THE ASSESSMENT OF LITHUANIAN RURAL RESIDENTIAL AREA STRUCTURE

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Abstract
The contemporary rural residential area system formed under specific circumstances characteristic to a particular region and under historic, economic, politic and social details of residential area development. This article studies the influence of natural factors to the formation of rural residential area system, discusses the problem of residential area vanishing and the factors that influence the development of current residential areas. The main factor that influences the changes of the Lithuanian rural residential area structure that started in the 20th century and is still ongoing, is the political changes in the country, however, economic and social aspects also played a minor role in it. The oldest forms of Lithuanian residential areas are as follows: 1) scattered settlements near mounds, 2) stack settlements, 3) a specific part of grunges. The development of settlements was greatly influenced by the Volok Reform. The old stack settlements and separate granges should have been vanished and relocated to linear settlements that were nearer to the manor. Throughout time it did not meet the advanced farming requirements. The solution was to divide it into granges. During the interwar period the aim of the land reform, which was implemented in Lithuania, was to establish better conditions for the building of grunges in private land holdings. After the restoration of independence, the organisation and size of the land holdings formed in land management projects was not related to the establishment of farms and their internal structure as well as the residential place of the owner. Thus taking into consideration the land regulation relationships peculiar to each period and the performed analysis of rural residential area structure development some tendencies of changes are presented.
Key words: settlement, grunge, land reform, residential area development.

Introduction

During the last decade the processes of globalisation and integration became increasingly active, and although they bring nations and their cultures more close, they also result in gradual disappearance of national identity. This process encompasses various fields, however, its biggest influence is on the condition of country's towns, cities and villages and their demography, urban development, landscape, which gradually lose their visual aesthetic identity, originality. Thus the problem of saving and cherishing the features of country's landscape, the nature of residential area spatial structure as well as natural environment during the process of globalisation is very relevant.

When analysing the changes in rural residential area development, E. Kriaučiūnas (2012) claims that they are haphazard, while the state and municipal institutions have only minor influence on demographic, social and economic processes that occur in the residential areas. Evidentially there exists a lack of not only financial resources, but also a single, common state outlook towards the future of the rural residential areas. L. Dringelis (2013) points out that the changing demographic situation, which is related to the economic state of Lithuania, is an important factor that determines the urban changes, i.e. the decrease and vanishing of towns, cities and villages. It is a vicious circle formed by the correlation of the abovementioned factors: economics, demographics and urban development. Taking into consideration the results of the statistical analysis of the Population and Housing Census of 2001 and 2011 performed by Statistics Lithuania, L. Dringelis (2013) determined that within the period of 2001-2011 the number of residents dropped by 440.37 thousand or 12.64%. During this period the number of cities (from 106 to 103) has dropped accordingly, whereas the number of villages (from 19 842 to 19 004) and khutors (from 1735 to 1687) has dropped significantly. Furthermore, 18% of villages and 52% of khutors that are included in the current data of villages and khutors have no residents and are on the verge of vanishing. There is no doubt that the abovementioned demographic and urban development changes influence the singularity and identity of Lithuanian towns, cities and villages' landscape spatial structure. Such singularity, as an important part of the national cultural heritage, can be saved only by finding a complex solution for economic, juridical, natural and cultural issues.

General Territorial Plan of the Republic of Lithuania (Lietuvos...., 2002) indicates that during the development of relations between urban and rural territories, one must re-create the rural residential area systems in new social and economic conditions. The important step that can be taken is the development of municipality centres, i.e. small towns and cities as an agriculture production and village resident service, partially the city resident recreation centres. The authors that have researched

these issues offer to carry out better integration of cities and regions, create conditions for sustainable network of small and medium size cities by avoiding "urban sprawl" and depopulation of rural residential areas (Čereškevičius, 2012).

The forms and types of residential areas are determined by historic and socio-economic conditions of the land. Throughout history, the development of production relations influenced the change in population system in rural areas. The important role in the rural development was played by the changes in land ownership and land management.

The development of Lithuanian rural residential areas has been researched by various authors. Each one of them provide their own conclusions, assessments, opinions, offers and critical remarks about specific phenomenon as well as interpret and explain various facts in their own way (Rupas, Vaitiekūnas, 1971; Butkevičius, 1971,1980; Milius, 1999; Bučas, 1988, 2001; Aleknavičius, Miknius, 2001; Aleknavičius, Survila, Tarvydienė, 2004 et al.).

