

FUNCTIONAL DEVELOPMENT OF SETTLEMENTS - THEORY AND REALITY

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ABSTRACT

The subject of research in the paper are the settlements and their functional development, which is the basis for the sustainability in a demographic, economic and social sense.

The functional development is conditioned by several factors, such as physical-geographical, social, economic and political, and is manifested by the presence of various economic and non-economic activities. The intensive changes in the human activities and needs are reflected in the functional characteristics and functional differentiation of the settlements, their role in the administrative-territorial organization, their place in the hierarchy of settlements, the gravitational power of the settlement and the extent of their sphere of impact. The functional development of the settlements is a potential for pulsating the development of micro, meso and macro levels and for balanced spatial, demographic, economic and regional development. The disproportion in the functional structure is a serious problem that complicates the network of settlements and affects their overall sustainability.

The emphasis is placed on some of the factors that are a prerequisite for the functional structure of the settlements in Republic of Macedonia, such as the number of population, administrative-territorial organization, geographical characteristics of the area, etc.

Keywords: functional development, sustainability, settlements, regions, Republic of Macedonia.

INTRODUCTION

The settlements are a tangible reflection of the long-established human activity in the area and a subject of constant changes. The dynamic demographic, social and economic processes taking place and leaving serious consequences in their development are also a challenge for further scientific research. The division of the settlements should be taken into consideration when their research is undergoing. Mainly in the definitions of settlements, according to the appropriately accepted criteria, the settlements are usually divided into rural and urban settlements and a mixed type of settlements as well. When analyzing the functional characteristics, besides the usual division, some unique details of the settlements should also be taken into consideration. The mutual connection, i.e. the organization of the settlements has a serious influence over the development of the settlements itself. According to Piha (1973), "the Organization of the network of settlements has a significant impact on the minimization of social costs and maximizing the social and economic effects, polarizing the space, valorizing the territorial components of development, integrating the social and economic activities and

maximizing the cost savings in the further development and functioning of the settlements" [20]. The settlements as the most remarkable elements of the cultural landscape are the bearers of the functional organization and the hotspots of the geospatial transformation [23].

The presence and the type of functions are the determinative factor of how active or passive a particular settlement is. The functions also reflect on the correlations that the settlements have in the area and also with other settlements. Diverse relationships are the result of a variety of functions, and various functions are those that determine its place in the hierarchy of settlements. Each settlement of higher order has more functions than a settlement of lower order [27]. This way, through a greater concentration of functions, it will be possible to increase the attractive force of the settlement and its influential sphere [2]. Everything afterwards will be carried out according to the gravitational model because the greater the concentration of activities in the center is, the greater its attractive force will be. In the system of settlements, large settlements would hold a more important role, because they include the largest number of inhabitants and economic and non-economic functions [11]. Or, according to Doxiadis (1973), "in the system of settlement, the larger urban settlements are more likely to develop faster than the smaller ones, as larger settlements attract a greater number of functions and thus grow faster than others" [11].

Because of these reasons, the importance of directing their functional development is the knowledge of the number of settlements, their population size and administrative status. The size of the population appears as one of the key factors that determines the functional characteristics of the settlements, determines the functional capacity and the functional connection of the settlements. On the other hand, the administrative-territorial organization of the state, the division, the grouping of settlements and their connection with functional units determines the directions of development. It is important to emphasize that the municipalities in the country are administrative units of first degree and on a greater note depend on the directions of the development of certain activities and processes. No less important is the location and geographical setting in the area and the resources available at its disposal.

For the activities in the settlements, for their spatial distribution and influence on the development in the professional and scientific literature, there are more theoretical views and concepts: the theory of central places, polycentric development, regional development, rural development, spatial planning, sustainable development etc. All of them in their essence have the location of the activities within the settlements, the laws of their connection and the influence on the development of the space. The modern approach to the study of settlements greatly emphasizes the significance of functional development, its alignment and sustainability. The intensive processes of de-industrialization, urbanization and industrialization that took place in the second half of the twentieth century, in conditions of their non-synchronization and insufficient planning direction left serious consequences on the network of settlements, its characteristics and functional features. The unfavorable effects are felt in the present situation within the settlements and in the general spatial development. In fact, the Republic of Macedonia is characterized by the serious problems in the contemporary development of the settlements that actualize the issue of their research. In the past, from the geographical aspect, the following researches were quite significant: the researches of the rural settlements by Mitko Panov (1993, 1998) [18], [19], the settlements in the Skopje Valley, Daskalovski, (1985, 1986, 1993, 1999), [3], [4], [5], [6], research of separate spatial units,

