

ARTICLES

**DEVELOPMENT AND TRANSFORMATION OF BANJA LUKA
SUBURBAN SETTLEMENT VRBANJA****AUTHOR****Nataša Dragić**

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ABSTRACT

Development and transformation of Banja Luka suburban settlement Vrbanja
The suburban Banja Luka settlement Vrbanja developed in the southeast part of the Banja Luka valley, in the valley extension of the Lower Vrbanja River, along the highway (M4) and railway track Banja Luka – Doboј. Faced with the processes of deagrarisation and urbanisation, the settlement experienced demographic, functional and physiognomic transformation especially after 1971 when it became part of Banja Luka. The basic factors of the socioeconomic and physiognomic transformation of this settlement are: traffic and geographical position and excellent everyday connections to the central city; development of work function (industry of cellulose and viscose INCEL and etc.).

The analysis conducted showed that the settlement, regardless of the aforementioned transformation factors, still has the features of a suburban area with modest representation of the central functions and a lower degree of development as well as a poor quality of communal services. The socioeconomic transformation of the population is reflected in a small share of the agricultural population (1,7%), but agricultural production, although of low intensity and productivity and on small areas, is still present and affects the physiognomy of the settlement. An important limiting factor of further transformation of the settlement is significant depopulation. Over the past twenty years the population of Vrbanja has declined by around 33,7% so the demographical revitalisation together with the planned development of new functions, also covered in the paper, is the principal precondition for future development.

KEY WORDS

suburbanisation, transformation, depopulation, Vrbanja

1. Introduction

In the post-war period, in a fast-paced economic development, Banja Luka developed in an important socioeconomic centre. That was a result of an increase in the number of residents, which tripled in the period from 1948 to 1971 and even later, as well as the proportional increase in employment and the frequency of the city traffic.

In the urban area of Banja Luka, there were a great number of workplaces at disposal in secondary and tertiary sector which could not have been covered by the local labour force. The cause of daily migrations was a relatively convenient traffic connection between Banja Luka and its surroundings and the latent disharmony between the place of demand (Banja Luka) and the place of offer (agrarian surroundings). The biggest number of daily migrants is found in the secondary sector. In this way we have intense spatial “interactions“ of the city and its surroundings, which are reflected in the exchange of goods and services as well as the labour force that the surroundings have to offer to the city. The mobility of the labour force is the key factor that influenced the transformation of the agrarian to an urban environment and those changes reflect the physiognomic, demographic and functional transformation.

The primarily longitudinal shape and the growth direction of the Banja Luka city, in modern socioeconomic conditions, has the tendency of star spreading along the sides of the Vrbanja River and Crkvena and alongside all the traffic exit directions. The territorial development of the Banja Luka city is on one hand a result of the natural conditions and on the other hand a consequence of certain socio-political and economic factors.

2. Methodology

2.1. Theoretical and methodological approach

With secondary urbanisation, suburban urbanised zones started developing around the cities, which were spatially and functionally connected to the city. The development of the city outward, ie. the process of suburbanisation, has accelerated the development of the traffic, first railway traffic and then car traffic. That is how the villages, in other words the settlements along roads and close to the cities, changed functionally and physiognomically. The main initiator of the surroundings transformation is the function of working in the city. The biggest number of workers has originated from its surroundings, and as a result there is the socioeconomic restructuring of the population.

In keeping with the socioeconomic restructuring, physiognomically functional changes occur in the rural settlements near the cities. In this way rural settlements are urbanised (Vresk, 1990). The city, together with its urbanised environment makes an integral spatial unit. The base of environment differentiation is the degree of socioeconomic, physiognomically morphological and functional transformation. The degree of transformation is measured by the share of households without agricultural holdings, the share of agricultural population in the overall number of residents of the settlement, the share of daily migrants in the overall number of employed people and to have the settlement be a part of a continuous surrounding. The first two indicators show the degree of the socioeconomic transformation of the settlement and in most cases, we have the suburbanisation of the habitation function and decentralisation in general (Vresk, 1978).

According to Bašić (2005) the city stands out as a gender of population concentration where the immigration exceeds the natural population increase. By moving away from the central city the population growth dynamics is progressively declining but with time it starts to grow (Bašić, 2005). Žuljić (1965) did not aspire to limiting the narrow city area against the edge urban zone but considered the city in its administrative limits and considered the surroundings as the area directly connected to the city by its daily gravitational connections, which referred to the city in terms of its basic social functions and was by no means under the influence of another neighbouring centre nor was it a part of a politically territorial unit that was distinctly separated from the city (Bašić, 2005).

Rogić (1966) approached the process of determining the metropolitan area of Zagreb based on the selected criteria, which showed the change in size and the structure of the settlement as well as the share of the agricultural population and singled out two qualitatively distinctive categories of “peri-urban transformation“: Edge urban zone around the narrow area of the city and wider zone of a potential metropolitan area (Bašić, 2005).

According to Papić (1975), the city is a factor in space, which is by its function a regional centre and as such does not present a complete geographical reality because it cannot be separated from its surroundings and the environment, which the city is tied to by multiple connections of mutually vital interest. Between the city and its surroundings, permanent contacts are maintained, functional and complementary relations are developed, which make possible the mutual existence and development. The relations between the city and its surroundings are more intense if there is a better traffic connection of the city and the neighbouring area. That is how we differentiate the city territory from the narrow and wider gravitational zone or an influential area.

Boustedt defines the city region as the socioeconomic spatial unit and for its determination, besides the size and population density, solid social and economic connections of the city and its surroundings are relevant. It is a space that by the structure of its population makes more or less the same spatial unit, the population that mainly or at great extent finds its economic existence directly at the workplaces in the city (Vresk, 2002). Many authors have tackled the same or similar topic in the local literature Vresk (1985), Žuljić (1965), Bašić (2005) and etc., and in foreign literature Papić (1975) and etc.

