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## URBANIZATION IN BOSNIA AND HERZEGOVINA: A CASE STUDY OF USKOPALJSKA VALLEY

**Abstract:** *Urbanization in the Uskopaljska valley had also its development phases as well as the development of economy. In order to avoid hasty conclusions about the achieved level of urbanization, we applied Vrišer methodology. Suburbanization in the Uskopaljska valley was determined using the Vresk methodology of suburbanization. Urbanization of the Uskopaljska valley in recent decades took place in conditions of constant rapid increase in population, except in the last two decades because of war in period 1992-1995.*

**Key words:** Bugojno, urban population, industrialization, urban development, deagrarization.

**Language:** English

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Analysis and evaluation of geoposition represents an important factor for understanding of genesis, development, and function of any kind of area. Geographical position of the Uskopaljska valley has the following characteristics: it is situated in the Northern Hemisphere, in the field with geographic coordinates 43°51' and 44°15' North latitude, and between 17°16' and 17°51' East longitude. According to data acquired from the meteorological station of Bugojno, this area belongs to pre-mountain moderate continental climate type or, according to Kepen's Climate Classification, this municipality's region is dominated by Cfb climate (moderate warm and wet climate with warm summer), while in the mountain areas especially in the east, northeast and west, is presented Cfc climate as well (moderate warm and wet climate with fresh summer). On high mountain system of Vranica Dfb and ET climate are present. The main hydrographic skeleton of the Uskopaljska Valley area is presented with the Vrbas River and its tributaries.

Political-geographically, the Uskopaljska valley is situated in the state of Bosnia and Herzegovina, the entity of the Federation of Bosnia and Herzegovina, and within it, in the Central Bosnian Canton. Regional-geographically, it belongs to the Mountain-Valley macroregion, and the Upper Vrbas-Pliva mesoregion of Bosnia and Herzegovina. In Uskopaljska valley there are three municipalities: Bugojno (34.559 population), Donji Vakuf (14.739

population) and Gornji Vakuf-Uskoplje (22.304 population). By roads, Uskopaljska Valley is almost equally away from the cities of Banja Luka, Sarajevo, Mostar, and Split (around 140 km). The total length of border of Uskopaljska valley towards the neighbouring municipalities is 259 km and in those borders the Uskopaljska valley around 1.087,2 square kilometers in area. According to the Census 2013 in Uskopaljska Valley lives 71.602 people. [1]

Like many countries around the world, urbanization in Bosnia and Herzegovina is conditioned in the most direct way by development of non-agricultural activities, primarily industry. In accordance with the possibilities of employment in non-agricultural activities, social restructuring of population was intensively conducted. A part of the agricultural population was employed in non-agricultural activities so that their share decreased. The development of industry enabled the opening of a large number of job positions, and a consequence was a large concentration of population and jobs in the centers of work. [2] Industrialization as a spatial process is in connection with the development of productive forces and production relations. From the geographical point of view, it is especially important that industrialization changes affect the spatial distribution of the productive forces. Therefore, there is a whole chain of different processes and phenomena in space, such as the impact of industry on the development of other economic activities,



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changing the living conditions of the population, the impact on the development of settlements, creating environmental problems and the need for spatial planning and the like. Thus, industrialization drives contemporary socio-economic development. [3]

The achieved level of urbanization of 49.5% in Bosnia and Herzegovina in 2010 indicates that Bosnia and Herzegovina belongs to the group of countries with a moderate degree of urbanization. Rapid urbanization in the period of 1991-2010 can be attributed to the relatively greater importance of small settlements that are becoming secondary centers in municipalities which is in line with the principles of polycentric development supported by the first generation of municipal spatial plans. [4]

Urbanization in the Uskopaljska valley had also its development phases as well as the development of economy. In order to avoid hasty conclusions about

the achieved level of urbanization, we applied Vrišer methodology [5] and in addition to generalized urbanization measures and the share of urban population, we accepted some other indicators of urbanization, in particular: the share of housing in the city, the proportion of the urban population, the proportion of jobs, the share of jobs in the tertiary sector, and the share of the active agricultural population.

