

Cross-border Bike Project



SITUATION ANALYSIS

HUHR/1101/1.2.2/1004

Development of Pécs-
Osijek-Antunovac-
Ivanovac biking route

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1 Description of Baranya county

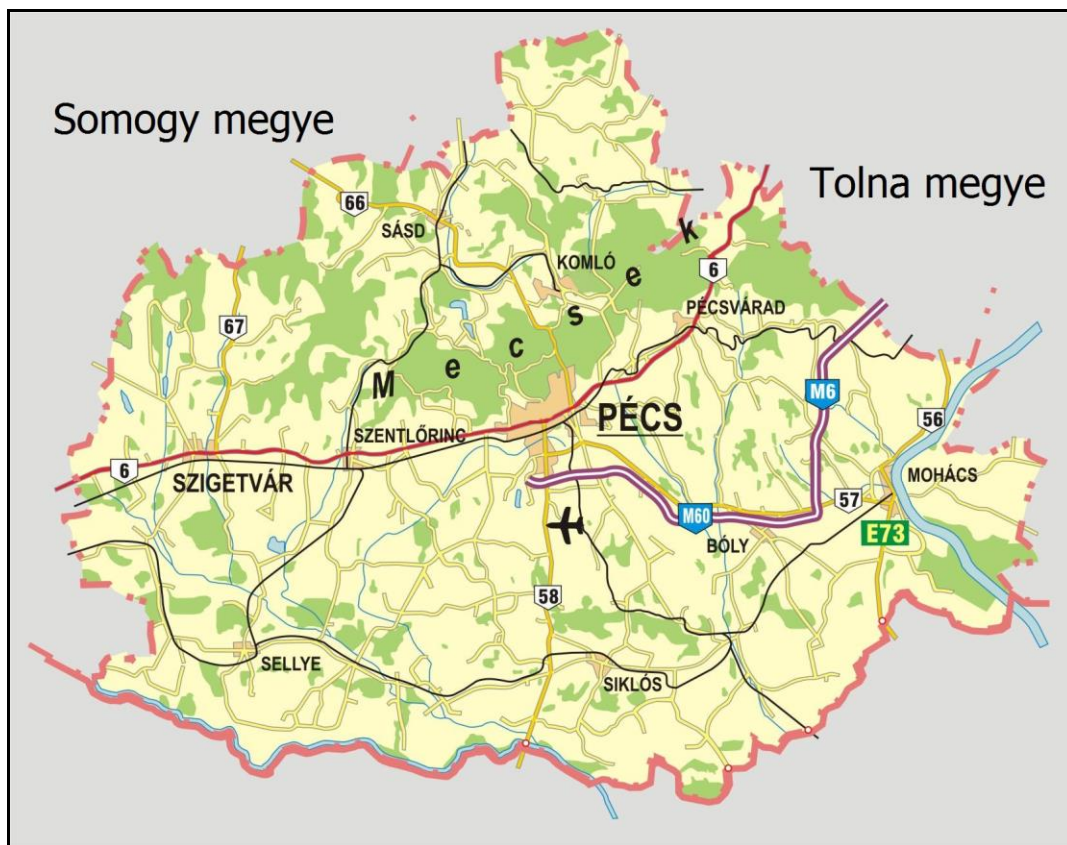
1.1 The layout of Baranya county (location, public administration, accessibility)

1.1.1 Location

Baranya county is the southernmost county of Hungary. It is located in the southern area of the Region of South-Transdanubia. It is bordered by Somogy county in the north-west, Tolna county in the north, Bács-Kiskun county, by the river Danube in the east and by the national borders and the river Drava in the south. Its county seat is Pécs. (The area of the county in 2011: 442 959 km², the population density in 2011: 87.8 person/km²).

The layout of Baranya county

Diagram 1.



Source: edited on the basis of

<http://wmoc2011.hu/images/staticfilesimage/Bulletin%20anyagok/Baranya.JPG>

1.1.2 Public administration

Prior to the county restructuring in 1950, Baranya county included seven districts: those of Hegyhát (its seat was Sásd), Mohács, Pécs, Pécsvárad, Siklós, Szentlőrinc and Villány. Following the county restructuring, from the 1st of February, the district of Szigetvár was annexed to Baranya from Somogy county, thus from the 1st of February, 1950, Baranya county included eight districts.

In the course of the district rearrangement of 1950, on the 1st of June one district was dissolved, but two new ones were created. The villages of the dissolved Szentlőrinc district were annexed to the districts of Pécs, Siklós and Szigetvár, and the newly-formed Sellye district. The other newly created district was that of Komló, the villages of which had previously belonged mostly to the district of Hegyhát. A further modification was to change the name of the district of Hegyhát to Sásd, as in the course of the district restructuring, the names of each district were changed according to their seat.

As a result of this at the introduction of the council system, Baranya county was divided into nine districts (that of Komló, Mohács, Pécs, Pécsvárad, Sásd, Sellye, Siklós, Szigetvár and Villány). **Thereafter, until 1983 five districts out of the nine were dissolved:** the district of Komló (1952), Villány (1956), Sellye (1963), Pécsvárad (1966), and Pécs (1978). Late in 1978 the seat of the district of Sásd was moved to Komló, and correspondingly the district's name was changed to Komló, thus a district with this name existed in the county between 1950-52 then between 1978 and '83. Upon the dissolution of the districts, at the end of 1983, four districts existed in the county (those of Komló, Mohács, Siklós and Szigetvár).

Up to 1983, peri-urban areas formed around four of the towns of Baranya county: that of Komló and Mohács in 1973, that of Pécs in 1978 and that of Szigetvár in 1981. These only included the villages that were the most closely connected to the towns and their centres also remained district seats with the exception of Pécs. The creation of the peri-urban area of Pécs coincided with the dissolution of the district of Pécs, and the villages belonging to this dissolved district, although located further from Pécs, were annexed to the remaining four districts. Out of the towns of the county, Siklós was the only one without a peri-urban area by the end of 1983.

On the 1st of January, all districts were dissolved in the country. In Baranya, the villages of the dissolved districts were annexed to the peri-urban areas of the previous district seats. While the number of cities in the country increased to one and a half times of their original number between 1984 and 1990, in Baranya no new settlements qualified as towns until 1990, thus by 1990, Baranya (besides Győr-Sopron) became the county having the least number of towns – only five.

In examination of the changes in the Hungarian public administration, a fundamental factor is the public administration transition that took place in 1990, with the essential aim of realising the alteration of the public administration in accordance of a new, civilian approach following the socialist era.

The first notable step was that **in 1994, through their announcement numbered 9006/1994 (S.K.3) the director of the Central Statistical Office introduced the concept of *subregion*** as the territorial unit of the measurement of statistical processes. The directorial announcement of the Central Statistical Office of 1994 created 138 statistical districts. As a result of the announcement of the director of the statistical office numbered 9002/1998 (S.K.1.) the previous announcement was modified, and from the 1st of August, 1997 150 subregions were registered. (<http://hu.wikipedia.org>)

As a result of a review, the Government Decree 244/2003 (XII.18.) concerning the establishment, designation and the procedure of alteration of subregions created 18 additional new subregions compared to the previous structure, thus by September 2007 the total area of the country was divided into 168 subregions. (In that year, the Parliament created six additional subregions, increasing their number to 174.) 9 subregions existed in Baranya county, which are presented in detail in the following table:

The subregions existing in Baranya county until the year 2013

Table 1.

Subregion	Seat	Area (km ²)	Settlements
Komló subregion	Komló	314,6	19
Mohács subregion	Mohács	846,29	43
Pécs subregion	Pécs	570,83	39
Pécsvárad subregion	Pécsvárad	258,49	19
Sásd subregion	Sásd	383,87	27
Sellye subregion	Sellye	463,33	35
Siklós subregion	Siklós	652,99	53
Szentlőrinc subregion	Szentlőrinc	270,29	20
Szigetvár subregion	Szigetvár	668,91	46

Source: edited by the authors on the basis of Statistical Annals of the Central Statistical Office, 2011

The next significant change concerning public administration occurred this year, on the 1st of January, 2013. Thirty years after the abolishment of the district system, the district offices were re-created with new organisation and new purposes. According to the appendix of the government decree published in the Hungarian Official Journal, in Baranya county district offices operate in 10 settlements (in Bóly, Komló, Mohács, Pécs, Pécsvárad, Sásd, Sellye, Siklós, Szentlőrinc and Szigetvár). The principle of the creation of districts and district seats was to provide the citizens with fast and easy access to public administration services, in line with county boundaries. (www.kozlony.magyarorszag.hu)

At present, Baranya county has 301 settlements, of which 14 possess the title of town or city (Pécs as county seat; Komló; Mohács; Szigetvár; Siklós; Szentlőrinc; Kozármisleny; Pécsvárad; Harkány; Bóly; Sásd; Sellye; Mágocs; Villány).

1.1.3 Accessibility

The county inherited a relatively dense road and railway network, which accessed each subregion, but their quality (the condition of the tracks) has always been a concern. In the past 50 years the improvement of the road network has received special attention at the expense of the railway network, thus the railway was less and less able to fulfil the requirements (fastness, comfort, punctuality), and this resulted in the decrease of its utilization and in the termination of the service on important line sections (e.g. Pécs-Harkány, Pécs-Bátaszék, Villány-Barcs).

In Baranya county the main railway line is the Budapest-Dombóvár-Pécs line, which connects to the Croatian railway network via Magyarbóly. Out of this line, only the Pécs-Magyarbóly section is not electrified.

Similarly to the railway line, the improvement of the road network of Baranya county has also been strongly Budapest-centred, and the construction of links within the county and between neighbouring counties received less attention. The accessibility of the county by road has been significantly improved by motorways (M6, M60). Main road 6, which passes through Pécs, is the main east-west road axis of the county, and it crosses the Hungarian-Croatian border in the west, at Barcs.

1.2 The description of the natural environment (Geology and terrain, climatic conditions, hydrography, vegetation, environmental protection)

The natural environment of Baranya county is extremely varied, its landscape and natural features are outstanding. The planning area abounds in natural values.

1.2.1 Geology and terrain

The northern area of Baranya country is a mountainous, hilly landscape with vast, contiguous forests, while a plain lies in the southern and south-eastern area. The most important natural feature is the Mecsek mountain, that possesses a unique vegetation. The highest point of the county and of the Mecsek is the 682-metre Zengő. Another significant rise is the Villány Mountains.

Baranya county is remarkably rich in minerals. The most significant and industrially utilised mineral resources of the Region of South Transdanubia include construction raw materials (different types of stone, sand, gravel, clay). Its importance is indicated by the fact that with the starting up of the cement and lime plant of Királyegyháza, the centre of the cement production of the county has moved to South-Transdanubia, to Baranya county (Nagyharsány– Beremend– Villány Mountains, Bükkösd– Királyegyháza- Mecsek). The construction of the cement and lime plant of Királyegyháza also meant the only significant industrial investment in the Region in the new millennium. Although other construction raw materials are also significant, these can be found in other areas of the country, thus the utilization thereof is only of regional importance.

98% of the black coal deposit of the country can be found in the county. However the mining of the hard coal deposits in the Mecsek has been ceased due to economic reasons, which resulted in a crisis of important areas. The potentially available coal, and within it methane, is highly significant, but its large-scale utilization is not feasible in the near future due to technical-economical factors – which are further burdened by greenhouse gas quotas.

Another mineral of unique value is uranium which is also connected to Mecsek, and the mining and processing of which has also been terminated due to economic reasons. At present there is ongoing intensive research to explore the resources.

Presumably significant hydrocarbon (oil, natural gas) deposits can be found along the Drava, and a lesser, known hydrocarbon deposit is located in the region of Inke.

There are a huge number of thermal and mineral water sources. Among the hitherto revealed thermal springs, those of Harkány, Szigetvár and Sikonda are the most important.

1.2.2 Climatic conditions

The proximity of the Mediterranean Sea can be felt (Mediterranean effect) in the climate of Baranya county. The number of the hours of sunlight is high. The effect of the great amount of sunlight is even stronger on the southern-facing mountainsides and hillsides. The variation of temperature is relatively low, the winters are mild. (The sole exception is the cold microclimate of the inner basin of the Eastern Mecsek.) The amount of precipitation is high, the highest in the country.

1.2.3 Hydrography

The larger rivers of the county are the Danube and the Drava, and its largest still water is the Lake of Orfű. Significant subsurface water resources are located in the sand and gravel terraces on

Mohács Island and along the Drava. The arsenic content, which is difficult and expensive to filter, makes the utilisation of the confined waters along the Drava even more difficult. The gravel terraces of the Drava are protected as long-term catchment, and the water of the gravel terraces of Mohács Island are utilised by the subregion of Komló and the city of Pécs, following appropriate purification (removal of iron and manganese).

In Baranya county subsurface waters can very frequently be retrieved in the form of thermal water. A number of thermal water springs have been discovered and utilized for a long period of time (Harkány, Sikonda), but the majority were found in the course of oil research carried out in middle of the last century (Magyarhertelend, Szigetvár), however today deep drillings are performed in the area with the aim of communal heating purposes (Bóly, Szentlőrinc).

1.2.4 Vegetation

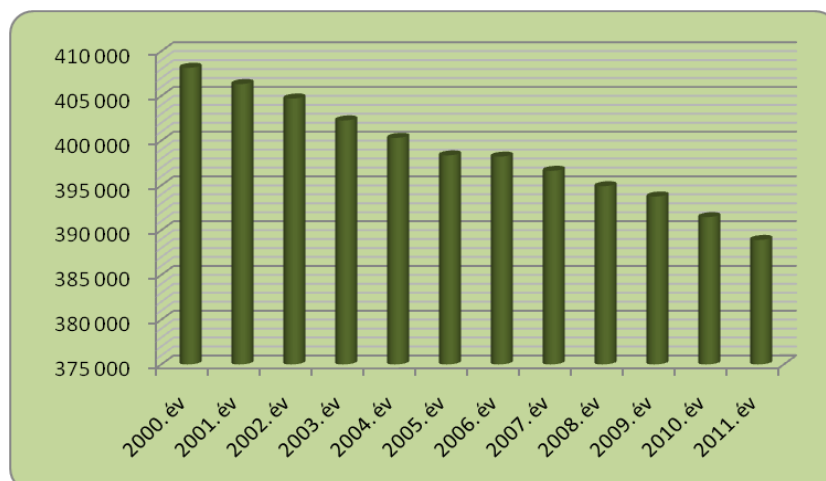
The mountainous and hilly areas of Baranya county (Mecsek, Zselic, Gerecs hills and Völgység) has vast, good quality forest stands. The pleasant climate encouraged the settlement of plants that are rare in other areas of the country. Thus indigenous plants include the fragrant hellebore and the most beautiful Hungarian wildflower, the banatica rose peony. Over Zengővárkony, on the mountainside sweet chestnut trees stand with their stately trunks. The forests of the county are rich in wildlife. (Buday-Sántha Attila, 2012)

1.3 Demographic and ethnic situation

The South-Transdanubian region, and within it Baranya county is characterised by a slow, continuous decrease of population. We have used the official data of the Central Statistical Office to present the demographic and ethnic tendencies of the county. In year 2011 the resident population of the county was 388 907. Diagram 2 shows that the decrease of population generally characterising the Region also affects Baranya county, as between 2000 and 2011 the population decreased by 19 240 people.

The changes of the resident population of Baranya county between 2000 and 2011 (person)

Diagram 2



Own edition on the basis of data from the Central Statistical Office

The changes of population are influenced by the number of births and deaths and also the migration of the population. In Baranya county the number of deaths (2000: 5 349; 2005: 5 332; in

2011 5 093) has long exceeded the number of births (2000: 3 775; 2005: 3 672; 2011: 3 240), thus clearly a natural decrease is characteristic of the region.

As a result of the decreasing number of births, in the past 10 years the number of young, 0-14 year-old people has dropped significantly. On the other hand, a hitherto unprecedented increase of the number of 60 year old, of the elderly, and their rate in the population is characteristic for the whole of Hungary. This tendency can be observed in Baranya county as well, where the number of the population aged over 60 has increased since 2000, thus the ageing of the region can be seen.

The composition of the population according to different age groups

Table 2

	The number of 0-13 year-olds of permanent population(persons)	The number of 14-59 year-olds of permanent population(persons)	The number of 60-x year-olds of permanent population(persons)
Year 2000	61 295	267 081	82 300
Year 2005	55 185	264 000	84 999
Year 2011	50 853	254 301	91 238

Source: Edited by the authors on the basis of data from the Central Statistics Office

In 2001 214 386 women and 196 290 men lived in Baranya county, whereas in 2011 the number of women decreased to 206 891, and the number of men to 189 501.

