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## **CHANGES OF POPULATION DENSITY IN THE MUNICIPALITY OF NIKŠIĆ AS A RESULT OF MIGRATION**

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**Abstract:** Due to geographic and traffic position, migrations were characteristic of all periods of the demographic development of the municipality of Nikšić, but the highest intensity, especially internal population movements, they had from the second half of the 20th century. Caused by intensive industrialization, they greatly influenced the spatial distribution of the population, both in the city and in many rural areas of the municipality. In this paper, we will point out the impact of migration on the spatial distribution of the population and changes in population density of certain areas of the municipality. The impacts will be analyzed at the level of municipality, city, all villages, certain areas (Nikšićko polje and Zupa Nikšićka) and some areas with extreme values

**Key words:** migration, population density, industrialization, deagrarization, depopulation

### **Introduction**

Nikšić Municipality covers an area of 2065km<sup>2</sup> which accounts for 14.9% of the territory of Montenegro. According to the results of census of 2011th on the territory of the municipality lived 72 448 inhabitants, i.e. 12% of the population of Montenegro. The strongest spatial movements and population relocation in the municipality of Nikšić started in the 60s of the last century, caused by intensive industrialization in the city that could not meet the needs of the workforce from its reserves. Migrations had a character from rural to urban, and undeveloped - developed areas. The consequences of these strong population movements are negative in rural areas and in the city. Many villages are involved in the process of depopulation, some of them to the point that they remained sparsely populated by elderly population and they are facing demographic desertion.

The process of urbanization in the city was going slower than industrialization and deagrarization, so due to the pressure of numerical population it developed quite haphazardly. This is especially apparent in the suburbs (from 1971

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urbanized area that was attached to the city<sup>2</sup>), which now have utilities and many other problems. This resulted in superconcentration of population in the city where lives 80% of the population of the municipality. If we compare the data with the city's population at the national level of 65%, it is clear that the degree of urbanization is significantly above the national average. This degree of urbanization does not follow the economic development of the city or residential construction, which represents additional problems for the migrant population.

For this reason, elemental and unregulated construction began in the immediate urban environment, which occupied the most fertile land of Nikšićko polje. The situation has particularly worsened after the 90-ies of the last century, as a result of economic crisis in which municipality found itself, when virtually all large industrial enterprises stopped working or they only survived with minimal number of workers (such as Željezara, Boksiti Mines, etc. .), resulting in massive layoffs and lack of employment opportunity.

As the final result of the difficult economic failures there is a decrease of intensity of the internal, but a significant increase of the external migrations<sup>3</sup>, which generally have direction toward Podgorica and the coastal municipalities, which resulted in a decrease of the number of inhabitants in the municipality and the city in the last inter-census period.

### **Characteristics of the distribution of population in the second half of the 20th century**

At the beginning of the observed period of 1948th with 18 inhabitants per km<sup>2</sup>, the municipality was sparsely populated and well below the population density of Montenegro, which amounted to 27 inhabitants / km<sup>2</sup>. The population density in the city was much larger 133 inhabitants / km<sup>2</sup>, while in rural areas it was 14 inhabitants / km<sup>2</sup>. Villages that had slightly higher population density were those in flat terrain such as parish Zupa Nikšićka with approximately 21 inhabitants / km<sup>2</sup> and Nikšićko Polje with 19 inhabitants / km<sup>2</sup>.

In Nikšićka Župa, depending on the terrain, population density ranged from 10 inhabitants / km<sup>2</sup> in Vasiljevici to 72 inhabitants / km<sup>2</sup> in the village Carine, and in the settlements of Nikšićko Polje, population density ranged from 18 inhabitants / km<sup>2</sup> in Stedime to 80 inhabitants / km<sup>2</sup> in the village Zavrh that

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<sup>2</sup> These are settlements: Dragova Luka, Glibavac, Grebice, Kapino polje, Klicevo, Kocani, Mokra njiva, Rubeža, Straševina and Studenci.