2.2. Goals and tasks of the paper

Work methods in geography depend on the goals and work tasks. One of the basic work methods is personal observation and investigation in the field, which is of course necessary for complete understanding of the current state. Apart from that, it is necessary to examine the processes that led to the current state, and for those purposes secondary sources are used such as maps and statistical data from local and foreign literature. The period analysed in this paper is from 1961 to 2013 because that period is crucial for the understanding the today's image of Vrbanja settlement. It is from the end of 1950s that, with intensive industrial development of Banja Luka, we have the transformation of the suburban settlement of Vrbanja, which became part of the city Banja Luka in 1971. However, the settlement was never fully urbanised and it kept some of its suburban features to this day. Furthermore, the war in the 1990s influenced the depopulation of the settlement when one third of the working population was lost and as a result a demographic revitalisation together with the planned development of new functions, something that is also discussed in the paper was the basic pre-condition for future development. Therefore, the goals of this paper are to determine (1) equipment level of Vrbanja settlement with production and service functions and (2) the level of the settlement transformation. A hypothesis has been made from the goals, which is being tested by investigation, and it reads “the less the settlement is equipped with central functions, the bigger gravitation of the population outside that area“.

2.3. Study area

The development of the Vrbanja settlement was influenced by its geographical position and natural-geographic base. In the southeast part of the Banja Luka valley (Figure 2), in the valley extension of the lower Vrbanja River, along M4 highway Banja Luka-Doboj and the railway tracks Banja Luka – Doboj, the Vrbanja settlement was developed. In the southeast perimeter of the Banja Luka agglomeration (Figure 1), the Vrbanja settlement is only 7 km away from the city centre. Vrbanja is the urban settlement of Banja Luka, which is the leading polyfunctional centre of the Banja Luka region.

The Vrbanja settlement (Figure 1) is located at the altitude of 158 m (next to the bridge towards the Česma settlement) – 163m (the bridge over the river) – 166m (Cvječar). The settlement was built on a low and spacious terrace of the Vrbanja River.

Although, not so important as the longitudinal route that connects the area with the Pannonian region and Adriatic coast, the transversal traffic route holds significant importance. The significance of this route, east-west, rapidly grew with the construction of the Banja Luka – Doboj railway (1952) and the reconstruction of the highway Novi Grad - Banja Luka - Doboj - Tuzla - Bijeljina.

The transversal route is very important for Banja Luka, as a modern railway connection to Pounje and Zagreb, along Bosna valley and further to Tuzla, Sarajevo and Belgrade, and as a highway route. Taking all that into consideration, we can say that the Vrbanja settlement has a fairly good economic, geographic, traffic and transit position.



Figure 1: Topographic map of Banja Luka.

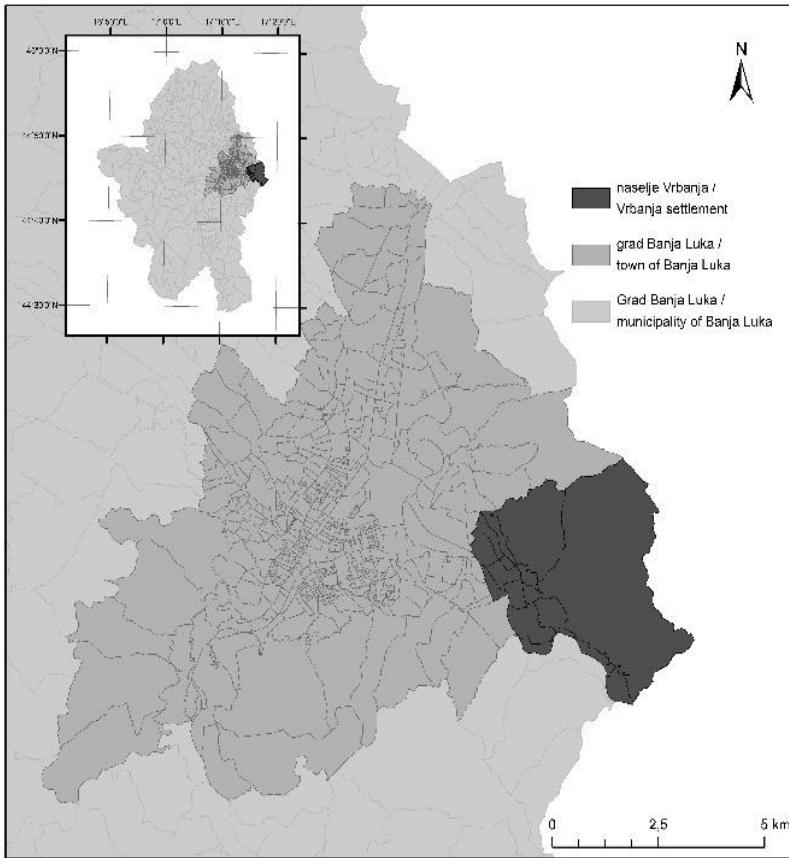


Figure 2: Vrbanja Settlement.
Source: RUGIPP 2016

3. Demographic development of the settlement

Demographic characteristics together with functional and morphological ones are very important geographical features of a settlement. Demographic elements, phenomena and processes of the settlement are important factors of the settlement urbanisation.

Vrbanja settlement, as a typical peripheral settlement of Banja Luka, is characterised as slow population density settlement and as a result there are 184,6 residents/km² on a 15,2 km² radius with predominantly low floor level where the highest floor level is P+2. The central part of the settlement is the most densely populated, mostly built in the period from 1991 during a phase of intense urbanisation with 1005,4 residents per km² and it has merged with the city of Banja Luka along the highway in the southwest part.

Moving towards the periphery of the Vrbanja settlement, to be more exact to the southwest part (Figure 3), the Vrbanja forest has 2,7 residents per km², and the southeast part of the settlement, which continues to the central part towards Zeleni Vir has 510 residents per km² mostly built after the 1991. The low population density is a result of both low floor level but also a sparse population, having in mind the overall movement of the population that has not reached the numbers from 1991, that is 33,7% less compared to 1991.

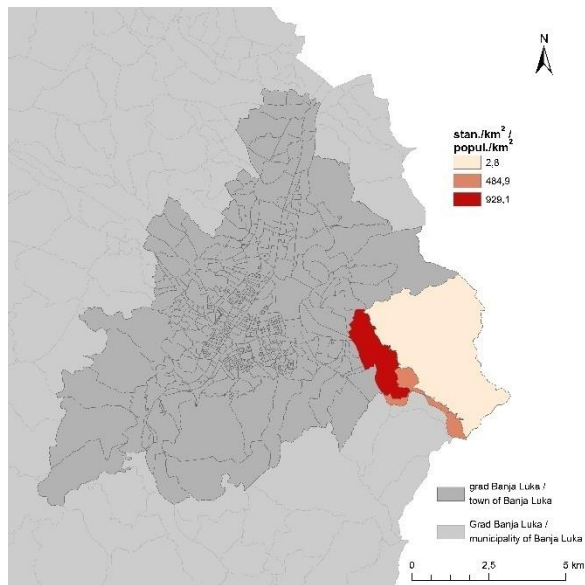


Figure 3: Population density of the Vrbanja settlement 2013.