Trifunovski, (1971, 1992), [24], [25], Stojmilov, (2005) [21], Gramatnikovski, (1975, 1981), [7], [8], for the settlements in spatial planning Zikov, (2005), [28], border settlements, Madjevikj (1998), [13], villages in the mountain regions, Madjevikj (2008) [16] and other.

RESEARCH METHODOLOGY

The research on the condition of settlements relies on an appropriate methodology, and it is based on an analysis of the results of the previous researches, and also the knowledge for the settlements in the professional and scientific literature, both domestic and foreign, as well as the latest studies of the development of the settlements done by the authors. Due to the significance of the number and the structure of the population for sustainable development of the settlements, based on the published statistical data from the Census of the population, households and dwellings in 1994 and 2002, and the population estimates for 2017, by regions, a grouping of settlements was made according to the number of the population. In order to perceive the functional characteristics, among other sources, there were also used statistical data based on the number of employees according to sectors of activities, educational institutions etc. For the analysis of the municipalities, in order to enable territorial comparison, the legal changes in the territorial organization that took place from the period when the Republic of Macedonia became independent until present are taken into account, thus paying attention to the changes in the number of municipalities and settlements. According to NUTS 3 level, there are 8 regions, NUTS 4, level 80 municipalities, and NUTS 5 level, 1,767 settlements in the country.

RURAL AND CITY SETTLEMENTS

The modern network of settlements relies on the organization of the space and settlements created in the past, in the conditions of the then traditional agricultural society, but strongly transformed under the influence of the socio-economic processes. The villages and cities are an inseparable part of the geographical environment, which basically have different economic development. The achieved level of economic development is a time-varying category which directly affects the increase or decrease of the value and the role of the settlements. It also affects the number and the significance of the functions [14]. The growth of the urban population, the extinction of the villages and the thinning of the network of settlements are only part of the processes that indicate its serious change in the past decades. In conditions of a socio-economic transformation of the country, as a result of the unfavorable changes in the population natural change and the spatial redistribution of the population, a number of important preconditions for the transformation of the settlements were created, primarily by number, and then after all other features such as population, physiognomic and functional. Following over the years back, in the 1970s the rural settlements marked more emigration at the expense of the population strengthening of municipal centers and suburban villages. In the next decade, the city in the intention of spatial expansion affects the surrounding settlements, changes its physiognomic expression and the functional characteristics as well

According to the Law on Territorial Organization of Local Self-Government in the Republic of Macedonia, (Official Gazette of the Republic of Macedonia no. 55, 2004), were given definitions for both the village and the city. According to this Law, the city is a town with more than 3,000 inhabitants, has a developed structure of activities, and over 51% of the employees are outside the primary activities; it has built urban physiognomy

with zones for housing, economy, recreation and public green areas, a square, a built system of streets and communal services and is a functional center of the populated areas in the surroundings. The village, in the sense of this law, is a place of one-function importance in which one activity prevails, and the settlement area is defined with agrarian physiognomy and function. Thus, in the Republic of Macedonia, there are a total of 1,767 settlements (NUTS 5), of which only 34 settlements have the city status.

If the displaced rural settlements are not taken into account, a population is recorded in a total of 1,645 villages in the country. The villages have a different population size. Small villages are those inhabited by 1 to 300 inhabitants. In Macedonia, there are 961 such villages, or 58.4% of all villages. Middle sized villages are those inhabited by 301 to 800 inhabitants. Their number is 337, i.e. 20.5% of all villages. Large villages are those with more than 801 inhabitants. In the country there are 347 such villages (21.1% of all). A total of 36.1% of all populated settlements are populated by one to 100 inhabitants. It is unrealistic to expect these villages to experience intensive development because they are poor and are not able to be attracted to activities of different character that would be the bearers of the development of the settlements. The rural settlements in the country are such populated areas where the majority of the population is engaged in agriculture, that is, in the functional view the activities of the primary sector are predominant, while the other activities are less represented, and when the population number is small, the demographic structure is seriously disturbed as well. The process of intensive demographic aging in the villages of Pelagonia, the East and the Vardar region is currently undergoing.