The analysis of rural residential areas is relevant due to the following aspects:

1. Administrative-political. Lithuanians have long been living in villages. Currently, the village is one of the types of residential areas. The Law on the Territorial Administrative Units of the Republic of Lithuania and their Boundaries (Lietuvos..., 1994) sets out that rural residential areas include towns, villages and khutors. Thus the notion of village is practical rather than theoretical. The solving of various issues related to residents and residential areas is possible only after having thoroughly analysed the structure and the development of residential areas.
2. Economic. Currently, attempts have been made to assess the present development trend of rural residential areas by evaluating the destruction of granges and the establishment of residential areas in its former place. Did the granges really cause inconveniences in terms of production, social and political-educational work?
3. Ecological. When forming the theory and practice of residential area, the focal points were the political and economic factors. The natural factors were not properly evaluated or they were regarded in a primitive or formal way. Our residential areas were formed without having a solid geo-ecological background.
4. Cultural-historical. Former settlements as well as other residential areas are the historical heritage of our land's development. Taking case of this heritage is the matter of our inner culture. The biggest problem is the vanishing of settlements and the preservation of the names of former settlements.

The *aim* of this article is to analyse the peculiarities of the development of Lithuanian rural residential area structure that are influenced by political, economic changes and natural conditions.

To reach the abovementioned aim the following *objectives* have been set out:

- to analyse the peculiarities of the development of Lithuanian rural residential area structure in ethnographically different Lithuanian regions with different natural conditions;
- to determine the land regulation relationships peculiar to each period and after carrying out the analysis of the development of rural residential area structure to present the tendencies and reasons of changes.

Methodology of research and materials

The abovementioned aim is reached by applying statistical data and cartographic material, scholarly literature analysis, legal document analysis and synthesis, comparative analysis and descriptive methods of research. At the beginning of the 20th century, 5 regions of administrative territories were chosen for the analysis of the structure of residential areas. These are the following: Alytus, Utena, Pasvalys, Varena, Silute (part of the region) since the territories of these regions differ in natural conditions (feature different types of landscape) and historically determined ethnographic peculiarities. Therefore, the settlements in the regions were classified into groups according to the number of yards. Granges (forest guard sectors included) as well as manors and folwarks were distinguished as different structural groups of residential areas. The main material used for the research is received from Public Institution National Land Fund: Topographic maps M1:100000 of the end of 19th century. The obtained data was systematised and summarised.

Results and discussion

The Lithuanian rural residential areas have gone a long and complicated road of development, whose analysis helps us to better understand their current network, structure, architecture, etc. The historic characteristics of settlement development are necessary not only to acquire the knowledge of one's past. Without it, the prognosis of settlements future, the manor and trends of its development cannot

be made.
The 20th century was exceptionally known for a myriad of socio-economic reforms. Each reform influenced the face of the settlement differently and formed the unique rural residential area system. Throughout history, two main types of villages existed in Lithuania, i.e. stack and linear settlements. After the Volok Reform in the middle of the 16th century, linear settlements set in Lithuania. A part of settlements that did not change their form or changed it only slightly survived until the 20th century. With the increase of families and splitting of farms among family members the settlements became denser. During the implementation of various reforms the majority of settlements suffered a loss of population, thus scarce linear settlements were created.
The origin of another form of Lithuanian peasant rural areas, i.e. granges, was very diverse; some of the granges survived from the oldest times, others were created during the period of Volok Reform or were established during different periods which began in the 19th century and ended in 1939. After the collapse of collectivisation after the Restoration of Independence of the Republic of Lithuania in 1990, granges gradually start to be established.
A. Basalykas (1977) points out that at the end of the 19th century various parts of Lithuania featured a highly different rural residential areas. Grunges prevailed in Western Samogitia, however some plot settlements, large scarce linear settlements, manors and folwarks were also present. After the Land Commasation, linear grange settlements were formed in the south of Uznemune. Middle length linear settlements, manors and folwarks still dominated in Middle Lowland. Shorter linear settlements were characteristic of hilly moraine highlands and stack settlements dominated in sandy plains of South-Eastern Lithuania.
As it was mentioned before, at the beginning of the 20th century 5 regions of administrative districts were chosen for an in-depth analysis of the structure of residential areas. These are the following: Alytus, Utena, Pasvalys, Varena and Silute (a part of the region). Having analysed the collected data it is obvious that in some districts the natural conditions, i.e. hilly landscape, impeded the formation of large settlements. For instance, settlements of 10 farms comprised 46% of residential areas in Utena district and only 27% in Alytus district. However, in Pasvalys district, whose natural conditions are closer to Alytus, the number of such settlements reached 39%. It may be supposed that the reasons can be found not only in natural but also in economic, ethnographic and political conditions. The same tendencies can be observed in the territory of the same district when comparing the cadastral areas as separate territorial units (comparing the cadastral areas that belong to different types of landscapes) (Table 1).