From the selection of indicators, it is evident that we were not only dealing with the population in the cities, but also the concentration of jobs, the share of agricultural population that is poorly connected with the city and the share of residential buildings. Indicators were calculated for the three municipalities in the Uskopaljska valley using Ravbar methodology.[6]

**Table 1**

**Degree of urbanization in Uskopaljska valley.**

Municipality	A	B	C	D	E	a	b	c	d	e	f	Degree
Bugojno	53.2	48.2	1.7	88.4	55.7	3	2	3	3	2	13	I
Donji Vakuf	50.9	52.6	1.7	87.6	58.4	2	3	2	2	3	12	II
Gornji Vakuf	25.6	32.8	1.8	85.1	54.1	1	1	1	1	1	5	III

A. The share of housing units in the city out of the total number of housing units in the municipality.

B. The share of the population that lives in the city out of the total population of the municipality

C. The share of active agricultural population in the total active population in the municipality

Using the previously mentioned methodology, the municipality of Bugojno is I degree of urbanization within the Uskopaljska valley, because it has a higher than average proportion of all the indicators except for the share of jobs in the tertiary sector. The municipality of Donji Vakuf is II degree of urbanization and the above-average share of jobs in the tertiary sector, while all other variables have been evaluated with two points. The municipality of Gornji Vakuf is in the third place with III degree of urbanization and with only 25.6% of the urban population (Table 1).

Judging by the share of the urban population, the Uskopaljska valley is a moderately urbanized area. According to the census of 1879, there were only 9.8% of the urban population. Already in 1921, that percentage rose to 12.1%, and not until the 1950s did it change significantly, primarily due to the overcoming of agrarian activities. Since the 1950s

D. The share of jobs in the city in relation to the municipality

E. The share of jobs in the tertiary sector in the city in relation to all jobs in the city

a, b, c, d, e - degree of urbanization evaluated by a number of points from 1 to 3

f- sum of all indicators there has been a strong urbanization of the Uskopaljska valley accompanied with industrialization. [7]

The share of the urban population in the Uskopaljska valley in 1953 amounted to 17.7% and a degree of urbanization was still low. In the early 1970s, as a consequence of the present socio-geographical processes, the Uskopaljska valley begins to take on the characteristics of moderately urbanized area which it maintained until today. In 1971, 25.7% of the population of the Uskopaljska valley lived in the city. Up to 1981 this percentage increased to 31.6% and in 1991 to 36.4%. [8]

According to preliminary results of the census of 2013, 45.2% of the population of the Uskopaljska valley. The conclusion is that the share of urban population in the Uskopaljska valley was continuously growing from 1953 to 2013 (Table 2).

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**Table 2****Share of urban population in Uskopaljska valley, 1961-2013.**

Area	1961	%	1971	%	1981	%	1991	%	2013	%
Total Bugojno	24,114	100	31,856	100	39,969	100	46,889	100	34,553	100
Urban	5,453	22.6	9,329	29.3	14,276	35.7	19,078	40.7	16,657	48.2
Total Donji Vakuf	17,104	100	19,983	100	22,301	100	24,230	100	14,655	100
Urban	4,220	24.7	5,513	27.6	7,768	34.8	9,393	38.8	7,702	52.6
Total Gornji Vakuf	16,175	100	19,344	100	22,432	100	25,181	100	22,306	100
Urban	2,465	15.2	3,426	17.7	4,692	20.9	6,625	26.3	7,317	32.8
Total Uskopaljska valley	57,393	100	71,183	100	84,702	100	96,300	100	71,514	100
Total urban	12,138	21.15	18,268	25.7	26,736	31.6	35,096	36.4	31,676	44.3

Urbanization of the Uskopaljska valley in recent decades took place in conditions of constant rapid increase in population, except in the last two decades. This caused the focus of interest to be directed mainly towards residential construction that created the fundamental characteristic of spatial and urban development of cities of Bugojno, Donji Vakuf and Gornji Vakuf. It took place towards the west at the same time as: planning- socially oriented development in the buildings of collective character and the expansion of business activities along the way from Bugojno to Donji Vakuf and Gornji Vakuf. It can be concluded that urban cadastral municipalities of the Uskopaljska valley belong to different historical periods and therefore have various forms, sizes and functions. About 90% of cadastre municipalities have exclusively residential functions, while the remaining 10% have residential and commercial functions (total 50 cadastre municipalities in 3 administrative municipalities). The degree of urbanization of each space reflects the degree of its social and geographical development.