A significant peculiarity of the county is the high rate of national minorities within the population. In 2001 3.1% of the population of the country belonged to a national minority. The data for South-Transdanubia significantly differ from it, where the proportion of national minorities is 16.6%. The proportion of the three key national minorities in the county is as follows:

- German: 46 %
- Romani: 34 %
- Croatian: 16 %

Over 15 % of the **German national minority** lives in South-Transdanubia. Over half of the German nationality lives in Baranya, but the proportion of the German minority is also significant in Tolna county. The majority of the German nationality resides relatively in one mass, constituting the population of the northern villages of the Mohács and Pécsvárad subregion. The sole village, (Óbánya) where the proportion of the German nationality exceeds 50% of the population, is also located here.

Nearly 12% of the **Romani population** lives in South-Transdanubia, the vast majority in Baranya county. The majority of the Romani population is disadvantaged, and mostly live in subregions along the Drava and the border. The villages with the highest number of Romani people, constituting over 50% of the population, Gilvánfa and Alsószentmárton are located here.

Nearly 35% of the **Croatian nationality** lives in South-Transdanubia. The vast majority of them live in Baranya county, in the villages south of Pécs. The villages with the largest number of Croatian residents, constituting over 50% of the population, Felsőszentmárton and Drávasztára are along the Drava, in the subregion of Sellye.

1.4 The description of the economic situation (agriculture, industry, service and tourism)

1.4.1 Agriculture

Baranya county is one of the most significant grain (corn, ear grains), sugarcane and soy producers, and it plays an outstanding role in sunflower and rape production, as well as in the production of quality red wine. Grain is grown on the plains, while the south-facing hillsides and the high number of hours of sunlight favour grape production. Two significant wine regions are located in the county:

- **Pécs wine region** (previously: Mecsekalja wine region) was formed in Baranya county on the southern-exposed slopes of the over 600-meter high, Mecsek Mountains lying in an east-west direction which protects the slopes from northerly winds. The wine region includes the slopes on the sides of the gentle hills surrounding Szederkény and Mohács, as well as the south-eastern slopes of the Zselic. This wine region has become famous for its excellent quality white wines produced from Cirfandli, Furmint and Italian Riesling grapes. The wine region consists of 33 settlements and its area is nearly 800 hectares.
- **Villány wine region** has formed in Baranya county, on one the favourably exposed slopes of the Villány Mountain and on the surface of its foothills. It is one of the most characteristic, southernmost wine regions of Hungary, becoming famous due mainly to the excellent red wines that have been produced in the vicinity of Villány for centuries, although in the central and western areas of the wine region, between Nagyharsány and Hegyszentmárton, outstanding white wines are produced. The former Villány-Siklós wine region was named Villány wine region in 1999. The wine region consists of 17 settlements. Its current area is 2700 hectares. (<http://www.pincefalvak.hu>)

The pig farming and broiler fattening in Baranya country retain their national importance.

Furthermore, the forest coverage of the county must also be mentioned, which offers remarkable economic potential as well.

1.4.2 Industry

Significant mining activity was carried out in the region for decades, but it is currently shrinking. The change of regime and the subsequent economic policy did not favour the industrial development of the county. The mineral resources (coal, uranium) and certain agricultural products dramatically devaluated (see the radical decrease of production in canning, poultry processing, beer, dairy and meat industries), but the industries relying on agricultural raw materials, that is, leather and glove industry also shrunk remarkably, or has practically disappeared (e.g. the leather industry of Pécs). In several cases the production centres relocated to different regions (e.g. the dairy and meat industry to Szeged).

Significant improvement occurred in the energy industry (Pécs), construction material industry (lime and cement – Beremend, Királyegyháza) and electronics industry (Pécs). The vulnerability of the electronics industry is indicated by the fact that with the termination of Elcoteq, the production in Pécs, that was previously based on that company, dropped dramatically. (Buday-Sántha Attila, 2012)

In Baranya county the number of registered businesses in 2010 was 57 802 (including the entities obliged to reform by GFO/'02, and discontinuing entities), 19% of which were legal entities, 81% were without legal entity, and 63% were private, while 37% were corporate entities. By analysing the registered businesses of Baranya county according to staff number categories, it can be seen that the businesses employing 1-9 persons constituted a proportion similar to data for the

whole county in 2010 (68%). In Baranya there were only 6 registered businesses employing 500 or more persons.

1.4.3 Service and tourism

Baranya county has outstanding potentials concerning tourism improvement, relying on its unique natural values, cultural history heritage, folklore traditions, gastronomic and wine specialities, rich thermal resource and the colourful recreational possibilities it offers.

The South Transdanubian Regional Tourism Strategy Development Program mentions Pécs and its vicinity, and the Villány-Siklós-Harkány area as the defining, primary centres of tourism aimed at the region. Pécs, together with the Villány-Siklós-Harkány area, is the second most significant tourist destination in the region after the Balaton.

Pécs is an outstanding cultural centre, and its Mediterranean atmosphere makes it unique among the cities of Hungary. Its other remarkable feature is the colourful natural environment surrounding the city, the touristic product variety of the lake complex of Orfű and other settlements and man-made heritage, preserving folk culture, in addition to the proximity of the Villány wine region and Harkány. Within the framework of the European Cultural Capital 2010 program and the following planning period significant improvements were implemented in Pécs in the course of several large-scale projects (including the Music and Conference Centre, the Zsolnay Cultural Quarter, the “Large Exhibition Area” projects, which will also serve as tourist attractions).

The strength of the **Villány-Siklós-Harkány** area is that it is currently a well-known and popular destination in several sectors of tourism, and seasonality affects it to a much lesser scale than e.g. the Balaton area. The Villány wine region is an internationally famous tourist destination, and the Harkány medicinal bath unique in Europe. The pride of Siklós is the Siklós castle which, with its remaining 18th century form is one of the most well-preserved castles in the country.

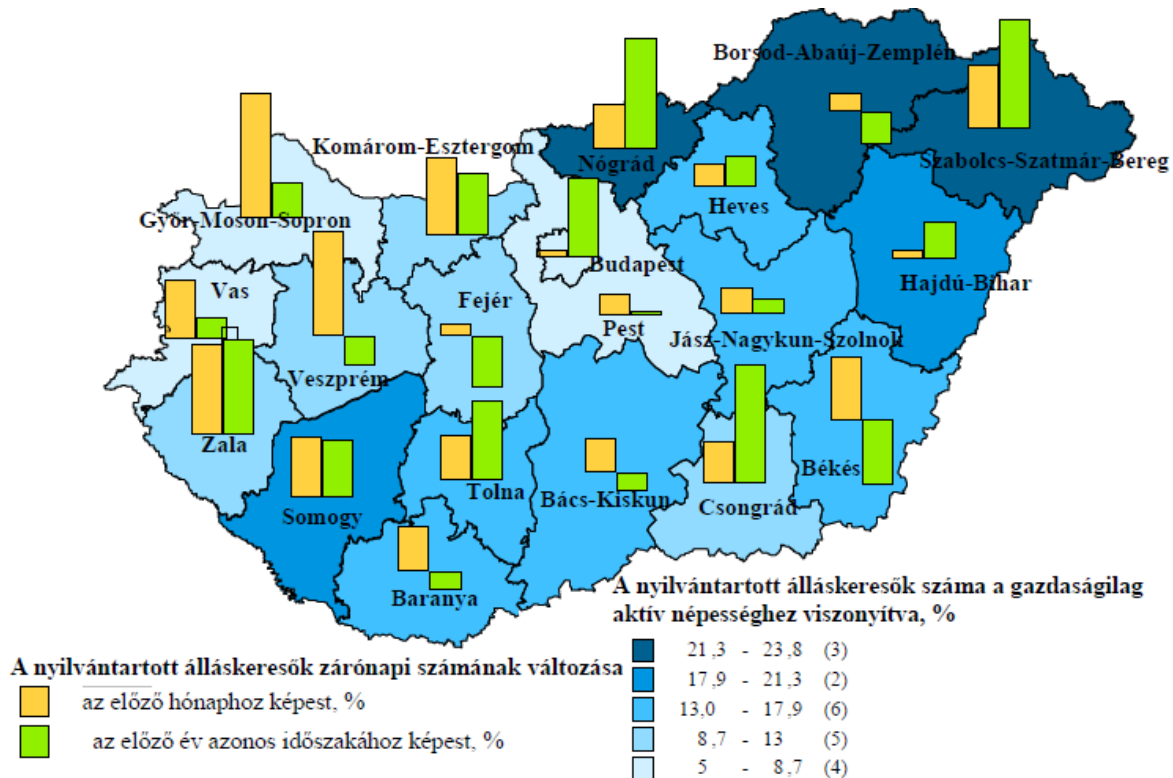
1.5 Workforce market and income status

In Hungary unemployment was characterised by a slight increase in 1990, and from 1992 an increasingly faster rise. As a result of redundancy due to the discontinuing large companies, the number of unemployed people rose dramatically. In the South-Transdanubian region a 12.7% increase was seen in the number of unemployed people between 1992 and 2010. In Baranya county the proportion of unemployed people within the active population was 7.1% in 2000 and 13.0% in 2010.

According to the National Employment Service, in November 2012 the proportion of the registered job-seekers in the economically active population in Baranya county (15,6%) exceeded the national average (12,1%). This data ranks the county on the seventh place, only preceded by Nógrád (23,7%), Szabolcs-Szatmár-Bereg (23,4%), Borsod-Abaúj-Zemplén (21,3%) Hajdú-Bihar (18,8%), Somogy (17,9%) and Jász-Nagykun-Szolnok (16%) counties. This is presented on the following diagram (Diagram 3):

The number of registered job-seekers in November 2012, on the closing date

Diagram 3.



Source: www.afsz.hu

The database of the Central Statistical Office also provides the basis for an overview concerning income. In the South-Transdanubian Region in 2010 the **monthly net average salary of those employed** was the highest in Baranya county.

1.6 Environmental protection

The operational area of the Duna-Dráva National Park Directorate, which is also in charge of the national park, includes the entire area of Baranya county. The National Park also encompasses areas along the Danube and the Drava in Baranya county. In addition, the Eastern Mecsek, Western Mecsek Landscape Protection Areas and a section of the Zselic Landscape Protection Area are located here. The following nature reserves are located in Baranya county:

- *Dunaszekcső Loess-Wall Nature Reserve*: the loess bluff is 15 kilometres long and it continues to evolve even today. During floods the Danube erodes the wall and smaller or larger slabs are broken off and slide into the water. The area is a significant spot in bird migration on the Danube.
- *Fekete-hegy ("Black-hill") Nature Reserve*: botanists have proved the presence of 48 protected plant species in this area.
- *Mohács Historic Monument Nature Reserve*: The monument was inaugurated on the 450th anniversary of the battle, on the 29th of August, in 1976.
- *Nagy-Mező – Arany-Hegy Nature Reserve*: The Nagy-Mező (Wide Field) lying at the foot of the Zengő is true to its name, being a large meadow. Its southern section was used as pasture. This activity has sadly ceased, although it was the grazing that ensured the survival of the highly protected banatica rose peony and yellow adonis. These plants were avoided by

grazing animals, as they are poisonous. The treasure of the Arany-hegy (“Golden Mount”) is the elder-flowered orchid.

- *Szársonlyó Nature Reserve*: The northern and southern side of the Szársonlyó mount have different climates, as the barren southern slope warms up faster during the day, but the forested northern slope cools down more slowly at night. This way the highly protected Hungarian crocus blooms as early as January-February. The Villány Mountain, and within it Szársonlyó is the sole habitat of several plants in Hungary. Among others it is the home of *trigonella gladiata*, nodding broomrape and blackdisc medick.
- *Szentegát Forest Nature Reserve*: It is the nesting area of the red kite and the black stork. Both species are extremely sensitive, they do not tolerate even the slightest disturbance.
- *Villányi Templom-hegy Nature Reserve*: The Church Hill of Villány – contrary to its name – bears no church. The church was built at the foot of the hill, and on the top a quarry was opened, where stone-cutters discovered the ammonite-remains of the Church Hill.

1.6.1 Development policies, directions and possibilities

The agronomy of the region is one of the least utilized potentials. Its chances for utilization are limited by the established economic structure and the lack of conscious, improvement-oriented agricultural policy. If the situation does not change, it will remain an unutilized resource. Its importance is indicated by the fact that in addition to food production, it serves as one of the most important bases for energy production, as the largest Hungarian biomass power plant (85MW) operates in Pécs, and a biogas plant (Bicsérd) is also producing. Besides, one direction of improvement includes the planned corn-based ethanol plants (Mohács). In order to improve the utilization of the area’s agricultural potential and employment, the firm development of the canning and refrigeration industry is needed. The traditions of these industries existed in Szigetvár.

The largest industrial improvement (Beremend, Királyegyháza) in the area following the change of regime was based on the mineral resource of the region: limestone. On the basis of our present knowledge the mining of the coal deposit can mean a possible direction of improvement. The unique geological position of the area provides opportunities for the deposit of nuclear power plant waste (Boda).

Neither the country, nor the Region has had any definite industrial development plans for decades, and the structure of the industry is defined by the relatively randomly appearing investments. This process progresses slowly even though the conditions of reception are present in every major town though the construction of industrial parks. As a result of the random investment intentions, the directions of industrial development cannot be defined. The sole feasible fact appears to be the improvement of the Paks power plant.

Medicinal and health tourism, based on the harmonised utilization of medication and medicinal waters, can mean the unique potential of the county. The possibilities of this can be created in several locations (Harkány, Szigetvár). This is also important because the experience of the past decades show that the opportunities of tourism cannot be increased any further in itself, even in the two priority touristic target areas of Pécs and in the South-Balaton area.

Qualified professionals mean one of the greatest economic potentials of Baranya county. Pécs, providing high-quality secondary and higher education has had significant role in this. (Buday-Sántha Attila, 2012)

2 Description of the county seat, Pécs

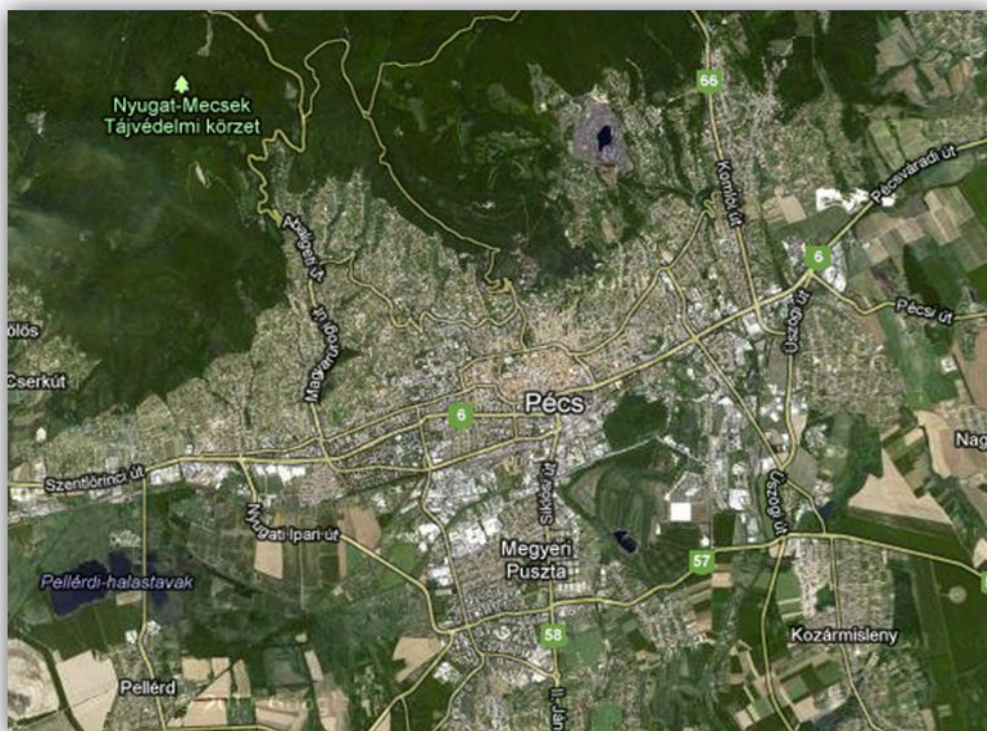
2.1 Geographical location

Pécs is located in Central Europe, in the Carpathian Basin. It lies in the centre of Baranya, a southern county of Hungary. It is bordered by the Mecsek from the north, a plain area from the south. Pécs has significant coal mining past. The Mecsek karst water is rightly renowned for its balanced mineral content.