Source: RUGIPP 2016

The age structure of the population, when it comes to Vrbanja settlement, according to census data in 1961, are mostly active working and young residents (Figure 4), which is significantly important in the process of urbanisation. The age-gender pyramid belongs to the mature resident type where the biggest share makes the active working residents followed by young and old residents. The expected growth of the mature residents is a result of the accentuated immigration of mostly active residents which lead to the increase of labour-working residents in the total number of residents. This has positively influenced the urbanisation of the settlement.

Based on the data from 2013, the age-sex pyramid belongs to the old population type, to be more exact, the very old population type (Figure 5), urn shaped. This is a result of not only the negative natural movement but also the emigration processes which were more intense during the war in the 1990s when a contingent of labour-active and young people left and old people stayed.

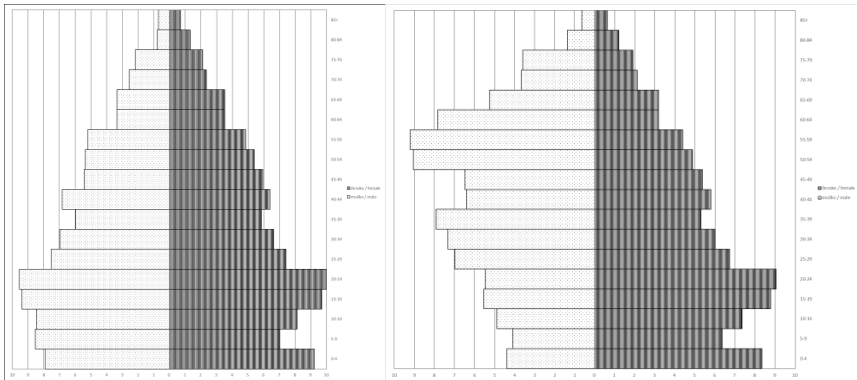


Figure 4: Age pyramid of the settlement in 1961. Figure 5: Age-sex pyramid in 2013.

The settlement recorded a steady population growth until 1991. The most intense increase in population (Table 1) was recorded in the intercensal estimates between 1971 and 1981, when the number of residents grew by 53,9%, then from 1981 to 1991 the number of residents grew by 9,9% and in 1991 the settlement reached the population maximum of 4321 residents. The settlement grew more due to the immigration of the population, especially the working age population from neighbouring municipalities of Banja Luka and less by natural population in the period of its intensive socioeconomic growth.

The total number of residents in the settlement constantly declined (Table 1) from 1991 to this day. The total number of residents (Table 1) according to the census from 2013 was 2806 residents. Compared to the pre-war number of residents, which was 4231 residents, the settlement lost 1425 residents, that is 33,7% of the pre-war residents. The causes are massive ethnic migrations (Table 2), in stages in the previous period. Apart from the intensive immigrations to the settlement far greater were the emigrations from the same settlement.

However, the reasons for the decline in the overall number of residents, compared to the pre-war number, should be sought in the unfavourable socioeconomic conditions of the previous period. That is how all the demographic changes in the settlement can be explained by migration characteristics of the population. Having in mind all the unfavourable vital characteristics and selective migration, the growth of the share of old population is to be expected together with the decline in the share of young population, which is of course an unfavourable image of a future demographic development of the settlement and consequently of the entire urbanisation of the Vrbanja settlement and all that, bearing in mind that the demographic factor is one of the most important factors of the settlement urbanisation.

Table 1: Population and household movements in the Vrbanja settlement.

| Vrbanja settlement | Residents | | | Households | | Rate | Index |
|--------------------|-----------|------|--------|------------|-----|-------|-------|
| | total | male | female | | | | |
| 1948 | 1704 | 808 | 896 | 321 | 5.3 | - | - |
| 1953 | 1906 | 901 | 1005 | - | - | 11.9 | 111.9 |
| 1961 | 2570 | | | 547 | 4.7 | 34.8 | 134.8 |
| 1971 | 2501 | | | 560 | 4.5 | -2.7 | 97.3 |
| 1981 | 3849 | | | 973 | 4.0 | 53.9 | 153.9 |
| 1991 | 4231 | | | 1194 | 3.5 | 9.9 | 109.9 |
| 2013 | 2806 | 1392 | 1414 | 850 | 3.3 | -33.7 | 66.3 |

Source: Censuses of population, 1953-1991; Agency for Statistics BIH, 2015

Table 2: Migration of the population in 2013.

| Sex | Total | Live in the same place since birth | Migrant population | | | | | | | | | |
|-------|-------|------------------------------------|--------------------|-----------------------------|--|--|-------------------|---------------------------------|-------|-------------------------------|----------------------|---------------|
| | | | Total | from Bosnia and Herzegovina | | | | from abroad | | | | |
| | | | | Total | From other settlement of the same municipality | From other municipality of the same entity | From other entity | Unknown municipality/settlement | Total | From former republics of SFRY | From other countries | Unknown state |
| M | 1392 | 464 | 928 | 659 | 11 | 148 | 461 | 39 | 269 | 90 | 161 | 18 |
| F | 1414 | 413 | 1001 | 734 | 18 | 206 | 455 | 55 | 267 | 102 | 150 | 15 |
| TOTAL | 2806 | 877 | 1929 | 1393 | 29 | 354 | 916 | 94 | 536 | 192 | 311 | 33 |

Source: Agency for Statistics BIH, 2015

4. Development and function distribution

4.1. Production function

After the Second World War, the settlement was functionally and spatially connected to the city by the construction of an industrial zone in the east part of the city from both sides of the rivers Vrbas and Vrbanja along the railway tracks, from the Vrbanja settlement to the suburbs Predgrađa. From 1951 to 1960 a big part of the population found work in the factories in the industrial zone as well as in other companies in the city.

The complex INCEL, industry of cellulose and viscose, built on one part of Medno polje, was very important for the Vrbanja settlements was the construction of Žitopeka, a new mill and silos by the Vrbanja settlement. The biggest part of the labour-efficient population was employed there so these were the most significant factors of socioeconomic structure change and the strengthening of urban features. A new steam bakery has been built in the settlement, as well as the warehouse of the construction company “Krajina” (the Blue silos) and the lumber warehouse “Poljopromet” Čelinac, by the tracks. This certainly was the ground for establishing the work-communal zone, which gave the settlement more pronounced urban features.