The Uskopaljska valley is in a phase of development in which mainly prevails the proportion of the active population in the tertiary activity sector. It should be noted that the low proportion of the active population in the primary sector, but that the majority of the rural population works in urban secondary and tertiary activities. In this light should be considered an almost equal proportion of urban and rural population in the total population.

If the types of urbanization were separated by the simple model of two variables: the share of the urban population and the share of the agricultural population, while the parameters would be their average values for Bosnia and Herzegovina, then the Uskopaljska valley would have type I urbanization of the municipalities in Bosnia and Herzegovina. The reason is that there is a higher than average proportion of the urban population and the below-average share of agricultural population with regard to Bosnia and Herzegovina. It is characterized by large urban cadastral municipalities and a higher degree of deagrarization. Thus, the Uskopaljska

valley is an area which has seen a stronger degree of social and geographic transformation. [9]

Comparing the process of urbanization among the municipalities of the Uskopaljska valley shows that urbanization was most intense in Bugojno. One of the causes of such situation is much more intensive industrialization of Bugojno which has contributed to deagrarization. Basic indicators of the process of socio-economic mobility of the population are the reduction in the total agricultural and active, on the one hand, and the reduction of the rural population on the other side. In other municipalities the same indicators were recorded with the difference that the process in the municipality of Gornji Vakuf runs much slower because of the traditionally agrarian space and the largest share of active agricultural population.

Individual construction was paid a very small community and expert attention, although this construction accounted with over 80% of the total housing construction. Architectural designing, preparing and equipping the ground for the construction of settlements for individual housing were mostly neglected, and the absence of thought routing and construction, especially in cities, is highly visible.

Under the influence of economic power of industry, the municipalities of the Uskopaljska valley have changed its physiognomy by intensive housing construction. In 1971, Bugojno disposed with 6,472 apartments, and since then, primarily thanks to the development of industry, the number was growing rapidly, so that the census in 2013 registered 12,653 apartments.

Since 1971, urbanization has flowed towards earlier planned directions. In Bugojno, it was initially directed to the west, where between Čipuljić and Bugojno was created a housing settlement - the New settlement. In the northern part of the city there have been built many private family houses. Urbanization in the late 1970s and early 1980s reached all the way to the suburban cadastral municipality of Crniče in the south. Out of infrastructure facilities there were built elementary school and a sports court. The process of industrialization in the area of Bugojno

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began in the sixties of the 20th century by building a large military industry enterprises "Slavko Rodić". Until that time, the only industry representatives were only few lignite and building stone mines as well as smaller industrial mills. This means that up to the 1960s the municipality of Bugojno had a distinctly agricultural character. In the spatial-territorial terms, it was the territory of only agrarian cadastral municipalities with Bugojno in the center, but also with the initial functional changes.

The most dynamic changes in the period of the strongest industrialization up to 1981 were next to the city and its settlements in the immediate vicinity as well as along the main roads. In this period there was recorded a weak, still insufficient diversification of rural cadastral municipalities manifested by reducing the share of the active population in the primary, and increasing the number of employees in the secondary and tertiary sectors. In the structure of activities over the next 10 years, the primary sector

has experienced a real collapse, while there was registered a large increase in secondary and tertiary sectors.