The city of Pécs is situated at the south-western border of the country, near the Croatian border. Its southern part is flat, while its northern districts climb the southern-facing slopes of the Mecsek and extend into its valleys. The geographical location of Pécs at the edge of a still densely forested area is highly favourable in terms of climate. In the evenings of sultry summer days the airflow from the Mecsek cools and cleanses the air in the city. Pécs is open to the south, and protected by the range of the Mecsek from the north, rising suddenly to the height of 400-600metres from the south, from the average altitude of the Pécs Plain of 120-130 metres. The 592 m Jakab Mount is located in the Western Mecsek, the 612m Tubes and the 535m Misina are in the Central Mecsek, towering above Pécs. Some parts of the city rise to the mountain slopes to the average altitude of 200-250m, including Pécsbánya, Mecsekszabolcs, Vasas and Somogy.

The aerial view of the city of Pécs

Diagram 4



Source: Google Maps, Downloaded from: <https://maps.google.hu/maps?q=p%C3%A9cs&oe=utf-8&aq=t&rls=org.mozilla:hu:official&client=firefox-a&um=1&ie=UTF-8&hl=hu&sa=N&tab=wl>

Downloaded : 28th 01. 2013.

The vine-growing area has withdrawn to a relatively narrow strip. The forested territories usually begin at 300 metres. The Mecsek is rugged by several valleys which play an important role in making the atmosphere of this city more pleasant, as it has a warm climate and no water surfaces. Waters arriving from the Mecsek are collected by the Pécs Stream which runs in NE-SW direction, to the Black Stream which in turn flows into the Drava.

2.2 History

2.2.1 The city in the Roman Era and Early Middle Ages

In the Mecsek, in a deep-valley cave remains of a settlement dating back a 60-80 thousand years were found, the Makár Mount is the home of an approximately 6 thousand years old Neolithic settlements, and on the Jakab Mount archaeologists found remains a Celtic fortifications system. The first inhabitants of the area were the people of linear pottery, whose high-lying settlement was located on the plateau of the Makár Mount. The city of Sopianae was founded by the Romans in the second half of the first century A.D., when Transdanubia was a province of the Roman Empire, named Pannonia. It only received the title of city later, during the reign of Emperor Hadrian (117-138). Its name might have originated from the plural of the Celtic word "sop" meaning swamp. [6] The centre of Sopianae was located where now the Post Palace stands. Some sections of the Roman aqueduct can still be seen today. When Pannonia was divided into four parts, at the end of the 3rd century during the reign of Diocletian, Sopianae became the seat of the province named Valeria. The province got its name from the wife of emperor Galerius Maximianus (approx. 250- 5th of May, 311). In autumn 2008, over 1 kilometre from the former centre, in the Balokány, Roman remains were found. These remains were definitely located outside the Roman city. Sopianae was a city of 8-10 thousand people in the Roman age.

2.2.2 The city in the Middle Ages

Following the Conquest, the centre of the newly founded Baranya county was not Pécs, but the nearby Baranyavár, although Pécs remained a significant ecclesiastical centre, the seat of the bishop. Documents written in Latin language mention the city as Quinque Ecclesiae ("five churches"). King Stephen I founded the bishopric of Pécs in 1009. The cathedral of Pécs was built during the reign of king Peter Orseolo, where the monarch was eventually buried. In 1064 king Solomon celebrated Easter here after he made peace with his cousin, who later became king Géza I. On the following day the cathedral burned down, and it was only then that the cathedral, that can be seen today, was built. The city was first mentioned by the name of Pécs in 1235; the name "Pechyut" (road to Pécs) occurs in a note. Several religious orders settled in the city, the first among them was the Benedictine order in 1076. In 1181 the city already had a hospital. The first Dominican monastery of Pécs was built in 1238.

In 1376 Louis the Great founded a university in Pécs, on the advice of his vice-chancellor, William, bishop of Pécs. This was the first university in Hungary. Its establishing charter issued by pope Urban V. is very similar to that of the university of Vienna, and it states that the university has the right to educate all sciences with the exception of theology. The instructors were Dominican monks, but practically no other information remains. It is not even known where the university stood exactly, and for how long. The last authentic data about the university is from 1464.

2.2.3 Pécs under Turkish rule

Following the battle of Mohács (1526) the armies of Suleiman the Great plundered Pécs, massacred the population and burned the city. The country was divided in the question of the next Hungarian king. The city of Pécs supported Ferdinand Habsburg, but the rest of Baranya county supported John Zápolya (Szapolyai). In the summer of 1527 Ferdinand defeated the armies of Zápolya and was crowned on the 3rd of November. Ferdinand rewarded the city for its loyalty and exempted it from taxes, thus provided the opportunity for reconstruction and strengthening the city.

In 1529 the Turks occupied Pécs again and marched on to Vienna. Pressed by the Turks, the city accepted Zápolya as king, who however died shortly afterwards, in 1540. In 1541 the Turks occupied Buda by trick and ordered Izabella, Zápolya's widow, to hand over Pécs, which had strategic importance. The inhabitants of Pécs decided to resist and successfully defended the city and swore allegiance to Ferdinand, who, in the beginning, supported the city, but later on, as advised by his counsellors, concentrated on Székesfehérvár and Esztergom. The inhabitants of Pécs were aware that they could not hold the city without the help of Ferdinand, so they chose to open the gates for the Ottoman army in June 1543.

After the Ottoman conquerors occupied Pécs, they strengthened it and shaped it into a true eastern city. Churches were converted into mosques, and Turkish baths, tombs were built, Quran-schools were established (medrese) and a Sufi monastery (tekke) was constructed on the Tettye. Pecsuj (Pécs) became an important Balkanic commercial city, and its beauty was compared to that of Istanbul by the famous Turkish traveller Evlija Celebi. He highlights the presence and importance of clean streams in the city. As a rich Ottoman commercial city, Pécs was an island of peace for a hundred years in the surrounding turmoil of war.

2.2.4 The rebirth of the city

The city began to develop slowly, but it never reached its former splendour. Its development was further hindered by two plague epidemics that broke out in the 1690s. In 1688 settlers arrived to the city from South-German provinces to replace the residents who had fled or had been massacred. In the following times approximately one quarter of the population of Pécs was Hungarian, the rest were German and Southern Slavic people. Mostly German people moved into the walled city surrounded, the Southern Slavic population settled outside the walls in the outskirts, while the Hungarian minority lived mainly in the vineyards on the hills surrounding the city. Pécs did not support Rákóczi's War of Independence, thus the armies of Ferencz Rákóczi II plundered the city in 1704.

Industry began to develop in the 18th century, and guilds were established. As a result of the Turkish-Balkan traditions, leather processing continued, a new town hall was built, commerce started, and, thanks to German settlers, grape production flourished. At the end of the century the mining of hard coal began. The population – similarly to other large cities – were mainly occupied in industries, but in addition, agricultural production (especially wine-making) played an important role in the life of the citizens of the city. Masters grouped into guilds again and also performed significant tasks in the public administration of the city. Commerce boomed and the Main Square (today's Széchenyi Square) and the Small Square (today's Jókai Square) once again became the venues for markets and fairs.

The city wished to throw off its overlord, the bishop of Pécs and become a free royal city. Bishop György Klimó would have agreed to this but Rome forbade him to do so. György Klimó was a highly enlightened man, he established the first printing press and the first public library of the city in 1774, to which he donated over 3000 books from the Episcopal library. The material of the library today belongs to the material of the University Library of Pécs. Finally queen Maria Theresa granted the request of the citizens of Pécs when in 1780 (other data mentions 1777), following the bishop's death, she granted it the rank of free royal city, before the new bishop could have been appointed. Pécs became a free royal city on the 21st of January, 1780.

2.2.5 19th century

The beginning of the 19th was the age of prosperity for the citizenry of the city. The first stone theatre of Pécs was built in 1839. By 1848 1739 industrial workers lived in Pécs and some of the manufactures were renowned all over the country. The iron foundry and paper mill were among the most modern factories of the era. Several important leather processing organisations worked in the city and in addition to the many lesser manufactories, the Hamerli, Höfler and Erreth factories became significant. Machine- and iron industries were also remarkable, out of which the Haberényi (later Hamerli) machine factory, located on the corner of the Czindery and Alsómalom streets is one of the most characteristic monument, but the coppersmiths, bell manufacturers and factories producing agricultural tools must also be mentioned, as well as the internationally famous Angster organ manufacture. Besides the developing manufacturing industry, the small-scale industry remained important and greatly expanded. The expansion of local commerce, the increasing number of financial institutions (banks, insurance companies, etc.) the construction of the railway network and the expansion of the educational system were closely connected to the development of the industry in Pécs. Soon a sugar plant, a tobacco plant and a beer plant were also built. The famous Zsolnay Ceramics Factory was established at this time, which was visited by Franz Joseph I twice. Coal mining was also important. After the Austro-Hungarian Compromise (1867) and the restoration of the constitution, Pécs developed quickly, similarly to most Hungarian cities. From 1867 it was linked to Barcs by a railway line and to Budapest from 1882. The railway lines to Barcs, Mohács (this was built first, as early as 1857), and Budapest gave fresh impetus to the development of the city (in 1857 the Pécs-Mohács line, in 1868 the Pécs-Barcs line and in 1882 the Pécs-Budapest railway line).

2.2.6 20th century

Tram transportation started in the city before the world war. At the end of the First World War the southern area of Baranya was occupied by Serbian- entente forces, who kept the city occupied until 1921; during this time it belonged to the Baranya-Baja Serbian-Hungarian Republic. The Serbian occupation and plundering hampered the development of the industry and commerce in Pécs. Due to the designation of the new national borders the southern market areas were lost for the city. In 1923, after the war, the Erzsébet University moved from the detached Bratislava to Pécs, which gave the city an intellectual boost that can still be felt today.

Pécs only suffered minor damages during the Second World War although a huge tank battle took place 20-25km to the south, near Villány. At the end of the 1940s, the previously private owners were deprived of their property and the industrial plants were taken into state ownership. After the war Pécs started to develop at a hitherto unseen scale. The city became one of Hungary's industrial

centres. The mining industry was improving greatly, and cokeable black coal, essential for iron and steel production, was mined on Pécs and Komló, the only two locations in the country. In addition, in the early '60s the mining of uranium commenced, and by the '80s 5 mines operated. As a result, the population of the city increased significantly. In the 1980s it had 180 000 residents. Construction industry was successful. As a result of this activity, two new neighbourhoods (Kertváros and Uránváros) were born and the system of district heating was constructed. The Mecsek Park Forest also developed, where a theme park, zoo and the predecessor of today's Mecsek Forest Railway, the Pioneer Railway were built through community work. Several new tourist spots and resort villages were built around the city. On the top of Misina a new tower was erected, replacing the previously existing television tower and look-out tower, and it has since become a symbol of Pécs.

2.2.7 After the change of regime

Pécs was seriously affected by the era following the change of regime, as the industrial plants were closed down almost without exception, with the excuse of being uneconomic, and new industrial enterprises remained at an insignificant level compared to the previous ones. Unemployment increased to an extremely high level. In the 1990s the proximity of the Yugoslav war meant a setback for tourism. Coal mining, which was operating at an insignificant level, was finally discontinued in May 2004. Although the structure of the city's economy changed in the last one and a half decades – knowledge, health care and cultural industries are coming to the foreground – one aspect has not changed, as Pécs has remained a multifaceted settlement, where the traditions, values of different nationalities combine. This fact may have contributed to the realization of the aspiration of winning the title of the European Capital of Culture (ECC) for 2010, announced on the 19th of October, 2005. In 2010 the activity of the city was boosted. A forest of cranes grew out of the ground, renovations and constructions were going on everywhere. The number of tourists spectacularly increased in the county seat. According to the data of TDM Pécs, the number of guest nights in the months of March and April grew by 25 per cent compared to the previous year.

2.3 Population

For long years the population of the city increased more dynamically than the national average, however, from the early '90s the number of residents dropped. Between 1990 and 2011 the population of Pécs decreased by 7.5%. In Pécs, similarly to the nationally typical proportions, the number of women is higher than that of men. The proportion of the elderly exceeds the proportion of young people (up to 14 years of age) by 6%. The continuous decrease of the population, that is also typical for the South-Transdanubian Region, is characteristic of the city. Between 2000 and 2010 the city's population decreased by 3565. The tendency reached its bottom in 2005, when the population of the city was 156116, and since then a slight increase can be observed. Pécs is also one of the most important centres of two national minorities officially recognised in Hungary: the German and Croatian minorities. It is interesting to note that while the population of Pécs, similarly to the whole of Hungary, is decreasing, the population of the national minorities have slightly increased in the last few decades, however, with the exception of Romani people, only statistically. The number of Germans was 996 in 1980, and increased to 1704 by 1990. The number of Croatians also increased to a small extent: in 1980 629 people, in 1990 637, and in 2001 820 people declared themselves to be of Croatian nationality. The increase of the population of the national minorities as

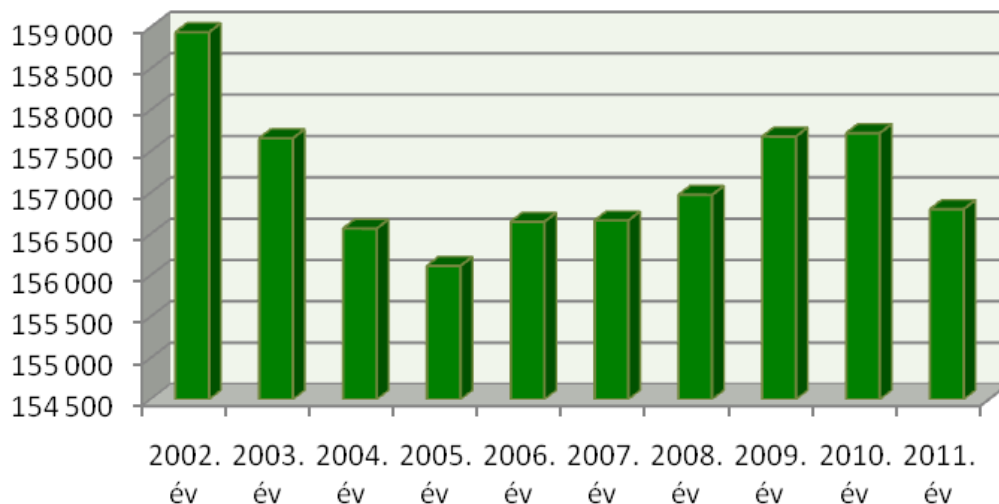
shown in the statistical data is due to the changed social atmosphere and the new census questionnaire.

2.3.1 Changes of the resident population of Pécs between 2000 and 2010

The changes of the resident population are influenced, however slightly, by the population migration. In the early 2000s the rate of migration was characteristically higher than the number of residents arriving to the city (mig: 6316; arriv: 5391), but the situation changed in 2004, and since then this proportion has turned over. In addition to the fact that the birth rate is continuously decreases (2000: 1510; 2005:1939; 2010:1352), the death rate exceeds this number (2000: 2016; 2005:1939; 2010:2044). The hitherto unprecedented increase of the number of people aged 60 and over and their proportion within the population is characteristic of the whole of Hungary and thus of Pécs too.

The resident population of Pécs between 2002 and 2011 (people)

Diagram 5



Source: Authors' edition based on the Central Statistical Office information database

2.4 Transportation

2.4.1 Road network

Being the centre of the South Transdanubian region and of Baranya county, Pécs is the node of national and county roads. From the capital the city can be reached via motorways M6 and M60. Main road number 6, that passes through Pécs constitutes its main east-western axis and crosses the Hungarian-Croatian border at Barcs. Although in the past decade the interconnection of the main roads inside city, and several road construction investments relieving city centre have been implemented, in the east-western direction these routes can only partly provide appropriate relief for the centre from transit traffic, due mainly to their length. Motorway M60, which at Bóly connects to the M6 passing along the western bank of the Danube, south of the capital, and a route passing along the Pécs Stream, thus relieving the city, could be the solution.

2.4.2 Railway network

The city is the terminal of no. 40, Budapest-Pécs single-track electrified railway line. The no.65 Pécs-Mohács single-track non-electrified main railway line proceeds from here. In addition to passenger and cargo trains, two pairs of international InterCity services run towards Sarajevo daily. Until their discontinuation on 11th of December, 2009, five pairs of passenger trains ran daily on no. 64, Pécs-Pécsvárad-Bátaszék single-track non-electrified secondary railway line. On the main railway line InterCity trains provide a link to the capital city. Due to the terrain conditions and the insufficient railway network, there is no direct rail link to the neighbouring county seats of Kaposvár and Szekszárd.

