3.6 CADASTRE APPRAISAL OF LAND AND THE PECULIARITIES OF CONDUCTING IT IN THE REPUBLIC OF BELARUS

This research deals with the topic of cadastre appraisal of land in the municipalities of the Republic of Belarus. It covers the following sub-topics: the structure of the State Cadastre, the procedure of cadastre appraisal of land, public cadastre map. It also analyzes the ways the cadastre appraisal of land is being used in the country. The authors provide the data on the cadastre value of land in the capital city of Minsk as well as in the city of Lahoyts (Minsk region). They also describe the pilot project "Mass formation and the cadastre appraisal of real estate on the territory of particular provinces of the Republic of Belarus". 

Land, being one of the production factors, serves as the basis of all the interactions of a society in areas such as political, economic, social, production, communal, ecology and others. Land has a value, an accurate appraisal of which is a critical precondition for a sustainable functioning of an economy. Land is also a resource, limited in quantity and thus one that is fated to grow in value, especially in the long-term perspective.

The need to receive accurate data on the value of land and land plots is shared both by the various state bodies that deal with management of land resources, urban development, providing land and tax policy and the private land market players. Individual and mass land appraisal mechanisms are utilized for this purpose all over the world. While the individual land appraisal provides the value of particular objects, the mass land appraisal covers all the land in a country. Hence, the mass land (cadastre) appraisal fully provides all the market players with the information on land value.

Currently, the cadastre appraisal in Belarus is widely used for different purposes. Taxation happens to be most important kind of purpose of the usage of cadastre appraisal results. It is also important to understand that taxation serves as one of the principal sources of state budget formation in Belarus. Cadastre appraisal is conducted by highly qualified staff and the appraisal results are then confirmed by the local executive committees while the cadastre values of land plots go to the Value Registry of the State Cadastre.

What makes cadastre appraisal a topic of broad and current interest is the fact that accurate and balanced appraisal of land can enable the creation of the economic triggers needed to alter the current system of land usage and related taxation; and that, in turn, can help optimize the living conditions of people and bring about a more robust development of the country.

Cadastre land appraisal is an integral part of the State Land Cadastre, which, in turn, at the same time, it is part of the overall appraisal of the natural resources, used in the national economy. Providing data to the state bodies' responsible land property management and related taxation is the prime goal of cadastre land appraisal. Thus, for the purpose of better understanding of the national market for real estate, analysis of the system of mass appraisal of land should only be done considering its interdependence with other elements of the land cadastre.

Historically the State Land Cadastre was established when the need for accurate data on land, as a prime source of material wealth and a subject to taxation had evolved. The development of the relations within the society and the emergence of various forms of property have caused the evolution of the term cadastre itself. In its narrow definition a cadastre is a book on land plots taxation. The wider definition though implies a system of instructions for accounting, description and appraisal of land, conducted by the government with a purpose of obtaining data needed for land ownership taxation; in other words, it is an action by the state [267, p. 15].

As of today, State Land Cadastre is understood as a collection of systematized accounts and documents on the legal regime, state, quality, distribution status, for-profit or other usage of land and land plots (according to the Article 1 of the Code on Land of the Republic of Belarus) [268].
In the IT context, Land Cadastre can be viewed as a regularly updated data-base that contains accounts of legal, economic and aerial characteristics of land plots, as well as the coordinate, area and type of land etc. formed with the data on prime, legally homogeneous land plots.

The Code on Land happens to serve as the legal basis for the State Land Cadastre in the Republic of Belarus. The code defines the structure of the cadastre. Currently the cadastre consists of the single registry of administrative-territorial and territorial units of the Republic of Belarus, single state registry of real estate, its ownership and related transactions, of the registry of streets' and roads' names, of the registry of prices of land plots and of the registry of value of land plots of the Republic of Belarus.

Let us take a closer look at the State Land Cadastre of the Republic of Belarus. The single registry of administrative-territorial and territorial units (later on ATU and TU) of the Republic of Belarus includes records of names, size and borders of the administrative-territorial, the territorial units and their respective administrative centres [268, 269, 270]. As of beginning of 2015, the registry contained data on 28,000 objects [270]. Data on an object includes:

- unique registry number of the object;
- code of the object according to the classification "System of identification of objects of administrative-territorial division and of the municipalities";
- name of the object;
- name of the administrative centre of the object;
- category and administrative subordination of the object.

