

## BASIC PRINCIPLES OF THE BASE OF LAND CADASTRAL VALUE DEVELOPMENT IN LATVIA

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**Key words:** real property, cadastral object, objects of real property, cadastral value, basis of cadastral value.

### Introduction

Cadastral value of the common cadastral assessment principles specified date according to cadastral data by the cadastral value of the object in terms of money. Cadastral value excludes the value of forestry plantations [1]. Cadastral valuation is in accordance with the laws and regulations to implement the principles of operation of a set of objects to determine the cadastral and real property tax value of the object to be used for the purposes of the laws and regulations.

Cadastral valuation process includes:

- 1) cadastral value of the basic design;
- 2) cadastral value of the calculation.

Cadastral value of the base – the cadastral value of the calculation of the required value of the characteristic set of data – the basic value and weightings based on the real property market data analysis, determined cadastral value of the object group in terms of a relatively homogeneous area – zone. Cadastral value of the base the design of the country recognized real property assessment standard method of valuation.

The study hypothesis – basis of cadastral value is decisive role in the cadastral value of the calculation. Consequently, the study aims is explore cadastral object data and its possible use in the calculation of cadastral value. The study addressed the following objectives:

- look at the setting process of basis of cadastral value;
- analyze data of cadastral objects in the cadastral information system;
- evaluate basis value and possibilities of their use.

### Material and methods

The procedure for developing the basis of cadastral values is provided by the Regulations No.305 of the CM (18.04.2006.)[2].

Based on these Regulations, the development of the basis of cadastral values can be divided in five stages (Fig.1): first, as a result of processing the data of real property market, price levels are determined for all types of property, as well as Deal cards and Price cards are developed; second, the information necessary for developing the basis of cadastral values is summarized and analyzed; third, during the value zoning digitalization process a sketch of value zoning is developed on the cadastre map, which contains actual information; fourth, value zones are determined; fifth, indicators of the basis of cadastral values are determined.

To determine the average price in the reference period for the base period, can be used Laspeyre price index. Laspeyre price index is the weighted average change in prices of each type of goods, where the weights are their respective values. Real property prices are used as weights in the base year.

Mathematically Laspeyre price index can be expressed as follows:

$$P_{01}^{La} = \frac{\sum_{i=1}^n \frac{P_1^i}{P_0^i} (P_0^i q_0^i)}{\sum_{i=1}^n P_0^i q_0^i} = \frac{\sum_{i=1}^n P_1^i q_0^i}{\sum_{i=1}^n P_0^i q_0^i} = \frac{\sum P_1 q_0}{\sum P_0 q_0},$$

where  $P_{01}^{La}$  – Laspeyre price index;  $p_1$  – the average price during the reporting period;  $p_0$  – the average price in the base year;  $q_0$  – the number of transactions in the base year;  $i$  – each property type identifier.

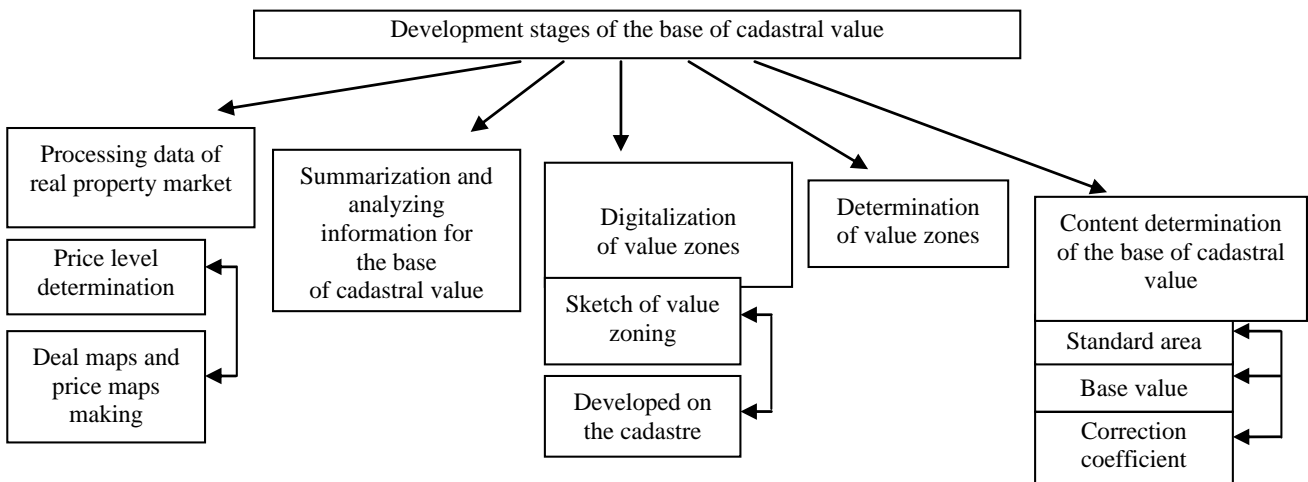


Fig. 1. Development stages of the basis of cadastral value

Define Laspeyre price index so we can review and calculate the base period, the average price ratio, multiplied by the base period for each type of trade transaction number of the base period total number of transactions.