The main railway station of the city, richly decorated with ceramics, was built in 1900, on the basis of plans by the renowned architect, Ferenc Pfaff. Pink ceramic ornaments appear throughout the whole yellow brick building of the station. The richest decoration is concentrated on the middle facade, and the round pyrogranite reliefs of James Watt and George Stephenson, created in the Zsolnay factory by the design of Ármin Klein, can also be seen here. The building deserves to be renovated, but the city does not have the necessary funds for the time being. The local bus station is located behind the railway station, but the coach station is somewhat further, at a distance of approximately 1000metres from the station building, that was qualified as monument in January 2008.

2.4.3 Local public transportation

In Pécs the passengers are transported by Mercedes and Ikarus buses, mainly in the city centre. Currently the Tüke Busz Plc. is in charge of the public transportation of Pécs. Buses provide the sole means of public transport in the city now, as the tram service, that began to run in 1913, was discontinued in 1960, due to transportation policy reasons, and the tracks were pulled up everywhere. A few short sections of tracks mark the memory of the former tram service, but these were reinstalled later in several points of the city, as monuments.

Recently the idea of establishing a new tram line rose several times, when Pécs, together with Debrecen joined the Civitas programme. The plan however – due to high construction costs – has not been realised and it is off the agenda for the time being. According to analysts, the structure of the city makes it pointless to construct tram lines in the future as they would only increase the need for passengers to change services. In October 2012, the city's new public transportation company, Tüke Busz Plc. together with the Association of the Community Transportation of Pécs and Vicinity (PTKKE) focused on the introduction of a network of long bus lines, decreasing the number of necessary changes by a third. The residents of the outskirts would be able to reach the city centre without having to changing in the future, thus the central nature of the city would be emphasised and it would be possible to get from one end of Pécs to the other with only changing once. The measure can achieve significant savings at national economic and local levels, and can also contribute to the increase of the number of passengers.

The long-cherished plans of tram lines should be reconsidered on the basis of the above, and the introduction of duo-trolley system should be supported, which, as well as further reducing the need of changes, would also become a locally environmentally-friendly means of transport in the county seat of Baranya.

2.4.4 Airport

The international airport of Pécs, which plays a regional role, is located in the administrative area of the settlement of Pogány. The village and the county seat jointly operate the airport, and it is mainly frequented by charter flights, as the scheduled service linking Pécs and Vienna has recently been cancelled. The airport today receives small planes of businesspersons, and in the summer tourist season a number of travel agents jointly run flights from here to Corfu. Between January and November in 2008 the statements showed 2061 departing and 2057 arriving passengers on national flights and 1783 departing and 1731 arriving passengers in the international section. From 2010 June weekly charter flights depart again from the Pogány airport to Corfu and Burgas (Bulgaria). The same Embraer 120, a thirty-passenger aeroplane will take the passengers, which has already been flying between Pogány and the Greek seaside.

The bicycle routes of the city of Pécs

Diagram 6



Source: the official website of the Pécsi Túrakerékpáros és Környezetvédő Klub,
Downloaded: <http://ptkk.baranya.com/kozlek.html> 30th 01. 2013

2.5 Tourism

The South-Transdanubian region has outstanding potential in the area of tourism development, based on its special natural values, monuments of cultural history, folklore traditions, gastronomic and wine specialities, rich thermal sources and the wide range of opportunities for active pastimes it offers.

The South-Transdanubian Regional Tourism Strategy Development Program mentions the area of Pécs as the defining primary centres of tourism aimed at the region. Pécs, together with the Villány-Siklós-Harkány area are the second most significant tourist destination in the region after the

Balaton. Pécs is an outstanding cultural centre, and its Mediterranean atmosphere makes it unique among the cities of Hungary. Its other remarkable feature is the colourful natural environment surrounding the city, the touristic product variety of the lake complex of Orfű and other settlements and man-made heritage preserving folk culture, in addition to the proximity of the Villány wine region and Harkány. One of the more recent attractions of Pécs is the Zsolnay Cultural Quarter, the city's new cultural centre, where the heritage of the world-famous ceramic factory of the Zsolnay family, once operating here, can live on in a worthy way. The development was implemented within the framework the European Capital of Culture 2010 programme. The world-famous Gyugyi Collection can be seen in the Quarter, in the art nouveau Sikorski Villa which was converted to house the collection which includes nearly 600 unique, priceless ceramic objects which familiarise the visitors with the Golden Age of Zsolnay. The family and factory history exhibition is located on two floors and displays memorabilia presenting the history of the family and the factory. In addition, the Pink Zsolnay Exhibition presents one of the most exciting era of the manufacture, the high period of pink personal effects. In the Live Manufacture visitors can see in real life how the magical Zsolnay products are made. Apart from the Zsolnay Mausoleum, the renewed Bóbita Puppet Theatre, the Lab Interactive House of Playful Science and the Planetarium are also located here.

2.6 Cultural features

Pécs, one of Hungary's oldest settlements abounding in monuments, is the administrative and intellectual centre of the South-Transdanubian Region. The cultural life of the city is nationally outstanding both in terms of music and visual arts, and its public and private galleries provide a uniquely complete overview of the 20th-century Hungarian art. The city has an opera company and symphonic orchestra, and its concert life is also of national importance, due to its symphonic orchestra, the Pannon Philharmonic Orchestra, which celebrated its 200th anniversary in 2011. The traditionally lively intellectual life of the city is also indicated by the fact that among others, it is the home of the Pécs University Days, the Pécs Days and the National Theatre Festival of Pécs (POSZT). The University of Pécs, which has the highest number of students among Hungarian universities, also operates here. As the visitor strolls on its streets, the city reveals the history and heritage of twenty centuries built, layered one upon another: the remains of the Roman predecessor city, the 4th century early Christian necropolis, the first Hungarian university, the walled, medieval city centre, Turkish djamis and mosques, German bourgeois houses, the Dome complex, the Zsolnay Quarter, the "museum quarter" in Káptalan Street, the Scandinavian-style residential area – a cultural medley of European history. In 2010 Pécs was one of the Cultural Capitals of Pécs. As a result of this we can see renewed squares, the conference- and concert hall of Pécs, the South-Transdanubian Regional Library and Knowledge Centre, the Street of Museums and the Zsolnay Cultural Quarter. Pécs currently has over 250 monuments. Pécs awaits those seeking entertainment with a plethora of cultural programmes all year round. Several festivals are organised in the summer. Plenty of pastimes are offered around the city. In the Mecsek, the Mecsextrém Park, the Mecsek Forest Railway, the zoo, beauty spots and playgrounds await the visitors. More recent landmarks of Pécs are the Padlocks Railings, where lovers' padlocks hang one upon another from iron railings. In the beginning, lovers only locked their padlocks on one railing, but by now several new ones have been created.

3. The description of Osijek-Baranja county

3.1. Geographical characteristics

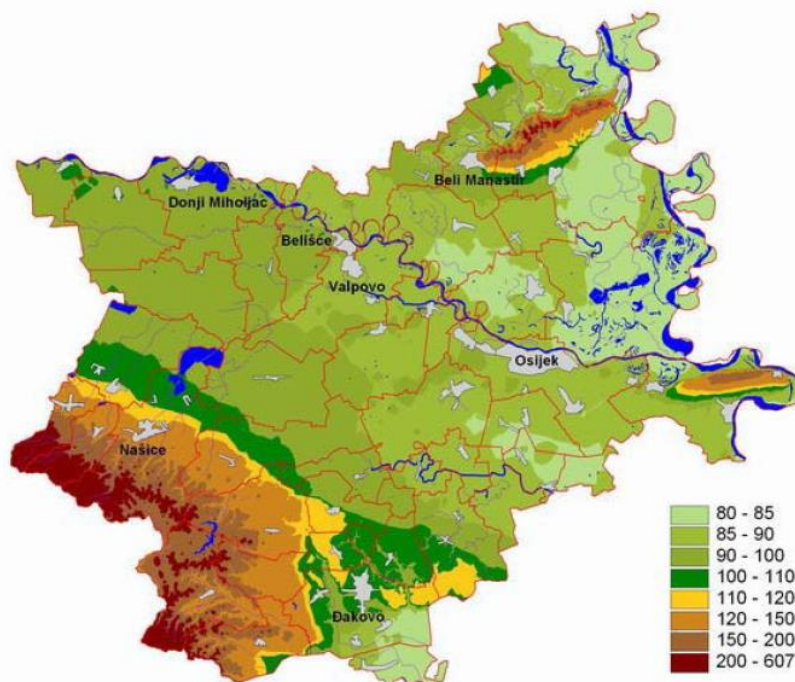
Osijek-Baranja county occupies the north-eastern area of the Croatian Pannonian region, its area is 4.152 km². It encompasses the plains where the river Drava flows into the river Danube. The area is mostly flatlands, and it is favourable for the development of agriculture. It has a developed agriculture and the total area used for farming is 257.646 hectares, while the total forested area is 113.290 hectares. The Kopacki rit, a world-famous bird reserve was established in the area of the wetland, and, being a renowned zoological reserve of species, and it has been declared a nature reserve.

Osijek-Baranja county is located in the north-eastern part of the Pannonian Plain. The county is covered in young sediment, the majority of which constitutes fertile soil, so it is favourable for agricultural activity. The county is bordered by the Sava, Drava, and Danube rivers. Due to the temporarily high water levels of the Danube and Drava, marshlands form along the rivers, such as the Kopácsi wetlands. The following geomorphological forms can be differentiated on the plain:

1. flood (alluvial plain),
2. river terraces,
3. river-marshland plains
4. loess plateau, and
5. mountainous area.

The relief of Osijek-Baranja county on the basis of altitude

Diagram 7



Source: Based on data from Oikon Ltd.

The lowest areas of the county are the Danube and the Drava at 82m and the flood meadows at the altitude of 93-94m. The loess plateaus (Đakovački and Baranya loess and Erdut plateau) are the most valuable agricultural territories of the county and at the same time the most populated areas. The highest points at 606m are the Krndijsko peak and the area of the Metrsko mount.

The climate of North-Baranja is determined by Eurasian-continental, Atlantic Oceanic and Mediterranean Sea currents. The climate is characterized by moderate warmth, with frequent rainy spells. The annual average temperature is 11°C, the highest average temperature is 22°C, the lowest is between -3°C and +18°C. The county is characterised by homogenous climatic conditions due to the homogenous relief. The amount of the average annual precipitation is 642-753 mm, the amount of falling precipitation is the lowest in the 10th month and the maximum amount varies. The average number of hours of sunlight is 1800-1900. The prevailing wind is northerly, westerly and north-westerly or south-westerly.

8.4% of the total agricultural area of Croatia is located in Osijek-Baranja county. 64% of the county's area is arable land, out of which 86.6% fields, 1.1% are orchards, 1.1% are vineyards, 2.2% are meadows and 9% are lakes. Due to the Balkan wars there still are areas of landmines near the border. 4.6% of the country's forested land is in Osijek-Baranja, altogether 113.290 ha. 44% of the forests are medium old and proportion of the areas mature for logging is 2%. The size of the most valuable oak forests is 8186.7 ha. Golubac, Zokovica and other smaller parks are suitable for recreation and pastimes. 105 hunting clubs, 6 offices and 3308 hunters have been registered.

The forests, meadows, rivers and wetlands are home to several plants and animals. Oak forests, and willow trees on the wetlands are native to the environment of Baranja. The Kopácsi meadow is covered mainly with sedge, reed and rushes. The lower lands along the river Drava are covered with grassland plants and shaded by oak and hornbeam forests. A number of flood meadows along the Drava have been shaped into arable areas by draining. In the low-lying forest of the flatlands of Krasica and Vučica the variegation of the landscape is due to oak, ash, hornbeam, elm, linden, alder and willow trees. The most common mammals of the forests of Osijek-Baranja are the hare, fox, boar, deer and roe. The Kopácsi wetland has one of the few intact natural floras and faunas of Europe, as it is the spawning area of 44 fish species, and otters, ermines and 285 bird species have been registered here.

3.1. Geographical features

3.2.1. Relief

The geographical features of the area, apart from a number of specificities, can only be examined in the wider context of the Carpathian Basin. The known geographical history of the area can be dated back to the Paleozoic era (approx. 550 million years ago), when this region was dry land, now called Tiscia. It was covered with crystalline rocks, marble and granite. The surface of the Pannonian area was divided by fontis and cracks affecting large areas. Proving this, remains of dry land were found at a depth of 1.900-3000metres. Certain areas, like the Mecsek remained on the surface, although they were formed in the later Paleozoic era (Perm) they still are extremely old masses. During the Mezozoic ERA (approx. 180 million years ago) the Pannonian Plain was covered in seawater three times. In the beginning of the Cenozoic age (approx. 60 million years ago) the last of

the sea withdrew, giving way to a dry continental area. At this time the mountains of the Alps began to form and today's relief was slowly outlined. In this part of Europe a sweet water lake likely to have existed, in which sweet water sediments were deposited, like the ones found in the coal layers of the Mecsek and the Fruska. The events of the Tercene and Neogene age (approx. 25 million years ago) are much more widely known. After the rise of the Alps, an inner sea (Paratethys) extending from the Rón bay to the Caspian Sea formed from the Tethys Ocean. A varied sea life consisting of about 200 fish species evolved in this sea. Mastodons, large mammals similar to today's elephants, and rhinoceroses, tigers, hyenas, and apes like today's orang-utans and gorillas roamed the shores and the rivers were alive with crocodiles. During the high Miocene age (approx 20 million years ago) Paratethys and the Mediterranean Sea were disconnected. The Paratethys became an individual sea with three separate basins: the Panonic, Dacian and the Caspian-Aral. With the rise of the Carpathian Mountains, in the lower Pliocene this sea was divided into lakes, which gradually turned into fresh water. The Panonic Basin gradually evolved into a lake which was drained through the Đerdap strait, thus forming several lakes of smaller surface, which in turn slowly became marshes. These marshlands characterised the landscape at the beginning of the Pleistocene, which featured strong cooling periods. Thus began the era of ice ages and periods of warming, of which we know four. From the small-grained loess deposited by the cold winds during the ice ages loess layers and loess plains formed. The animal species included the rhinoceros, mammoth and the irvas, the inhabitant of today's tundra. Due to the influence of ice, sunshine and water, the features corresponding to today's relief gradually formed, the climatic conditions stabilized, and the characteristic vegetation of the steppe appeared. Baranja is mostly flat land, its absolute altitude does not exceed 250 metres. The majority of the area consists of young Pleistocene and Holocene sedimentary rocks, which were mainly shaped by climatic changes and young tectonics. The following morphologic units can be observed: young flood plains, then the older, Holocene-age terraces of the Drava, the older and younger terraces of the Drava, the young terraces of the Danube, loess plains and the Bán Hill. The relief of Baranja is characterised by a flat landscape, its highest point is 243 metres. Three morphogenetic types are present in Baranja, these are the plain, hilly and the flat types. The plain is the most common relief feature and it constitutes 80-85% of the area. Two general types of the plain can be seen, the fluvial and the fluvial wetland. The fluvial plains include the Drava flood plains (approx. 50%) and the flood plains of the Danube and the Karasica. The area of Kopács belongs to the fluvial wetland type, covering 100 square kilometres, which makes it one of the largest of such wetlands in Europe. The northern and southern loess plains belong to the flatlands of the relief. The southern flatland stretches between the flood plains of the Drava to the Bán Hill, and the northern area include the southernmost loess plains of the Nyárad-Harkány - region. The hilly area consists of the Bán Hill, which covers 5% of the entire area and also constitutes the most dynamic part of Baranja. It stretches from north-east to south-west, it is approx. 21km long and not wider than 4.5km. As for its tectonic composition, it is a prominence surrounded by several cracks. In addition, it was affected by basaltic andesite subsidence. The deposit of the loess in 3-5 planes on the oceanic and volcanic layers resulted in the formation of a 30 metre loess layer. The north-western slopes of the Bán Hill are steep, and along them a series of valleys have formed in the direction of the Karasica's flood plain.

3.2.2. Vegetation and wildlife

Baranja is an invaluable natural ecosystem. The diversity of vegetation and wildlife emphasizes the importance of the Kopácsi wetland, which, in biological sense, constitutes an integral part of Baranja. In Baranja we can distinguish between two types of vegetation: forest vegetation and water and wetland vegetation.

3.2.3. Vegetation

The largest part of Baranja lies in the flood area of the Danube and Drava. In this area only one tree species, the white willow can be seen. The special features of this area are the bare sandbanks and channels, where significant amount of seeds always spread with the help of the wind or water. When the sandbanks rise out of water in certain periods of the year, a forest of white willow shoots emerge from the ground, being the same age and of the same height. If the flood does not rise to a very high level in the following year, the willow trees survive at that place and swiftly develop. If their height exceeds that of the flood level, then they will develop further in the following decades. First, the plants of the same size form a thick bushy area, then they grow into a forest. In the slightly higher areas of Baranja, where the floods are shorter and are not very high, white willows and the black poplars grow into a forest. In the even higher-lying areas black and white poplar forests grow. Apart from the white willow and black poplar, in these forests we can see other ligneous plants, such as pedunculate oak, black hawthorn, elm, white mulberry, maple and the recently introduced American ash. There are creeping and herbaceous plants as well. Oak forests can also be found in the area of Baranja. The lower areas are home to pedunculate oak and greenweed, and the drier soil is favourable for the community of pedunculate oak and hornbeam.