The single state registry of real estate, its ownership and related transactions (later on SSRRE) contains records and documents on registered land plots and real estate objects that are stationed on those land (including records of location of the land plots, their borders, authorization of usage type, property right, limits of the property right, easement (non-possessory right of usage) and of related transactions. The processing of the registry is executed according to the legislation on state registration of real estate, its ownership and related transactions. As of beginning of 2015, the registry contained data on 5,260,000 objects of real estate [270], including:

- 1,460,000 land plots;
- 1,780,000 buildings;
- 2,020,000 isolated apartments.

Data on the objects includes:
- Cadastre (for the land plots) or inventory (for the buildings and apartments) registration number of an object;
- address of an object;
- authorization of usage type;
- main characteristics of an object;
- records of property right and limits to property right for an object;
- records of property right holder(s);
- records of related transactions of an object;
- records of the documents that the registration of an object, property right and limitation to property right was based on.

The registry of streets contains data on the elements of the streets / roads network of the municipalities of the Republic of Belarus. As of beginning of 2015, it included data on 74,000 elements of the streets/roads network [270].

Data on the elements of the streets/roads network includes:
- unique number of the municipality that the element of the streets / roads network is situated in (according to the registry of ATU and TU);
- name of the element of the streets / roads network;
• type of the element of the streets / roads network (street, boulevard, alley etc.)

The data from the registry of streets is used during the insertion of the addresses of the real estate objects to the Single State Registry of Real Estate.

The registry of prices of the land plots (later on RP) includes records of prices of land plots and real estate objects, stationed on those land plots, as recorded during the last transaction related to the land plot or the real estate object on it. As of beginning of 2015, the registry contained data on 1,120,000 transactions [270], including:

• 54,500 transactions with land plots;
• 371,900 transactions with buildings;
• 638,600 transactions with apartments.

Data on transactions includes:
• address of the real estate object;
• main characteristics of the real estate object;
• date of the transaction;
• monetary value of the transaction.

The registry of value of land plots (later on RV) contains records of cadastral monetary value of land plots, identified during the cadastral appraisal procedure. As of beginning of 2015, the registry contained data on the cadastral value of land of [270]:

• 200 cities;
• 24,000 villages;
• 4,700 gardener societies.

The registry contains data on cadastral value of land plots and of price of 1m² of land in the appraisal zones of municipalities.

Thus, the registry of ATU and TU, SSRRE, RP and RV happen to be the prime sources of data, needed for handling of the cadastral appraisal. After the cadastral appraisal is completed and the local executive power bodies verify and confirm its results the data on cadastral value of land plots are inserted into the RV.

The way cadastral appraisal works is that on a given day a considerable number of land plots undergoes appraisal. Appraisal zoning is applied to land (i.e. land is being divided into zones and in each zone land vale is approximately the same). For the cadastral appraisal the monetary values of transactions with real estate are studied; tendencies of price fluctuation, variations of demand and supply of real estate; conditions of transactions, options of financing; for how long objects had been on sale; the level of renting price in the market, conditions for signing rental agreements etc. [271].

The following types of land and land plots are subject to cadastral appraisal in the Republic of Belarus [272]:

1) municipalities;
2) villages;
3) gardener societies;
4) land that is situated outside the boundaries of municipalities or gardener societies.

During the cadastral appraisal lands of municipalities, villages, those situated outside the boundaries of municipalities as well as lands belonging to gardener societies are subject to separate appraisal according to each of the following types of authorization of usage (types of appraisal zones) [272]:

1) residential multi apartment zone;
2) residential gardener type (including gardener societies);
3) industrial zone;
4) business (office) zone;
5) recreational zone.

Hence, five cadastral values are calculated for each of the zones.

Before January 2015, right to order a cadastral appraisal was enjoyed provincial, city and regional executive committees as well as the State Committee on property (later on SCP)
of the Republic of Belarus. The amendments to the Code on the Land were introduced on January 9, 2015: since then the right to order a cadastre appraisal was limited to the SCP [273].