From 1971 to 1981 in the Uskopaljska valley there was built 4,838 new dwellings, which is almost half of all housing built by then. Out of that, there were built 2,012 new dwellings in Bugojno (Table 3). Most new dwellings were recorded within the urban cadastral municipality of Bugojno, then in register units of Bristovi, Crniče, Kandija, Kopčić and Poriče. Residential construction in suburban cadastral municipalities, with the help of soft loans, sharply accelerated. Restructuring of the active population from the primary to other sectors of activity relates mostly to the cadastral municipalities that were previously developed functional capacity, such as those in the immediate vicinity of the town Vesela, Čipuljić, Bristovi, Kandija and with favorable traffic-geographical position of Gračanica, Poriče, Kopčić.

**Table 3**

**Number of built dwellings in Uskopaljska valley, 1971-2013.**

Municipality	1971	1981	1991	2001	2013.
Bugojno	6,472	2,012	1,888	782	848
Donji Vakuf	3,769	1,339	940	525	256
Gornji Vakuf	3,339	1,487	1,700	714	660
Total	13,580	4,838	4,528	2,021	1,764

Urbanization of Bugojno, from 1981 to 1991, moved to the north towards Donji Vakuf and to the south towards Gornji Vakuf. It was moving away from the urban center by construction of new housing units, mostly single-family houses. Along with housing there were also erected infrastructure facilities, as well as shops and restaurants. In this period were built 1,888 new apartments. The highest construction of apartments was present in the cadastral municipalities of Bugojno, Bristovi, Drvetine, Kopčić, Kandija, Poriče i Vesela. In the suburban register units, there were exclusively built family houses with basic infrastructure facilities. Bugojno in 1991 had 11,744 housing units. The number of newly built apartments in 1991 was lower for 24 apartmentments in relation to 1981. [10]

Basic conditions of origin and development of industry in Bosnia and Herzegovina in order of importance are: supply of raw materials, industrial policy, labor, market, traffic position, microlocation position, the supply of fuel and energy and other wider or local factors. At the end of the 20th century, industrialization in Tuzla and Zenica has reached a level of over 50%. Industrialization in Bosnia and Herzegovina has affected the distribution of population and population growth.

The industrialization relied on agricultural population and the use of cheap unskilled labor force. After 1991, the economic importance of industry in Bosnia and Herzegovina began to weaken. [11]

The previous socio-economic development of Bosnia and Herzegovina has caused strong concentration of population in cities which caused a demographic impoverishment and depopulation of significant parts of the national territory with the simultaneous disruption of demographic structure and poor socio-economic development. [12]

After the war in the period 1992-1995 and the destruction of a great deal of the housing stock, which is valued at 30% over the next six years, started its reconstruction. In this period in the Uskopaljska valley was built and reconstructed 2,021 apartment, of which 782 in Bugojno. In 2013, the number of newly built apartments in the Uskopaljska valley was 1,764, a decrease of 257 from 2001.. In the postwar period, the largest number of residential units have been built within the city cadastral municipalities of Bugojno, Gornji Vakuf and Donji Vakuf I, and within the suburban cadastral municipalities of Bristovi, Kandija, Vesela, Kopčić, Podgrađe, Bistrica, Dobrošin, Čehajići. [13]

As for the spatial distribution of residential areas, there should be emphasized that the areas

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intended for residential purposes are found in all parts of the city of Bugojno. In large parts of the city, residential areas are combined with the other modes of exploitation, while in some primarily peripheral eastern parts, they have only residential character. As the value of land decreases with distance from the center, so residential construction adapted, thus residential areas with buildings were constructed closer to the center of the city, while the residential areas with houses and their lot in the more distant zone.

The highest density of residential buildings in the city of Bugojno is south and west of the commercial zone and next to its edge. In this zone Center II buildings were built as they are touching each other, in blocks of Lamela and Nugle. This zone is dominated by multi-storey residential buildings with a lot of apartments whose height ranges up to 20 floors. Residential zones with buildings occupy much less area than residential areas with family houses, because they occupy only 23.5% of the area under residential areas. Population density in parts of the city where there are residential zones with buildings is far higher than in residential zones with family homes. Population density ranges over 6,000 inhabitant/km<sup>2</sup>, while in the latter about 1,200 inhabitant /km<sup>2</sup>.