3.2.4. Water and wetland vegetation

On the surface of the slow-flowing waters and in still waters, in shallow and warm waters, in bogs, marshes, and channels the following communities have developed: common duckweed, greater duckweed, water violet, Java fern, floating fern. In some places we can see small flowers, rootless duckweed, mosquito fern, which were probably taken there by marshland birds. In June the free surfaces of deeper channels, moors of Baranja are covered by the floating leaves of water lily dotted by yellow and white flowers, and most of the surface is covered by clubmoss. Knotgrass and water-spike live in the channels of Baranja, and the warmest shallow moors are the home of alisma and water-nymph. In some areas we can see swamp buttercup communities, and its small, white flowers form a continuous flower cover on the surface of the water. Along the banks of the still waters and large flooded areas of Baranja thick reeds have developed, their height reaching up to 4 metres, and we can also see reed, sedge, and rush.

We can see rush growths in enormous areas. Water flag, goat-willow, alisma, sweet-flag, Virginian water-horehound, manomen and several other species live alongside these. The Kopácsi wetland must be highlighted, as it is a nature reserve in Baranja. Since ecosystems of the same or similar character were completely destroyed in Europe, it is even more important, being an area of rare ecology. The Kopácsi wetland is the last protected meadow along the Danube. In the internal natural area of the Kopácsi wetland two plant species must be highlighted, which are considered extremely rare: the blood-red iris, and the Hungarian iris. These two flower species can only be found

in a few places in entire Central Europe and Croatia, but in spring the Kopácsi wetland abounds in these beautiful flowers.

3.2.5. Wildlife

The wildlife of Baranja is characterised by variety. 402 species of animal organisms have been recorded here, including 64 types of nematodes, 21 types of molluscs, 16 types of worms, 16 types of leeches, and 284 types of insects. The groups of vertebrates are represented by 401 species, including 44 species of fish, 11 species of amphibians, 10 species of reptiles, 282 species of birds and 54 species of mammals. Baranja provides favourable living conditions for invertebrates, and especially for insects, thus 17 species of dragonflies, 39 species of orthoptera, 85 species of coleoptera, 60 species of moths, 35 species of butterflies, 11 species of mosquitoes, 20 species of botfly, 8 species of hymenoptera and 28 species of wood-lice.

Baranja is characterised by the high number of mosquitoes. The most populous species of the mosquito population is the *Aedes vexans*. In Baranja, in the waters of the Danube and Drava, 40 species of sweet water fish live. Some fish species spend their entire life at the bottom of the river, while others only live there for the winter, or in case of drought or low water level. The flood fields serve as feeding and spawning ground for the largest number of fish species. The Cyprinidae families are the most common with the following species: roach, grass carp, bleak, blue bream, white-eye bream, vimba bream, gibel carp, cactus roach, bullhead, orf, rudd, asp, and tench. The diversity of wildlife is also indicated by the following amphibian species: fire salamander, newt, smooth newt, fire-bellied toad, common spadefoot, common toad, European treefrog, agile frog, marsh frog, and green toad. From the group of reptiles the species of the European pond turtle, slow-worm, sand lizard, wall lizard, smooth snake, Aesculapian snake, dice snake, common adder and green lizard species can be found.

The impenetrable reeds of the Kopácsi wetland, the forests, moors, but the meadows, fields and vineyards also provide ideal homes for many mammal species. We know from the research of the past hundred years that 54 mammal species live in Baranja. The otter is the inhabitant of Baranja with the smallest population. It is known that several otters lived in the area in the past. Baranja is the most well-known habitat of deer. The prevalence of deer in this area is three times larger than in other European habitats. In addition to deer, Baranja is the home of a large boar population.

It is especially significant to mention the heron colonies of the Kopácsi wetland (*Ardea cineres*, *Ardea purpurea*, *Egretta gazetta* and others), as well as the cormorant colony of 2000 nests, which is considered a rarity in worldwide terms. In Baranja the number of deer is three times higher than in other European habitats. The outstanding size of the fish population must also be mentioned, as Baranja, in the branch of the Danube, together with the Kopácsi wetland are natural spawning grounds. In the Kopácsi wetland such animal and plant species are able to survive and live that are considered rare or endangered in Europe or even worldwide. The community of rootless duckweed (*Wolfficitum arrhizae*), and that of common duckweed and azola (*Lemno Azolletum*) are very rare in Croatia. The diversity of the vegetation is also of special importance, and it is indicated by 40 different plant communities in a small area, which are rarely found in Europe. A new clam species has been identified in the Kopácsi wetland (*Unio tumidus kopaciensis*) and the *Hybomidra ucrainica* botfly species is a new animal species in Croatia. The identification of a rare leech species (*Dina*

apathy, *Cystobranchnus fasciatus* and others) and of a butterfly species (*Papilio machaon*) protected in Croatia is of special interest. The bird species living in the Kopácsi wetland in large populations, but endangered in Europe are of special significance: white-tailed eagle, black stork (*Ciconia nigra*), saker falcon (*Falco cherrug*), little egret (*Egretta garzetta*), greylag goose (*Anser anser*), ferruginous duck (*Aythya nyroca*), and several other rare bird species which are recorded from time to time in the Kopácsi wetland. Due to the high ecological importance of the Kopácsi wetland, which is also indicated by the above, it has been qualified as Nature Reserve controlled by the Parliament of the Republic of Croatia, on 17.730 (Narodne novine 45/67). In 1976 the act on environmental protection declared a small area, 7.220 hectares of the nature reserve a special zoo reserve, and a wider area, 10 510 hectares as Natural Park (Narodne novine 45/76). The international significance of the Kopácsi wetland was recognized in 1993, when, in accordance with the Ramsar Convention, it was included in the ranks of internationally important marshes, that is, in the list of the “Convention on wetlands of International Importance, especially as Waterfowl Habitat”. In January 1995 the Parliament of the Republic of Croatia entered the Ramsar Convention in the jurisdiction of Croatia. In accordance with this convention they take international responsibility for the preservation, reasonable caretaking and control of the wetland fowl living here, and thus for the creation of nature reserves. This shall encourage research work and the exchange of information on wetland wildlife and vegetation and the publication of this information.

3.3. Historical heritage

The Hungarian settlements located in Osijek-Baranja have a rich cultural history and folklore traditions. The southern areas are called Alfalu (Kopács (Kopačevo), Laskó (Lug), Várdaróc (Vardarac)), which, to some extent, dissociate themselves from the northern settlements of Bán – located at the foot of the mountain, in the Hegyalja (“foothills”) area (Hercegszöllős (Kneževi Vinogradi), Karancs (Karanac), Kő (Kamenac), Csúza (Suza), Vörösmart (Zmajevac). The area has been the birthplace of several well-known and important personalities. The economic and cultural centre of Hegyalja was Vörösmart (Zmajevac), while on the plains Laskó (Lug) had special intellectual importance. In spite of the long-lasting Turkish rule the people of Laskó (Lug), Hercegszöllős (Kneževi Vinogradi) and Vörösmart (Zmajevac) managed to establish a lifestyle which was favourable for intellectual creation. In the 15th, 16th and 17th centuries this area was one of the centres of Hungarian culture. The most educated people of the country lived here, and the highest number of young people was accepted to Italian and German universities from this region. The financial and intellectual culture of the area was based on a unique, varied management that cooperated with nature. The sophisticated, unique folk art and poetry of this area proves that here a folk culture of special value flourished once. Its heritage is now guarded in museums. The folklore of Osijek-Baranja include singularly shaped bonnets embroidered with white patterns on black fabric, and elaborate tapestries, hewn or painted furniture and exquisite folk costumes and wood carvings. In addition to its treasures of folklore, Osijek-Baranja possesses a rich heritage of objects. Laskó (Lug) boasted a famous Franciscan monastery, school and a pilgrimage destination dedicated to Mary. As his name suggests, Demeter Laskai (Demetrius de Lasko) was born here, and the manuscript named after him includes the second oldest rhymed prayer in the Hungarian language after the Old Hungarian Lamentations of Mary. Osvát Laskai (Osvaldus de Lasko) came from this monastery and later became the head of the Franciscans of Hungary, and his sermons were read throughout Europe in Latin. In the 16th century nearly fifty famous bishops, professors, preachers, writers and scientists bore the

name “Laskai/Laskói”, all of whom were likely to have studied at the monastery’s renowned school. Mihály Sztárai worked and wrote his Hungarianized psalms here for many years. The Drávaszög (“Drava corner”) had its second golden age of cultural history in the 19th century. This recovery is mainly due to the Ács family (László and Gedeon Ács). The other village, Vörösmart (Zmajevac) is not much behind Laskó in the number of famous persons. In the 16th century a secondary school, grammar school was established in Vörösmart (Zmajevac) that was considered one of the best schools in Hungary during the Turkish rule. Several students proceeded to study at the best Italian universities from this school as well, and over a dozen of them bore the name Veresmarti. The laws of the Hungarian Reformed church, the “Canon of Hercegszőlős” were written down for the first time in the nearby Hercegszőlős (Kneževi Vinogradi). The name of this settlement appears in the family name of several famous clericals and academics.

3.4. Regional administration

The county currently consists of 35 districts, 7 cities and 264 settlements. 8 of the settlements have less than 2000, and 21 have less than 3000 residents. The county has a relatively high number of districts and cities, which means potential and also challenge for the county.

The regional administrative division of Osijek-Baranja (districts and cities)

Diagram 8.



Source: The website of the Croatian Statistical Office

The potential is that the districts are more aware of the needs of the local population and the distribution of information is easier than in larger districts. On the other hand, in districts and cities it is difficult to provide qualified staff and thus the system is more expensive than in a county with fewer districts.

3.5. Transportation

3.5.1. The historic past of transportation

Baranja, located in the Carpathian Basin, has been an important node of transportation from the earliest times. During the Roman rule the region had a developed road network, as here was the crossroads of the roads linking Budapest with Belgrade and Pécs with Osijek and Mitrovica. Several data remains from this time of the routes passing through Baranja. The most important road was the one leading from Mohács to Kiskőszeg (Batina), and the one passing through Vörösmart (Zmajevac), Laskó (Lug), Várdaróc (Vardarac) and Bellye (Bilje) and leading to Osijek. The sources mainly mention three important Roman routes. In addition, one settlement, today's Karancs was of special importance, where these routes intersected. After the fall of the Roman Empire these roads lost their significance, as the Huns and Slavs didn't take care of them. In the Middle Ages the old Roman roads were used mostly, thus sources from the 11th century Jerusalem mention the military road linking Székesfehérvár with Belgrad, passing through the settlement named Duldumos located in the place of today's Baranyavár, and a long wooden bridge connecting Duldumos with Monostor. The Hungarians, and the Tartar and Turkish invasion did not have a big influence on the area's already developed road network. These routes remained throughout the Middle Ages and served as a basis for the roads constructed later, in the early 20th century. The road linking Mohács and Osijek was built between 1772 and 1779. At that time the majority of transportation took place on the Drava and Danube rivers. Wine and grain was transported. On the sections of the rivers where towing against the stream wasn't possible, the goods were transported by carts, horses or donkeys. This problem was only solved by the appearance of steam ships (from 1818 on the Danube). Industrialization began relatively early in Baranja. The real driving force behind this process, just like throughout Central Europe, was the construction of railway and road networks. The first railway line was inaugurated on the 20th of December, 1870, and it linked Osijek with the railway junction of Villány through Pélmonostor (Beli Manastir). By 1910 the railway tracks connecting Kiskőszeg (Batina) with Harkány through Pélmonostor (Beli Manastir) were built. The public railway tracks and the so-called Belje railway tracks intersected in Pélmonostor (Beli Manastir), which connected Főherceglak with the port of the Danube named Kazuk through 96 km, and their line linked several plains. The fast pace of industrialization, the border established between the newly formed Yugoslavia and Hungary, changes in production, and the development of the means of transportation all influenced the changes in transportation that occurred in Baranja in the second half of the 20th century. Water transportation has nearly completely ceased, the local railway transportation has lost its former importance and road transport has become the most significant form of transportation. The railway line connecting Osijek with Villány, which passes through Pélmonostor (Beli Manastir) is part of the railway transportation line which links the Baltic region with the Adriatic coast, and this is the only remaining railway line of the above-mentioned lines. Today all of the settlement of Baranja are linked by roads, and Pélmonostor (Beli Manastir) has retained its role as transportation node, where the road running from the east, from the bridge over the Danube at Kiskőszeg (Batina) intersects the

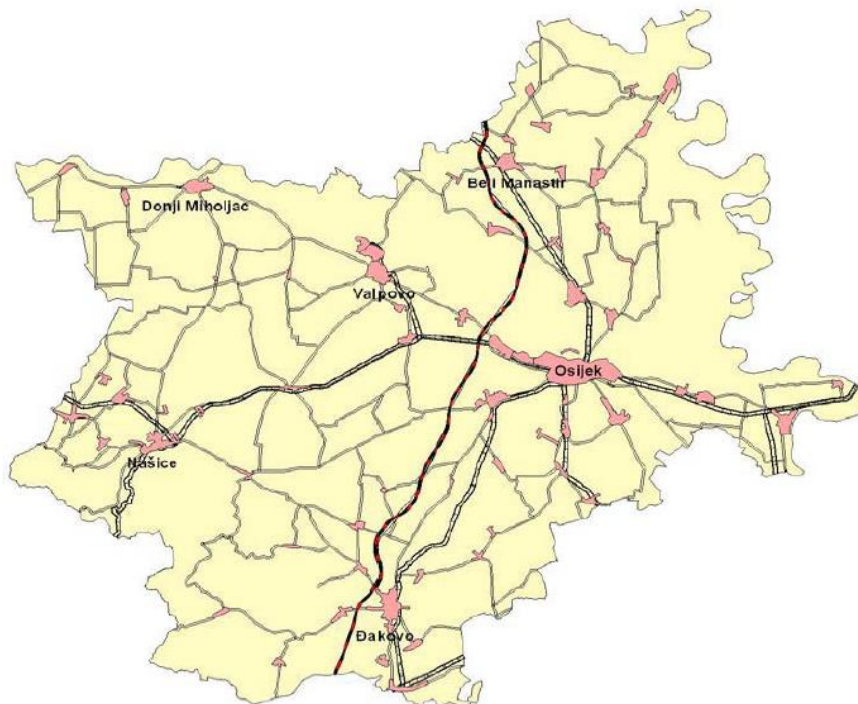
road from the Drava bridge at Belišće and the road running from the west linking Budapest with Sarajevo and Polcsa on the Adriatic coast. The fact that with the exception of large cities there are few other areas in the Carpathian Basin where there are so many border crossing points and bridges so near each other, connecting different countries also indicates special importance in transportation. The system of information flow was developed in this region as early as the Roma Era. The modern postal system was also created very early. The first modern post office opened in Dárda in March 1855. The telegraph (1837) was introduced in 1870 and the telephone arrived in 1903. Even more, modern post offices opened by the end of the 19th century in Kiskőszeg (Batina), Vörösmart (Zmajevac), Pélmonostor (Beli Manastir), Kácsfalub (Jagodnjak), Karancs (Karanac), Bolmány, Csúza (Suza) and Cseminác.

3.5.2. The present conditions of transportation

Baranja-Osijek county is still in a favourable position regarding transportation, as two international rivers pass through it providing connection to the countries of Central Eastern Europe, and its historic railway line (the tracks of the Orient Express) links Eastern and Western Europe.

The major settlements of Baranja-Osijek county

Diagram 9



Source: based on information from Oikon Ltd.

3.5.2.1. Road transportation

The total length of roads in the county is 1.190.75km, of which 642-79km are main road and 547.94 are local roads. The length of impassable road sections is 287.47km. The following main roads and lanes are located in the county:

- D2: Slatina-Našice-Osijek-Ilok
- D7: Határátkelő (HU-CRO)-Beli Manastir-Osijek-Đakovo
- D34: Slatina-Donji Miholjac-Josipovac
- D38: Požega-Pleternica-Đakovo
- D46: Đakovo-Vinkovci-Tovarnik
- D53: Határátkelő (HU-CRO)-Donji Miholjac-Našice-Slavonski Brod

3.5.2.2. Railway transportation

According to the data from the Statistical Office, Osijek-Baranja county has 269km of railway lines and 31 stations provide access to the region. In 2010 712.297 tons of national and 163.337 tons of foreign goods were transported by railway.