Considering the structure of the settlement area as the basis for the activities of the primary sector, the villages with different agricultural function are being identified and recognized. In addition to that, almost 46% of the total number of villages can be distinguished from a typical field-based function dominated mainly by arable land. These are settlements located on plain or plain-hilly terrain at a lower altitude. Next in the row are the villages with field farming and livestock function, and villages with mixed function. In addition to all these, there are also villages on the lake shores that receive even a fishing and tourist function. On the other hand, the villages that are in the immediate gravitational zone of the big cities are oriented towards gardening production intended mostly for the urban population [22]. Some of them are increasingly reducing the agricultural function and increasing the function of housing for the population working in the city. In addition, their territorial coverage includes activities for meeting the everyday functions (mainly of tertiary character and quarterly sector), thus giving these settlements a different functional structure, but also experiencing physiognomic transformation. In time, they move in the same direction to the city and grow into suburbs, and some of them are already attached to the city. The suburban settlements are directly influenced by the city and are dependent on its pace of development, although their development has an impact on the interrelationships between these settlements, as well as the impact of a third, fourth settlement, etc. Depending on when they are formed they can be old and new, while according to the functions, they can have agrarian, industrial, tourist features, or they can be weekend settlements, recreation and rest areas, and so on [28]. Examples of strong functional transformation are: Bardovci, Vizbegovo, Ilinden, Drachevo, etc. in the Skopje valley, Karposh in Kumanovo, Prevalec – near Veles and others.

With the intensive mechanization of agricultural production in certain flatland villages, certain forms of industrialization are the only way of keeping the population in the rural

environment. The forms for involving the industry in the rural economy can be different: from dislocation and dispersion to spontaneous industrialization [26]. A typical example is in the southeastern part of Skopje field [1]. The role of such commercial facilities is to enrich the rural economy, but not to completely suppress the agriculture as the primary economic branch, especially if there are exceptional conditions for its development in the particular village area.

Changing the monofunctional character of the development (introduction of modern and intensive field and livestock production, locating of economic capacities, non-economic facilities and accommodation facilities for the needs of tourism etc.), along with improved material infrastructure, can easily contribute to preventing the population discharge of the villages and the absorption of labor surplus in the agriculture [2]. But, the problems are far-reaching and essential. The rural settlements, due to the population discharge, are in larger part losing the already existing preconditions for a comfortable life. The financial and administrative unjustifiability of the existence of primary health care facilities, pharmacies and educational institutions only contributes to the deterioration of the demographic picture, which does not provide the preconditions for functional development. On the other hand, in spite of the dominance of agricultural production in most of the rural settlements, judging by its characteristics, the decision for the need of an institutional strengthening of the agricultural production as a precondition for the strengthening of the modern rural economy is more than evident [15], which would be a prerequisite for sustainable functional development of villages in the country.

In the past period, Republic of Macedonia was characterized by a rapid increase in the number of the urban population, which resulted in over 60% of the urban population. However, what is considered as a disadvantage feature is the fact that there are serious disproportions of its distribution. It is concentrated in several major cities, with the most attractive settlement in the country being the area of the capital Skopje.

Although the cities are basically occupying a relatively small territory they are unique in their diversity and are the most modified part of the geographical environment. They differ among themselves in a number of characteristics. The regional and local position, the social and administrative role in the network of settlements is influencing the functional, physiognomic and population development [22]. From that standpoint, some cities had preconditions for growing into primary functional centers such as Skopje, Kumanovo, Shtip, Bitola, Veles, etc. Opposite to them, cities with a completely different geographical position (Berovo, Pehchevo, Kratovo, Krushevo) have no predispositions for such development.

