ISSUES OF ABANDONED LANDS IN LITHUANIA (FOLLOWING THE EXAMPLE OF RASEINIAI DISTRICT, SUJAINIAI CADASTRAL AREA)

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Abstract
The media frequently refers to the concept of abandoned land. The reasons for its occurrence are discussed and the ways to diminish the problem are being searched for. Various sources of information were used for the research. They enabled the authors to identify the concept of abandoned lands. In addition, the situation of abandoned lands was analyzed and causes of occurrence of such lands in one cadastral area of mid-Lithuania municipality were defined. According to the set of data, concerning abandoned lands (AŽ_DRLT), the data, provided in the mentioned data set and the data obtained during field testing were compared. The survey of the terrain was conducted in the early autumn of 2013 and repeated in the late spring of 2014. In order to find out why the land was abandoned, the surveyor of cadastral area was additionally interviewed. On the basis of the latest data of 2014, 123 spaces of abandoned lands, which occupy 59.74 ha, were found in Sujainai cadastral area. Having analyzed the set of abandoned land data, it was identified that boundaries of 95 abandoned plots corresponded to the situation in the area, whereas boundaries of 28 areas should be corrected. Moreover, the abandoned areas that had not been marked were found while the land abandonment in the terrain was obvious. Although the amount of abandoned land is decreasing in both the area analyzed and throughout Lithuania, the situation is not favorable. Having conducted the research, it was found that the main reasons for land abandonment in Sujainai cadastral area were as follows: poor fertility in non-productive lands (up to 32 points) and reclamation; no potential land consumers, purchasers or tenants of land areas of high productivity or it is complicated and expensive to pursue agricultural activity there.
Key words: abandoned land, agricultural land, agricultural utilities.

Introduction

Recently one issue related to land consumption, namely land abandonment, has been more widely discussed and analyzed. Abandoned land can be found in both private and state-owned areas. Not only productive agricultural land, containing high fertility score, good roads for transport but also low-productivity land is being abandoned.

There is a huge amount of research into abandoned land, especially conducted by foreign scientists. One of them, Ambar Margarida, analyses what the impact of a farm size on land abandonment is. She claims that larger farms get more profit, having consumed a smaller amount of resources and, thus, are more competitive. Technologies dominate on such a farm and, thus, there is no land abandonment (Ambar, 2011). The other author, Dirk Strijker analyses possibilities to undertake alternative agricultural activity in abandoned areas whereas Coppola Adele discusses how abandoned lands depend on the age of inhabitants (Terres et al., 2013). In Lithuania this problem has been more thoroughly discussed by the scientist P. Aleknavičius. He asserts that abandoned land areas could be used reasonably if they were located closer to perspective farms as it would provide favorable possibilities to let this land to farmers or agricultural enterprises (Aleknavičius, 2012).

The aim of this research is to investigate the abandoned areas in Sujainiai cadastral area and identify the possibilities of their occurrence.

The following objectives have been set:

1. to identify the concept of abandoned lands;
2. to review the reasons and consumption possibilities of abandoned lands;
3. to analyze the plots of Sujainiai cadastral area abandoned lands and to assess them by field-testing way;
4. to find out the reasons for land abandonment in Sujainiai cadastral area.

Methodology of research and materials

Plots of abandoned agricultural land in Sujainiai cadastral area were selected as a research object. The location selected is in Raseiniai district. It is in the western part of Lithuania, almost the very centre of Lithuania. High fertility soils dominate in Raseiniai district. On the other hand, rather large areas of abandoned land could be found as well.

The following sources were used for the research of abandoned lands:

- various sources of Lithuanian and foreign literature, scientific works, which thoroughly described the problematics of abandoned lands, the reasons for their occurrence and employment possibilities;
- data sets of geoportal (ŽIS), out of which the data set of abandoned lands (AŽ_DRLT) was analyzed in detail; on this basis the situation of abandoned lands in Sujainiai cadastral area was investigated;
- assessment plans of land productivity, according to which the score of abandoned land productivity was defined;
- orthographic maps of four periods (namely 1995, 2005, 2009, 2014).

In addition, the following research methods were applied:
- analysis of literature sources and statistical data, which enabled the authors to compare opinions of different authors concerning abandoned lands and the causes of their occurrence;
- comparison, which allowed to find out if the information provided in the set of abandoned lands corresponds to the situation in the terrain;
- logical thinking, which allowed the authors to identify the situation and the potential causes of land abandonment in Sujainiai area;
- expert assessment, which was undertaken in order to define the precise causes due to which the land was abandoned in Sujainiai cadastral area. The surveyor of Sujainiai cadastral area, who prepares land management projects of land reform and pursues other related work in the area, was interviewed.

Two field-testing procedures were carried out for the abandoned agricultural areas, which were provided in the set of abandoned land data: the first one in the early autumn of 2013 and the second one in the late spring of 2014. During the testing abandoned areas of Sujainiai cadastral area were examined, surveyed and described. Moreover, it was analyzed if the information given in the previously mentioned data set corresponded to the situation of abandoned lands within the area.