Since August 7, 2015 a new Instruction for the order of conduct of cadastre appraisal was enacted. It was adopted with an edict of SCP № 27 on June 26, 2015. According to the Instruction, a cadastre appraisal is conducted following an initiative from SCP and must take place at least **every 4 years** (according to the authorization of usage types). The required frequency was at least every 5 years before. Cadastre appraisal result in cadastre values of land, land plots that are calculated according to the agreed upon models of appraisal in Belarusian Rubles and US dollars (currency get converted according to the official exchange rate, published by the National Bank of the Republic of Belarus on the day of the cadastre land appraisal). An agreement on conduct of cadastre land appraisal can authorize calculating and subsequent display of cadastre value of land in a different foreign currency (value in BYR gets converted to the foreign currency according to the official exchange rate, published by the National Bank of the Republic of Belarus on the day of the cadastre land appraisal), unless there is a special prohibition in the legislative system [274].

The first cadastre appraisals in the Republic of Belarus were conducted between the years 2003-2005. By January 1, 2010 village lands of all the regions but Minsk region were yet to be assessed. Cadastre appraisals were conducted in 84 municipalities between the years 2003-2004 and the results were reviewed between 2008-2009 using correction coefficients. Cadastre appraisal of land designated for industrial, transportation, communications, energy sector, national defence and for other purposes that was situated outside of municipalities or gardeners' societies was conducted in the Republic of Belarus for the first time in 2007.

Conducted cadastre land appraisal from the period between the years 2007-2013 are shown in the Table 3.6.1 (based on the analysis from the RV of State Land Cadastre of the Republic of Belarus [270]).

### Table 3.6.1

<table>
<thead>
<tr>
<th>Date of the cadastre appraisal</th>
<th>Amount of cadastre appraisals of land depending on the type of land</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lands of the municipalities</td>
</tr>
<tr>
<td>2007</td>
<td>2</td>
</tr>
<tr>
<td>2008</td>
<td>9</td>
</tr>
<tr>
<td>2009</td>
<td>163</td>
</tr>
<tr>
<td>2010</td>
<td>223</td>
</tr>
<tr>
<td>2011</td>
<td>72</td>
</tr>
<tr>
<td>2012</td>
<td>41</td>
</tr>
<tr>
<td>2013</td>
<td>11</td>
</tr>
</tbody>
</table>

*Source: authorial research [270]*

The calculation of the cadastre value of land according to the authorization of usage type is performed in the following order [272, 275]:

1. At first, the basic value of the lands in a given municipality is calculated according to the authorization of usage type. For that purpose, an individual appraisal of randomly selected land plots is performed in each of the appraisal zones. These individual appraisals are conducted according to one or a number of the appraisal methods:
   - statistical analysis,
   - scheduled insertion of corrections,
   - in relation to a comparison study,
   - ranging,
   - pointing out,
   - distribution,
• residual,
• profit (i.e. direct capitalization of income),
• presupposed usage,
• capitalization based on return on investment (discounting of the revenue streams).

The order of calculation is defined by the state standard "STB 52.2.01-2011" [272]. Basic value of land in a given municipality \( (BC_{\text{m}}) \) according to the authorization of usage type is estimated as an average using the following formula:

\[
B_{\text{hl}} = \frac{\sum_{j=1}^{m} \frac{PC_{3y}}{K_{CB}}}{m},
\]

where \( PC_{3y} \) is the market value of an average land plot;
\( K_{CB} \) – independent coefficient of impact of the factors of evaluation considering the scale of their impact on the cadastral value of land in the appraisal zone;
\( m \) - quantity of individual appraisals of land plots conducted according to the authorization of usage type.

2. Calculation of cadastral values of land in the appraisal zones \( (KC_{30\text{ma}}) \) is derived from multiplying of the basic value of the municipality’s land by the independent coefficient of the impact of appraisal factors:

\[
KC_{30\text{ma}} = B_{\text{hl}} \times K_{CB}
\]

The independent coefficient of impact of the appraisal factors is derived considering the scale of the impact of the factors through the following formula:

\[
K_{CB} = \prod_{i=1}^{n} \sum_{j=1}^{m} K_{ij} \frac{scale_{ij}}{scale},
\]

where \( K_{CB} \) - is the independent coefficient of the impact of appraisal factors;
\( K_{ij} \) - \( j \)-value of the coefficient of the \( i \)-factor of appraisal;
\( scale_{ij} \) - area of the appraisal zone that is impacted by the \( j \)-value of the coefficient of the \( i \)-factor of appraisal;
\( scale \) - area of the appraisal zone;
\( n \) - number of appraisal factors;
\( m \) - number of values of appraisal factors.