Among all of them, on one hand due to the location, and on the other hand the social and administrative role of Skopje, they are contributing to become a center with a three-dimensional sphere of influence, such as a metropolis of national character, regional significance, including the gravitational spheres of the surrounding cities Tetovo, Kumanovo and Veles and of course, the local significance of the region of the Skopje Valley [22]. Hence, the spatial location of Skopje has a strong influence on the three gravitational zones, which has a positive effect on its population, territorial and urban development [17], [21], [22]. At the same time, the settlements in the Skopje region, located in the zone of local influence, get functional contents and change their physiognomic shape and influence. But the role of Skopje as a city center with a large functional capacity exceeds the role of a national center and gets certain significance beyond the state borders. Citizens of the neighboring countries also appear as users of the healthcare, university education, catering and trade services.

On the other hand, a city like Gevgelija, which has a peripheral position relative to the location within the state and a significantly lower number of inhabitants, is a city where certain functions, especially in the catering area, trade and health care, are increasingly used by the residents of neighboring Greece. It is also a contribution to enriching the type and quality of functions of this kind.

Matching the geographical position and the type of functions, Bitola is a regional center, where gravitates the population of the southwestern region, while towards the Shtip regional center the population of the eastern region of the Republic of Macedonia [12].

Table 1. Distribution of the population by the size of the urban settlements

Number of inhabitants	Number of cities	Population in 2002	Share in the number of cities	Share in the urban population
2500-10000	12	52590	35,3	4,4
10-50 000	17	412123	50,0	34,5
>50 000	5	731093	14,7	61,1
Total	34	1195806	100,0	100,0

Source: http://www.stat.gov.mk/PoslednoObjavenoVoMakstat_mk.aspx and author calculations [29]

But not only has the geographical location of cities reflected in the functional development. One disadvantage is being observed considering the size and the number of inhabitants. According to the 2002 census, more than a third of the cities were in the category of small towns of up to 10,000 inhabitants, in which an insignificant number of the urban population belonged to. Half of the cities are in the category of medium-sized towns, with one-third of the city's population actually being the urban population. Five cities (Skopje, Bitola, Kumanovo, Prilep and Tetovo) are considered as big cities with over 60% of the population actually living in the cities. In this case Skopje stands out, which is the only city with more than 100,000 inhabitants, where lives close to 30% of the population in the country. This shows that the urban system in the country today is characterized by the asymmetry in the hierarchical and spatial features. There is a large number of cities that stand out, but they are essentially dominated by Skopje.

The smaller cities, which at the same time have the role of headquarters in the same municipalities, are still characterized by a weak functional base, the represented activities are less diverse, they have fewer employees, different levels according to the importance they have, while some other activities are not represented at all or cannot fully meet the modern needs of the local population. This is especially true for services such as the secondary education, university or college education, specialized health services, and also the services in the fields of culture, trade and hospitality, insurance, counseling and others. Reducing the number of population was characteristic for many of the settlements. Their functional capacity falls parallel with the emigration of a part of the population, especially the young and working aged population towards the larger cities or outside the country. This is clearly indicated by the fact that an average of over 8,000 residents per year changes the permanent place of residence within the state.

ADMINISTRATIVE TERRITORIAL ORGANIZATION

The territorial organization of the settlements is also important for the formation of the functional features of the settlements. In the past, the socio-economic conditions changed and in this context also the situation of the settlements in the overall system. In order to create adequate conditions for a faster development, to improve the organization in the network of settlements, to reduce the differences in the level of the socio-economic

development, etc., several changes were made in the administrative-territorial organization of the state itself. In the paper, special attention has been given to the period since declaring the independence of Macedonia in 1991. During that period, more specifically from 1976 until 1996, the Republic of Macedonia had 34 separate municipalities. The city of Skopje had a standout status of a separate social and political community with five municipalities (Gazi Baba, Karposh, Kisela Voda, Centar and Chair). Thus, the small number of municipalities proved to be inadequate and a new territorial organization had begun along with grouping of the settlements. In the period from 1996 to 2004, the local self-government in the Republic of Macedonia was territorially organized in 123 municipalities, of which the City of Skopje as a separate unit of the local self-government consists seven municipalities: Gazi Baba, Gjorche Petrov, Karposh, Kisela Voda, Chair and Shuto Orizari.