In the east of the business zone, where today's local community Vrbas I is placed, planned housing settlement was constructed composed solely of mostly two-story houses. In the immediate environment of the industrial zone in the southwest was built, in the 1970s, a brand new settlement that was named after the local community. Along the road in downtown - Čipuljić, there have been built a completely new settlement. New Settlement was built mostly for the workers of the company "Slavko Rodić". These buildings are in two or three floors. The green areas between the buildings make this part of the city more beautiful. In the city center of the local community Centar II, the old houses have long been demolished and in their place were built new and modern buildings. East of the old square, between the river Poričnica and Terzića II, in the Terzići settlement, there is another residential area, mainly for the construction of family and private houses.

The third area spreads from both sides of the street Sultan Ahmed going from Čaršija to the gas pump in the local community of Centre I. Family homes are built here. Next residential area of family houses was built after the 1970s, north of the other residential area. Larger residential areas with family houses were built in the local community of Gaj in the northwest of the city. A brand new village was built in the 1980s and is still being built with modern buildings. This is the Vrbas settlement located along the river Poričnica south of the city center.

In the city center which covers the streets: Zlatni ljljani, Kulina Bana, Sultan Ahmed and Dr Wagner, a function of residence is reduced to a minimum. In the street of Zlatni ljljani, several residential buildings were built, where there are several buildings from the time of the Austro-Hungarian occupation, so it can be characterized as the old part of the city. The buildings resemble one another, and they are mostly two-storey buildings. In this street there is Gymnasium. Towards the edges of the city, the importance of residential functions is increasing. The newer parts of town are distinguished by their appearance and are dominated by buildings with a much larger number of floors. In this zone, the construction is systematically organized and with blocks. A typical example are the places: Lamele, Nugle, Kolonije, and Vrbas Settlement. As for private construction, it is present in the peripheral parts of the city still in the suburbs.

With the growth of the city, the pace of housing construction progressed away from the center, although not equally in all directions, so the average age of the housing decreases with distance from the city center. Of the total number of apartments registered in the territory of the local community Centre in 1991, today there are the local community Centre I and Center II, as much as 95% of apartments were built in the last century, of which almost 50% of dwellings in the period 1946-1970. The gradual transition from the older to the younger residential structures in the longitudinal direction of development towards the cadastral municipality of Čipuljić reflects the continuous and uninterrupted expansion of the city in this direction. In contrast, limited construction areas in the attractive eastern zone of the city, today's local communities of Vrbas I and Vrbas II, were quickly used for residential construction immediately after the Second World War and the expansion of the city was carried out to the north.

The latest residential areas are found on the margins of the formal city, and in the southern parts of local community Centre II where new buildings are being built which is one feature of the town of Bugojno. The latest housing construction occurs in the southwestern part of the local community Centre I, Vrbas Settlement near the Stadium Jaklić, in the aforementioned area. [14]

The average size of an apartment in Bugojno ranges from 43 m<sup>2</sup>, which is the size in the residential area Lamele, 48 m<sup>2</sup> in Vrbas Settlement, and 41 m<sup>2</sup> in Nugle in local communities of Center I and II. Other local communities have a greater surface area of apartments because it is mostly individual construction, houses, ranging in size from an average of 70 m<sup>2</sup> in the local community Vrbas I and Vrbas II up to 82 m<sup>2</sup> in some residential settlements of local communities Gorica and Čipuljić.

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Miniature flats are typical also for new residential areas, especially those resulting from the 1960s and 1970s when the great demand of housing with immigration pressure from outside was affected by strong pressure from the overcrowded city center. In general, the size of apartments, however, increases with distance from the center of the cadastral municipality of Bugojno, except for the new housing settlements in the local community of Novo Naselje and the aforementioned Vrbas Settlement.