After the last war 1991 to 1995, there were some functional changes of the city that were manifested in weakening of the secondary (industrial) functions, which the today's development was based on as well as the demographic changes (the result of the war dangers), all up to the changes in socio-political structure and ownership relations and the change of the traffic position to the protection of cultural assets, environment protection and other.

However, the production played an important role in the settlement evidenced by the construction of textile, food and processing industry as well as having a big share of working people in the settlement. The production zone developed along the highway and the railway (Figure 6) Banja Luka – Doboj, infiltrating in both the business and residential zone of the settlement in the conditions when the process of industry decentralisation was accentuated, ie. the spatial reordering of the industry in urban areas from the city centre to the outskirts. One of the most important “push” factors was the inability of spatial expansion of the industrial sector in the city, high prices of the land, traffic congestion etc. When it came to the “pull” factors, an affordable land price should be mentioned, a relatively good offer of labour force and good traffic communication etc. Such facilities do not require large areas of land, any special traffic conditions and are not in the way of other city functions and at the same time do not need any extraordinary city infrastructure. Having all that in mind, the existence of such facilities is even desirable due to the proximity of the work places and housing estates and unburdening the roads. This is pure industry integrated into the residential zone. All the listed facilities are privately owned.

The agricultural production in the individual sector is mostly targeted on meeting own needs of the residents of the settlement in the central part of the settlement where empty and free areas are used for agricultural production. The agricultural production as such is at the same time aimed at the market i.e. the agricultural products are sold at the Banja Luka market. The causes are to be found in the unfavourable socioeconomic conditions and so this is one of the ways of overcoming unemployment.

4.2. Service functions

Among tertiary functions in the business zone, the traffic, commerce, craft and catering functions are well developed and they strengthen the urban features of the settlement. These tertiary functions are the carriers of the urbanisation which is also their spatial expression in this peripheral Banja Luka settlement.

Loading and warehousing services are done at the freight station Vrbanja, within the loading-unloading container terminal. In this way, the supply of raw materials in the industry as well as the transport of the industrial produce to the market has improved.

PTT traffic is conducted through the postal telegraph and telephone service of Banja Luka, which the settlement was connected to in 1980. This is certainly an urban feature of the settlement. The postal traffic in Vrbanja is conducted through the post and mailboxes and all the categories of postal services are included.

The service **craft** complex of the settlement is made of a bakery shop, two butcher shops, a barber's, a hairdresser's, a shoemaker's shop etc. which satisfy the needs of the settlement. Craft production is developed by the opening of "Cvjećar", by the road towards the Čelinac municipality, where the modern flower and ornamental shrub production is organised.

The commerce complex, as part of the Banja Luka trade network, was made of food and glass shops, liquor stores etc. The commerce function of the settlement is well developed. In the business zone of the settlement, there are trade shops that satisfy the short-term and mid-term needs of the residents.

When it comes to **hospitality** facilities in the settlement, there are several coffee shops and cevap shops. The catering facilities satisfy the needs of the residents in the settlement. The construction of other catering facilities should be placed at more attractive locations and for this purpose the area around the river Vrbanja was also intended.

The development of crafts, commerce and hospitality as urban functions leads to functional transformation of the settlement. The service industry has the tendency to grow having in mind the business premises in preparation.

The Vrbanja settlement, under the conditions of suburbanisation, **develops public and central functions**, which are part of the Banja Luka public institution network and which stimulative influence the urbanisation of the settlement. The spatial range and the gravitational sphere of the public functions of the Vrbanja settlement include the surrounding settlements as well.

The public functions of the settlement are the administrative, school, health and cultural function. The development of these functions is a reflection of the urbanisation level and an important spatial urban feature of the settlement.

The administrative function of the settlement is developing. As an urban settlement, Vrbanja is a local community, which for some time had other settlements of the urban zone of the city included. Today those settlements are individual local communities. The Vrbanja settlement has a Local community office and a Registry office.

The school function developed after the war too, from 1945 to 1962. The school building was built in 1970 and partially rebuilt in 2004. The branch school in Debeljaci belongs to the Central Elementary School. The elementary school is not only attended by the children of the Vrbanja settlement but also by the children from neighbouring settlements.

The cultural function of the settlement was well developed. The Community centre was built in 1962/1963 with 600 seats. Also, there was a cinema. The settlement also had the Cultural artistic society "Danko Mitrov", a Fire Brigade and a Firehouse, the Chess club "Partizan", a Shooting range, the Basketball club "Partizan". There was also the Football club "Jedinstvo", as well as sports ground with locker rooms. The prefabricated building of Community centre was pulled down and almost all cultural activities of the settlement were shut down. The exception is the Fire Brigade.

The health function of the settlement is developing. The gravitational sphere of health goes beyond the boundaries of the settlement and covers the neighbouring settlements too. The health function of the settlement, apart from the Family medicine practice consists of the Dental practice, Veterinary practice as well as a privately-owned Chemist's.

The cultural and social functions are not sufficiently developed or do not exist at all, which negatively reflects on the trend of settlement urbanisation. Also, the financial services are underdeveloped. Today's business-administrative centre of the settlement by the main transversal (Figure 6) originated by the development of different contents and functions of the centre from both sides of the transversal.

Different economic and non-economic activities developed there and thus we have a poli-functional centre of local significance. The most important business activities are wholesale and retail, service crafts, administration, financial operations, hospitality and transport.

The business zone is shaped like a tape and it is made of the main business street which is vertically cut by different smaller business streets in a shape of an elongated tape. It is a business zone with one-story or two-story houses with ground floors converted to shops, services and other activities and also a zone with separately built objects. Apart from the business and central functions, housing and other production functions are infiltrated in the centre as well as some public facilities. The business zone of the settlement points at certain degree on urban exploitation of the land even on the overall degree of the settlement urbanisation.

