land, is extremely complex. However, it is necessary to solve this problem as positively as possible, in particular, to create a perfect and simple methodology for determining the cadastral value of lands of settlements, using it to determine the cadastral value of such lands in different regions of the country and solve market problems of land use.

The results of monographic studies show that to date, economists have tried to develop a number of methods to determine the cadastral value of land in settlements [1, 2, 3, 7, 12,]. These methods are based on the cost, profitability, and comparative approaches used in valuing these properties, sometimes based on the properties of the land as real estate [2, 12], and sometimes assessing the value of facilities or engineering infrastructure located at the top and bottom of these plots [3, 5], approaches to segmenting the lands of settlements and evaluating them separately [1, 7]. So, it is only natural that the results of such a variety of approaches will vary. This, obviously, limits the use of appraisal results and does not allow settlements to be converted into market assets.

The development of settlements and, as a result, the increase in the value of land within their borders, is mainly due to the transformation of settlements into places of employment, capital, and entrepreneurship. The wage rates, profits, and interest are used as the market mechanisms for this [14]. From this, it is clear that the tax policy of the state will be a decisive factor for the development of settlements. This is because taxes on wages, capital, and entrepreneurship reduce the interest in increasing them. Developing communities need to reduce the tax burden on these factors and concentrate on land resources where the bulk of them cannot be reduced. In this case, the inflow of labor, capital, and entrepreneurship into the population will increase, land rents will increase, and the level of development will not be affected. It is very important to attract more capital for the development of the settlement, because the availability of sufficient capital, labor, and land will be more productive, which means that both wages and rents will be higher. Rent is a legal economic application of land relations [2, 7]. In practice, the rent paid by the lessee to the landowner (city or state) for allowing the use of the land is, obviously, in the form of land rent. Whatever the components of this payment, the common denominator for land rent is that it determines the value of the land, that is, the capitalized income from the lease of the land. In view of this, it is necessary to pay special attention to the following rules of fundamental importance, which should be the basis for cadastral assessment of lands of settlements:

- different districts, sizes, levels of development, and levels of engineering infrastructure do not allow to develop and use of a single scale and basic normative value for cadastral assessment of lands of settlements in today's conditions;

- the practice of determining the normative value of land in many countries shows that the normative value of land is not less than 70-75% of the market value, and the difference between the individual cadastral value of the land plot and the calculated normative value of the relevant cadastral plot does not exceed 50%. In the case of large discrepancies, it is necessary to clarify to which cadastral appraisal plot this individual plot of land belongs;
- cadastral value assessment should take into account and be based on generally accepted principles of urban planning for the formation and development of settlements at different levels.

## 4 Discussion

Indeed, the above-noted information shows once again that the assessment of the cadastral value of the lands of settlements is a very complex process. In this case, it is important to divide the settlement into separate zones, to determine the nature of these plots when assessing the overall condition of each region, to take into account various local factors affecting the assessed land, and to take into account urban planning features of the assessed land. From this point of view, the approach proposed by B. Yu. Khodiev and Z. S. Abdullaev have a certain practical significance [7]. In their opinion, the following group of factors has either a positive or negative impact on the cadastral value assessment of land plots of settlements and the formation of this assessment:

- convenience of the population to go to the center of the settlement, and to the objects of cultural and public services of public importance;
- provision of centralized engineering facilities and landscaping of the territory, the convenience of transport to workplaces;
- level of development of cultural and public services within the micro-district, quarter, or other project units of local significance;
- historical value of devices, aesthetic and landscape value of the territory;
- state of the environment, sanitary and microclimatic conditions;
- engineering geological conditions of constructions, the probability of exposure of the area to catastrophic natural and anthropogenic impacts;
- recreational value of the area.

Indeed, every plot of land located within the boundaries of a settlement, regardless of the nature of its use, is inextricably linked to the above 7 groups of factors. It is the influence of this group of factors that can increase the value of land, or, conversely, decrease it. With this in mind, the researchers proposed to divide each group of factors into several subgroup factors that could be encountered relative to a particular plot of land, and recommended a number of correctional factors for them [2,7, 12,15]. As a result of taking into account the impact of each sub-factor in the process of land assessment, it is necessary to enter the appropriate correctional factor for the land plot. Based on the information obtained, an interpretation of each assessed plot is performed. It shows the role of the land in urban planning and its impact on the above. Such an explanation would be the basis for quantifying the impact of the factors listed above on the assessed site. Quantitative values of factors are recorded in a special ledger table. Using this information, it is proposed to determine the initial coefficient of the relative value of the area for each assessment site using the following formula:

$$K = 1 + K_1 + K_2 + K_3 + K_4 + K_5 + K_6 + K_7 \quad (1)$$

where: K is the generalized coefficient of the relative value of that area within the boundary of a particular assessment plot, K<sub>1</sub>, ... K<sub>7</sub> - correction coefficients on group factors 1-7.