A large number of the municipalities exposed many weaknesses. Some of the municipalities had a population too small and could not function at all. With the territorial organization in August 2004, their number got decreased to 84 municipalities. The administrative organization of the country was changed once again in 2013 when, after the local elections on March 24, the municipalities of Drugovo, Vraneshtica, Zajas and Oslomej ceased to exist and were merged with the municipality of Kichevo, [10]. Thus, the number of municipalities from 84 decreased to 80, of which 10 municipalities form the City of Skopje, as a separate self-governing unit.

Table 2. Municipality size by the population number

Number of inhabitants in the municipalities	Number of municipalities	Population 2000	Share in the number of municipalities	Share in the total population
< 10000	30	172857	37,5	8,5
10-20000	19	286883	23,8	14,2
20-30000	9	222367	11,3	11,0
30-50000	7	283237	8,8	14,0
50-70000	8	467318	10,0	23,1
70-100000	6	484401	7,5	24,0
>100000	1	105484	1,3	5,2
Total	80	2022547	100	100,0

Source: http://www.stat.gov.mk/PoslednoObjavenoVoMakstat_mk.aspx and author calculations [29]

In the territorial organization, it is necessary to take into account the characteristics of the population. The analysis of the municipalities according to the number of inhabitants and settlements gives interesting results. It is essential to say, small municipalities with up to 10,000 inhabitants dominate, which covers more than one third of the municipalities, but an insignificant share of the population. Most of the population is concentrated in municipalities with the size of 70-100,000 inhabitants, and it is also similar to those from 50-70,000 inhabitants, or in other words, in the municipalities with up to 50,000 inhabitants, which represent 81.3% of the municipalities, and they are being populated by only 47.7% of the population.

That speaks of a serious imbalance in the distribution of municipalities according to their size, and hence the possibilities for their functional development. It was found that smaller municipalities have smaller capacities to meet the needs of their own population, all that in order to meet some of their needs, and it is directed towards bigger and functionally more powerful municipalities. According to the number of population in the 2002 census, the largest municipality in the country was Kumanovo with 105,484 inhabitants, and the

smallest one, Vraneshtica with a population of 1,322 inhabitants which was later merged with the municipality of Kichevo. The optimal number of population and its structure has a different meaning for a different municipality, resulting in differences and problems in terms of population (the general population, agrarian, urban, etc.). In the country there are municipalities with a small number of population, limited kind of functions, as opposed to the existing resources that have not been used. By grouping them in a new municipality where one settlement has a central role, it can contribute to encouraging the development [14]. But not always the population should be the criteria for the formation of municipalities. It is also necessary to have knowledge of the characteristics of the population that would be combined with other elements important for the formation of municipalities [14]. The role of the settlements is dependent on the activities they have at their disposal. The larger municipalities appear as an attractive centre for the population of the smaller municipalities when it comes to meeting the needs of secondary vocational education, university and college education, specialized health services, trade and other service activities. Such an administrative organization implies functional strengthening of the settlements that played the role of municipal headquarters. This is especially important in the rural areas, where the headquarters of the municipality is a rural settlement. But in these settlements in which several activities were being carried out, traditional activities from the primary sector were complemented (in some previously as well) with other activities, adding the role they have in the management and control of the municipality. These headquarters of the municipality have attracted a part of the population of the surrounding settlements precisely because of the lack of certain functions (education⁵, health care services,⁶ infrastructure facilities, trade, etc.), which didn't exist in some settlements or were at a lower level. This is especially felt when we are talking about primary schools, when in some settlements there were only a few classes available, and not a complete primary education.

Giving the role of municipal headquarters of some of the rural settlements was an encouragement for the bigger ones to strengthen up in a functional way. For example, the municipality of Ilinden with its headquarters in the same municipality is an example of a strong functional transformation. Because of its proximity to TRIZ Bunardzik, part of its population is employed there, and other activities are also being developed.

The municipalities through strengthening the role of local self-government and emphasizing the importance of the local environment, the resources and the community, are being highlighted in efforts to encourage the development based on their own potentials. The significant resources that the settlements possess within the municipalities provide directions for multifunctional development, tourism development, organic production, industrial facilities, craft and trade facilities.

In order to achieve balanced regional, economic and population wise, sustainable development and optimal spatial planning, the municipalities should not be seen as individual territorial units, but only as a part of a larger territorial system. This is the

⁵ In the scholar year 2017/18, there is a total of 989 regular primary schools in the country, with only one school in the municipality of Vevchani. In the same year, there were 131 secondary schools. In 30 of the total number of municipalities, there is not a single secondary school. 90% of them are in urban municipalities.