From the standpoint of social topography, the average area per person is more interesting than the sheer size of the apartment. In this regard as well, the city core and the southwestern part of the city stand out as the most unfavorable. Comparatively, larger average surfaces are found in parts of the periurban area, and in most parts of the study area (two-thirds of all local communities) that average is of 15 - 20 m<sup>2</sup> per person. In the central local communities (Center I and Centre II) the average floor area per person is 15.9 m<sup>2</sup>. [15]

Due to a very low population decrease in the city center as well as residential suburbanization, that have not yet taken hold of the Bugojno area, density of population is by far the largest in the central local communities, over 6,000 inhabitants / km<sup>2</sup> and up to 6.5 inhabitants / km<sup>2</sup> in the peripheral parts of the

local communities of Čipuljić, Gorica and Novo Naselje.

So great population density in the central city local communities is the result of a high density of development, while the average living area per person here is in the slightest over the city, as well as the average size of apartments. If you also add the equipment of the apartments with basic elements of urban infrastructure, it follows that the center of the city, although it has the most favourable infrastructure, does not provide the most favorable conditions for housing, despite the growing concentration of people and businesses. Suburbanization in the Uskopaljska valley was determined using the Vresk methodology of suburbanization. To determine the degree of social geographic transformation of cadastral municipalities, especially the impact of the town of Bugojno on the transformation of rural cadastral municipalities, there was made the differentiation of cadastral districts in four categories: urban, more urbanized, less urbanized and rural cadastral municipalities. This differentiation was based on two variables: the share of the agricultural population and the proportion of workers from the active population, while the parameters were determined on the basis of their mutual correlations (Table 4.). [16]

**Table 4**

### Model for differentiation of urbanized cadastral municipalities in Uskopaljska valley.

Degree of urbanization	% agricultural population	% workers from active population
Higher degree	10.0 and less	75.0 and more
Lower degree	10.1-20.0	50.0 and more

According to this model, as a special group were classified cadastral municipalities that do not meet the above criteria. Status of urban cadastral municipality was acquired by the cadastral municipalities with more than 2,000 inhabitants, with less than 10% of the agricultural population and more than 50% of workers in their place of residence if it has fewer than 10,000 residents. The only urban cadastral municipalities under this model are Bugojno, Donji Vakuf and Gornji Vakuf. Only three cadastral municipalities in 1991 were less urbanized, Čaušlije, Čipuljić and Crniče near the town of Bugojno. Other cadastral municipalities are of rural type (Figure 1). It is understandable that the strongest transformation is related to cadastral municipalities around the city and along the roads because it creates related urbanized zones. They are nowadays spread radially from the town cadastral municipalities along the main traffic routes making it the axis of urbanization.

The widest urbanized zone extends around the city of Bugojno making it a complete socio-

economic urban region. However, more or less continuous narrow urbanized zones that occur as a shaft of weak urbanization extend from Bugojno along major traffic routes. These and other indicators show that the process of urbanization of the Uskopaljska valley continues with the concentration of population and jobs in the city and there are no significant tendency of decentralization. In 2013 the situation in the urbanization of the Uskopaljska valey was very similar with the difference that the cadastral municipality of Čaušlije became rural because there are no more 50% of workers, and there is more agricultural population than 20% (Figure 2).

Differentiation of cadastral municipalities using this model shows that a very small number of cadastral municipalities of the Uskopaljska valley experienced a significant degree of transformation. On the basis of these data on the socio-economic transformation of the cadastral municipalities may be concluded that the suburbanization in the Uskopaljska valley is poorly expressed.

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In the near future significant changes are not expected in transformation of rural cadastral municipalities of the Uskopaljska valley.

In the cadastral municipalities of Donji Vakuf I and Gornji Vakuf, there were built mainly private houses, with the difference that in Donji Vakuf there is much larger number of blocks with multi-storey buildings especially in its southern part. In Donji Vakuf, for the development of industry there were built 2,279 apartments in the period 1971-1991, and in Gornji Vakuf 3,187 mostly private in rural

cadastral municipalities. Urbanization in the municipality of Donji Vakuf after 1995 is focused on the reconstruction of the former housing and the construction of housing for returnees whose houses were destroyed during the war. There was built 781 apartment. In the same period in the municipality of Gornji Vakuf were built 1,374 apartments, of which the largest number in the city of Gornji Vakuf and cadastral municipalities of Podgrađe, Tihomišlje and Ždrimci.

