

Characteristics of the Urban Settlements Network in the Republic of Macedonia

Blagoja MARKOSKI^{1,*}, Biljana APOSTOLOVSKA-TOSEVSKA¹, Olgica DIMITROVSKA¹, Ivica MILEVSKI¹, Svemir GORIN¹

¹ Faculty for Natural Sciences and Mathematics, Institute for Geography, Ss. Cyril and Methodius University, str. Gazi Baba b.b., 1000-Skopje, Republic of Macedonia

* Corresponding author, blagojam@pmf.ukim.mk

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Abstract

The objective of this paper is to analyze of the network of urban settlements in the Republic of Macedonia, their territorial dispersion and operability. The current situation and future perspectives of the urban development of the settlements (development of the current settlements and promising growth of some of the settlements into those with the status of a City) have been analyzed. This issue has been analyzed in order to point out the directions of the spreading of the population on the territory of the Republic of Macedonia, which at the moment has an unfavorable characteristic. The following economic-functional characteristics of the settlements have been analyzed: transportation availability, daily migrations and other criteria.

Keywords: *network of settlements, urban settlements, territorial dispersion, cartographic and geographic analysis, Republic of Macedonia*

Rezumat. Caracteristici ale rețelei de așezări urbane din Republica Macedonia

Această lucrare analizează rețeaua de așezări urbane din Republica Macedonia, distribuția lor teritorială și operativitatea lor. Este prezentată situația actuală și perspectivele pentru dezvoltarea urbană a așezărilor (dezvoltarea actualelor așezări și creșterea promițătoare a unora, care să le permită schimbarea statutului, devenind așezări urbane). Scopul principal al lucrării îl reprezintă evidențierea direcțiilor de răspândire a populației în teritoriul Republicii Macedonia, care în momentul de față prezintă caracteristici nefavorabile. Atenție deosebită a fost acordată următoarelor caracteristici economico-funcționale ale așezărilor: posibilități de transport, navetism și alte criterii.

Cuvinte-cheie: *rețeaua de așezări, așezări urbane, dispersie teritorială, analiza cartografică și geografică, Republica Macedonia*

Introduction

Changes in the network of settlements in the Republic of Macedonia after the WW 2 were rapid and large. Right after the WW 2, exactly in the year 1965, the network of settlements consisted of 1750 villages and 29 towns. However, apart from these ones, there were another 176 settlements which served as local centres with communal significance i.e. there were 205 Municipality centers.

In the year 1965, in accordance with the Law for administrative territorial organization, only 32 Municipalities were established, meaning that centers of Municipalities were only urban settlements and settlements Demir Hisar and Makedonski Brod.

The rapid process of industrialization (industrial capacities were located mainly in the towns) caused migration of the population from villages to towns. According to the census from the year 1981, the urban population was up to 55% compared to the rural population, which accounted for 45%.

Thus, because of the inappropriate economical-functional and infrastructural conditions, most of the rural areas (especially hilly-mountain areas) were affected by the intensive processes of depopulation and deagrarianization (approximately 700 villages were affected).

Part of villages mostly disseminated in field areas subsisted, but with insufficiently developed communal and economic functional conditions. Therefore, in the Republic of Macedonia there was a need for the establishment of more municipality centers through which a variety of administrative,

managerial, service-supplying, educational, health, cultural and other needs of the population would be satisfied in a more close and functional manner.

This situation is not satisfactory for a proper economic development and survival of the villages; therefore the paper presents how the network of urban and Municipality centers in the Republic of Macedonia should look like.

In 1996, by state law, 123 Municipalities were established, and in 2004 that number dropped to 84 Municipalities, from which 41 Municipalities being semi-urban settlements and villages, 33 towns and 10 Municipalities in the City of Skopje. This was performed through the turbulent political debates and without the appropriate criteria.