Appraisal factors and the values of the coefficients for the land of multi-apartment zones and for the gardener societies are displayed in the Table 3.6.2 [275].

A report and a verdict on cadastral appraisal in three copies are issued at the last stage of the appraisal procedure. One copy goes to the ordering party; one is saved in the archive of the conducting party while the last copy is transferred to the institution that is authorized by the State committee on property of the Republic of Belarus to keep the registry of value of land plots of the state land cadastral.

The results of the cadastral land appraisal are verified and confirmed by respective local executive committees. After the confirmation of results of the cadastral appraisal of land and land plots the local executive committee has 10 days to send the conducting party a copy of the confirmation verdict. After that, the cadastral value of land and land plots gets inserted into the RV of State Land Cadastre. The local executive committee has to be notified on that [275].

A special online resource has been developed by the state unitary enterprise "National Cadastre Agency". The goal of the online resource was to simplify the process of getting data on cadastral value of land or on the taxation basis of the land tax from the registry of value of the state land cadastral. This information can be retrieved from vl.nca.by [270]. All the data on this website is an open-source and can be accessed for free all over the world [273].

The results of cadastral land appraisal in Belarus play a significant role in state’s management of land resources. The main way of using the results is applying them as a basis for calculating the taxation mechanisms.
### Table 3.6.2

**Appraisal factors and coefficient values for the land of multi-apartment zones and zones of gardener societies**

<table>
<thead>
<tr>
<th>Name of the appraisal factor</th>
<th>Value of the coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proximity (ease of reaching) of the centre (downtown) of municipality (by foot and/or using public transportation)</td>
<td></td>
</tr>
<tr>
<td>Up to 10 min.</td>
<td>1,00</td>
</tr>
<tr>
<td>10–20 min.</td>
<td>0,77</td>
</tr>
<tr>
<td>21–30 min.</td>
<td>0,60</td>
</tr>
<tr>
<td>31–40 min.</td>
<td>0,47</td>
</tr>
<tr>
<td>41–50 min.</td>
<td>0,36</td>
</tr>
<tr>
<td>More than 50 min.</td>
<td>0,28</td>
</tr>
<tr>
<td>Availability of centralized natural gas supply</td>
<td>1,20</td>
</tr>
<tr>
<td>Availability of centralized water supply</td>
<td>1,10</td>
</tr>
<tr>
<td>Availability of centralized canalization</td>
<td>1,05</td>
</tr>
<tr>
<td>Availability of centralized heating</td>
<td>1,05</td>
</tr>
<tr>
<td>Proximity (less than 500 m away) of the centre of residential district</td>
<td>1,10</td>
</tr>
<tr>
<td>Proximity (less than 1000 m) of botanical gardens, parks and other objects of recreational purpose</td>
<td>1,10</td>
</tr>
<tr>
<td>Zone of special sanitary protection regime and/or zone of increased level of noise, vibration (e.g. from railroad, airport etc.)</td>
<td>0,90</td>
</tr>
<tr>
<td>Quality of air:</td>
<td></td>
</tr>
<tr>
<td>satisfactory</td>
<td>1,00</td>
</tr>
<tr>
<td>relatively satisfactory (relatively unsatisfactory)</td>
<td>0,95</td>
</tr>
<tr>
<td>unsatisfactory</td>
<td>0,90</td>
</tr>
<tr>
<td>Contamination of land with chemical elements</td>
<td>0,95</td>
</tr>
<tr>
<td>Ground (soil) for construction purpose:</td>
<td></td>
</tr>
<tr>
<td>satisfactory</td>
<td>1,00</td>
</tr>
<tr>
<td>relatively satisfactory</td>
<td>0,95</td>
</tr>
<tr>
<td>unsatisfactory</td>
<td>0,90</td>
</tr>
<tr>
<td>Limitation of permit to construct</td>
<td>0,95</td>
</tr>
</tbody>
</table>