<sup>3</sup> Emigration has always been present in the municipality but it was compensated by population growth.

was the most densely populated settlement in the municipality. The rest of the municipality, where the relief features are far less favourable, had a population density of 11 inhabitants / km<sup>2</sup>, in the individual villages it ranged from 3 inhabitants / km<sup>2</sup> in Bogetici and Zaljutnica to 51 inhabitants / km<sup>2</sup> in Stubica.

Population density to 5 inhabitants / km<sup>2</sup> had seven settlements, from 6 to 10 inhabitants / km<sup>2</sup> had 24 settlements ie altogether 31 (28.4%) settlements of the municipality. Population density from 11 to 20 inhabitants / km<sup>2</sup> had 53 settlements which together with the settlements with less than 10 inhabitants / km<sup>2</sup> made 77.1% of the villages of the municipality. On the other hand somewhat higher population densities, from 21 to 50 inhabitants / km<sup>2</sup> had 16 settlements, a density from 51 to 100 inhabitants / km<sup>2</sup> had 9 settlements, i.e. only 25 or 22.9% of the villages of the municipality.

It should be noted that during this period, although they always existed, the spatial movements of population towards the only urban settlement in the municipality have not been intense. According to the data in Nikšićki district<sup>4</sup> in 1948, there were only 7.5% of the migrant population, a little bit over in the city 16.2%. The largest share of the migrant population of the city had the population of villages of Nikšić district 57.2%, population from other districts of the People's Republic of Montenegro participated with 26.6%, and the population from other People's Republics of former People's Federal Republic of Yugoslavia much less with 14%, only 2.2% of the migrant population was foreign (Mijanović 2007).

Commissioning of the Zeljezara has created employment opportunities for a large number of workers that the city could not settle from its own reserves, so migrations village – city were strengthened, which characterized the entire second half of the twentieth century, and the most intense it was in the 80s. The municipality in 1961, due to the significant growth of the population, primarily through natural movement, had a growth of population density to 27 inhabitants / km<sup>2</sup>. The share of the total migrant population in this period rose to 41.8%, which is caused by the demand for labor force, especially for skilled in the art that came from the other former Yugoslav republics, so the share of this category of migrants in the migrant population of the municipality increased from 3.7% to 17.9%. The largest share of the migrant population of the

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<sup>4</sup> Up to 1961, the territorial organization in Montenegro was in the districts, and later in municipalities. It should be emphasized that the data up to 1961 can be hardly comparable to the latter because to one district belonged more settlements, which is why it is not possible to do an analysis for some of the settlements.

municipality had the population from surrounding villages 43.1%, then, people from other municipalities of the Federal Republic Montenegro 39%.

The population density in the city increased to 373 inhabitants / km<sup>2</sup> ( that is for almost three times) due to the significant influx of population from other municipalities of Montenegro, whose participation in the migrant population<sup>5</sup> of the city amounted to 47.1% and from rural areas of the municipality, with a share in the total population of 33% and to significantly reduced inflow from other former Yugoslav republics, which in migrant population accounted with 19.9%.

Viewed overall, villages had population density of 15 inhabitants / km<sup>2</sup>, that is slightly higher than in 1948th, which caused a significant outflow of population from these areas to the city, and much less to the other municipalities of the Republic. The largest increase in population density had settlements of Nikšićko Polje to 26 inhabitants / km<sup>2</sup>, much lower had the settlements of Nikšićka Zupa up to 23 inhabitants / km<sup>2</sup>. When it comes the rest of the municipalities a slight increase in the population density is also recorded i.e. up to 12 inhabitants / km<sup>2</sup> due to a high birth rate, and the natural growth that are still compensate for the loss of population caused by the emigration from these settlements.

From the villages of Nikšićko Polje at this period the higher population density had Brezovik with 103 inhabitants / km<sup>2</sup>, it was also the most densely populated village of the municipality, while the lowest population density had village Stedim with 22 inhabitants / km<sup>2</sup>. In Nikšićka Zupa population density ranged from 9 inhabitants / km<sup>2</sup> in Vasiljevici to 65 inhabitants / km<sup>2</sup> in Zagrad. The population density in other villages in the municipality ranged from 2 inhabitants / km<sup>2</sup> in Bogetići and Zaljutnica to 71 inhabitants / km<sup>2</sup> in the village of Bubrezak.