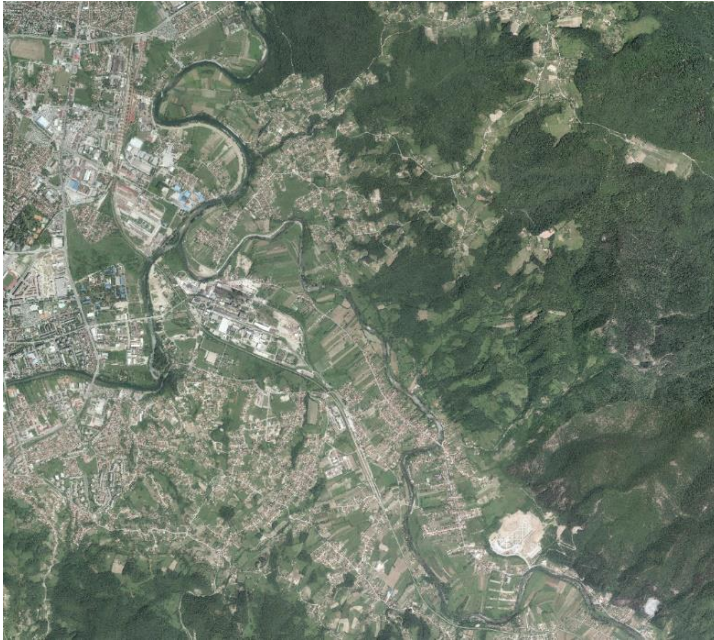
4.3. Work function

Until the Second World War the suburban settlement Vrbanja was distinctively an agricultural area. After the second World War, with the spread of urbanisation around the surrounding rural area the differences between the city of Banja Luka and its surroundings were reduced. Vrbanja was a transitional area between the distinct urban way of exploiting the land and the area of agrarian exploitation, i.e. the urban and rural elements of land exploitation were mixed. The settlement faced rapid changes both in the way of spatial usage, structure and population mobility as well as in physiognomic features. The settlement was characterised by small estates, high population mobility, moderate population density, the construction of residential units etc. Affected by the processes of urbanisation and deagrarianisation, the settlement experienced a complete demographic, functional and physiognomic transformation.

The basic factors of socioeconomic and physiognomic transformation of this suburban settlement are:

- the building of the industry complex of cellulose and viscose INCEL at Medno polje and of Žitoprodukt between the Vrbanja settlement and Banja Luka by the railway tracks Banja Luka – Doboj;
- the position on a highway route Banja Luka-Doboj, along the railway tracks and excellent daily connections to the central city which is only 7 km away.

Vrbanja is a suburban settlement and as such has a residential character. The decentralisation of industry was evident after the last war and some new facilities were built in Vrbanja which led to the development of the service functions of the settlement.



*Figure 6: Orthophoto of the Vrbanja settlement.
Source: RUGIPP 2016.*

4.4. Residential function

There are almost no records of the older population in Vrbanja from the period before the Second World War. Until the 1945 there were only 12 buildings. After the Second World War new houses from solid material were built. When it comes to the pace of building the apartment blocks (Figure 7) there were two important periods: - period from 1971; the period from 1961 to 1971 was intensive– the period from 1971 to 1991; in which the construction was intensified especially in the period from 1971 to 1981 due to the intensive migration of the people from neighbouring areas. The period from 1991 to 2013 is also important, especially the period from 2001 to 2010. From the total of 1115 individual buildings, the biggest share are multi-storey family residential buildings (Figure 7) consisting of one or two flats. Thus, one-storey residential buildings (Figure 7) make 48,4%, ground-floor buildings make 45,9%, and two-storey buildings 5,7%. There is only one two-storey collective building in the residential zone. Individual residential buildings are privately owned.

This type of construction, with ground-floor buildings and one-storey buildings, later two-story buildings, with one or two flats is very characteristic for all peripheral settlements of Banja Luka, not only for Vrbanja as a way of solving residential status.

The Vrbanja settlement is connected to the city pipeline through the second primary pipeline which is very important for the settlement. The peripheral parts of the settlement are connected to the local pipeline and the water supplies come from the secondary source of the river Vrbanja. The Vrbanja settlement is also connected to the city sewerage and the electrical grid of the city. The public cleaning company covers a big part of the settlement. When it comes to the topification, it is of an individual character and mostly wood is used.

The residential zone of the settlement is found on both sides of the highway and the railway tracks and it has followed the territorial expansion of the settlement. The area includes also the areas intended for functions of centre, sport and recreation as well as work activities that are not in direct conflict with housing. Commerce, crafts and hospitality are incorporated in all the structures of the residential zone with of course a notable polarisation in the centre of the settlement. According to the spatial distribution, schools and other public buildings are found in the residential zone (Figure 6) in the developed area.

4.5. Traffic

The traffic function is a distinctly urban function of the settlement. Traffic is one of the key factors of the settlement urbanisation, which affects the spatial expansion and spatial urban structure of the settlement i.e. the urban physiognomy of the settlement. The traffic coverage of the settlement is very good because it is connected by a great number of city and suburban bus lines to the city centre and there is also the railway track Banja Luka – Doboj that goes through Vrbanja. The public town transport is well organised in the Vrbanja settlement. The system of town roads and the layout of the bus stops for the public transport lines has been adapted and it meets the standards in pedestrian distances. These lines of public transport are conducted in 15-minute interval from 5 am to 11 pm. There is also a mobility increase when it comes to car traffic in the settlement and its share in the complete mobility of the settlement is around 60%.

The transport network of the settlement is highly undeveloped and incomplete. The technical features of the roads are poor. From the total of 19 streets only 10 has been paved and two are half done. The street lighting is more improvised so apart from the main street only several other streets have street lighting. Also, apart from the main street, other streets are narrow and have no pavements. The traffic infrastructure is still not finished and developed and certainly negatively affects the physiognomy of the settlement.

5. Physiognomic, functional and socioeconomic transformation of the settlement

5.1. Physiognomic transformation of the settlement

The type of the Vrbanja settlement is a compact one. The morphologic and physiognomic base clearly shows the level of urbanisation of this peripheral Banja Luka settlement, highlighting the overall urban and at some extent still present rural features of the settlement. The shape of the settlement base is elongated due to the natural and social factors. The settlement developed along the Banja Luka-Čelinac road, in the valley extension of the lower Vrbanja river. The length of the settlement base is accentuated and several times longer than the width of the settlement. The base consists of the main street and several less accentuated parallel streets. Apart from the main and several parallel and vertical streets, the structure of the settlement consists also of short and long winding streets. These streets have been built without a particular order and intersect at different angles.

