

ANALYSIS OF PURPOSES OF USE OF REAL PROPERTY IN MUNICIPALITIES OF LATVIA

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Abstract

One of the cornerstones of sustainable use of land resources is the use of land resources for the identified needs. In every country it is needed to list the land according to the type of land use. Such function of land classification in Latvia is maintained by the classification of purpose of real property use. In a certain period of time needs of the specific purposes for which the land resources are used are changing, so the aim of this study is to research changes of areas of purpose of real property use in municipalities of Latvia. The analysis of purpose of use of real property in Latvia municipalities demonstrates the trend of decrease of agricultural land resource areas in proportion to the increase of forest land resource areas, excluding the region around Riga, where areas of agricultural land and forest land resources are decreasing, but residential land resource area for needs of development of capital is increasing.

Key words: Land use, real property, purpose of real property use, municipality.

Introduction

Land is a basis of a development of every sector of national economy. The requirements regarding the land are different for various sectors of national economy. There are many options of how to use land. It can be cultivated in agriculture or processed in forestry. It can be processed in order to obtain minerals, to produce building and construction materials or to create energy. It can be used as a location of city institutions, buildings, structures, transport communications, resting places, enterprises (Zeme: mana, tava ..., b.g.). Therefore, in every country it is needed to list the land according to the type of land use. Such function of land classification in Latvia is maintained by the classification of purpose of use of real property. In the regulation No.496 of Minister Cabinet (Nekustamā īpašuma lietošanas ..., b.g.) it is defined that the purpose of use of real property is determined to a land unit or a part of land unit for purposes of cadastral evaluation according to a detail plan, to a territorial planning of municipality or to a current use of land or building initiated within the procedures specified in regulatory. Groups of purpose of use of real property, considering the factors forming the value, are classified in the following classes of purpose of use:

- Land on which the building is not for the primary use of land – building is permitted only in cases when it is necessary in order to ensure the permitted use of land;
- Building land.

The municipality in whose administrative territory the land unit or part of land unit is located determines its purpose of real property use. Administrative territory is a territorial unit in Latvia, where within its competence a corresponding local government implements an administration (Administratīvo teritoriju un ..., b.g.). Currently, there are 9 cities of the Republic and 110 municipalities.

The main resources of nature in municipalities are a land and a forest growing on it. Besides, the land is not eternal, we received it from our ancestors and eventually we will pass it over to our children and their children – and the laws of Universe require us to maintain this land and to pass it over not worse than we received (Boruks, 2004). We need information about available resources of every location on the land and how they divide into renewable and non-renewable resources, as well as options of a rational use of resources and their preservation for the future. Overall, the humans are not short-term users of the land, but they are also rational users of resources of nature – humans are creating, building and maintaining many of them in order to pass them over to next generations, so they could have a basis for living and existing.

Therefore, the main aim of this publication is to research changes of areas of purpose of real property use in municipalities of Latvia. In order to achieve the aim, the following tasks have been set:

- To analyse the changes of areas of purpose of real property use separately in the country, in historical regions and in current municipalities;
- To analyse the biggest two groups of purposes of real property use – agricultural land and land of forestry – the changes of land areas.

Materials and Methods

The Overview of Land of administrative territories of LR provides information about a state of an apportionment of land of country on purposes of real property use and types of land use considering statuses of ownership and owners on date 01.01. each year.

The data used in the research is a publicly available data about purposes of real property use and types of land use in the country in total and in municipalities from the Overview of Land made by State Land Service. The time period used in the research is the years from 2009 to 2014.

The method used for a data processing was an analysis method of time series, which allows paying attention on a detection of changes of things and phenomena from a dynamic point of view, which happening during the flow of time, on a clarification of specific procedure and on a detection of regularities during the process of changes (Krastiņš & Ciemiņa, 2003).

The indicators of changes of time series are obtained by a comparison of two levels of time series. It follows that it is possible to calculate indicators of chain increase and base increase for each time series.

An absolute increase of chain $\Delta_{m(k)}$ can be found by subtracting a previous level y_{m-1} from an ordinary level y_m (1):

$$\Delta_{m(k)} = y_m - y_{m-1} \tag{1}$$

An absolute increase of base $\Delta_{m(b)}$ can be found by subtracting an original or base level of the series y_1 from an ordinary level of the row y_m (2):

$$\Delta_{m(b)} = y_m - y_1 \tag{2}$$

Absolute increases are expressed in same units as units in row levels, in this research it is ha (hectares).