In relation to 1948th, the number of settlements with population density to 5 inhabitants / km<sup>2</sup> increased to 8, and villages with a density of 6-10 inhabitants / km<sup>2</sup> to 25, so up to 10 inhabitants / km<sup>2</sup> had 30.3 % of the settlements of the municipality and these together with the areas of population density of 11 -20 inhabitants / km<sup>2</sup>, of which there were 42, made 68.8 % of all the settlements. The number of settlements with slightly higher population densities ie 21-50 inhabitants / km<sup>2</sup> was 26 villages, and of population density of 51-100 inhabitants / km<sup>2</sup> were six settlements, while the density of over 100 inhabitants / km<sup>2</sup> had only one rural village. These three categories of settlements of higher

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<sup>5</sup> Migrant population took part in the total population of the city with 63.6%.

population densities accounted for 30.3 % of the settlements of the municipality. In this period begins polarization of settlements by population density .

On one side stand the settlements with declining population density, that made majority in the municipality, and on the other, except for the city, mainly settlements in Nikšićko Polje, with increasing population density.

Massive internal population movements, which culminated in the late 80s of the last century, have resulted in even greater polarization in the distribution of the population, and therefore in the population density of certain parts of the municipality. The average population density of the municipality in 1991 amounted to 36 inhabitants / km<sup>2</sup> and in accordance with 1961 year it increased for 9 inhabitants / km<sup>2</sup>.

It should be noted that in this period the number of inhabitants of the municipality has increased for 16 479, while by population growth the municipality got 28 189 inhabitants. So therefore, in this period the negative migration balance of the municipality amounted to - 11 710 inhabitants, respectively, without immigration the population density of the municipality would amount to 41 inhabitants / km<sup>2</sup>. In the city, where the largest population growth of 29 131 was recorded (in the period from 1961 to 1991) population density was increased to 784 inhabitants / km<sup>2</sup>, or 2.1 times as compared to 1961. By natural increase, the city in this period got 19 818 inhabitants and by immigration 9 313 inhabitants.

In contrast to the town, in the same period, by population growth villages obtained 10 320 habitants, while through emigration they lost even 22,775 residents, so the population density, instead of 22 amounted to 9 inhabitants / km<sup>2</sup>. Villages in Nikšićko Polje had growth of population density to 32 inhabitants / km<sup>2</sup>, but by emigration in this period, they also lost 389 residents, that is, without emigration, density would equate to 34 inhabitants / km<sup>2</sup>. Individually by areas, population density ranged from 14 inhabitants / km<sup>2</sup> in Štedim to 138 inhabitants / km<sup>2</sup> in Vir. Significantly greater depopulation was recorded in the villages of Zupa Nikšićka, that through emigration lost 1 609 inhabitants, so the population density in 1991 instead of 31 amounted to 22 inhabitants / km<sup>2</sup> and it was lower compared to 1961, and the population density of settlements ranged from 7 inhabitants / km<sup>2</sup> in Oblatno to 60 inhabitants / km<sup>2</sup> in Zagrad. Other rural settlements of the municipality<sup>6</sup> by emigration lost 20,777 inhabitants and instead of 16 inhabitants / km<sup>2</sup> they had population density of 7 inhabitants / km<sup>2</sup>.

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<sup>6</sup> Village settlements without village Niksicko polje and Zupa Niksicka.

Here the highest population density had Lukovo with 22 inhabitants / km<sup>2</sup>, and the lowest had Zaljutnica with 0,3 inhabitants / km<sup>2</sup>. Three settlements were with no inhabitants (Gvozd, Gradačka Poljana and Stuba) (Mijanović 2007).