Table 1

The structure of Lithuanian rural residential areas at the end of the 19th century – at the beginning of the 20th century

District and the classification of settlements according to the number of yards	Area of the territory ha	Total of residential areas	Settlements (number/%)			Granges, forest guard sectors (number/ %)	Manors, folwarks (number / %)
			total	of which			
				linear settlements	granges		
1	2	3	4	5	6	7	8
Western part of Alytus district (Uznemune)							
Santaika cadastral area	2643	24	16/67	-	16/100	6/25	2/8
up to 10 yards			4/25				
from 11 to 25 yards			6/37				
from 26 to 50 yards			3/19				
more than 50 yards			3/19				
Parecenai cadastral area	3103	29	16/55	-	16/100	10/35	3/10
up to 10 yards			8/50				
from 11 to 25 yards			2/12				
from 26 to 50 yards			3/19				
more than 50 yards			3/19				
Kavalciukai cadastral area	2265	15	10/69	-	10/100	2/14	3/20
up to 10 yards			1/10				
from 11 to 25 yards			4/40				

1	2	3	4	5	6	7	8
from 26 to 50 yards			4/40				
more than 50 yards			1/10				
Eastern part of Alytus							
Punia cadastral area	4394	14	8/57	8/100	-	4/28	2/15
up to 10 yards			3/37				
from 11 to 25 yards			1/15				
from 26 to 50 yards			5/37				
more than 50 yards			-				
Gervenai cadastral area	4993	29	18/55	18/100	-	7/28	4/17
up to 10 yards			5/27				
from 11 to 25 yards			8/46				
from 26 to 50 yards			5/27				
more than 50 yards			-				
Pivasiunai cadastral area	3053	12	8/67	8/100	-	3/25	1/8
up to 10 yards			1/12,5				
from 11 to 25 yards			2/25				
from 26 to 50 yards			4/50				
more than 50 yards			1/12,5				
Utena district							
Klykiai and Juknenai	6212	25	18/72	18/100	-	5/20	2/8
up to 10 yards			5/27				
from 11 to 25 yards			10/55				
from 26 to 50 yards			2/12				
more than 50 yards			1/6				
Leliunai cadastral area	5176	38	19/49	19/100	-	13/35	5/14
up to 10 yards			15/75				
from 11 to 25 yards			5/15				
from 28 to 50 yards			-				
more than 50 yards			-				
Viluciai and Kaimynai cadastral areas	5397	26	18/69	18/100	-	5/19	3/12
up to 10 yards			8/43				
from 11 to 25 yards			9/49				
from 26 to 50 yards			l/8				
more than 50 yards			-				-
Pasvalys district							
Kiemenai I, Kiemenai II and Namisiai cadastral areas	8233	26	12/46	12/100	-	4/5	10/19
up to 10 yards			4/53				
from 11 to 25 yards			3/25				
from 26 to 50 yards			3/25				
more than 50 yards			2/17				
Mikoliskis and Pusalotas cadastral areas	14187	21	17/81	17/100	-	2/9,5	2/9,5
up to 10 yards			5/39				
from 11 to 25 yards			10/59				
from 26 to 50 yards			2/2				
more than 50 yards			-				
Varena district							
Vilkiautinis cadastral area	3850	14	10/72	9/89	1/11	2/14	2/14
up to 10 yards			2/20				
from 11 to 25 yards			4/40				
from 26 to 50 yards			3/30				
more than 50 yards			1/10				
Zilinai cadastral area	6490	17	14/82	14/100	-	3/18	-
up to 10 yards			9/65				
from 11 to 25 yards			3/21				
from 26 to 50 yards			2/14				
more than 50 yards			-				
Silute district							
Bikavenai, Kivyliai, Vainutas cadastral area	14771	15	12/80	3/25	9/75	1/7	2/13