Chain increase rate $T_{m(k)}$ can be found by dividing an ordinary level y_m with a previous level y_{m-1} , but base increase rate $T_{m(b)}$ – by dividing an ordinary level y_m with an original level y_1 . Increase rates are expressed as fractions of number one. The percentage of increase rates is obtained by multiplying the results with 100 (3, 4):

$$T_{m(k)} = \frac{y_m}{y_{m-1}} \times 100 \tag{3}$$

$$T_{m(b)} = \frac{y_m}{y_1} \times 100 \tag{4}$$

Chain increase rate and base increase rate $t_{m(k)}$ can be obtained by subtracting 1, respectively 100%, from the relevant chain and base increase (5, 6).

$$t_{m(k)} = T_{m(k)} - 100 \tag{5}$$

$$t_{m(b)} = T_{m(b)} - 100 \tag{6}$$

Since a time series in the economics mostly reflects increasing objects and phenomena, the indicators of changes traditionally are called as indicators of increase. If the time series reflects a descending process, then absolute increases are negative, but increase rates are less than 1, respectively 100%. It is very easy to detect simple mathematical correlations between the indicators of dynamic changes. Absolute

base increases are obtained by summing up absolute chain increases. Base increase rate is obtained by multiplying chain increase rates in fractions of 1. With rounding the results, a minor accumulation of errors is possible.

The means of time series characterizes qualities of time series of analysed time period. Each mean average is only one number characterizing whole time series. Middle level of each time series expresses the size of typical phenomena contained in analysed time period. The arithmetic mean level of interval time series \bar{y} calculates by dividing a sum of series levels with a number of levels (7):

$$\bar{y} = \frac{\sum_{m=1}^n y_m}{n}, \tag{7}$$

where y_m – level of period m;
 n – indication of time of the last member of the series.

Absolute average increase expresses the average change per unit of time of researched phenomena during a time period of analysed series. The result of formula is obtained by dividing a sum of absolute chain increase with a number of chain increases $n_{\Delta} = n - 1$ (8):

$$\bar{\Delta} = \frac{\sum_{m=1}^n \Delta_{m(k)}}{n_{\Delta}} \tag{8}$$

Mean increase rate \bar{T} expresses the mean intensity of changes of phenomena in fractions or percentage. It can be calculated (9):

$$\bar{T} = \sqrt[n_{\Delta}]{\bar{\Delta}} \tag{9}$$

Mean increase rate is calculated by subtracting number 1 from mean increase rate.

Results and Discussions

According to the regulations of Minister Cabinet No 496 (Nekustamā īpašuma lietošanas ..., b.g.), 12 groups of purposes of use of real property are defined. According to the data from the Overview of Land, the apportionment of land areas in groups of purposes of use of real property on 1st of January, 2015 shows that the largest land areas are covered by two groups – Agricultural land and Forestry land and specially protected nature territories, where any economic activity is prohibited by the laws and regulations. First of both groups covers 59.0% and the