*Source: Authorial research [275]*

According to Article 195 of the Tax Code of the Republic of Belarus the cadastre value serves as a basis for the land tax. This tax is historically an Ad Valorem tax and applies only to the owners or users of land. The land tax rates are fixed in accordance with the area and the appraisal zone coefficient. The tax basis for the land tax is fixed to the data available and assessed on January 1 and applies to:

- land plot with a single authorization of usage type based upon its cadastre value;
- land plot with multiple authorization of usage types, that thus is subject to different land tax rates, based upon a formula that takes to consideration the division of total area into areas designated for each of the usage types;
- fractions in the ownership of a land plot based upon the formula that takes to consideration the division of the total area proportionally to the ownership distribution.

Another way the results of cadastre appraisal are used is estimation of annual rental fee for a land plot. In accordance with the Decree by the President of the Republic of Belarus from March 1, 2010 № 101 "On charging a rental fee for land plots, owned by the state" the rental fee is decided upon by a local executive committee, by the administration of free economic zone:

- for a single authorization of usage type based on cadastre value of the and plot while applying designated coefficients;
- for multiple authorization of usage types that assume different coefficients based on cadastre value of the land plot and using a formula that takes to consideration the division of total area into areas designated for each of the usage types;
• fractions in the ownership of a land plot with a single authorization of usage type based upon the formula that takes to consideration the division of the total area proportionally to the ownership distribution.

• fractions in the ownership of a land plot with multiple authorization of usage types based upon the formula that takes to consideration the division of the total area proportionally to the ownership distribution and applying the respective coefficients for the types of authorization of usage of the land.

Another way the results of cadastre appraisal are used is derived from the Decree of the President of the Republic of Belarus from December 27, 2007 № 667 "On acquisition and provision of land plots". According to this decree, a purchase of a land plot for the needs of state is handled using the cadastre value of the plot for the date of the acquisition. The exception can only be made for the land plots that were previously purchased from the state through an auction. In this case, the property owner is reimbursed the value that was paid during the auction altering the price to consider also the inflation factor; the price cannot be lower than the cadastre value during the auction.

Another important area of application of cadastre appraisal results takes place during the provision of land plot by the state to an investor for construction purposes (with the constructed building then being rented out). In this case, the value of the fee for the right to sign the rental agreement for the land plot without an auction is derived from the cadastre value of the land plot while applying the coefficients. The coefficients in this case depend on the duration of the rental period and their values are decided upon by the Council of Ministers of the Republic of Belarus.

The cadastre value of land is also referred to during mortgage credit agreements signing. According to Article 50 of Code on land, land plots that are privately owned may be the subject to mortgage and the rental rights for a land plot may serve as guaranty for the credit provided by a bank. The value of the land plot that is subject to mortgage cannot be lower than its cadastre value. Hence, nowadays the results of cadastre land appraisal are widely used and applied in various spheres of life of the Belarusian society providing the necessary conditions for effective management of land resources.

In regards to the cadastre value of the land in the capital of Belarus in Minsk, 2012 was the last time land had been subject to cadastre appraisal. That cadastre appraisal was conducted according to the market data on sale/purchase transactions of apartments, residential suburban houses, commercial or industrial buildings. In five years (after the previous appraisal in 2007) app. 200,000 transactions were analyzed. Specialists relied on the data provided by the market when constructing appraisal models and conducting appraisal zoning. The cadastre value of land was identified both in Belarusian Rubles and US dollars. The minimal cadastre value of 1 square meter of land in a multi apartment zone of Minsk was $246.7, while the maximum one was $424.8. The residential suburban zone had the minimal cadastre value of one square meter of $39, while the maximum one was $213.6. In the business-office zone the minimal value of one square meter of land was $195.5, with $584.4 being the maximum.

The cadastre value in US dollars of land in Minsk has lowered in by the year 2012 comparing to 2007 in all zones but the residential suburban one. Yet the value in Belarusian Rubles has gone up because of the devaluation of the currency in 2011. Thus, the US dollar value of land in the multi-apartment zone of Minks has decreased by 6% comparing to 2007. In the business office zone the value had decreased by 14%, in the industrial zone by 2%. The only increase in value took place in the residential suburban zone of Minks by 32% [276].