The lowest population density of 0-5 inhabitants / km<sup>2</sup> in 1991 had 57, or 52.3% of the settlements of the municipality, population density of 6-10 inhabitants / km<sup>2</sup> had 20 or 18.3% of the settlements, therefore 70.6% of the villages had population density below 10 inhabitants / km<sup>2</sup>. From 11-20 inhabitants / km<sup>2</sup> had 16 (14.7%) settlements, population density of 21-50 inhabitants / km<sup>2</sup> had 8 (7.3%), and of 51-100 inhabitants / km<sup>2</sup> had 3 (2.8% ) settlements, and more than 100 inhabitants / km<sup>2</sup> had 4 (3.7%) settlements in Nikšić field.

### **Changes in population density at the beginning of 21 century**

At the beginning of 21st century, the trend from the previous period is continued, so in 2003 the growth of population density had the metropolitan area to 820 inhabitants / km<sup>2</sup> and the settlements of Nikšić field to 35 inhabitants / km<sup>2</sup>. At the municipal level, the population density was like in the previous period, as well as in areas of Zupa Nikšićka, while other rural areas recorded a decline to 4 inhabitants / km<sup>2</sup>. Stagnation of population density in the municipality is the result of an increase in emigration out of the municipality, which is the 90-ies of the last century had grown in intensity and was caused by a major economic crisis, which resulted in the shutting down or occasional work with a minimum capacity of almost all large factories and enterprises in the municipality. As a result, a negative migration balance of the municipality for the period 1991-2003 was - 7124 inhabitants. The causes of these fluctuations are economic and directions mainly towards Podgorica and the coastal municipalities that were more developed, a small number of migrants went outside of Montenegro.

Demographic exhaustion of rural areas, especially from the mountainous areas of the municipality reduced the intensity of internal migrations to the city. On the other hand, migration attractiveness of the city decreases significantly due to the very bad economic situation and the closure of many companies. The city still has a positive rate of natural increase<sup>7</sup>, which, with little immigration from rural areas and increased emigration (migration balance was - 5050 inhabitants), results in a significantly lower rate of population growth than in previous periods, thus it also results in the small increase of population density.

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<sup>7</sup> In the period from 2006 to 2010, the population growth rate was 2.1 %.

Table 1: The annual rate of migration of the population of the municipality of Nikšić in the period 1961-2011

Name of the area	rate for the period 1961-1991 in %	rate for the period 1991-2003 in %	rate for the period 2003-2011 in %
Nikšić	1,1	-0,7	-0,5
Brezovik	-1	0	-0,7
Vir	0,4	0,1	-1,6
Zavrh	0,5	-1,8	-0,8
Milocani	0,8	0,4	1
Ozrinici	-0,3	-0,3	-0,2
Rastovac	-0,4	-0,2	-0,2
Stedim	-2,3	-2,2	-2,1
Settlements in the Field	-0,2	-0,2	-0,3
Bastaji	0,2	0,4	2,1
Bjelosevina	-1,2	-2	-0,3
Vasiljevici	-1	-0,7	-3,7
Ducice	-1	-0,7	-0,5
Zagrad	-1,4	-2,3	-2,1
Jugovici	-0,4	-1,3	-4,1
Kuta	-1	-1,1	-1,2
Liverovici	-1,3	-2	-2,6
Morakovo	-1,3	-1,2	-1,4
Oblatno	-2,6	-0,8	0,2
Staro Selo	-0,8	-0,8	1
Carine	-1,2	0,6	0,3
Zupa Nikšićka	-1,1	-1,2	-1,1
Bogetici	-0,9	-0,9	0,8
Bubrezak	-6,5	0,9	-1,7
Lukovo	-1,9	-2,4	0,4
Medjedje	-5,6	-1,5	-15
Ridjani	-3,3	3,7	-1,1
Stubica	-4,9	-1,4	-3
Zaljtnica	-4,1	3,8	-7,2
Other village settlements	-3,6	-1,4	-2,3
Village settlements of the municipalty	-2,6	-1	-1,3
The municipality of Nikšić	-0,3	-0,8	-0,6