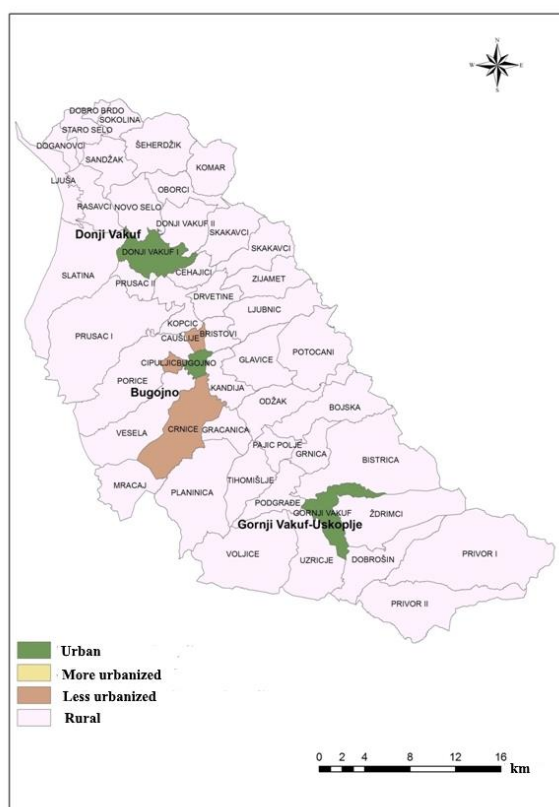


Figure 1 - Degree of urbanization, 1991.

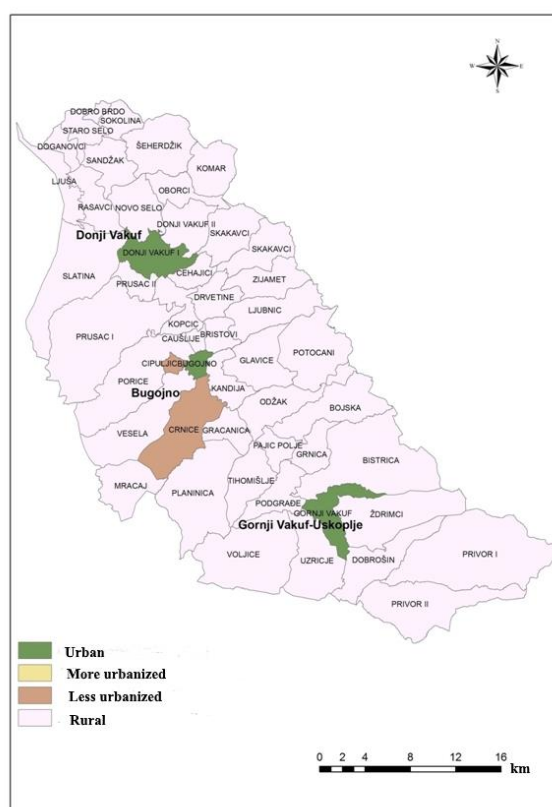


Figure 2 - Degree of urbanization, 2013.

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## Impact Factor:

<b>ISRA (India)</b> = <b>1.344</b>	<b>SIS (USA)</b> = <b>0.912</b>	<b>ICV (Poland)</b> = <b>6.630</b>
<b>ISI (Dubai, UAE)</b> = <b>0.829</b>	<b>PIHHI (Russia)</b> = <b>0.234</b>	<b>PIF (India)</b> = <b>1.940</b>
<b>GIF (Australia)</b> = <b>0.564</b>	<b>ESJI (KZ)</b> = <b>1.042</b>	<b>IBI (India)</b> = <b>4.260</b>
<b>JIF</b> = <b>1.500</b>	<b>SJIF (Morocco)</b> = <b>2.031</b>	

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