1	2	3	4	5	6	7	8
from 26 to 50 yards			3/25				
more than 50 yards			2/16,5				
Sveksna cadastral area	10617	14	12/85	-	12/100	-	2/15
up to 10 yards			8/66				
from 11 to 25 yards			3/25				
from 26 to 50 yards			-				
more than 50 yards			1/8				

Note: The percentage of the number of settlements provided in the classification of settlements by yards is calculated from the number of settlements in the investigated territory, while other percentage data is calculated from the total number of residential areas in the territory.

Average distance among the linear settlements was calculated from the existing data by using the formula of professor A. Seselgis:

$A = Q/k$,

A – the distance among linear settlements in meters; Q – area of the territory in m²; k – number of settlements in the territory.

The obtained results do not comply with the data of the authors that investigated linear settlements of that period. A. Basalykas (1977) claims that the linear settlements that were established after the Volok Reform were within 3-4 km of distance from one another. Manors and folwarks were among them. Plot settlements established in clay plains were longer and straighter, while the ones that were located in hilly moraine landscape were shorter, not so correct in form and more dense Sandy plains were characterised by the establishment of smallest plot settlements or the remaining of archaic stack settlements. The data obtained during the research, i.e. the distances among settlements, is presented in Table 2. Once again it clearly indicates the dependence on the landscape conditions. In Utena and Alytus districts, where the relief is more distinct and its forms are more diverse, the distance between settlements is less than 2 kilometres, while in Silute and Pasvalys districts, whose relief does not feature a variety of forms, the distance among settlements is 2.5 - 3.5 kilometers.

Table 2

Distance among linear settlements in Lithuania in the end of the 19th c. – beginning of the 20th c.

Territory	Area of the territory ha	Number of villages	Distance between villages m
Alytus district			
Gervenai cadastral area	4933	18	1655
Pivasiunai cadastial area	3053	8	1953
Punia cadastral area	4394	8	2344
Average			**1908**
Utena district			
Viluciai and Kaimynai cadastral areas	5397	18	1732
Klykiai and Juknenai cadastral areas	6212	18	1858
Leliunai cadastral area	5176	19	1650
Average			**1746**
Silute district			
Bikavenai, Kivyliai, Vainutas cadastral areas	14771	12	3508
Sveksna cadastral area	10617	12	2974
Average			**3252**
Pasvalys district			
Kiemenai I, Kiemenai II and Namisiai cadastral areas	8233	12	2619
Mikoliskis and Pusalotas cadastral areas	14187	17	2888
Average			**2780**
Varena district			
Vilkiautinis cadastral area	3850	10	1962
Zilinai cadastral area	6490	14	2153
Average			**2075**

Further settlement reorganisation at the beginning of the 20th century was influenced by Stolypin agrarian reform which left the main question of providing land holdings to peasants still unanswered. The division into granges become more active in 1922 due to the interwar Lithuanian land reform. Grange is an element of settlement system and building structure which existed during all the land reforms. Dissolution of settlements and the founding of granges have reached the peak in 1930, when from 360 to 570 settlements were being dissoluted each year. The biggest share of granges was established in 1930-1939. The annual average number of new granges increased by more than 11 thousand. After 1930 the dissolution of settlements was encouraged the fact that more surveyors have been trained and the parcellation of manors has already ended. The number of dissoluted settlements and established settlements starts to drop in 1934-1935. It is influenced by world financial crisis, the ongoing dissolution of small settlements as well as the disappointment that was felt by the owners of small land holdings because of land reform, since at that time a lot of new dissoluted settlers have lost their land i.e. until 1938 the land was sold by 22% of new settlers. Furthermore, the average grange land plot had dropped increasingly. Since 1932 one grange occupied less than 10 ha of land. The Public institution National Land Fund estimated the size of granges in Moletai, Pasvalys, Silute regions. The estimated size of granges varies greatly: In Pasvalys region - 16.0 ha, Silutes region - 25.0 ha, Moletai region - only 6.00 ha. According to I. Butkevičius (1971), the size of a grange is determined by the natural and ethnographic conditions of the land.