The main statistical indicators of cadastre value of land of the appraisal zones of Minsk as of January 1, 2013 are displayed in the Table 3.6.3 [277].

For the sake of comparison the cadastre values of land in the appraisal zones of the city of Lahoysk are displayed. Lahoysk is situated in the Minsk region, 40 km away from the city of Minsk (Table 3.6.4). The data is from January 1, 2013 [276].
The National Cadastre Agency of the Republic of Belarus created a new tool in 2014 "Public cadastre map". This software serves as a database of registry entrees from the registry of the State land cadastre. Public cadastre map provides a visualization of the data, stored by the National cadastre agency, based on geography with an option to choose the scale.

The tool can be accessed online at http://map.nca.by and can be of interest to state institutions caring out accounting and management of land resources, professionals from the real estate market of Belarus as well as to legal and natural persons. Public cadastre map has a number of layers. The Layer "Cadastre value of land" is based on data, contained by the registry of value of land plots of the State land cadastre. The map provides the cadastre value of one square meter of land of municipalities that situated outside municipalities and of land of gardener societies. The bar "additional information on the object" contains data on the date of cadastre appraisal, the document that the confirmation of the results was based on, and the details of the procedure of inserting the appraisal results into the registry of value.

Layer "Registry of ATU and TU" is based on the data from the single registry of administrative territorial units and of territorial units of the Republic of Belarus. The map contains information about registered (and present in the Registry of ATU and TU) administrative-territorial units of Belarus (regions, provinces, districts, villages, municipalities). It also includes the information about special regime territories (i.e. national parks and nature preservation institutions of different kinds).

Layer "Land plots" is based on the data from the single state registry of real estate, its ownership and related transactions (SSRRE), particularly from the part on registered land plots that are geographically tied to the navigation system of 1963. The map offers a search tool that refers to the cadastre number of the object.

Layer "Address points" is based on the data from registry of addresses of the Republic of Belarus. The map contains information about addresses of real estate objects that are part of the registry of addresses.
2015 was the year when State Communal Property of the Republic of Belarus started a pilot project aimed at testing a new system of real estate appraisal that refers to both the land plot and the building on it. The project is run on a relatively small territory of one of the central districts of Minsk and in one of the provinces of Brest region. As the project progresses a new methodology of cadastre appraisal of real estate objects of all types will be developed, introduced and probated. There is also a plan to develop and test a methodology of mass formation of land plots, buildings, and isolated apartments and to get a feasibility study of costs, related to all the necessary work on a national scale [278]. During an individual appraisal of a real estate object (building, part of a building and a land plot) experts rely on the market data on transactions of sale / purchase type, on sales offerings, on rental offerings and rental agreements, on construction costs. They also use analytics and consult real estate agents and other market players. The cadastre value of real estate will be calculated in both national and a foreign currency. The pilot project of mass formation and cadastre appraisal of real estate will identify the presence (or absence) of reason to conduct these procedures on a national scale altogether. That is because it will cover millions of real estate objects (as of end of May, 2015 there had been 2.1 million of land plots, 2.2 million of buildings and 2.7 million of isolated apartments registered in the Republic of Belarus) [278].

The evolution of the system of cadastre land appraisal in the Republic of Belarus started in the late 1990s and was associated mainly with the work on creating the methodology of appraisal procedures. Every year new legal acts were adopted that covered various aspects of appraisal process. The first cadastre land appraisals were conducted in 2003-2005. Since then not only all the land plots have been evaluated but also the land of the gardener societies and the land situated outside municipalities or gardener societies.

The cadastre land appraisal is conducted at least every four years. The ordering party is always the State Committee on property while the conducting party is an institution appointed by the committee.

The cadastre land appraisal in municipalities is conducted in accordance with the standards of evaluation of public objects of the Republic of Belarus and with the Technical Code of the adapted practice.

The significance of cadastre land appraisal for the economy of Belarus is obvious. That is because the results of the appraisal are used in various spheres of life: taxation, setting auction starting prices, provision of land plots to the citizens, mortgages, reimbursement schemes, preparation of rental agreements, in acquisitions of land from citizens by the state for urban development and other purposes etc. Among the listed points of application the land tax estimation and rental fee calculation are the most important spheres where the cadastre land appraisal data is critically important.

REFERENCES