Scientific literature, laws, the data of State Land Service are used in this research.

Monographic method, analysis method, descriptive statistics analysis method is used in the particular research.

### Discussions and results

The assessment of real property is an objective comprehensive statement of the characteristics of the property, expressed in money, which, within the possible framework, reflects the situation of the particular property from the economic, technical, legal and social aspect [3].

Three main assessment methods are used assessing real property – market data comparison method, revenue method and costs method [4].

Each of these methods has its own specific approach and its assessment criteria, thus each of these methods reflects the value of the property rather one-sidedly. Therefore, to obtain the most reliable property value in the particular case, property assessment with several methods is advisable. Comparing the obtained results and analyzing the reliability of the results of each method and the impact on the final value, it is possible to acquire rather precise results.

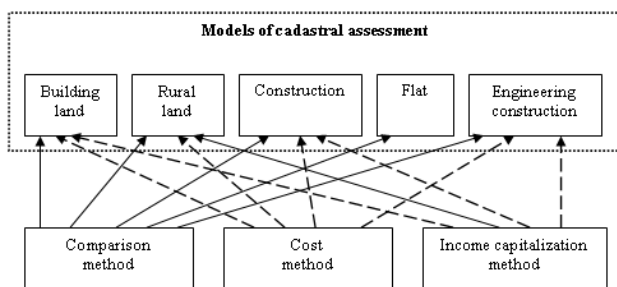


Fig. 2. Use of assessment methods in the cadastral assessment models

Research about the usage of assessment methods indicated (Fig.2) that market data comparison in all cadastral assessment models is used when calculating the cadastral value and the revenue method is used in the cadastral assessment model of rural land using data about the average price of timber in Lats per cubic meter distributed by species of trees and timber assortment, about average output costs for the main cutting area and about the costs of forest renewal and cultivation, as well as about administrative costs, thus determining the average base value of the quality group of the respective forest land. In other models neither the revenue method nor the cost method is used [5]. The authors of the present thesis concludes that acquiring objective and qualitative data about costs and rent revenue would allow using all assessment methods in the cadastral assessment process, as a result of which a more objective cadastral value would be obtained.

To use the data of the real property market stored in the information system of the Real Property Market for the

purposes of cadastral assessment, data assessment, selection and analysis should be performed. Initially, it is important to assess the number of deals and the price in the analyzed period, as well as to compare the number and price of the deals with the number of the price in the previous periods in total in the country and in particular territories.

Price levels using real property transactions of comparable data, first broken down by:

- purpose of real property;
- transaction object composition;
- the type of transaction.

Calculation the transaction data in a selected area selected for their value in influencing, physical characteristics:

- deals with the ground data selection, the use of real property group in a certain area of the target range;
- dealing in land and construction data are grouped according to certain physical characteristics of objects;
- if a particular territory, analyzing business data is found in other areas range within which land transactions are comparable, and other land and buildings of comparable a group of physical parameters, then this should be used – given in the particular area of the amplitude and the land and building group-specific physical parameters, the analysis results on the ground.

Calculation of price level of 2010 and 2011, as the base year is use 2009 (Fig.3.).

Observations lows and highs until 2010 August, but the rest period, only lows. Observation, that the final period the price index shows a higher stability. Regression graphic for this change process is described as regular with a very compact coherence 0.96.

Consequently, it can be concluded that real property prices in the market are stabilization, as reflected in the last six months of 2011. To determine the cadastral value of rural land and building land more completely and objectively, the Regulations of the Cabinet of Ministers provide for developing zoning of land value for every municipality. It is planned to develop land value zoning according to a unified methodology and organizational procedure.

Zoning of one real property group is developed once in four years simultaneously in the entire country in the following order:

- 1) for the group of rural real property – zoning of agriculture use of the land and zoning of forest land;
- 2) for groups of building real property:
  - for the group of residential building property – zoning of building residential houses;
  - for the group of industry building – zoning of building industrial production objects;
  - for the group of commercial activity and public building – zoning of building commercial objects.