With regard to passenger transportation, the high-speed railway operating between Osijek-Đakovo-Slavonski Brod-Zagreb provides a link between East-Slavonia and the Croatian hubs.

The railway passenger turnover of Osijek between 2003 and 2011

Table 3

Year	Number of passengers	out of which, national turnover	out of which foreign turnover	passenger-kilometres
2003.	849.426	845.080	4.346	38.156.324
2004.	387.126	384.348	2.778	18.458.452
2005.	1.003.446	997.609	5.837	34.537.632
2006.	992.048	986.283	5.765	45.467.146
2007.	971.044	964.997	6.047	42.811.108
2008.	986.179	978.804	7.375	43.724.375
2009.	1.275.336	1.268.080	7.256	56.114.784
2010.	1.168.282	1.160.663	7.619	52.572.690
2011.	1.214.607	1.206.972	7.635	54.657.315

Source: on the basis of the County Statistical Annals

The following railway lines operate in the county:

1. Dalj- Varaždin
2. Osijek-Pélmonostor-border crossing
3. Osijek-Vrpolje, Osijek-Viškovci, Viškovci Vrpolje
4. Bizovac-Belišće
5. Osijek-Drava bay
6. Vinkovci-Osijek
7. Vinkovci-Erdut
8. Našice-Nova Kapela

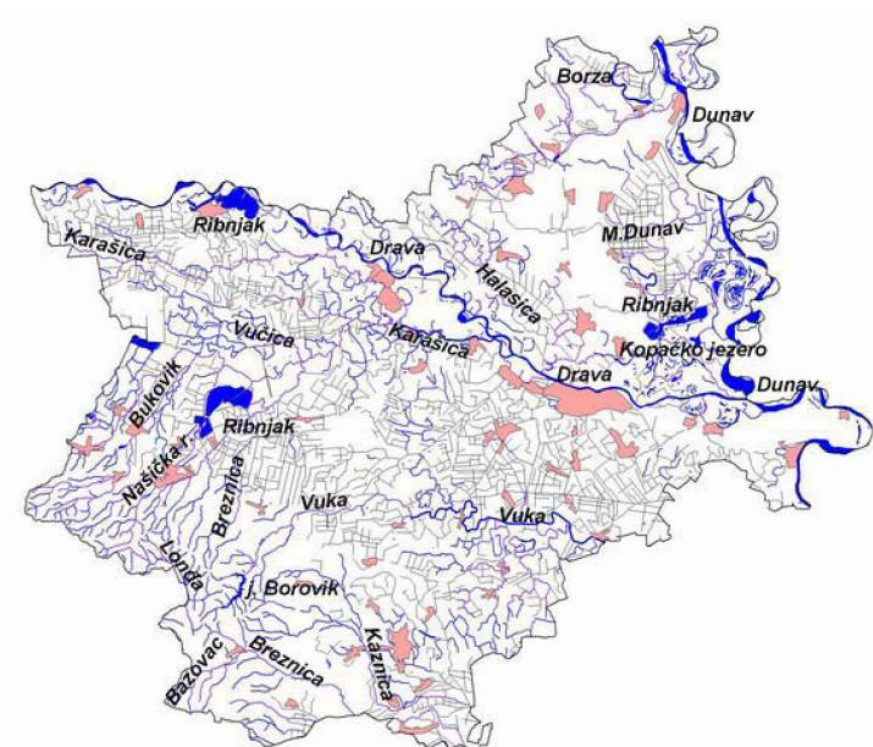
3.5.2.3. Waterway transportation

River transport is at present the cheapest and the most environmentally friendly way of transportation. The county's two international rivers, the Danube and the Drava play a significant role in navigation.

The *Danube* forms a natural border between Croatia and Serbia in the eastern part of the county. The river enters Croatia after leaving Mohács, and it crosses the country with a 86.06km section. The average width of the Danube is 500-800m, it is 5-15m deep and its flow rate is nearly 1m/s. The Osijek and Vukovár captaincy are responsible for the navigability of the river. Osijek-Baranja county does not have a port of calling (there are plans for the construction of ports at Batina and Aljmaš). The region provides several touristic possibilities for the "Cruiser" tourist ships arriving from Vienna and Budapest, and it also maintains contact with the ports of the Black Sea and Varna.

The hydrography of Osijek-Baranja county

Diagram 10



Source: On the basis of Croatian waterways 2003

The source of the *Drava* is located at the foot of the Alps and it flows through Slovenia, then, forming a border between Croatia and Hungary, connects Serbia, then joins the Danube and thus is navigable all the way to the Black Sea. The flow of the Drava is slower than that of the Danube – 555 m/s on average -, it is naturally swift in the northern areas of Croatia then, becoming a flatland river in Osijek-Baranja county (104km long) flows at a speed of 0,7m/s. The ports in Baranja-Osijek county are located in Osijek, Belišć, Donji Miholjac.

3.5.2.4. Air transportation

Baranja-Mohács county has two airports, named Osijek-Čepin and Osijek-Klisz airports. The airport's attraction zone includes the national and also the neighbouring Serbian, Bosnian and Herzegovinan and Hungarian airports.

The Osijek-Čepin airport is located 3km south-east of Osijek, and having once operated as a military airport, today it is a sport and recreational airport.

The Osijek-Klisz airport is one of the nine Croatian airports. It is located approximately 20 km from Osijek, along the Osijek-Vukovar main road. The airport is mainly used by the Aeroklub, agricultural small aeroplanes and smaller sport and business planes. In the summer months the "Croatian Airlines" operates flights to the Croatian Adriatic seaside (Dubrovnik, Split, Zadar, Rijeka, Pula). In addition, a "budget airline" is also present, which operates flights to Tunisia. The airport served 20.824 passengers in 2010. In order to increase the number of passengers, beside the seasonal flights, regular scheduled flights are planned to the major airports of Croatia and Europe.

3.5.2.5. Bicycle transportation

Cycling in nature has always been an outstanding, unique experience. Plans for the construction of bicycle roads have been laid out before. There are existing bicycle roads along the Danube and Drava, through forests and secondary roads. It is important that these roads should be joined to the international bicycle roads, which run from Hungary and fork in two directions:

- one branch proceeds on the Zmajevac-Kopačevo and Drava-Danube route, and
- the other passes through the settlement of Zlatna Greda and Tikvešen, towards Mali Salaš, the Kopački wetlands and all the way to Osijek.

In addition, the bicycle road of Baranja leaves the Drava dam and proceeds towards the east, in the direction of Donje Miholjovac, and eventually it joins the bicycle roads of Hungary. At the initiation of Slovenia, the plan of constructing the "Drauradweg" bicycle route running from the Drava to the Danube is supported by the European Union. Through the existing roads, a European bicycle road network can be created, which can facilitate the development of rural tourism. Thus every local government should be encouraged to create bicycle roads in their settlement.

3.6. Tourism

Tourism is a significant factor in Osijek-Baranja county due to its natural and cultural variegation and the preservation of its ecological natural resources. The *Kopački wetlands, thermal springs, wine routes, agricultural areas* are of outstanding importance. The heart and soul of tourism is the traditional rural lifestyle. *The settlements of Osijek, Donji Miholjac, Đakovo, Našice i Belišće are the most important accommodation centres for passers-through and for business persons.* These centres primarily provide cultural, architectural and historic attractions for visitors. The bath of Bizovičak attempts to satisfy the needs for health and recreation. Every factor is given for the development of rural tourism, as 60 farms are registered in the county, providing a wide gastronomic choice. *11 wine routes are located in the county: Kneževi Vinogradi-Karanac-Kotlina-Kamenac; Zmajevac; Suza; Sjeverna Baranja; Martinovo brdo; Vinski put Batina Zlatno brdo; Sveti Martin; Erdut; Mandićevac; Zlatarevac.*

The county also offers thematic trips, which are based on traditions, natural values and providing experiences. The organisation of different round tours, especially boat trips, have a special role in the tourism section. The ports of Batina and Aljmaš constitute the waterway access to the county, where nearly all forms of tourist services are available. The most important boat trips bring visitors from Vienna, Budapest and from the ports of the Black Sea.

There are new demands in the county, in the area of wellness and fitness services. Such a facility is the Bizovačka spa.

Cultural tourism constitutes an increasingly important area of tourism. Hotels often serve as venues of conference tourism and provide services for the business sphere.

The categorization of the hotels of Osijek-Baranja on the basis of capacity and category

Table 4

Name	Category (stars)	District it belongs to	Number of spaces
Hotel Osijek	4	Osijek	260
Hotel Waldinger	4	Osijek	31
ZOO hotel	4	Osijek	35
Hotel Patria	4	Beli Manastir	80
Hotel Blaža	3	Đakovo	46
Hotel Đakovo	3	Đakovo	50
Hotel Silver	3	Osijek	50
Hotel Vila Ariston	3	Osijek	21
Hotel Villa Valpovo	3	Valpovo	20
Hotel Slavona	3	Donji Miholjac	13
Hotel Millennium	3	Osijek	20
Hotel Drava	3	Osijek	18
Hotel Park	3	Našice	100
Hotel Mursa	2	Osijek	260
Hotel Borik	2	Donji Miholjac	93
Hotel Central	2	Osijek	60
Hotel Termia	2	Bizovac	205
Hotel Toplice	1	Bizovac	90
Capacity of the hotels altogether			1,449
Capacity of all other forms of accommodation			700
Total capacity of accommodation in Osijek-Baranja			2.150

Source: On the basis of data from the Croatian national statistical office

3.6.1. Touristic values

The **Kopácsi wetland** is located in the south-eastern part of the county, and it is the most important natural flood field in the entire Central Eastern Europe. The wetland consists of 33,010 ha of wet area, out of which 11,700ha is under environmental protection. The size of the area under

strict “Ramsar” protection is 7000ha. To present, over 2000 plant and animal species have been counted in the Kopácsi wetland, out of which several are considered rare and endangered worldwide and throughout Europe. In addition to the 400 species of various invertebrates that are present in large numbers – rotifer, clams, leeches, lamprey, butterflies and others – another animal belonging to a different species lives here – the shelled river mussel of Kopács (*Unio tumidus kopaciensis*). During the periods of floods it abounds in water organisms, mostly fish. At this time birds nest here in great numbers, mainly waders, as they are attracted by abundance of fish, amphibians, reptiles and other organisms. At the same time frogs, green frogs, common frogs, fire-bellied toads and millions of animals of other species provide a musical accompaniment to the natural orchestra of the wetland. At the end of summer the water recedes and the vegetation begins to flourish that provides food for deer and boars and the entire area serves as a resting place or winter quarters of several migratory bird.

Table 2: The number of visitors to the Kopácsi wetland between 2008 and 2010

Year	Number of visitors
2008	180.000
2009	184.000
2010	138.066

Source: on the basis of data from the Croatian state statistical office

The Tikveš castle functions as one of the complex centres of environmental protection in the Kopácsi wetland. Research concerning the protection of nature, measurement, monitoring and educational activities is carried out here. At the edges of the wetland catering facilities await the tourists and those seeking recreational activities.

Table 2: The number of visitors to the Kopácsi wetland between 2008 and

Year	Number of visitors
2008	36.700
2009	21.405
2010	30.172

Source: on the basis of data from the Croatian state statistical office

Due to the utilization of thermal water, health and recreational tourism began to develop in the county. The **Bizovačka spa** has a thermal water spring of 96°C, which is excellent for the treatment of joint diseases. Hotel Termina belongs to the spa, with altogether 300 spaces. The spa currently operates with 8 pools.

One of the oldest **Lipizzaner herds** of Europe is in Đakov. Approximately 180-200 horses are bred here. The two-week festival in Đakov is centred on folk art and equestrian traditions.

The area is enmeshed with **wine cellars** carved in the loess walls. The most famous is the winery of Belje, which has a vineyard of 583 ha. The regional speciality is definitely the Baranya Riesling. The winery can boast of several national and international award-winning wines. The vineyards of Erdut have inspired several painters. In Slavonia Erdut and Vidikovice are the most favoured areas as they are located along a loess plateau at the greater Danube. Along the Aljmaš ans Erdut a number of cottages await tourists in need of resting. The winery of Erdut is located along the

former Adamović-Cseh mansion and stores 75.000l wine in traditional oak barrels, which has qualified as a Guinness record. An important tourist destination is the medieval tower of Erdut, which provides a view of the calmly rolling Danube.

Wine-making and wine-related traditions date back to before Turkish times. The churches of Đakovo and Szeremség grew Trimini types. Today, 60% of the wines of this area are Trimini. The rest is Riesling and chardonnay of Travančk.

In 1850 the Franciscans built a winery with the capacity of 1000hl. Today this winery belongs to the Načicecemet Company whose Rieslings, pinot noirs and the famous Franciscan wines are marketed with the name "Feravino".

In Baranja, the vineyards and wineries around Zmajevo are among the favourite tourist destinations. Excellent wines are produced on the loess plateau along the border. In the area of Surdulica steep and deep lanes create the unique the atmosphere of the landscape.

Kneževi Vinogradi (Hercegszőlős) was the province of Donatium in Roman times, thus it is one of the most ancient settlements of Baranja. It is also a favoured spa and recreational destination for the entire region.

In Osijek-Baranja county castles are the destinations of cultural tourism that every visitor must see. The classical castle of Pejačević was built in the early 19th century in today's Našican. The Hillebrand-Mailoth castle is located in the heart of Donji Mihajlovac. The castle of Jenő Savoyai is in the city centre of Bilje, and the Pandau-Normann castle is located in Valpu, both of which function as city museums. The *Tikveš castle* is used by the public institution of the Kopácsi wetlands. Sacral objects can be the targets of tourism as well, such as the *silver statue of the Blessed Virgin Mary* in Aljmaš, the *Saint Peter Cathedral* in Osijek, and the *Storssmayer Croatian National Museum* in Đakov, the *Saint Peter and Paul church* in Topolje, etc. These buildings show the rich (religious) heritage of Osijek-Baranja county.

3.7. Population

In the past decade *negative demographical tendencies were also characteristic* of Croatia, and Osijek-Baranja is no exception. The negative processes can be explained with the Balkan wars of the 1990s. *In addition to the high rate of migration, the region is characterised by the aging of the population and the decrease of birth rate.* In Croatia the problems appear as early as school age, as there are not enough students, families have a high financial and social dependency, and it is difficult to acquire durable goods (regular income is low, indebtedness is high). These facts influence the decision of young people before migration.

The number of residents of major settlements (people)

Table 5

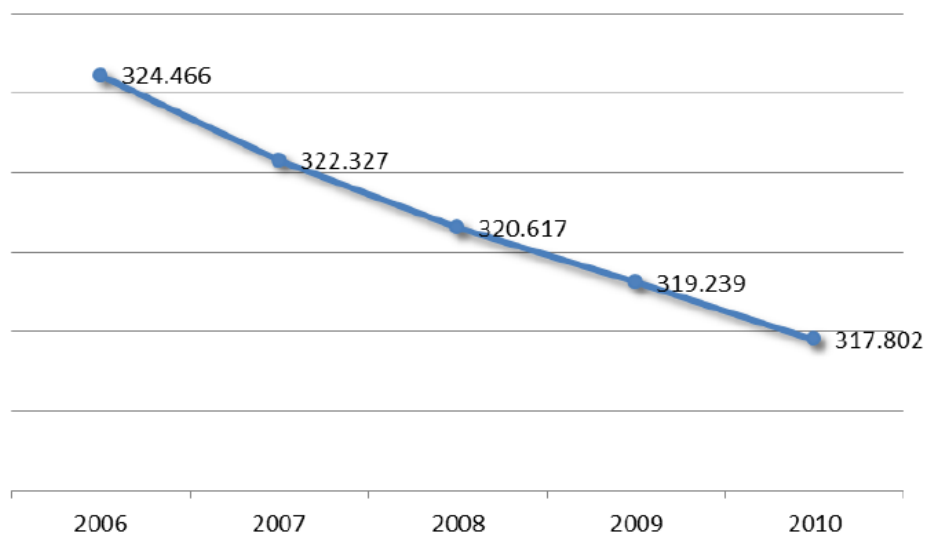
Settlement	Number of residents
Pélmonostor (Beli Manastir)	10.986
Belišće	11.786
Donji Miholjac	10.265
Đakovo	30.092
Našice	17.320
Osijek	114.616
Valpovo	12.327

Source: on the basis of data from the Croatian Statistical Office

It is estimated that in 2010 Osijek-Baranja county has a population of 317.802, which is 7.19% of the total of the country. Compared to 2006, the population of the county has decreased by 2.05%. This process can be traced on the following diagram.