Objective

Because of the significant changes in the territorial dissemination of the population in the Republic of Macedonia (in terms of its concentration in urban areas, in villages with larger centrality and places with larger gravitational influences) the objective of this research was to determine a more optimal spatial organization of the network of settlements with larger centrality. The number of towns in the country (only 29) is insignificant. According to the local geographical position, another eleven settlements were developed as suburban centers. However, the local administrative territorial organization must be supplemented with a number of local rural centers as centers of Municipalities. Namely, despite the currently existing local research centers, based on specific criteria (local centrality of the settlements, traffic connectivity and distance, development of the line and institutional infrastructure, traditional gravitational flows of the population, etc.) the new local centers are emphasized, so that in the future we should realistically expect their development into suburban and urban centers. The goal is to achieve a balanced distribution of the population and settlements in the country.

Criteria

Network characteristics of urban areas as urban centers, suburban centers and local rural centers are observed and differentiated on the basis of a number of criteria (Berry, Conkling, Ray, 1976). More specifically, the following criteria are taken into account:

- Territorial location of urban settlements;
- Traffic connection and mutual distance;
- Economic and functional features of the settlements;
- Gravitational flows and trends of population,
- Other criteria

Territorial distribution of urban settlements in the Republic of Macedonia

There are 29 urban (and 1750 rural) settlements in the Republic of Macedonia (25713 km²) (Markoski, 2004). Their mutual distance is in average about 40 km (the distances between towns vary from 10 to 85 km). The above mentioned distances are not on the level to meet the everyday needs of the population since even with the use of modern means of transportation a considerable amount of time is being lost on daily migrations. The situation is even more drastic if we had the traditional ways of movement and transportation (by foot, on cattle, with animal drawn vehicles, on a bicycle). This is even more expressed if we consider the fact that Macedonia is mostly a mountainous-hilly country. We can conclude that urban settlements in Macedonia are on relatively large mutual distance and they are not sufficiently functional in the context of meeting the needs of the population.

Spatially, towns in Macedonia are disseminated as they are located along one or two larger towns in the Basins around the country eg. Ohrid and Struga in Ohrid-Struga Basin, Resen in Prespa Basin, Bitola and Prilep in the Pelagonian Basin, Debar in Debarrekanska Basin, Kičevo in Kičevo Basin, Tetovo and Gostivar in the Polog Basin, Skopje in the Skopje Basin, Veles in the Veles river erosion expansion, Kavadarci and Negotino in Tikveš Basin, Valandovo and Gevgelija in Gevgelija-Valandovo Basin, Strumica and Radoviš in the Strumica-Radoviš Basin, Štip in the Ovče Pole-lakaviška area, Sv. Nikole in Ovče Pole Basin, Probištip, Vinica and Kočani in the Kočani Basin, Berovo and Pehčevo in Berovo Basin, Delčevo in Delčevo Basin, Kumanovo in Kumanovo Basin, Kriva Palanka in Kriva Palanka area, Kratovo as a separate location and Kruševo as mountainous area. It is obvious that the larger spatial units of 500-1000 km² are without the presence of urban settlement. Typical examples are the territories of the Mariovo area, areas along the Babuna and Topolka rivers, Demir-Hisar area,

Debarca Basin, Poreč area, the area of Lakavica, Kozjačija area etc. In some of these areas, settlements in the range of community centers have been developed, but they are not satisfactory in the context of the needs and opportunities that are characteristic of the corresponding areas.

Transportation connections

Urban settlements in Macedonia are interconnected with relatively good road network because the roads are in the rank of motorways, highways and two-way roads.

However, some travel distances that would be more functional haven't been constructed yet, for example as on the relation Skopje, Prilep, Veles, Debar-Kičevo and others.

There are a large number of roads with local significance. Many of them have been modernized so that about 80 % of settlements with town status are connected by asphalt roads (Markoski, 2006).

Economic and functional characteristics of settlements in the Republic of Macedonia

According to theoretical and empirical procedures for economically-geographical regionalization, the homogeneous principle, functional orientation and administrative-functional organization of space, the economic-functional concept best reflects and objectively explains the regional geographical differences and similarities of the geographic environment (Daskalovski and Markoski, 1996).