⁶ Of the total number of pharmacies, 120 are in rural municipalities. Of the total of 37 rural municipalities, only two do not have any pharmacies at all (Debarca and Rankovce), and in 10 of them there is only one pharmacy, which is most often located in the headquarters of the rural municipality.

reason for their connection and separation in certain planning regions. On an administrative level, there are 8 statistically-planning regions in Macedonia.

Through the development plans of these regions, the goal is to achieve a planned communally-economic, cultural and other type of development, and also securing an optimal population dispersion, the goods and activities as well. The stretch of the functions is desired in most of the centers in the way of developing a polycentric developing system, which is a precondition for a territorial cohesion. To reach this type of a development, decentralizing the functions is necessary to be done in a direction from the bigger city settlements towards the smaller ones, and towards the rural centers as well. For the realization of this idea, most suitable is the model of decentralized concentration that corresponds to the principles of sustainable development, it is also economical in terms of use of space, resources, energy and transport [9]. In order to apply this model, it is necessary in a functional way for the headquarters of the rural municipalities to be seen as micro-development cores. Those are settlements with a developed public and social infrastructure, service activities, in which new industrial plants are being developed, which will also be in function of developing the exploitation of local resources, and other activities will be developed as well [23].

Table 3: Number of settlements, municipalities and number of population by regions

Regions	Administrative-territorial organization, 2004		Current administrative-territorial organization		Population estimates 2017
	Number of municipalities	Number of settlements	Number of municipalities	Number of settlements	
R. Macedonia	84	1 767	80	1 767	2 075 301
Vardar region	9	215	9	215	152 249
East region	11	217	11	217	175 616
Southwest region	13	286	9	286	219 663
Southeast region	10	188	10	188	173 405
Pelagonia region	9	343	9	343	228 977
Polog region	9	184	9	184	321 573
Northeast region	6	192	6	192	176 260
Skopje region	17	142	17	142	627 558

Source: http://www.stat.gov.mk/PoslednoObjavenoVoMakstat_mk.aspx and author calculations [29]

CONCLUSION

The modern needs that a man satisfies in the settlements where he lives and works have suffered serious changes, and we are witnessing a constant increase of the diversity of the supply and demand. It is directly related to the structure of the represented activities i.e. the functional characteristics of the settlements. The activities that take place in one settlements can seriously affect its size, economic power, interconnection with other settlements and position in the hierarchy of settlements, and vice versa. All this requires an appropriate attitude towards the planning and undertaking measures aimed towards improving the functional capacities of the settlements and improving the quantity and quality of the network of settlements. In fact, expert knowledge of spatial relations, rural-urban ties and the development of settlements is definitely necessary in order to perceive the contemporary, but also to devise the overall future development.

The existing migration flows greatly affect the functional transformation, and thus determine the status and the centrality of the settlement. Simultaneously with the declining fertility and population natural growth, the maintenance of the current number of population is being questioned in the already small settlements. The unfavorable

condition and the slow functional development are particularly felt in the rural areas. The larger settlements, especially those that play the role of municipal headquarters are in a better position, but those remaining in large part do not have the necessary institutions that would meet their needs. It is necessary to know the overall demographic trends that take place in the settlements, but the lack of new data limits the deepened expert analysis. Basically, settlements with different functional capacity and structure are being distinguished. From a functional standpoint, the highlights are on the role of the capital city of the state, where the functions of the highest rank are being placed. The regional city centers such as Bitola, Shtip, Tetovo, Kumanovo, Strumica are also distinguished by a heterogenic functional structure. There are smaller cities and certain headquarters with a limited number of functions. In order to achieve a more balanced distribution of functions and their approximation to the population, their decentralization and functional strengthening of the settlements with the role of micro-developing cores is something that is needed to be done.

The realization requires the development and implementation of policies/politics for a balanced regional development and spatial planning.

It is expected that by considering the number and territorial distribution of the population by the population census in 2020 we would be able to recognize the changes in demographic development. On this basis, it is expected to estimate the changes in the population basis for determining the functional characteristics.

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