According to the internal physiognomy, Vrbanja is an open type settlement. The yards do not occupy much space, from 500 to 700 m². The base of the yard is elongated, i.e. the length is more pronounced than the width. The yards are enclosed with low fences. Garages and sheds are usually found in these yards and often small vegetable gardens. The peripheral parts of the settlement have more spacious yards and therefore a bigger distance between the individual residential buildings. Such yards have more distinct agrarian features such as vegetable gardens, orchards and utility buildings for small or sometimes large cattle.

When it comes to the position of the houses compared to the position of the streets, the front side of the houses face the streets. The way of building the houses is open so the houses are detached. All the buildings are of solid built apart from several buildings, public institutions, which are prefabricated. Nearly all buildings were built after the Second World War. Based on the construction period, there are three different types of buildings. According to the census data, in the period from 1961 only 5,0% of residential buildings were built (Figure 7), and those were mainly ground-floor houses of small size and with a four-sided roof.

In the period from 1961 to 1971, 26,5% of residential buildings were built (Figure 7), mostly ground-floor houses. In the period from 1971 to 1991, 39,0% of residential buildings were built, mostly one-storey houses and at some extent two-storey houses (Figure 7) with two-sided roofs. The surface area was around 50 to 60 m², with one or two flats.

In the period from 1991 to 2013, 29,4% of residential buildings were built, one-story and two-story residential buildings (Figure 7), with two-sided roof. The surface areas are bigger, around 61 to 80 m² and bigger, with one or two flats. These buildings were built on a free, unbuilt surfaces within the settlement (Figure 7). As the urbanisation of the settlement progressed, the height of the buildings and its surface area grew.

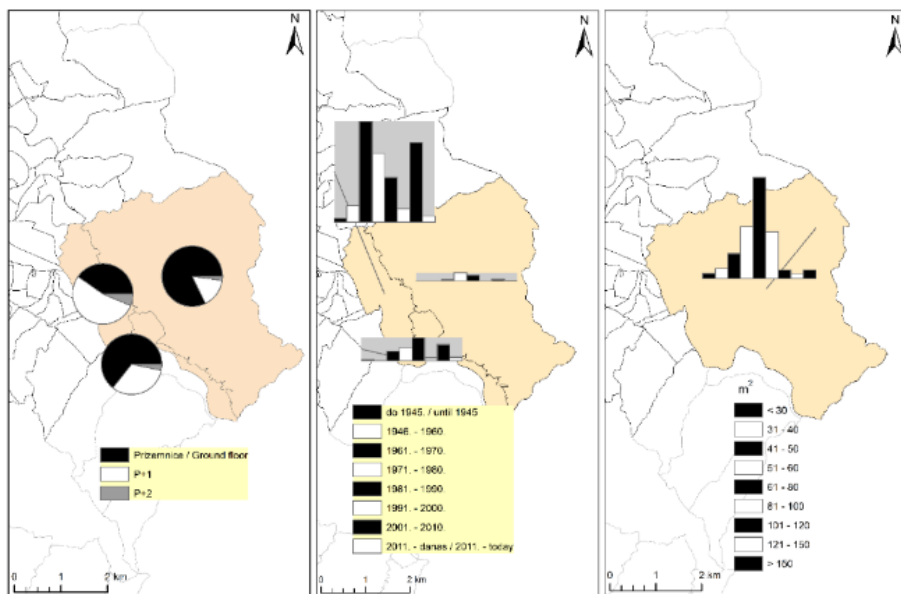


Figure 7: Buildings based on their flooring, year of construction and surface area of the flats.

Source: RUGIPP 2016.

One-storey residential buildings dominate in the settlement, but ground-floor and two-storey buildings have a significant share as well. The buildings used for other purposes are no different from the overall physiognomy of the settlement so we can say that the settlement represents a zone of somewhat equal height. The ground floors of individual residential buildings are usually reserved for office spaces, retail shops or other service shops. When it comes to the physiognomy of the settlement, specially built business and production buildings as well as buildings of public institutions are distinguished. The boundaries of the territorial expansion of the settlement were set with the construction until 1991, lengthwise. Latitudinally, the settlement was built to the west border, i.e. along the railway. The east part of the settlement, Vrbanja-forest is poorly built and is mostly covered by forest but there are some areas with agrarian features. The west part of the settlement is more developed. By the green belt of the Vrbanja river, which has a recreational role, an important part make the undeveloped, free areas with agrarian features inside the developed areas.

5.2.Functional transformation of the settlement

Vrbanja was a residential center of gravity, which was characterised by the dispersion of the daily migrants to the city but after the last war, economic activities started developing in the settlement. By the development of the production and service industry, the work function of the settlement grew stronger and the settlement became the centre of work gravity. This is very important from the aspect of the urban function development and its further functional transformation. This way, not only the residents of the settlement are employed in the settlement but also the residents from other settlements and even from the other municipality Čelinac. Having all this in mind, the peripheral Banja Luka settlement obtained both residential and work function.

The settlement has got 860 working residents (Table 4) with 29% working in the settlement and 71% of workers engaged in commercial and non-commercial sector in other parts of the city. In terms of daily migrations, the settlement is a dispersion-absorption centre. In the working zone of the settlement, 520 workers are employed (Table 4), mostly from the settlement itself 48%. The gravity sphere of the working zone mostly covers the neighbouring settlements of Debeljaci and Zeleni Vir. From the total number of employees in the working zone of the settlement (Table 4), 7,7% of workers are from Debeljaci and 5,8% are from Zeleni Vir. A significant part make the workers from other city settlements so 5,8% are workers from the local community Ada and 1,9% from Česma (Table 4), and the workers from other Banja Luka settlements make 28,8%.

The spatial range of the settlement's work function also covers the neighbouring municipality of Čelinac (Table 4) with 1,9% of workers coming from that territory. The Banja Luka settlement Vrbanja, based on its functions ie. the development of production and service functions, became a work centre. With its services, the settlement covers a wider area than the settlement itself, it covers the settlement of Zeleni Vir, part of the Presnača settlement and Ponir settlement. This is confirmed by institutions (Table 5) and the location of manufacturing and service companies as well as craft shops. The functional changes are distinct in favour of the urban elements. The settlement is developing a traffic function (by paving the main road, by constructing the railway and a station in the settlement), production function as well as other service functions (crafts, commerce and hospitality). The settlement is developing central functions, administrative, school and health function. The gravity sphere of these functions goes beyond the borders of the settlement.