Based on the application of economic functional concept through extensive research of populated areas, based on literary sources, surveys on how the settlements are equipped, and the direct knowledge of the territory of the Republic of Macedonia, the functional significance of space and the hierarchy of central settlements has been properly determined.

The analysis is based on four sets of criteria:

First set of needs:

Daily service-supplying needs

- Opportunities for supply of nutrients,
- Compulsory primary education,
- Primary health protection,
- Lack of local community office,
- Postal services,
- Services and opportunities for cooperation with agricultural associations,
- Additional needs (cultural entertainment, hospitality, tourism).

A second group of needs:

Providing unusual products and services

- Supplying of a variety of consumer goods (textiles, footwear, hardware, clothing, etc.)
- Specialist health services and medicines,
- Financial services (bank branches),
- Veterinary service,
- Police station,
- Auto mechanic services and gas station,
- Possibly a motel or hotel.

A third group of needs

Services from higher level

- Secondary Education,
- Hospital services,
- Chain stores or malls with specialized stores (furniture, appliances, etc.),
- Basic judicial and legal needs.

Fourth group of needs

The presence of institutions of higher rank

- University education,
- Sub specialized clinical and hospital services,
- The highest judicial authorities and services,
- Presence of various cultural institutions (theaters, opera, daily press).

The application of these criteria is the basis for determining the economic functional significance and hierarchy of the central settlements, but also the basis for pointing and selection of new suburban centers for enlargement of the functional areas of influence in space (Panov, 1993).

Gravitational tendencies and population trends

According to the physical geographical features on the territory of the Republic of Macedonia and the imminent geographical location of settlements, traditionally there existed certain gravitational movements of population towards the closest settlements characterized by larger centrality and where more service supplying, educational, health and other types of objects could be found. According to these criteria, gravitational movements of the population, apart from others, is another factor for determining the level and the significance of urban settlements and for the selection of settlements that should be local administrative territorial centers.

Categorization of settlements and selection of local centers

According to the economic and functional features of settlements, there are several hierarchical levels of urban and local centers: state, regional,

borough, district, oblastni, communal (all urban areas), semi-urban (settlements with about 5.000 inhabitants, with a proper geographical centrality, presence of a linear and institutional infrastructure, a larger proportion of the population working in the

primary sector, i.e. agriculture, farming, forestry, and less in the secondary activities) and local centers (villages with greater centrality in the area, equipped with basic services (commercial, educational, health, cultural, etc.) objects (Table 1).

Table 1 Review of settlements according to the economic characteristics of the functional urban and other settlements in Republic of Macedonia

Economically functional importance / center	SETTLEMENTS
State	Skopje
Regional	Bitola, Štip
Borough	Kumanovo, Ohrid, Prilep, Tetovo
District	Veles, Gevgelija, Gostivar, Kavadarci, Kičevo, Kočani, Strumica
Communal	Berovo, Valandovo, Vinica, Delčevo, Debar, Kriva Palanka, Kratovo, Kruševo, Negotino, Probištip, Radoviš, Resen, Sveti Nikole, Struga
Semi-urban	Brod, Bogdanci, Gradsko, Demir Kapija, Demir Hisar, Kamenica, Krivogaštani, Novo Selo, Pehčevo, Rostuše, Star Dojran, Topolčani
Local	Vratnica, Tearce, Želino, Kamenjane, Negotino (Pološko), Mavrovi Anovi, Centar Župa, Lukovo, Oslomej, Izvor, Belčišta, Vevčani, Krani, Carev Dvor, Capari, Bistrica, Bač, Novaci, Dobruševo, Kukurečani, Sopotnica, Dolneni, Crnilišta, Žitoše, Bogomila, Izvor, Naselba Čaška, Samokov, Dolno Sonje, Bojane, Kondovo, Kučevište, Lipkovo, Miladinovci, Petrovec, Katlanovo, Trojaci, Vitolište, Staravina, Konopište, Drenovo, Rosoman, Lakavica, Lozovo, Karbinci, Obleševo, Zletovo, Klečevce, Rankovce, Zrnovci, Blatec, Trsino, Podareš, Vasilevo, Bosilovo, Kukliš, Trabotivište