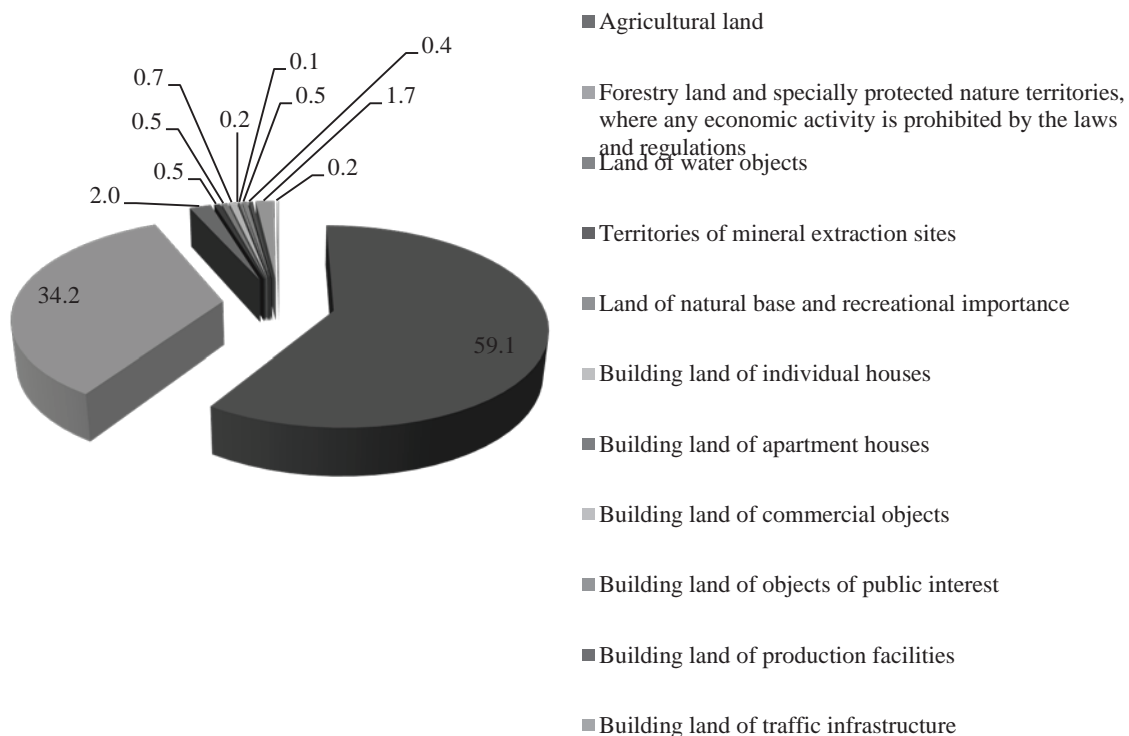


Figure 1. Land areas in groups of purpose of use of real property in Latvia (by State Land Service data on 01.01.2015).

other one covers 34.1% from the territory of Latvia (Figure 1).

Analysis on changes of land areas in groups of purposes of use of real property between the years 2015 and 2009 (Table 1) shows that there are some major changes, because the area of the group of Agricultural land has reduced by 67,734.8 ha, which is 1.8%, but the area of group of Forestry land has increased by 52,499.3 ha, which is 2.3%.

In groups of Land of natural base and recreational importance and Territories of mineral extraction sites are even greater changes, which have appeared as an increase of areas by 16.3% and 15.8%. Generally, these changes were affected by the changes in laws and regulations in Latvia, as well as the requirements regarding a sustainable use of land defined by The European Union (EU).

In order to obtain more precise explanation on these changes, a more detailed research further will be made on the largest two groups of purpose of use of real property – Agricultural land and Forestry land.

In the group of Agricultural land, a land where the main economic activity is agriculture, and a land, which is being used for sowing fields, grass mowing, grazing, cultivating forage grasses, orchards and other perennial plantations, vegetable gardening, mushroom gardening and cultivation of crops under glass are classified. In this group farms, backyard holdings, specialized state farms (state training and

experimental farms, as well as other specialized state farms), agricultural enterprises, which specialize in a particular sector of agriculture and with an agricultural land according to the business specifics it uses appropriate buildings and other necessary structures in order to serve as providers in the production process are also classified. Types of land use that describe Agricultural land are arable land, meadows, pastures, as well as land under farm buildings and residential courtyards. Also, land with forests if they are not covering major part of land unit and not classified as a land with main economic activity of forestry, can be classified as agricultural land.

Whereas, in a group of Forestry land and specially protected nature territories, where any economic activity is prohibited by the laws and regulations, a land with main economic activity of forestry and specially protected nature territories, where any economic activity is prohibited by the laws and regulations, are classified. Land, where main economic activity is forestry, an economic, preserved and protected forests (with an exception of special areas of protected territories in which all natural resources are completely excluded from economic and other activities), land under the forest infrastructure, overflowing clearing adjacent to forest and within it, as well as marshes and glades, can be classified in this group. Also agricultural land, if it is not covering major part of land unit and not classified as a land with main economic

Table 1

The changes of land areas in groups of purpose of real property use (2009-2014) in Latvia