Table 4: Vrbanja as the centre of work gravity, 2016.

| Employed according to the place of residence | I | T | C | H | Cf | F | E | Ht | A | Cl | Tt |
|--|----|----|-----|----|----|---|----|----|---|----|-----|
| Vrbanja | 61 | 10 | 60 | 50 | 50 | - | 10 | 6 | 2 | 1 | 250 |
| Zeleni Vir | 8 | - | 16 | - | 5 | - | - | - | 1 | - | 30 |
| Debeljaci | 4 | 3 | 20 | 5 | 8 | - | - | - | - | - | 40 |
| Ada | 3 | 2 | 10 | 5 | 8 | - | - | 2 | - | - | 30 |
| Česma | - | 5 | 3 | - | 2 | - | - | - | - | - | 10 |
| Čelinac | - | 8 | - | - | - | - | - | 2 | - | - | 10 |
| Other Banja Luka settlements | 15 | 5 | 49 | 25 | 3 | 5 | 39 | 9 | - | - | 150 |
| Total | 91 | 33 | 158 | 85 | 76 | 5 | 49 | 19 | 3 | 1 | 520 |

Table 5: Number of companies/public institutions by sectors in Vrbanja, 2016.

| I | T | C | H | Cf | F | E | Ht | A | Cl | Tt |
|---|---|----|---|----|---|---|----|---|----|----|
| 7 | 2 | 38 | 9 | 18 | 1 | 1 | 4 | 2 | 1 | 84 |

Legend: I-industry, T-traffic, C-commerce, H-hospitality, Cf-crafts, F-finance, E-education, Ht-health, A-administration. Cl-culture, Tt-total.

5.3. Socioeconomic transformation of the settlement

For the urbanisation of this suburban settlement and later the urban settlement, significant socioeconomic structures of the residents are important and they keep changing depending on the influence of the socioeconomic and other factors. In the period of intense industrialisation, structural changes of the population were the fastest. The structure of the active working population is the best indicator of the level of urbanisation of this settlement. According to the census data from 1961 (Figure 9) there were 774 (30,1%) active working residents, 25,0% in the primary sector and 70,0% in the secondary and tertiary sector, 5,0% in quaternary sector and residents with personal income and dependent persons made 69,9%. The biggest share of the employees was in the secondary and tertiary sector while the share of employees in the primary sector was declining.

As a city settlement Vrbanja was even stronger connected to the city functions. The secondary sector was dominant when it came to active residents. The connection of active residents to the tertiary sector grew proportionally decreasing the connection of the active residents to the primary sector.

The secondary and tertiary sector hired a big degree of work force which definitely illustrated the degree of urbanisation and the socioeconomic development of Banja Luka.

In the suburban settlement Vrbanja, and from 1971 in the urban settlement Vrbanja there was a decline in the share of agrarian population and at the same time growth in the non-agrarian population, who were employed in the secondary and tertiary sector in the city. After 1971 thanks to the dynamic growth of the industry (Figure 9), the secondary sector (55,2%) took over the dominant role in the economic structure of the city. The same situation happened in the Vrbanja settlement where an increasing share of the active working residents found work in industry, construction and other service industries in the city. Consequently, the daily migrations intensified.

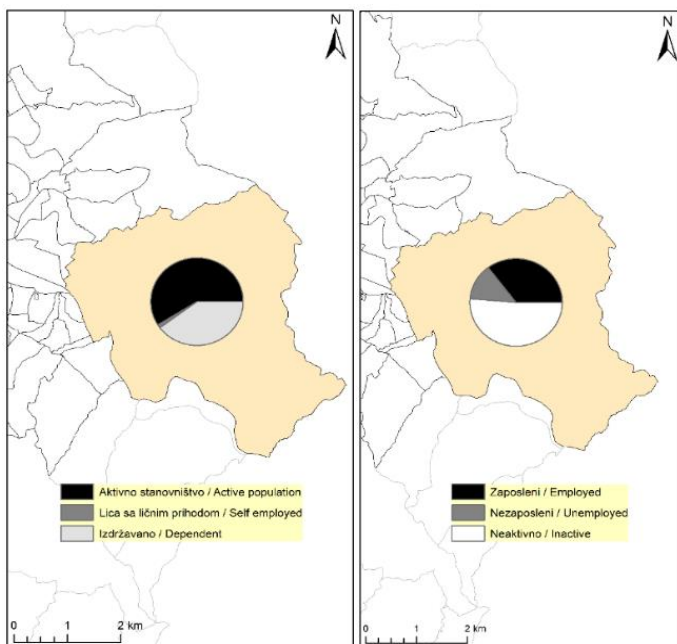


Figure 8: Movement of the active population in 1961 and 2013.
 Source: RUGIPP 2016

According to the census data from 2013 from the overall number of active working population (Figure8),48,75% was labour-efficient and only 72,5% was employed. A high proportion of the economically inactive residents was a result of the unfavourable age structure where a big share made the retired people. A high unemployment rate was a result of the unfavourable economic factors in Banja Luka and in the country.

According to the census data from 2013, the number of people employed in the secondary sector declined (Figure 9)and only 34,5% of the population still worked there while the number of people working in the tertiary and quaternary sector grew. Also, the number of people working in the primary sector has dropped to 1,7%.

As a result, 36,1% of residents were employed in the tertiary sector and 27,7% of the Vrbanja residents were employed in the quaternary sector. The decline of the people working in industry was a result of the changes in the country, war affairs, the changes of the social and political structure, ownership and legal relations which led to the collapse of industry i.e. big industrial complexes. After the war, industrial restructuring and deindustrialisation happened and small and medium-sized industrial companies played an important role. The industry stopped being the leading branch of economy in Banja Luka but tertiary and quaternary sector took over which resulted in the new role of Banja Luka in the social and political structure in Bosnia and Herzegovina.

Together with the process of suburbanisation, the process of deagrarisation was ongoing where agriculture stopped being the dominant branch of the settlement economy. According to the census data from 2013 the share of agricultural population declined and solely in the primary sector 1,7% of the residents were employed.