According to data in Table 1, it is evident that urban settlements in the Republic of Macedonia are categorized into five levels: cities with national importance, regional, district, community and municipal center. Towards the state center, the population from the whole territory of the Republic of Macedonia (Markoski and Madzević, 2001) gravitates; towards Bitola regional center, there gravitates the population of the south-western region and towards the Štip regional center the population of the eastern region of the Republic of Macedonia. Significantly smaller daily migration flows are toward the district, community and municipal centers. However, for illustration, the areas of urban influence cover in average around 900 km².

This means that towns in the Republic of Macedonia are rarely and unevenly disseminated.

It is obvious that in the urban network in the Republic of Macedonia there should be other centers with urban or at least suburban character.

So, if we pay more attention to the development of semi-urban settlements (Brod, Bogdanci, Gradsko, Demir Kapija, Demir Hisar, Kamenica, Krivogaštani, Novo Selo, Pehčevo, Rostuše, Star Dojran, Topolčani), the size of areas of urban influence would be reduced to about 650 km² per settlement.

If we consider the primary service supplying (Vrišer, 1990) needs of the population, which are

daily necessities in modern life conditions, in the settlement network of the Republic of Macedonia, there is a great need for the development of other centers (certainly those of lower economically functional rank). In the conditions of settlement network in Macedonia, as the most suitable local centers, development of the following settlements should be emphasized: Vratnica, Tearce, Želino, Kamenjane, Negotino (Pološko), Mavrovi Anovi, Centar Župa, Lukovo, Oslomej, Izvor, Belčišta, Vevčani, Krani, Carev Dvor, Capari, Bistrica, Bač, Novaci, Dobruševo, Kukurečani, Sapotnica, Dolneni, Crnilišta, Žitoše, Bogomila, Izvor, Naselba Čaška, Samokov, Dolno Sonje, Bojane, Kondovo, Kučevište, Lipkovo, Miladinovci, Petrovec, Katlanovo, Trojaci, Vitolište, Staravina, Konopište, Drenovo, Rosoman, Lakavica, Lozovo, Karbinci, Obleševo, Zletovo, Klečevce, Rankovce, Zrnovci, Blatec, Trsino, Podareš, Vasilevo, Bosilovo, Kukliš, Trabotivište (self-analysis). With their pro-active involvement in the network of urban and suburban centers, the area of influence per one settlement in the Republic of Macedonia would be in average around 250 km² or covering the territory within a radius of 90-10 km. It provides an easy daily migration with traditional and contemporary forms of transportation. In that case, the average area of functional influence of each urban center would encompass the population of about 15 settlements.