Sources of the data: Monstat-Zavod za statistiku: Stanovništvo – uporedni pregled broja stanovnika 1948, 1953, 1961, 1971, 1981, 1991 i 2003, data by the settlements, knj. 9, Podgorica; Monstat-Zavod za statistiku: Stanovništvo- Popis stanovništva, domaćinstava i stanova 2011. – first results, Podgorica; Savezni zavod za statistiku (1961): Vitalna statistika – tables 1 and 5-1; Savezni zavod za statistiku (1971): Vitalna statistika – tables 8-1 and 5-1; Savezni zavod za statistiku (1981): Vitalna statistika – tables 8-1 and 5-1; Savezni zavod za statistiku (1991): Vitalna statistika – tables 8-1 and 5-1; Monstat – Republički zavod za statistiku (2012): Statistički godišnjak za 2012. godinu, Podgorica.

The consequences of increased immigration in the census period of 2003, diminished the large number of refugees who have returned from the war-torn

republics of the former Yugoslavia, so the effects were shown only in the last census period of 2011, when, for the first time, in the municipality and in the town depopulation was recorded. This resulted in a decline in population density in the city to 807 inhabitants / km<sup>2</sup>, and in the municipality on 35 inhabitants / km<sup>2</sup>.

Although the rates of natural increase were in constant decline, the municipality in the inter-census period by population growth got 1 265 inhabitants, and the number of inhabitants has declined for 2 834, ie by emigration it lost 4099 people.

During the same period, the population of the city by population growth increased to 1 001 inhabitants, but the number of inhabitants declined for 1 244 inhabitants, by emigration the city lost 2 245 inhabitants.

A slight increase in the population of 55, had the settlements of Nikšić field, although by population growth they got 104, so they also had a negative migration balance of 49 inhabitants. Settlements in Nikšić field a significant number of residents received by proceeds from the villages of mountainous area of the municipality, as migrants mainly directed towards them because they could not resolve their housing needs, but at the same time, a significant number of people was lost by emigration toward economically more attractive areas of Montenegro. Population density in this period is the same as in the previous one, and the highest population density had Vir with 141 inhabitants / km<sup>2</sup>, while the lowest had the settlement Stedim with 10 inhabitants / km<sup>2</sup>. In the settlements of Zupa Nikšićka, population growth for the period 2003-2011 was 69, and in the mentioned period the number of inhabitants had declined to 303, so migration balance amounted to - 372 people, resulting in a decrease of the population density to 20 inhabitants / km<sup>2</sup>. The highest population density had a settlement Zagrad with 43 inhabitants / km<sup>2</sup>, the lowest had the settlement Vasiljevići with 6 inhabitants / km<sup>2</sup>. In the other villages in the municipality, the population density also decreased to 3 inhabitants / km<sup>2</sup>, but these areas, from 1991, are with negative population growth and demographically discharged, so fewer people they lose by emigration.<sup>8</sup> Population density in this area of the municipality ranged from 0.1 inhabitants / km<sup>2</sup> in the village Međeđe to 26 inhabitants / km<sup>2</sup> in the village of Ridjani.

In 2011, in the municipality of Nikšić there were three settlements without inhabitants, population density of 0-5 inhabitants / km<sup>2</sup> had 74, or 67.9%

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<sup>8</sup> Negative migration balance of the settlement in the period 1991-2003 was - 1338, in the period 2003-2011. -1176 inhabitants.



settlements of the municipality, density of 6-10 inhabitants / km<sup>2</sup> had 14 (12.8%) settlements. Number of settlements with population densities of 11-20 inhabitants / km<sup>2</sup> dropped to 5 (4.6%), settlements of density of 21-50 inhabitants / km<sup>2</sup> increased to 11 (10.1%) and the number of settlements with population density of 51-100 inhabitants / km<sup>2</sup> decreased to 2 (1.8%) and the settlement with population density of over 100 inhabitants / km<sup>2</sup> to 3 (2.8%)