Determining the cadastral value of a land plot using the generalized coefficient of the relative value of the territory within the boundaries of a particular assessment plot is generally determined using the following equation:

$$P = S_{land\ plot} * (P_{pos} + P_{har}) * K \quad (2)$$

where: P - the cadastral value of the land plot, thousand soum;

$S_{plot\ of\ land}$  - area of the plot of land,  $m^2$ ;

$P_{pos}$  - is a linear function of factors for a particular plot of land, taking into account the characteristics of the existing infrastructure in the settlement;

$P_{har}$  - linear function of action parameters for a specific plot of land, taking into account the characteristics (local) of a particular plot of land.

K- is the ratio of the transition from one type of functional land use to another type of functional land use, for which there are no market statistics, with information on actions with plots of land.

In assessing the cadastral value of lands of settlements, in addition to the above, the type of targeted use of each plot of land is different. For example, a certain plot of land may be occupied by residential buildings, while another plot may be occupied by a commercial or public catering facility. In terms of real income, the second plot of land brings 3-4 times more income than the first. Separation of land plots for such purposeful use and the introduction of appropriate adjustment coefficients for each type of use is very necessary and appropriate in assessing the cadastral value of the land. It also helps the government with land taxation. With this in mind, the appraisal process will need to include the appropriate correction factors depending on the intended use of the land within the settlements on the date of the appraisal. At the same time, it is necessary to adopt a high level of correction coefficients, depending on the potential income of businesses, trade, catering, hotels, etc., with a coefficient of 1.0 for, say, residential land.

In addition, in our opinion, it is necessary to take into account the local, specific characteristics of each individual plot of land in the settlements. For example, one plot of land may be in poor condition in terms of natural relief or quality, in terms of engineering geology, in terms of ecological description of the territory, or in terms of urban planning, while another plot of land, on the contrary, is much better in terms of the above conditions. can be. Typically, such local descriptions of plots have been divided by most researchers into two groups [2,4,12]:

- increasing the relative value of the plot of land in a particular functional use, and hence the cadastral value of the land;
- reducing the relative value of the such plot, and hence the cadastral value of the land.

Such local descriptions of any plot of land include engineering geology, engineering equipment and landscaping of the land, proximity, and convenience to daily cultural facilities, urban planning, and ecological factors (various pollutants, air pollution, and so on.). Obviously, such local conditions may have a large negative or positive effect on the total value of the land, and hence on the cadastral value. Therefore, in the process of assessing the cadastral value of a particular plot of land in the settlement, it is necessary to take into account such factors. This, obviously, requires the introduction of correction factors that increase or decrease the value of the plot in an appropriate manner for each of the local conditions listed above. Determining the cadastral value of a particular plot of land using such correction factors can be done using the following formula proposed by researchers B. Yu. Khodiev and B. B. Berkinov [7]:

$$C = K * C_b * P \quad (3)$$

where, C- is the cadastral value of the plot of land of a certain functional use, taking into account the local description, thousand soum;

$C_b$  - the basic cadastral value of the plot of land in certain functional use, thousand soum;

P - area of the plot,  $m^2$ ;

K - is the correction factor that increases or decreases the value according to the local characteristics specific to this particular plot of land.

## 5 Conclusions

From the above, it is clear that determining the cadastral value of non-agricultural land (especially residential land) is a very complex process, as each of the plots will need a separate approach depending on the characteristics of a large number of districts. In order to facilitate this situation and speed up the process of determining the cadastral value of such lands, in our opinion, we must develop accurate correction coefficients for all the above characteristics of plots and distribute them to assessment services in all regions based on the main features of settlements in the country. Making extensive use of the evaluation process gives good results. At the same time, the automation of this work on the basis of the creation of a special electronic program for land valuation of settlements will dramatically reduce the time, labor, and material costs of this work and ensure the accuracy of the assessment results.

Based on the above scientific research, it can be briefly concluded that the determination of the cadastral value of non-agricultural land (especially land in settlements) is one of the most difficult issues in the complex of land valuation. Establishing and creating a perfect system of access to its data will be another important step toward the full-fledged formation of market relations in the country's economy. This, in turn, will pave the way for the comprehensive expansion of such appraisal practices and the transformation of settlements' lands into assets using its materials.

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