Discussions and results

There has been no uniform definition of abandoned land (AL). Each legal act or scientific source provides a different one. Two basic categories of abandoned lands are distinguished, on the basis of which this concept is described. First of all, land abandonment is assessed as the state of land or the process. Secondly, a question arises if the land or only agricultural activity is abandoned. (Rico et al., 2008).

Land abandonment has been a debatable issue in Europe because it is difficult to identify and assess. The definition of abandoned lands differs in various states. In Germany in 1956 AL was described as land, which is not cultivated due to social and structural changes. In England, Greece, Denmark, and Lithuania AL is defined as the land which has not been used for more than five years (Pointereau et al., 2008). Food and Agriculture Organization of the United Nations (FAO) defines land abandonment as a process when the land previously cultivated can become totally abandoned. In such a case it is not worthwhile to cultivate the land again owing to legal, natural, or economic conditions (The..., 2006). Standards for Good Agricultural and Environmental Condition can be applied to identify abandoned land. In the majority of EU countries the undesirable vegetation is cut down for the sake of more beautiful landscape. It is better for the land itself because there is no threat that in the future it will grow with trees and bushes and finally remain unused. (Kuliešis ir kt., 2011).

Having analyzed all concepts provided by the authors, it is possible to provide one AL definition. It is primarily the land not used for agriculture. In addition, it is not the means of production any more. It is overgrown with bushes, trees, and stiff plants. As there are many definitions of abandoned land, similarly numerous reasons for abandoned land to appear are found and they are varied. Formation of abandoned lands can be determined by certain factors of the period unfavorable for agricultural activity when one ceases to cultivate the land plots formerly cultivated. Having analyzed various Lithuanian and other countries' literature sources, the following reasons for land abandonment can be identified: natural, social, economic, and political factors as well as geographical position and structure of the farm. Restoration of land property rights in rural areas could be added to the dominating causes of land abandonment in Lithuania. According to Zuzo's (2012) analyzed data, the ownership for people is restored far from their residence and consequently, it is more complicated for them to use and cultivate their land. Gradually it becomes abandoned.

Using the data set of abandoned lands (AŽ_DRLT), in the third quarter of 2013 in Sujainiai cadastral area there were 66.0 ha of abandoned land whereas upon the latest data of 2014 the amount of abandoned land has decreased and currently there are 123 abandoned plots, which occupy 59.74 ha. Thus, the area of such a land decreased by 6.26 ha per half a year. The situation is similar throughout Lithuania because recently the abandoned land has had the tendency to decrease (Fig. 1).

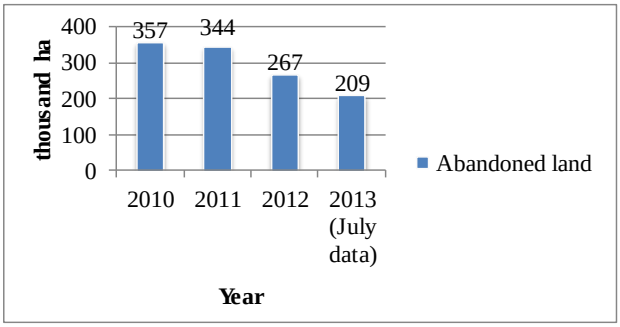

Fig. 1. Changes in abandoned land 2010-2013 m. Source: Mano..., 2012; Valstybės..., 2013

The largest amount of abandoned land was found in 2010. The gradually diminishing area of abandoned lands means that people look after their land more responsibly, plant forests in the abandoned areas or it was influenced by the taxes for land abandonment.

When analyzing the abandoned lands, it is important to identify whether the situation of abandoned land has changed, if a few years or several decades ago one could have foreseen that in the future it would be abandoned or vice versa, formerly the land was arable while only at present it has become abandoned. Having analyzed all abandoned areas, which are pointed out in the data set of abandoned lands, on the basis of orthographic maps, encompassing the period of four years, it was discovered that the largest area, even 83 plots, had already been abandoned since the beginning of the first period analysed. The majority of them were distributed near forests; the others were being abandoned only after certain time (Fig. 2). Boundaries of most abandoned plots investigated (95) correspond to the situation in the terrain.

a b

Fig. 2. Area of abandoned land: a) – the area of the terrain drawn in the data set AŽ_DRLT (pink color - abandoned land); b) – survey of the terrain

However, 28 abandoned lands, which did not comply with the existing situation, were found because smaller amount of abandoned areas were marked in the data set of abandoned lands than they were in reality – their boundaries ought to be adjusted (Fig. 3).

a b

Fig. 3. Area of abandoned land a) drawn area of the terrain in the data set AŽ_DRLT (pink color - abandoned land); b) – survey of the terrain

In Sujainiai cadastral area during the examination, two abandoned land plots, not marked in the data set, were found. Nevertheless, land abandonment is obvious. The first one occurs in the western part of cadastral area, the plot being 1.16 ha. The second unmarked plot is found in the southern part, the area being 1.00 ha. It is grown with grass stiff plants, which destroys the landscape and impoverishes the soil.