The changes of the population of Osijek-Baranja between 2006 and 2010 (people)

Diagram 11



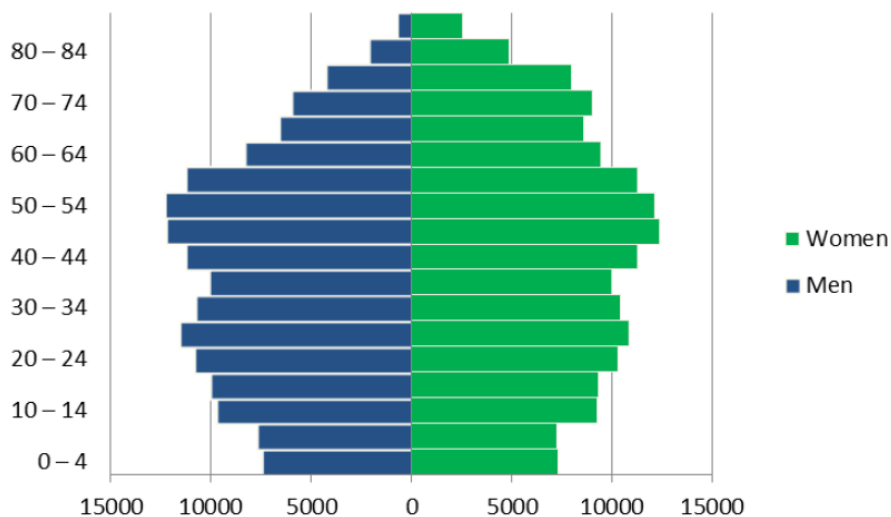
Source: on the basis of data from the Croatian Statistical Office

On the basis of the preliminary, not final data of the census of 2011, the rate of the decrease of population was larger than in the preceding period. Over 1/3 of the population, 107.784 people live in the county seat. The decrease of the population of Osijek compared to 2001 is 6% (6.832 people), while it is 8% (25.607) for the whole of Osijek-Baranja county. In the same period the decrease of the country's population was 3.31%. The average age in the country in 2010 was 41.2. The rate of migration in the county was as high as 2.855 people between 2006 and 2010. The population decrease is primarily the result of the decrease of the number of young people (aged 0-

19). The proportion of young people in Osijek-Baranja county is 21.38% compared to the total population.

Categorization of the population of Osijek-Baranja county in 2011 according to age (year/person)

Diagram 12



Source: Based on data of the Croatian Statistical Office for 2011

In the county the proportion of women in 2010 was 45,0%, their number decreased by 1,9% in the past 9 years. Compared to the whole of the population, the rate of those over 65 is high (16,57%), but it is still more favourable than in the neighbouring countries.

3.8. Workforce market

In 2010 those in working age (aged 15-64) in Osijek-Baranja county was 68% (215.625 people). According to the Central Statistical Office the number of those in working age has decreased by 0.65% compared to 2007.

Statistical data concerning the workforce market of Osijek-Baranja in 2010

Table 6

Factors	Data
Number of people in employment	88.067 persons
Number of unemployed	34.211 persons
Number of those in working age	122.278 persons
Proportion of the employed compared to the whole population	72.02 %
Number of pensioners	67.699 persons
Proportion of those employed to pensioners	1:1.16

Source: on the basis of 2010 data from the Croatian Statistical Office

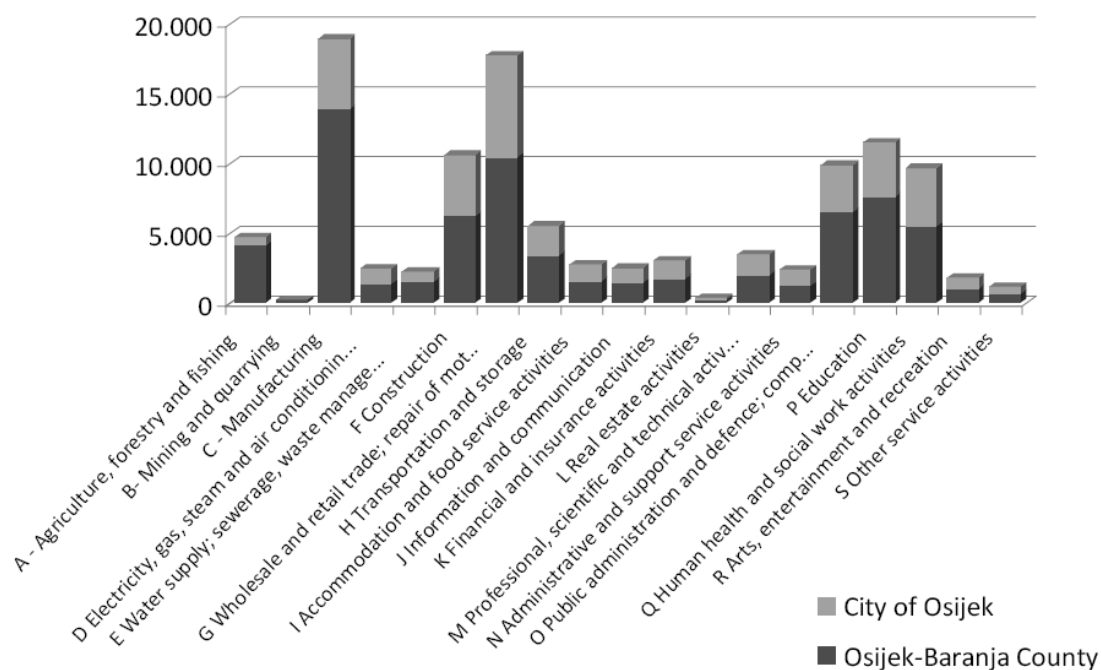
On the basis of the data presented in the previous table, it can be said that in 2010 the *unemployment rate reached 27.98%*. The number of active workers is very low, and that of inactive

but otherwise fit for work is 56.71%. These persons either study or are already retired. In 2010 there were 1.16 unemployed or retired people (dependent) for every employed (provider).

The majority of the employed people work in processing industries (13.933 people, that is, 20%), it is followed by retail and wholesale trade (10.465, that is 15%), education (7.591 that is 11%), construction industry (6.152, that is, 9%). The highest rate of employment is in the city of Osijek.

The division of those employed according to activity in Osijek and the county in 2010 (person)

Diagram 13



Source: On basis of data from the Croatian Statistical Office for 2011

4. The description of the county seat, Osijek

4.1. The geographical location and natural environment of Osijek

The land of Slavonia, shaped by the powers of the mighty rivers Drava, Danube, Sava and Ilova, is a legendary area that has been guarding its treasures for centuries. The fertile soil of Slavonia, constituted by spacious, endless, golden plains rising from the fertile Pannonia, rivers with strong currents, and the flood fields that are the home of hundred-year old stately pedunculate oak forests and nearly 2000 biological species, have been cultivated by human hands for over 8000 years. After the oldest land of our continent, the Papuk faulted mountain, whose volcanic rocks originating from the Paleozoic age and abounding in fossils are the most reliable chroniclers of our planet's geological history, rose from the Pannonian Sea 370 million years ago, the fertile Slavonian plain that appeared from the dark depths of prehistoric times soon became a promised land.

Osijek lies on the right bank of the Drava, at an ancient river crossing, and its bridge was the most important crossing point of the Drava for centuries. Osijek is the administration centre of

Osijek-Baranja county. Osijek has a significant role nationally due to the Vc transportation corridor which will link the Baltic region with the Adriatic Sea through Central Europe. The construction of the Budapest-Osijek – Sarajevo – Ploče Trans-European motorway is in progress, and it will soon be finished on the Croatian side.

According to all the important indicators, the retail trade of Osijek is expanding, and, taking into consideration the development of shopping centres, Osijek is in the second in the rank at national level after Zagreb. This is definitely in favour of the exceptional and attractive area of consumption, which has a bright outlook, and will only show its full potential in the future.

Osijek is the largest city of Eastern Croatia. *The structure of the city is more or less gridded, wide avenues run east-west and north-south direction.* The centre of the city is the Trg Ante Starcevića, the main square, which is currently being reconstructed. A few neighbouring settlements have expanded greatly so that they almost reach the city itself. People come to the city to school and work from an approx. 30km circle.

The city, that lies on the bank of the Drava is, *the economic and cultural centre of Slavonia.* It was first mentioned in 1196, and belonged to the Korogyi family for over a hundred years. It was plundered by the Turks in 1526, who then rebuilt it to their own taste. Miklós Zrínyi stopped the Turks from marching on for a while by setting fire to the bridge on the Drava (1664). After the Turks were driven out, the Habsburgs built the fort, Tvrđa by the river. Today, this is the oldest part of the city (old town). Osijek was the largest and most important city of Croatia in the early 19th century. Theatres, museum, a printing press were built and commerce flourished.

During the Yugoslavian war it did not suffer such serious damages as the nearby Vukovár, 1200 people lost their lives in the bombings. The damages caused by the war have been restored.

The city consists of 4 districts: city centre or castle, upper, lower and new city or manor:

- The castle was built in 1712-19 to accommodate 30000 soldiers, and it is surrounded by multiple bastions, outside which pretty promenades can be found. In addition to military authorities, the castle included 90 private homes, the Franciscan monastery, the grammar school, the middle school, the catholic parsonage, and the post and telegraph offices.
- The other offices had their seats in the upper city, and it is also the centre of commerce, while the lower city was inhabited by craftsmen and farmers. This was the most significant city of Slavonia, the municipality of Verőce county, the office of the deputy sheriff of the Osijek district, the royal court, the county court, the financial directorate and excise, the state architecture office, the royal notary and solicitor's chamber the captaincy of the 78th replacement district, a permanent miscellaneous review committee, the square and castle captaincy, gendarme wing commands and platoon commands, the fluvial engineer's office silk production inspectorate, chamber of trade and commerce, etc.

There are 3 Catholic churches and one Greek Orthodox church, a Franciscan (1687) and a Capuchin (1702) monastery and a synagogue.

4.2. The history of Osijek

Its name comes from the Slavish noun *osek* (animal pen or slope), its Latin name originates from the Illyrian noun *murs* (marsh). Findings from the Neolithic age show that the area was inhabited by prehistoric people. It was an important settlement in Antiquity, and was inhabited as

early as the Copper Age, and later became a Celtic settlement, on which the legionary camp Mursia was built, and eventually became one of the most important crossing points of the Drava. Osijek in the Roman age – Mursa – was a Roman Colony in Lower Pannonia. The *tabula Peutingeriana* and *Ravennas* mention it as *Mursa major*, to distinguish it from the village of *Mursa minor* or *Mursella*, lying 10 miles to the west. Ptolemaeus uses the name *Murtia*, while inscriptions and the *Itinerarium* consistently mention it as *Mursa*. Ptolemaeus lists it among the places located further from the Danube, however the *Itinerarium* had it included in the *Aquincum-Taurunum* (Ó-Buda-Zimony) road along the Danube, and also in the one leading from *Sirmium* (Mitrovicz) along the right bank of the Drava to *Poetovo* (Pettau). On the *tabula*, only the latter route can be found. The two roads intersected in *Mursa* and the one along the Danube might have passed through it so that it did not have to run by the Danube all the way long. Even *Antiana* (Bán), which, according to the *Itinerarium*, lay before *Mursa*, was far from the Danube. Thus, even if there are no reliable data concerning the location of *Mursa*, it cannot be searched anywhere else than in the place of today's *Osijek*. We do not have any information about whether *Mursa* was a *municipium* before becoming a *colonia*. Thus it is mentioned as *colonia* in the inscription of *Osijek* of *CIL III 3288*. The fact that *Mursa* was founded by emperor *Hadrian* (117-138 AD), was gratefully recognised by the *Mursans* themselves, and they erected an altar for *Hadrian*: *Divo Hadriano Mursenses conditori suo*. The same is proved by those bricks which were unearthed in *Osijek* bearing the name of *Hadrian*. In addition, the name of *Anthony* is also found on bricks in *Osijek*.

Hadrian used the II legion auxiliary in 133 AD at the foundation of the city or at least during the building of a few public buildings. Reference to *Hadrian* can be found in the name of the city. On one hand *Mursa* consistently bears the adjective *Aelia*, and it also belonged to the same *tribus*, named *Sergia*, as *Hadrian* himself. The great respect that the city received in general cannot be proved better than by the fact that the governor *C. Julius Geminus Capellianus* himself had a memorial stone erected in the years between 145-160, and the citizens were strongly patriotic, as, according to the *CIL III 3288* inscription, one of the *decurios* of the city, after becoming *flamen*, built 50 shops and a double colonnade in front of them, at his own expense, to promote commerce. *Mursa* was not among those cities which got their importance for the army, as before the year 113 no legion could be here permanently, as its older signs have been known sometimes in *Sirmium* and also in *Aquincum*. All evidence show that *Mursa* was primarily a civil town, just like *Sirmium* and *Savaria* (Szombathely) in *Pannonia superior*, or *Siscia* (Sziszek). It could only happen at the end of the 3rd century that it received a military guard, as the bricks sealed with *le(gio) VI H(erculia)*, found in a large number in *Osijek*, prove. The decline of *Mursa* began with the invasion of the *Goths*. While *Theodosius the Great* was lying ill in *Thessalonica*, in 379 the *Goths* did not only invade the whole of the *Balkan*, but the western *Illyricum* also became the prey of *Alatheus* and *Safrak*, and this time *Poetovio* and *Mursa* were plundered. Its walls were built in the first half of the 2nd century. *Mursa* became a bishop's seat in 351. The migration erased the Roman city. Later, until the Turkish age, it had a Hungarian population. In Roman times this settlement was called *Mursa*, and considering the remains and its frequent mention, it must have been a highly significant settlement. *Osijek* retained its importance in the middle ages: it is mentioned as *oppidum* very early, but it is also soon mentioned as *tributum portus fluvii Draue*

During the reign of *Stephen I.* the military road connecting the castles run here. This was also the route of pilgrims to the Holy Land and of crusading armies as well. The castle of *Osijek* is mentioned in the XV century (in 1472 but probably as early as 1460). From the XIV century,

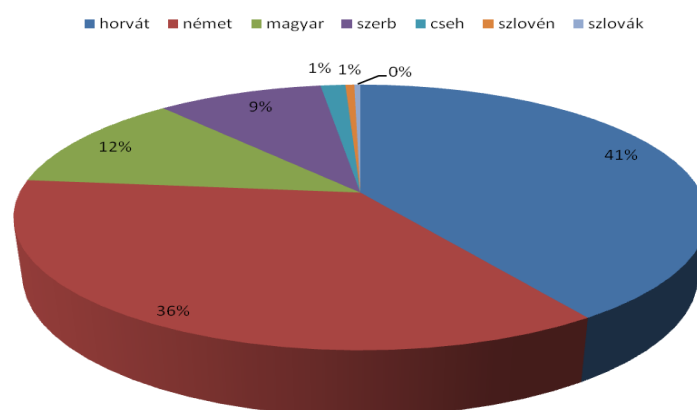
moreover, throughout the entire XV century the owners of the castle and the settlement were the Kórógyi family. After they died out, the Rozgonyi family got the estate, and after them Miklós Csupor and Iván Ungor. After Csupor died, the castle, together with its estate became the property of the chapter of Buda, who then handed it over to the Geréb family of Vingárt. It was in Turkish hands from 1526 to 1687, then, after it was recaptured, the Fortress was built between 1712 and 1719, most of which still remains. Nothing, but a few traces have remained of the medieval castle. In the Middle Ages its name was spelt in different way: Ösek. During the Hungarian rule it was Eszek or Ezeek. Later the name was used in the German way, as Essegg or Essec. The Turkish crossed the river here on the 22nd of August, 1526, then burned the bridge. In 1537 the Turkish army defeated the imperial army here, and in 1566 Soliman II crossed the Drava here on his way to Szigetvár. The bridge was burnt by Miklós Pálffy in 1599. On the 2nd of February 1664, in the course of his successful winter campaign Miklós Zrínyi set it on fire again. Grand Vizier Kara Mustafa received Thököly arriving to pay his respect here on the 7th of February 1683. The imperial army recaptured it in 1687, then German settlers were brought to the city, who constituted the majority of the population until 1945. Its castle was built in 1712, as one of the biggest fortresses of the country. It became a free royal town in 1809. Following the peace treaty of Trianon it was the seat of Verőce county. It endured a number of Serbian sieges between 1991 and 1992, when approximately 1000 people were killed.

4.3. *The population of Osijek*

Osijek is the largest economic and cultural centre of Eastern Croatia. The number of its residents was 107.784 at the census of 2011, thus it is the fourth biggest city in Croatia. In 1910 out of its 31 388 residents 12625 were Croatian, 11269 German, 3729 Hungarian, 2889 Serbian, 432 Czech, 155 Slovenian and 105 Slovakian.