The majority of settlements were dissoluted in districts that are located in fertile areas, especially in the fertile Middle Lithuania Plain. While the sandy Aukstaitija and Dzukija regions feature a significantly lower percentage of settlement dissolution to granges.

The settlement dissolution to granges was to be finished in the period of 19-20 yeards, however at the end of 1939, 2811 settlements were still not dissoluted (Šešelgis, 1996). 1919 - 1939 marked the establishment of 159118 granges (Grabauskas, 1983). If taking into account the already existing granges, at the end of 1939 there were 229000 granges in Lithuania. Taking into consideration the fact that the remaining non-dissoluted settlements are relatively small it can be stated that at the eve of Soviet occupation the settlement dissolution to granges in Lithuania was finished.

Construction of new type of kolkhoz and sovkhoz settlements began during the Soviet period. The rural settlements and their growth were formed during the reorganisation of the network of historical settlements and building of objects for production and recreational purposes. The main trend of reorganisation is the increasing of the size and reducing the number of settlements. During the Soviet period, 124049 granges in total were destructed in Lithuania. In 1988, there were only 118000 granges left in Lithuania (Aleknavičius, 1996). In the beginning of collectivisation, kolkchozes were created as villages. Villages used to be visible units, they used to have significance because they were separate administrative units. Later on, in increasing of the size of kolkchozes, the boundaries of villages were no longer taken into account. Village lands were shared between separate users, i.e. kolkchozes, sovkhoz settlements, and forestry. There were 92 villages shared between separate users in Silute district, 107 in Plunge district, 40 in Pasvalys district, and 56 in Moletai district. Works of reclamation were also projected and carried out as separate objects. The arrangement of objects as a territorial unit was caused by farms, rather than villages. Former boundaries of villages no longer have a function in landscape, they have actually vanished, i.e. a village is not an administrative territorial unit. Agricultural holdings were the main territorial structures which carried out economic and social activities in a village. In some places, it is possible to trace back the boundaries of such villages according to natural components of landscape: forests, rivers, and in some other places according to roads. The boundaries of villages that we can now see in certain maps are conditional. Actually, the boundaries of former villages have already vanished. So, there is no more life in a village as a unit. The concept of "village" is gradually losing its former meaning. The most important outcomes of the aforementioned prerequisites, i.e. collectivisation, reclamation, formation of a new network of rural residential areas are as follows: vanishing of the most important rural elements - granges and formation of a network of rural residential areas. Vanishing of granges was the reason why the residential areas themselves began to vanish. The statistical and cartographic correction of residential areas (withdrawal, combination) was laid down by the documents of the current Executive. The first documents regarding the withdrawal of residential area and accounting data appeared in 1961, there were 16 of them in total (starting from 1961 up until 1988). The first documents regarding the combination of residential areas appeared a bit later, in 1968. There were 18 of them up until 1988 (inclusive). During this period, 3428 rural residential areas vanished in Lithuania. The vanished rural residential areas of the studied territories are presented in Table 3.

Table 3

Vanished rural residential areas

The name of the district	Residential areas which vanished due to withdrawal		Residential areas which vanished due to combination		Total of vanished residential areas
	villages	granges	villages	granges	
Alytus	14	10	18	20	62
Pasvalys	45	29	-	-	74
Šilutė	20	2	17	-	39
Utena	17	38	4	3	62
Varėna	1	2	4	-	7
Total:	97	81	43	23	**244**

As the old system of rural residential areas (granges) was vanishing, a new population system in rural areas was developing, the basis of which was residential areas. Cities and roads have a significant importance on the growth of residential areas and their territorial distribution. Around 40 % of all rural residential areas are near main roads. As the distance to main roads becomes greater, the number of residential areas diminishes. Villages, even big ones, that are further from cities, are losing their residents; small villages have a tendency to vanish completely. According to P. Aleknavičius (2007), without residents, the land lies fallow and gradually becomes unsuitable to use without additional land reclamation tools. Further diminution of rural areas residents might result in abandonment or extensive use of fertile areas of land and in vanishing of villages. However, changes in rural areas resident number are also associated with the intensity of cultivation of land. In territories with potentially the most fertile soil, the productivity score of utilised agricultural area is higher; there is the most cultivated land due to land reclamation; the income is higher.