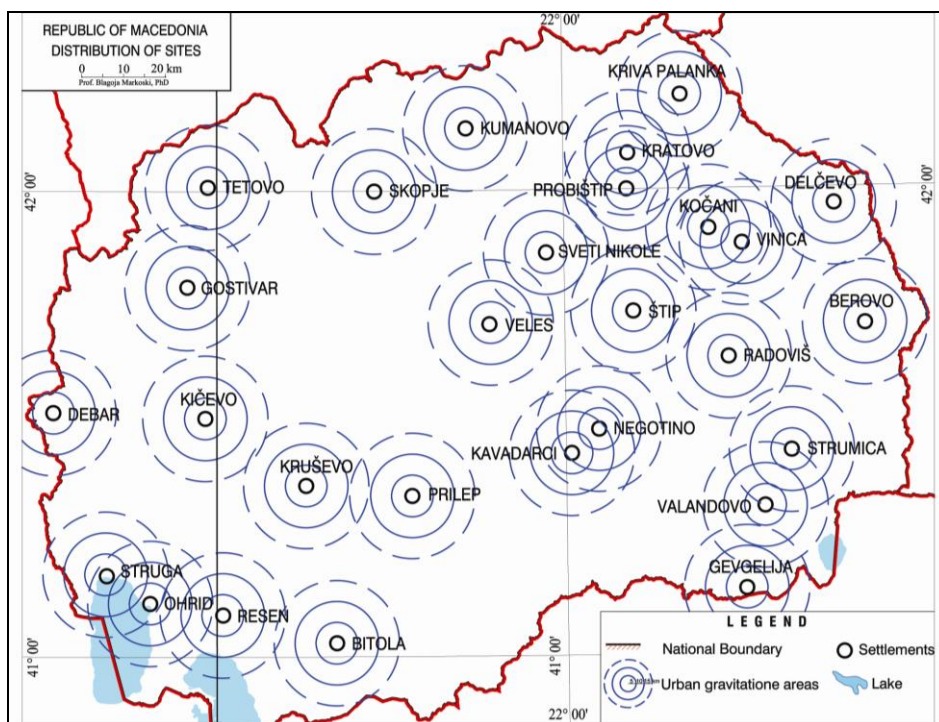


Fig. 1 Distribution of towns in the Republic of Macedonia (with blue circles are designated the extent of the urban gravitation areas)

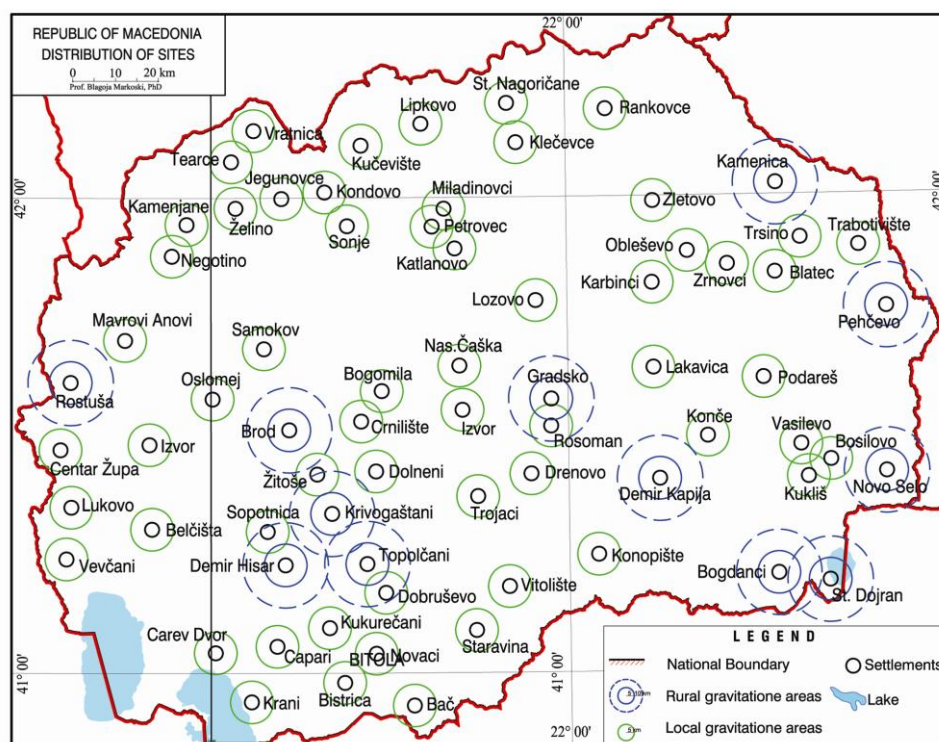


Fig. 2 Distribution of urban and suburban centers in the Republic of Macedonia (with blue circles are designated the rural gravitation areas, and with green circles local gravitation areas)

Thus, the territorial distribution of the population in the Republic of Macedonia would be substantially more even, the usage of natural

resources more rational, and the safety of living of the population higher.