Purpose of real property use	on 01.01.2010 (2009)	on 01.01.2015 (2014)	Changes of land areas regarding land areas of 2009
Agricultural land	3,876,363.1	3,808,628.3	-67,734.8
Forestry land and specially protected nature territories, where any economic activity is prohibited by the laws and regulations	2,152,822.4	2,205,321.7	+52,499.3
Land of water objects	126,466.6	126,060.8	-405.8
Territories of mineral extraction sites	29,002.0	34,460.5	+5,458.5
Land of natural base and recreational importance	29,185.4	34,859.3	+5,673.9
Building land of individual houses	43,886.4	43,635.9	-250.5
Building land of apartment houses	10,932.4	10,879.2	-53.2
Building land of commercial objects	6,316.2	6,054.0	-262.2
Building land of objects of public interest	32,433.1	31,205.0	-1,228.1
Building land of production facilities	23,731.8	24,699.7	+967.9
Building land of traffic infrastructure	106,461.1	108,621.8	+2,160.7
Building land of engineering supply networks and facilities	12,049.7	10,317.6	-1,732.1

activity of agriculture, can be classified as a Forestry land. In specially protected nature territories, where any economic activity is prohibited by the laws and regulations, all specially protected nature territories, where all resources of nature are completely excluded from economic and other activities can be classified.

In order to obtain a more precise explanation to previously mentioned changes, the analysis of relative and absolute indicators of time series of areas of Agricultural land and Forestry land in 110 municipalities about the time period of 2009 to 2014 was made (Table 2, Table 3).

The absolute mean increase of area of land of a group of Agricultural land has a negative tendency, -13213.8 ha, but mean increase rate is 99.7 ha, whereas the absolute mean increase of area of land of a group of forestry land has a positive tendency, + 10483.7 ha, but mean increase rate is 100.5 ha.

With the indicators of mean increase rate it can be concluded that the reducing of areas of Agricultural land has gradually happened, an average of 0.3% per year, but the increase of areas of Forestry land has been an average of 0.5% per year.

The results of analysis of land area of Agricultural land and Forestry Land in municipalities of historical regions have same tendency as in the country overall (Table 4). Land area of Agricultural land has reduced, but land area of Forestry land has increased.

Area of Agriculture land group in municipalities of Latvia has reduced, but area of Forestry land group in municipalities in Latvia has increased. In historical region of Kurzeme, the largest reduction of area

of Agriculture land group is in Talsi municipality, -6,810.8 ha; the next largest decrease is in Kuldīga municipality, -1,594.8 ha. The smaller reductions of the area in this group of purpose are in Alsunga and Vainode municipalities, -99.3 ha and -165.9 ha respectively. In historical region of Latgale, the largest reduction of area of Agriculture land group is in Ludza municipality, -2814.0 ha and in Rēzekne municipality, -2,069.8 ha, but only -36.4 ha in Cibla municipality and -36.2 ha in Krāslava municipality. In historical region of Vidzeme, the largest reduction of area is in Limbaži municipality, -2,537.8 ha and in Gulbene municipality -1,715.6 ha, but the smallest reduction is in Carnikava municipality -27.1 ha and in Saulkrasti municipality -29.8 ha. In historical region of Zemgale, which is characterized by the richest soils, but as well there are observed reductions in area of agricultural land group, in Vecumnieki municipality -1,811.7 ha and in Tukums municipality -1,337.9 ha. The smallest decrease is in Rundāle municipality, -26.3 ha. But in Tērvete municipality, the only one in Latvia, a slight increase in the area of Agricultural land group has been observed, i.e., +2.4 ha. In areas of municipalities of Latvia in Forestry land group, increases as well as reductions are observed. For example, in historical region of Kurzeme, increases in purpose of use of real property – Forestry land are observed. The largest increases are in Talsi municipality, +4,961.5 ha and in Kuldīga municipality, +1,447.5 ha, smaller increases of area are in Alsunga municipality +67.3 ha and in Jaunpils municipality, +68.1 ha. In all municipalities in historical region of Vidzeme, increases of area of

Table 2

Relative and absolute indicators of time series of areas of Agricultural land

Indicators/ ha	2009	2010	2011	2012	2013	2014
		3,873,726.4	3,864,367.1	3,850,597.0	3,838,637.1	3,824,798.1
Chain increase,	-	-9,359.3	-13,770.1	-11,959.9	-13,839.0	-17,140.7
Base increase,	-	-9,359.3	-23,129.4	-35,089.3	-48,928.3	-66,069.0
Chain growth rate,	100	99.8	99.6	99.7	99.6	99.6
Base growth rate,	100	99.8	99.4	99.1	98.7	98.3
Chain increase rate,	-	-0.2	-0.4	-0.3	-0.4	-0.4
Base increase rate,	-	-0.2	-0.6	-0.9	-1.3	-1.7