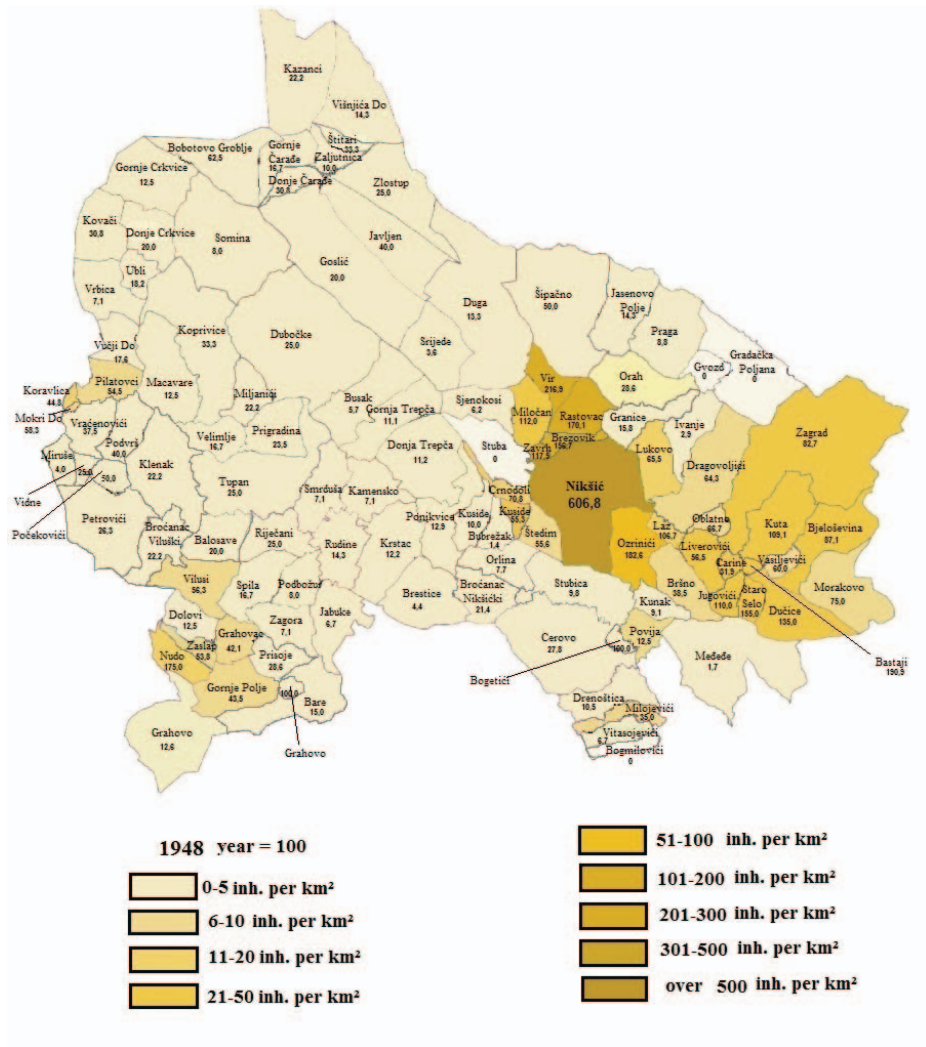


Figure 1. The population density of the municipality of Nikšić in 2011

Table 2: The population density of the municipality of Nikšić in the period 1961-2011