The above-mentioned theoretical methodological approach is the basis for further detailed analysis

and approaches to economic, demographic and regional planning, which is based on our own research. It is normal to expect other more complete modalities in the development of the network of urban settlements in the Republic of Macedonia.

Conclusion

The Republic of Macedonia covers the territory of 25713 km². There are 29 towns and 1750 villages. This means that they cover in average about 900 km² gravitational territory and about 60 village settlements. Such situation is not adequate for the territorial development in the country. In the meantime (the 80s and 90s of the 20th century), with the progress of the processes of industrialization and urbanization, part of the settlements (villages) have been modernized with a diverse line and institutional infrastructure, so they obtained characteristics of suburban centers and have their own local gravitational field. That is why, beginning with the administrative territorial organization from 2004, 29 Municipalities were established based in the city, 9 Municipalities within the capital city of Skopje and 46 Municipalities located in suburban and rural centers (i.e. a total of 84 municipalities).

According to our study (in accordance with the stated criteria) the Republic of Macedonia should have at least 97 centers of Municipalities (not including the cities Municipalities) from which, according to the economical and functional importance 1 stands out as a country's center (the capital City of Skopje), 2 are regional centers, 4 borough centers, 7 district centers, 15 communal centers, 11 are suburban centers and at least 57 must be local rural centers. In that way, each Municipality would cover an average area of about 250 km² or a territory within the radius of 9–10 km and about 15 settlements in its composition (about 150 villages are entirely depopulated). That means that increased functionality in the regional development, since the daily migration is enabled with traditional as well as modern means of transportation.

In that case, in the Republic of Macedonia we would be able to achieve a more equitable distribution of the population, more rational use of natural resources, higher productivity, more reliable ways of living of the population, more appropriate regional, spatial and urban planning and a number of other advantages.

References

- Berry, B.J., Conkling, E. C., Ray, B.M. (1976). *The Geography Systems*, Englewood Cliffs.
- Bobek, H., Hofmayer A., (1981). *Gliederung Oesterreishs wirt schltliche Struktur gebiete*, Wien.
- Daskalovski, V., Markoski, B., (1996). Economical functional regionalization of Republic of Macedonia. *Proceedings of First congress of geographers of Republic of Macedonia*, held in Ohrid from 26-28 X 1995, pg. 269-277, Macedonian geographical society, Skopje (in Macedonian).
- JZO, (1995): Republic bureau for Health Protection, Skopje (in Macedonian).
- Markoski, B., Gerasimovska, C., (1996). Displaced settlements in Republic of Macedonia. *Proceedings of First congress of geographers of Republic of Macedonia*, held in Ohrid from 26-28 X 1995, pg. 211-216, Makedonsko geografsko društvo, Skopje (in Macedonian).
- Markoski, B., (1995). Spatial hypsometry and population of Republic of Macedonia. *Population-cartographic method*. Makedonska riznica – Kumanovo (in Macedonian).
- Markoski, B., Madzević, M., (2001). Moment of transformation of rural to urban population in Republic of Macedonia. *Annual proceedings*. Book 35-36, Skopje (in Macedonian).
- Markoski, B., (2006). Rural environment in Republic of Macedonia, *Scientific symposium with international participation "Rural areas in the modern development conditions"*-proceedings, Ohrid 30.03-01.04.2006, FNSM-Institute for geography, Skopje (in Macedonian).
- Markoski, B., (2004). Principles and criterias for administrative and territorial organization of municipalities in Republic of Macedonia, *Proceeding from Symposium "Territorial organization of municipalities as a basis for future development of Republic of Macedonia"*, Skopje (in Macedonian).
- Panov, M., (1993). Villages in Republic of Macedonia, book. 1 и 2, Skopje (in Macedonian).
- Vrišer, I., (1990). Economical and geographical regionalization of Republic of Slovenia, *Geografski zbornik XXX*, Ljubljana (in Slovenian).
- Wagner, H.G., (1981). *Wirth schalt geographie*, Braunschweig.