Table 3

Relative and absolute indicators of time series of areas of Forestry land

Indicators/ ha	2009	2010	2011	2012	2013	2014
		2,143,780.0	2,148,850.4	2,159,498.5	2,167,718.6	2,179,541.8
Chain increase,	-	5,070.4	10,648.1	8,220.1	11,823.2	16,656.9
Base increase,	-	5,070.4	15,718.5	23,938.6	35,761.8	52,418.7
Chain growth rate,	100	100.2	100.5	100.4	100.5	100.8
Base growth rate,	100	100.2	100.7	101.1	101.7	102.4
Chain increase rate,	-	0.2	0.5	0.4	0.5	0.8
Base increase rate,	-	0.2	0.7	1.1	1.7	2.4

Table 4

The changes of land area in groups of Agricultural land and Forestry land

Historical regions	Agricultural land			Forestry land		
	on 01.01.2010 (2009)	on 01.01.2015 (2014)	Changes of land areas regarding land areas in 2009	on 01.01.2010 (2009)	on 01.01.2015 (2014)	Changes of land areas regarding land areas in 2009
Kurzeme	735,597.7	716,706.1	-18,891.6	630,319.3	644,452.9	+14,133.6
Latgale	1,003,865.3	991,600.0	-12,265.3	345,061.1	355,245.0	+10,183.9
Vidzeme	1,352,409.4	1,328,701.7	-23,707.7	778,930.4	797,272.9	+18,342.5
Zemgale	781,854.0	770,649.6	-11,204.4	389,469.2	399,227.9	+9,758.7

Forestry land group, are observed, except in Viļāni municipality, where reductions of area, -17.7 ha are observed, but greater increases of areas are in Ludza municipality, +2,633.5 ha and in Rēzekne municipality, +1,782.3 ha, lower ones – in Cibla municipality, +18.7ha. A situation with indicators of area changes in Forestry land group located in municipalities of historical region of Vidzeme is very interesting. In municipalities that are bordering with Riga – Olaine, Mārupe, Inčukalns, Ikšķile, Baldone, Ropaži un Stopiņi municipalities, Forestry land areas have reduced in the amplitude from – 1,163.1 ha (in Olaine municipality) to -3.1 ha (in Stopiņi municipality). That

can definitely be explained with a change of purpose of land of real property in these municipalities. Owners had changed group of purpose of land to Building land of individual houses, which is very popular in municipalities that are bordering Riga. However, in municipalities that are further away from Riga a change of area of Forestry land group has increased; for example, in Gulbene municipality it is +1,607.0 ha, in Limbaži municipality +2,148.8 ha, in Mazsalaca municipality +1,351.1 ha. The situation in historical region of Zemgale is very similar to one in historical region of Latgale, mainly a change of land area has increased, for example in Vecumnieki municipality,

it is +1,819.8 ha, in Tukums municipality +1,267.0 ha. But in Jelgava municipality area of Forestry land group has reduced by -71.2 ha. This analysis revealed the tendency that if area of Agricultural land group in municipality or other researched territory has reduced, there is an approximate increase of area of Forest land group in the same territory.

Conclusions

1. According to purpose of use of real property, the areas of agricultural land and forestry land occupy the largest territory of Latvia – 59% and 34%, as well as their changes of size during the period from 2009 to 2014, respectively -1.8% and + 2.3%, show that these natural resources are used for the identified needs and retained as far as possible for future generations.
2. By the indicators of growth rate, it can be concluded that agricultural land area reduction has occurred gradually, during the analysed period – the average of 0.3% per year, while the forestry land areas are increasing – average 0.5% per year.
3. According to analysis of agricultural land by the purpose of real property use, in perspective of municipalities, can be concluded that in all municipalities over the research period the range of areas of land – from -6,810.8 ha (in Talsi municipality) to -26.3 ha (in Rundale municipality) decreased, except Tervete municipality where the area of agriculture land increased by +2.4 ha.
4. According to analysis of forest land by the purpose of real property use, in perspective of municipalities, it can be concluded that changes are in a range from +4,961.5 ha (Talsi municipality) to -1,163.1 ha (Olaine municipality).
5. The analysis of purpose of real property use in Latvia municipalities demonstrate the trend of decrease of agricultural land resource areas in proportion to the increase of forest land resource areas, excluding the region around Rīga, where areas of agricultural land and forest land resources are decreasing, but residential land resource area for needs of development of capital is increasing.

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