Name of the area	1948	1961	1991	2003	2011
Nikšić	133	373	784	820	807
Brezovik	67	103	100	111	105
Vir	65	93	138	156	141
Zavrh	80	49	117	105	94
Milocani	25	35	28	24	28
Ozrinici	46	64	76	82	84
Rastovac	67	85	102	111	114
Stedim	18	22	14	12	10
Settlements in the Field	19	26	32	35	35
Bastaji	11	11	16	18	21
Bjelosevina	31	33	31	27	27
Vasiljevici	10	9	9	9	6
Ducice	20	28	28	28	27
Zagrad	52	65	60	51	43
Jugovici	20	28	33	31	22
Kuta	22	27	26	26	24
Liverovici	62	52	48	42	35
Morakovo	12	12	11	10	9
Oblatno	12	12	7	7	8
Staro Selo	20	26	27	27	31
Carine	72	44	19	22	23
Zupa Nikšićka	21	23	22	22	20
Bogetici	3	2	3	3	3
Bubrezak	71	71	1	1	1
Lukovo	29	30	22	18	19
Medjedje	6	6	0,6	0,6	0,1
Ridjani	47	34	16	27	26
Stubica	51	31	6	6	5
Zaljtnica	3	2	0,3	0,6	0,3
Other village settlements	11	12	7	4	3
Village settlements of the municipalyty	14	15	9	8	8
The municipality of Nikšić	18	27	36	36	35

Sources for the data: Monstat-Zavod za statistiku: Stanovništvo – uporedni pregled broja stanovnika 1948, 1953, 1961, 1971, 1981, 1991 i 2003, data through the settlements, knj. 9, Podgorica; Monstat-Zavod za statistiku: Stanovništvo- Popis stanovništva, domaćinstava i stanova 2011. – first results, Podgorica; Data on the area of the settlements are taken from the book »Geografija Crne Gore- faktori prerasmjesta stanovništva«, p. 74 -77.

## Conclusion

The increase in the population of the municipality of Nikšić and spatial movement in the period 1948-2011 have caused changes in population density. In the municipality in the observed period, the population density increased from 18 to 35 inhabitants per km<sup>2</sup>, which is below the average population density in Montenegro, which in 2011 amounted to 45 inhabitants per km<sup>2</sup>. The coefficient of the general population varies in different parts of the municipality.

On one side is the metropolitan area with the increase in population density of 606.8% in the period 1948-2011, and on the other are rural areas with the decline of 57.2%. In the last intercensal period there has been a significant decline in population density in the city, and much smaller in rural areas because they are, for the most part of the municipality, demographically discharged.

Although the average population density in rural areas is the result of various components, the rule can be observed and that is that by furthering away from the city, the population density decreases, which resulted in a large difference in the population densities of certain villages. Of course, apart from this, on the population density relief features had the impact as well. The rule is that the more densely populated are lowland villages than those of the highlands.

During the reporting period, the highest population density changes occurred in the categories of settlements that are most distant from the city and with unfavorable relief characteristics. In 1948, in the category of settlements to 10 inhabitants / km<sup>2</sup> was 31 rural village, or 28.4%, in 2011 there were 86, or 79% of the settlements of the municipality, of which 65 settlements had the population density below 5 inhabitants / km<sup>2</sup>, among which there are 4 without inhabitants, and 8 with the population density of less than 1 inhabitants / km<sup>2</sup>. In the category of settlements with 11-20 inhabitants / km<sup>2</sup> in 1948 were 52 or 47.7% settlements, whereas in 2011 in this category were 6, or 5.5% of all the village settlements of the municipality. Thus, 92 of 109 settlements of the municipality of Nikšić had population density below 20 inhabitants / km<sup>2</sup>.

On the changes of population density in some parts of the municipality, migrations had the greatest influence. They were particularly pronounced in the villages of mountainous areas characterized by lack of water and limestone relief, with little cultivable land and unfavorable conditions for agriculture, except for extensive livestock breeding. Important factors for the mass emigration of the population were: a) neglect and inadequate support from the state to the villages and the lack of strategies and programs to halt evictions, b) lack of quality local roads and poor transport links to the city up to the 80s of the

last century. It should be noted that the moderate migrations from rural areas in the 70's were desirable because they lead to a reduction of surplus labor force in rural areas and to the relief of rural areas that were agrarian overpopulated, and in the city defaulted were the needs for missing labor force. Over the time, the process of migration, rather than losing, rose in the intensity, leading to large differences in the spatial distribution of the population, in the population density of rural and urban areas and to differences among certain rural areas.

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