According to the data of the General Territorial Plan of the Republic of Lithuania (Lietuvos..., 2002), the density of the network or residential areas shifts from east to west, the network of residential areas significantly grows rare in the west. The most dense network of residential areas is in Moletai district: 67.5 residential areas per 100 km^2; the most rare is in Mazeikiai district: 16 residential areas per 100 km^2.

In 1989-2004, 112 laws and other legislations entered into force regarding the matters of development of agriculture and rural areas. In 2004, Lithuania became a member of the European Union. In recent years, four major specialised functional zones have been formed in the agricultural landscape of Lithuania: residential, industrial, recreational, and the reservation zone. Residential zone is composed of settlements and granges. Industrial zone is composed of two parts: industrial centres and industrial land (water, forests, and agricultural land). In agricultural territories designed for intensive production, it is necessary to create various recreational zones. The aim of reservation zone is the protection of natural resources and cultural heritage.

The traditions of agricultural landscape management must be also preserved during present land reform, therefore the principle of historical continuity should be applied here. The environment must be managed by taking over ethnographic elements and structures of heritage. When managing the territory of geosystems, the principle of geo-ecological balance must be preserved. When adapting to natural landscape, areas of land, means of optimisation of areas of land, buildings construction features, roads, etc. are evaluated. In this way, harmonious cultural landscape is formed in a complex manner. This adaptation is called the principle of natural adaptation. New buildings must not be contrary to the requirements of aesthetics, ecology, economics, and nature protection. Plantations must be formed as a unified system which diversifies the landscape. Linear plantations, which take up a small area, are planned for fertile plains. Grove plantations are planned for hilly areas of small relief, unsuitable for agriculture.

One of the measures of the State to regulate the development of rural residential areas is the decisions and the organisation of their implementation of general territorial plans of municipalities. These planning documents provide the perspectives of the development of chosen centres of social service of residents, including the development of infrastructure and the measures corresponding to the needs of residents and business. Recently, the projects of rural land management are becoming more and more popular, which should be related to possibly the most detailed administration of operators of the funds allocated to agriculture and rural areas development. The programme documents of the Lithuanian Rural Development Programme for 2014-2020 (Kaimo..., 2014) provide that one of the main

objectives of the EU Rural development support is to increase the competitiveness of all kinds of agricultural activity and the viability of farms; to promote social inclusion, poverty reduction and economic development in rural areas.

Conclusions

1. The research of settlements has shown that a certain regularity became apparent. It shows that each socio-economic formation determining different land management had a substantial impact on the changes of forms of settlements. Therefore, throughout history, mostly a single defined form of rural settlements has been prevailing in each socio-economic formation.
2. The biggest changes in residential areas in Lithuania occurred in the 20th century. They were determined by economic reforms: Stolypin agrarian reform in 1906, the interwar Lithuanian land reform in 1922, Soviet land reform, the land reform that has begun after the Restoration of Independence and still continues today. There were no so many reforms in the past. The natural factors should also be mentioned (relief, soil, hydrography), which had relevant effect on the size, shape, etc. of residential areas in different regions. Throughout history, the structure of residential areas, even the concept and the functions of village changed. It is clearly observable in reorganisations during the Soviet period. Previously, for many ages, the concept of "village" was inseparable from the concept of "territory, land". When soviet agriculture holdings were created, the village, as an autonomous unit, lost its significance. The most important components of a village, i.e. granges, began to vanish, and consequently even the villages themselves had vanished. This being a very important cultural heritage part of a nation can only be preserved by addressing economic, legal and demographic issues in a complex manner.
3. Recurrence can be observed in the development of Lithuanian rural residential area. Socialist agriculture reorganization in territorial aspect of the structure of settlements: recurrence of Volok reform in other economic, social and political conditions; and the present Land reform are in a sense "a step back" to Lithuania of interwar period.
4. When preparing general plans, the planning of rural residential areas should be addressed in a complex manner, together with the issues of agricultural territories management, addressed in projects of rural land management, and adjusted with the rural development programme implementation measures which could be implemented in certain municipalities and by preserving our culture-historical heritage.

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