After the analysis of mean productivity in abandoned lands, it was discovered that the abandoned areas, the productivity score of which was lower than 32 dominated in the cadastral area whereas areas with productivity score exceeding 41 comprised the smallest part of abandoned lands (Table 1).

Table 1

Productivity score of abandoned land areas

Productivity score	**Number of areas abandoned**
Up to 32	106
33-40	9
> 41	7

Having conducted the analysis of abandoned land soil, it was discovered that in Sujainiai cadastral area the majority of abandoned lands featured low productivity.

Numerous reasons why the lands are abandoned can be found. Data sets of Geoportal were used to find them out in Sujainiai cadastral area. In addition, the surveyor of Sujainiai cadastral area, who prepares land management projects of land reform and pursues other related work in the area, was interviewed.

As it has been stated above, low productivity lands dominate among abandoned lands. Therefore, the main reason for abandonment is low productivity score and poor fertility. Poor reclamation can be the second cause of abandonment in low fertility lands, because almost all abandoned land plots in Sujainiai cadastral area fall within not reclamated land. The surveyor of Sujainiai cadastral area during the interview confirmed the statement that the main reason for abandonment of all abandoned lands, the fertility of which is low, is unreclamated, low fertility land. In this case one cannot gain profit in lands of poor farming state. As a result, there are no people willing to cultivate such land.

The abandoned plots were selected for the analysis, the productivity of which exceeded 32 points. There were 16 of them. Two of them were found in the free state land whereas the rest appeared within a private area. Having interviewed the surveyor of Sujainiai cadastral area, it was identified that the main reasons for land abandonment were as follows:

1. Defects of reclamation systems.
2. No potential land consumers, purchasers, or tenants.
3. Complicated relief.
4. It is complicated and expensive to renew agricultural activity in abandoned lands.

When finding out the reasons for land abandonment, it was discovered that the main reason in both free state and private lands was complicated and expensive renewal of abandoned lands, which aggravates their restoration (Fig. 4).

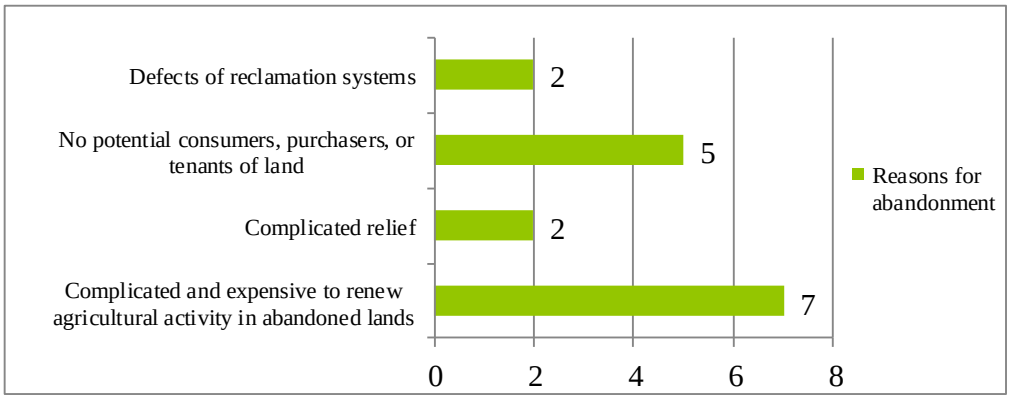

Fig. 4. Reasons for land abandonment in fertile abandoned areas discovered during the interview

Land abandonment also depends on the owners of land, i.e. on their willingness to cultivate and manage their land. The problem is that in some plots there are no potential land consumers, purchasers or tenants and, thus, the land is abandoned.

Abandoned agricultural lands can be restored using ecologically and economically alternative ways. One of them is reforestation. It could be a perfect solution to use the abandoned land. Besides, the landscape would be improved. The other way to restore the abandoned land is to sell it to other individuals, who might use the land up to its real purpose and the land itself would start providing economic benefit. In addition, the areas of abandoned lands could be diminished by reducing taxes for abandoned lands.

Conclusions

1. Having analysed the opinion of various authors one can define the abandoned land in the following way: it is the land not used for agricultural activity, not suitable as the means of production, often entirely grown with trees and bushes as well as stiffed plants.
2. According to the set of data concerning abandoned lands (AŽ_DRLT) currently in Rasaeiniai district there are 2690.22 ha of abandoned land, which comprises 1.7 % of the district area (157.3 thousand ha), while in Sujainiai cadastral area 59.74 ha, which correspondingly makes up 1.6 % of cadastral area (3745.96 ha), can be found.
3. According to recent data, there are 123 abandoned plots in Sujainiai cadastral area, which occupy 59.74 ha. Having estimated the data set of abandoned lands by field-testing method, it was found that 95 abandoned areas corresponded to the situation, provided in the data set of abandoned lands whereas the remaining 28 plots did not show compliance with the situation described.
4. The main reasons for land abandonment in Sujainiai cadastral area were as follows: low productivity (up to 32 points) in non-fertile lands and poor reclamation whereas abandoned areas, the productivity of which exceeds 32, there are no potential consumers, purchasers, and tenants of land or it is complicated and too expensive to undertake agricultural activity.

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