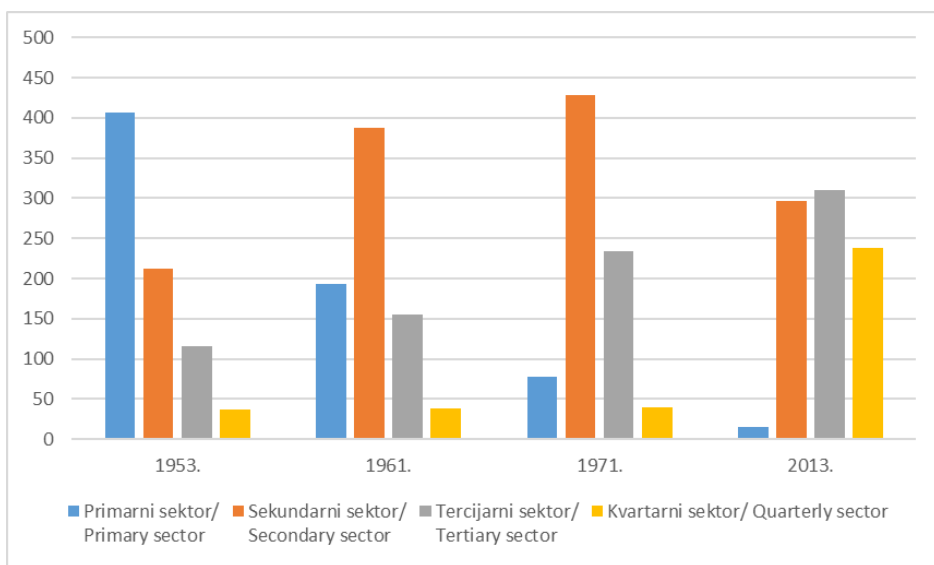


Figure 9: Structure of employees in different sectors in 1953, 1961, 1971 and 2013.

According to the census data from 2013 in the educational structure of the labour-efficient population (Figure 10) 58,3% of the population has finished secondary school and 19,3% of the population finished only primary school. There is also a significant proportion of the population, i.e. 7,3% of the residents, who have finished college or university. 2,0%, have taken specialisation after secondary school and 4.4% have higher school or the first level of university.

However, there are also residents with no education at all and they make 3,7% and residents with incomplete elementary education who make 5,0%. It can be said, having in mind the fact that we are dealing with a Banja Luka urban settlement, that the educational level of the settlement is quite low due to the fact that there is a significant part of the population who have only finished primary school, have no education at all or have incomplete primary education, which in the end negatively reflects on the urbanisation of the settlement.

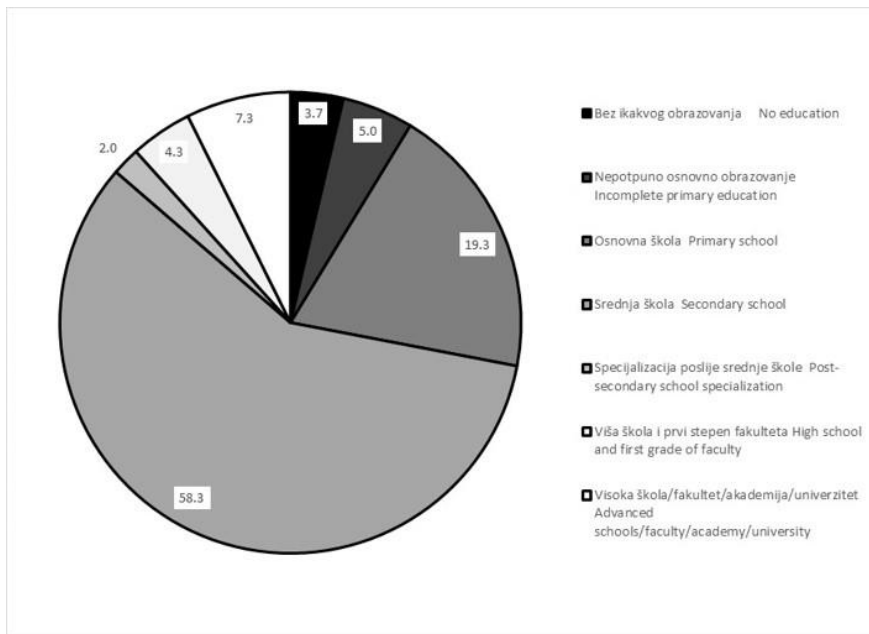


Figure 10. Educational structure of the population 2013.

6. Conclusion

Banja Luka is the largest and economically the strongest urban centre of the north part of the Republic territory. Through the analysis of the economic flows and existing economic relations, through the traffic analysis etc. it is clear that Banja Luka will continue to be the focus of the socioeconomic development in Banja Luka region. Apart from the industry, it is necessary to encourage the development of other economic and non-economic activities which would have a dominant influence on the dynamics of future development. With the help of such development, material base for the city transformation would be created as well as new hiring possibilities. This is very important for the future development of the Banja Luka settlement-Vrbanja as well as for the other settlements in the city.

In the urban settlement of Vrbanja it would be necessary to provide further development of the lower level functions in order to meet the needs of the residents. For the purpose of future development of Vrbanja settlement special attention should be directed to the demographic features. Stimulated selective settling of the young and mature population is necessary, natural population increase which would improve the age structure of the settlement. This way, there would be a demographic revitalisation of the settlement which cannot be expected without the development of the city economy and the economy of the settlement.

In addition, it would be necessary to provide opportunities for further development of smaller economic capacities, which, by its character, represent urban economy. In that case, the future development of the production and service industry is to be expected. Such spatial distribution of labour to work zones is necessary, which would rationally fit the urban structure and positively affect the overall life in the settlement, especially the system of communications and environmental protection. In the residential area, as the centre of gravity, it is not enough to have service industry, elementary school, health clinic but also cultural and social facilities. These are the basic elements that make the urban settlement, in the sense of a residential community, a social geographical region. Modernisation and the development of the traffic infrastructure of the settlement is important and necessary, beginning with the paving the streets, electrification and the organisation of the pedestrian traffic. All of these components will provide conditions for sustainable urban development of the Vrbanja settlement.

The Vrbanja settlement belongs to the “edge zone” or “peripheral zone” of Banja Luka. In context of positive stimulation of urban processes further development of functions is necessary, as is the urban form, development density and the quality of utility equipment. In this area the agrarian production still covers a significant part of surfaces but it is still of low intensity and productivity, limited by the local needs and less and less motivated. The socioeconomic structure of the population has lost its rural features but has not yet reached the standard urban features of Banja Luka. It can be said that the process of urbanisation is still not finished in this peripheral settlement.

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