The borders of the value zones of the real property groups of building are determined along the land unit borders, not allowing dividing land units and buildings in different value zones (except land units below roads, railroads, rivers). The borders of the value zones of rural real property groups are determined along the borders of administrative territories of municipalities or territorial units of municipalities and cities with rural territories.

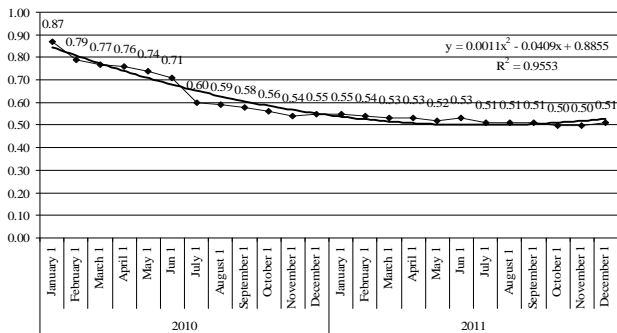


Fig. 3. Real property price level (the base year to 2009)

Along with the development of zoning of the respective property group within the margins of value zones, the cadastral value base indicators of real property are determined.

The indicators of the cadastral value basis for *building land* are the land base value, standard area of land and the correction coefficient for the standard area. Land base value is the value of one square meter in Lats in the value zone for a particular utilization purpose, and it is determined according to the real property market information. Standard area of land is a conditional area of a land unit that is determined analyzing the real property market for calculating the cadastral values of land for a group of a particular purpose of use and whose price characterizes the most typical price level of the land unit regarding the area in the particular territory corresponding to the group of the purpose of use. The correction coefficient for a standard area is determined taking into account the proportion between the price of one square meter for land units that correspond to a standard area and the price of one square meter for land units that exceed the standard area.

The indicators of cadastral value basis of *rural land* are the base value of agriculture use of the land for every quality group of agriculture use of the land and the base value of forest land for every quality group of forest land. The agriculture use of the land is divided into six quality groups depending on the quality assessment of agriculture use of the land in points based on normative productivity (one land value point – 70 kg rye units). The base value of agriculture use of the land is determined in Lats per hectare for all quality groups of agriculture use of the land for each territory of the municipality. Quality groups of forest land are divided into four groups depending on the average assessment of forest land in points. The level of average values of forest land is determined according to the type of forest growing, using the revenue capitalization method.

### Conclusions

1. Comparison method is related to many conditions and comparison of selection problems and the sales data collection and processing.
2. Cost method of putting them into use objective data on construction costs and depreciation.
3. To apply the cadastral income capitalization valuation method, you need to accumulate, mainly for the rental data.
4. Price is the real property market indicator data, and the changes significantly affect the basis of cadastral value.
5. Cadastral assessment would get quality real property market data normative documents, as well as promoting the exchange of data.

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### Основні принципи розроблення бази кадастральної вартості землі в Латвії

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Наведено огляд значення кадастрової вартості в Латвії. Проаналізовано закони та правила, що регулюють розрахунки кадастрової вартості та основи кадастрової вартості, а також проаналізовано параметри, які впливають на базу кадастральної вартості. Ринкові ціни на нерухомість проаналізовано з параметром індексу цін. Проведено детальний аналіз землі під житлову забудову, землі під комерційну та громадську забудову, а також під промислову. Висновки зроблено на основі впливу вказаних параметрів на базу кадастральної вартості.

### Основные принципы разработки базы кадастральной стоимости земли в Латвии

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Проведен обзор значения кадастральной стоимости в Латвии. Проанализировано законы и правила, регулирующие расчеты кадастровой стоимости и основы кадастровой стоимости, а также параметры, которые влияют на базу кадастральной стоимости. Рыночные цены на недвижимость проанализированы с параметром индекса цен. Проведен детальний анализ земли под жилую застройку, земли под коммерческой и общественной застройкой, а также под промышленной. Выводы сделаны на основе влияния указанных параметров на базу кадастральной стоимости.

### Basic Principles of the Base of Land Cadastral Value Development in Latvia

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The article provides an overview of the basis of cadastral value and the role of cadastral value in Latvia. The author has analyzed laws and regulations governing the calculations of cadastral value and the basis of cadastral value, as well as she has evaluated parameters, which affect the basis of cadastral value. The real property prices have been analyzed in relation to the price index figures. Detailed analysis of residential building land, commercial and public building land, as well as industrial building land of the base of cadastral value has been carried out. Conclusions on the basis of cadastral value reduction and its causes are presented.