The distribution of Osijek's population according to nationality in 1910 (%)

Diagram 14



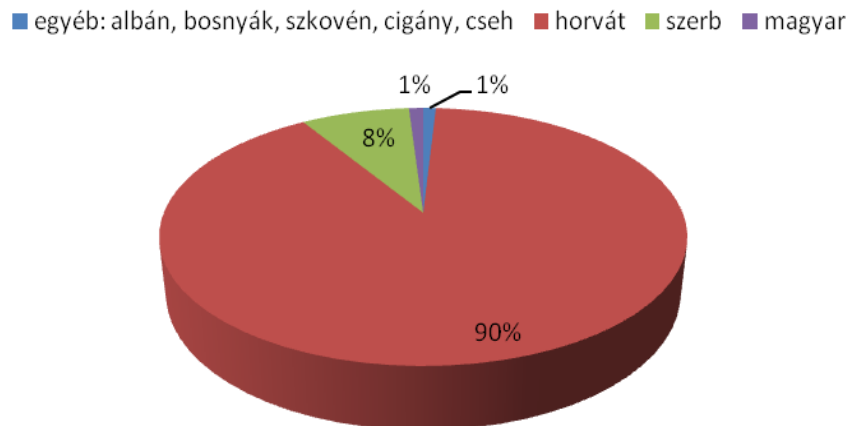
Source: on the basis of data from the Croatian Statistical Office

In 2002 out of its 114 616 inhabitants 99 234 were Croatians, 8767 Serbians, 1154 Hungarians, 480 Albanians, 211 Bosnians, 169 Slovenians, 124 Romani, 39 Czech. The nationally distributed Croatian county daily newspaper Glas Slavonije presents the results of the 2011 census in comparison to the 2002 statistics: the population of Osijek decreased from 114 616 people to 108 048. Within this the number of Croatians has decreased by 2500 and the number of

Serbian by a little over two thousand. "The number of the Hungarian people, or those claiming to be Hungarian, has decreased greatly too, in ten years Osijek has lost about 170 Hungarians." In addition to Hungarians and Serbians, another nation is also disappearing, who have been present in the region for centuries – adds the newspaper presenting the number of Germans and Austrians, which is 34 less than in 2002.

The distribution of the population of Osijek according to nationality in 2002 (%)

Diagram 15



Source: on the basis of data from the Croatian Statistical Office

4.4. The transportation of Osijek

The backbone of public transportation is the *tram line* which passes through the city from east to west. It is complemented by the *bus lines*, which radially connect the districts and nearby settlements to the circulation, starting out from the city centre. All bus lines are diagonal: start in one end of the city, pass through the centre and terminate in the other end. In Osijek trams and buses run. The main hub is Gajev trg.

The map of the public transport network of Osijek

1. Diagram



Source: The official website of Osijek city, <http://www.osijek.hr/> downloaded: 29th 01. 2013.

4.5. The tram network

At present the city has two lines with a 1000mm rail-gauge: *the east-west main line* (no. 1, Visnjevac-Zeleno Polje) and the *great hoop to the station* (no. 2 Trg Ante Starcevic- Railway station) forking from the main line. This latter is currently not operating due to the reconstruction of the main square. The constructions of a further line has begun but not finished yet. It forks from the station hoop, and after passing under the railway, it is directed towards the southern district, but after the underpass, the constructions were ceased, probably due to the war. The switches related to the station hoop have never been installed. Each track is based on Phoenix system, and is in good general condition. The highest speed restriction indicated on signs is 30 km/h. The tracks run at the edge of the road everywhere, in the outer lane. After leaving the city centre, the tracks run next to the road in both directions, covered by grassy soil or gravel.

The main public transportation lines of Osijek

Table 7

Service	Between the following stations
Bus no 6:	Trg A. Starčevića – Tvrđa
Tram no 1:	Trg A. Starčevića – Tvrđa
Tram no 2:	Railway station - Trg A. Starčevića

Source: on the basis of the official website of Osijek city <http://www.osijek.hr/> downloaded: 29th 01. 2013.

In the city centre the tracks are embedded in asphalt, and in the main square a decorative surfacing is currently being built. At both ends of the line there are simple hoop terminals.

The vehicles are operated by the Osijek Transportation Ltd, in Croatian, GPP-Osijek Ltd. The fleet is relatively uniform, it consists of Tátra T3YU locomotives, and there are four B3YU trailers, two of which have been parked in front of the carriage house for years, disintegrated.

4.6. Tourism in Osijek

Osijek has been an important crossing point of the Drava for centuries. The busy, organised city today has significant cultural and sporting life. *The castle and zoo of Osijek are both unique in Croatia, and the country's oldest museum is also located here.*

Osijek offers a wide range of attractions to visitors! Diversity and art; the remarkable historic sites; beautiful parks and its protected environment have made Osijek special. In the restaurants of Osijek we can taste the dishes of the famous Slavonian cuisine, and travellers can also rest in one of the beautifully furnished hotels, motels or other accommodation, or simply walk along the bank of the Drava.

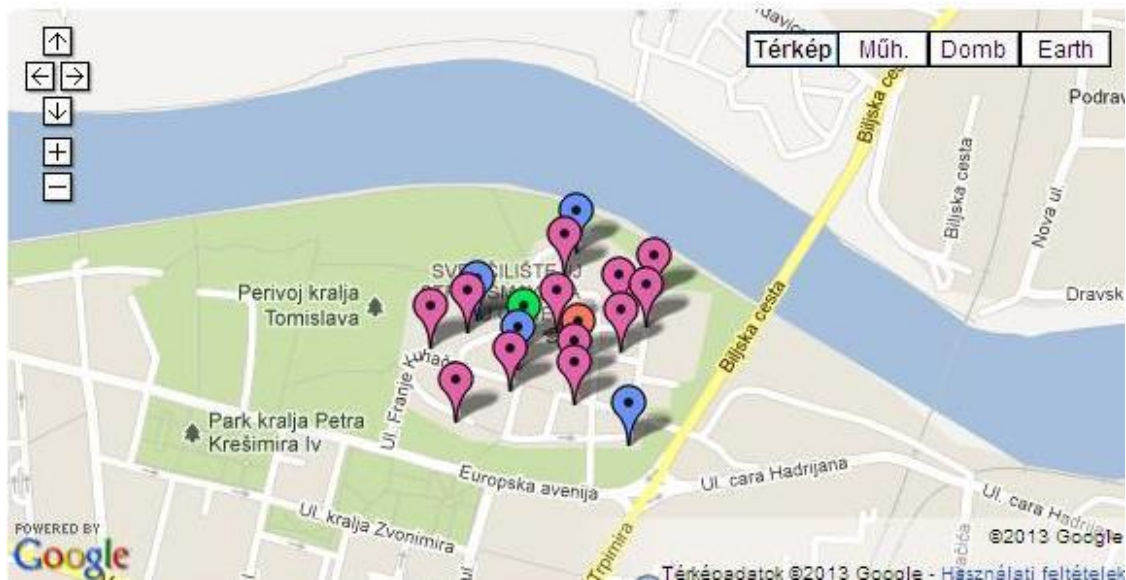
4.6.1. Tourist attractions in Osijek:

- **Osijek Castle:** The most visited part of Osijek is the Osijek Castle, which is a perfectly preserved Baroque fortress. By visiting the baroque complex of the Osijek castle, in addition to the sights, we can find excellent entertainment possibilities as well. The fortress, which was built on the right bank of the Drava, *was a military, administrative and commercial*

centre in the 18th century. Osijek Castle is the best preserved baroque complex in Croatia. The UNESCO is considering the plan of including it among the world heritage sites.

Osijek Castle, including its tourist attractions

Diagram 17

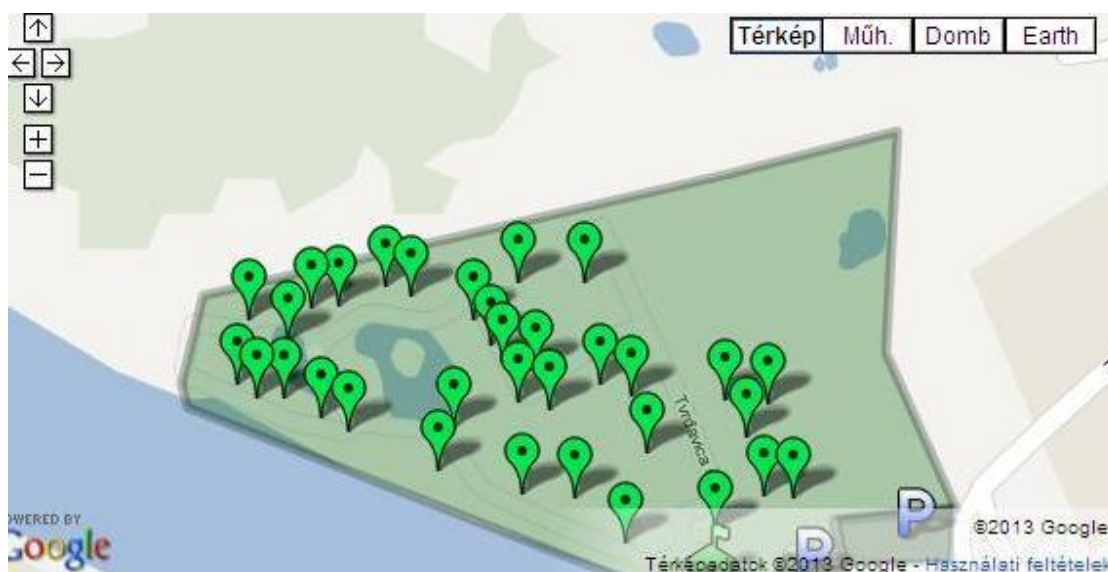


Source: using Google Maps downloaded: 28th 01. 2013.

- The construction of the fortress began in the 16th century. When the work was finished in 1735, the Osijek Castle became the largest fortification of the Habsburg Empire at the border of the Ottoman Empire. Within its walls public lighting operated from 1717, and from 1751 it had Croatia's first public water supply system. Its military importance decreased at the end of the 19th century. At this time it became the cultural, scientific and educational centre of Osijek and the region. Osijek's first school and printing press were also located inside the castle. The school operating inside Osijek Castle has alumni like Lavoslav Ruzička Nobel prize winning scientist, and Vladimir Prelog. The Tvrđa is also the centre of Osijek's nightlife. Apart from the large number of restaurants, bars and clubs await the visitors.
- **Zoo:** An ideal attraction for families to spend their free time is the zoo of Osijek, which is the largest zoo in Croatia. The animals live in an environment that has been created to resemble their original habitat as closely as possible. The Osijek zoo is located on the left bank of the Drava so the river separates it from the noise of the city, thus providing a calm home for the animals that is rich in vegetations and has clean air. The zoo was established in 1955. The habitats were created to resemble the animals' original homes as closely as possible. We can see grassy plains, tall grass suitable for relaxing and hiding the young, and groves that give a shade on hot summer days. Currently 650 individuals of about 80 species are looked after here.

Osijek Castle and the tourist attractions inside it

Diagram 18



Source: using Google Map Downloaded: 28th 01. 2013.

- **Gastronomy:** Most of all, we can find fragrant *ham*, *kulen* and *kulenova seka* (a type of salami made of dried meat, seasoned with paprika) on the table of Slavonia, and in the pans the bean-based *čobanac* (a kind of stew cooked with paprika and onions) and fish soup is cooked – duly accompanied by plum brandy. Excellent wines are produced in Slavonia, such as the *iloki tramini*, *kutjevo Riesling* and *graševina*. A well-known dessert is *pastry made with leaf-lard (salenjak)* prepared in the traditional way, with pork lard, and the strudel-like *savijača* filled with apples or walnuts, and the strangely-named “*torn trousers*” (*poderane gaće*), which, in spite of its unusual name, is really delicious.
- **Museum of Slavonia:** If you are interested in the past of Slavonia, visit the Museum of Slavonia located in the Osijek Castle, where the development of the region can be followed through thematic displays. The most important task of the museum in the Osijek Castle is to retain the cultural heritage of Osijek, Slavonia and Baranja. Its collections encompass the areas of science, archaeology, numismatics, folklore and crafts. The Museum of Slavonia is one of the oldest museums in Croatia. In its shop, in addition to gifts characteristic of the region, replicas of the exhibits – including gold replicas of jewellery – are available. Through the museum displays, we can learn about the everyday life of the inhabitants of Slavonia of the past, follow technical development, fashion and get an overview of the local flora and fauna, or we can look at old swords and other military equipment.
- **Cathedral of St. Peter and Paul:** The church was built between 1894 and 1898, on the basis of the plans of Croatian priest of German ancestry, Juraj Strossmayer, in Neo-Gothic style. During the long wars the building was hit several times, thus renovation was inevitable. It has Franciscan and Capuchin monasteries and a Jesuit school.

- **Other attractions:** Those seeking active recreation can also find programs. An excellent destination for anglers is the **Kopačko Lake** located in the **Kopácsi wetlands** nature reserve, approximately 20 minutes from Osijek. The **Copacabana (Kopika) „beach”** on the bank of the Drava is the venue of sports and entertainment events in the summer months. **Falulapos**, near Osijek, has been created especially for sports tourists. Several exciting programs are offered, including off-road driving, canoeing, paintball, but experts also organise team-building trainings. Osijek is heaven for sport-oriented travellers. It is especially ideal for the following sports: trekking, cycling, horse-riding, hunting, and swimming. The National Theatre of Osijek awaits culture enthusiasts.

The highlighted business accommodation venues of Osijek

Table 8

Featured accommodation venue	Category
Hotel Osijek	****
Vienna Apartments	****
Hotel Waldinger	****
Pansion	***
Strossmayer	***
Rooms Lišnić	***
Guesthouse Maksimilian	***
Apartmani Postic	***
Hotel Millenium	***
Hotel Silver	***

Source: the basis of data from the Croatian Statistical Office

4.7. The description of Antunovac district

The district of Antunovac (Antalfalva in Hungarian) lies 5km from Osijek, in Osijek-Baranja county. The district consists of two settlements, Antonovac and Ivanovac, whose area is altogether 57.26 km², out of which 4.999ha is agricultural and 111ha is forested area. Antonovac district is located at the eastern part of Croatia, and the south-eastern part of the county. The district occupies 1.4% of the area of the county. It connects the Lower Drava commercial route and the eastern section of the Lower Danube. The Osijek- Vinkovci railway line passes through the area of the district.

The coat of arms of Anunovac district depicts **St. Antun** dressed in Franciscan gown, in a white field on a semi-circular shield. The top of his head is shaved and circled by golden halo. He holds the baby Jesus dressed in white in his right arm and a white lily-of-the-valley in his left hand. *These symbols show attachment to nature, the catholic religion, and historic heritage.*

The coat of arms of Antunovac district

Figure 19



Source: The official website of Antunovac district <http://www.opcina-antunovac.com>, downloaded: 28th 01. 2013.

On the basis of the census of 2001, Antunovac district had a population of 3,559 (2,283 people lived in Antunovac settlement, and 1,276 in Ivanovac). The majority, 93.9% of the district consisted of Croatian, 2.6% Serbian, 1.4% Hungarian, 0.3% German, 0.2% Slovenian, 0.1% Bosnian and other nationalities.

The area of today's Antunovac was covered in water in the 18th century, only a few islands rose above the surface. Due to draining, channelling and the construction of the sewage system, new agricultural areas were created, which were suitable for growing grain, flax, hemp, and tobacco. The economy began to flourish when Hungarian and German emigrants settled in the area. Antunovac is mentioned first in Hungarian in 1839 as Antal falu and it is only mentioned in 1851 in Croatian record as Antunovac. The name of the settlement originates from the landlord Anthony Adamović. In accordance with the census of 1895, the settlement belonged to Szarvas county, it consisted of 41 houses and 344 people lived here. After 1922 Antunovac became an independent district, then after the Second World War Antunovac and the neighbouring Ivanovac together belonged to the county seat Osijek. In 1991, with the disintegration of the former Yugoslavian member states and the establishment of the independent Republic of Croatia, Antunovac district is again jointly constituted by Antunovac and Ivanovac.

According to the data of the census of 1991, 2692 people lived in *Antunovac*, and by 2001 this number decreased, due mainly to the Balkan war. Currently, 1380 residents of the settlement claim to be Catholic. The largest parsonage is not located in the town centre, but at the edge of the settlement. In addition, the town has a smaller church for the Hungarian-speaking inhabitants. The main church was built in 1836, on the property of count Adamović. After the damages of the Balkan war, the church was renovated.

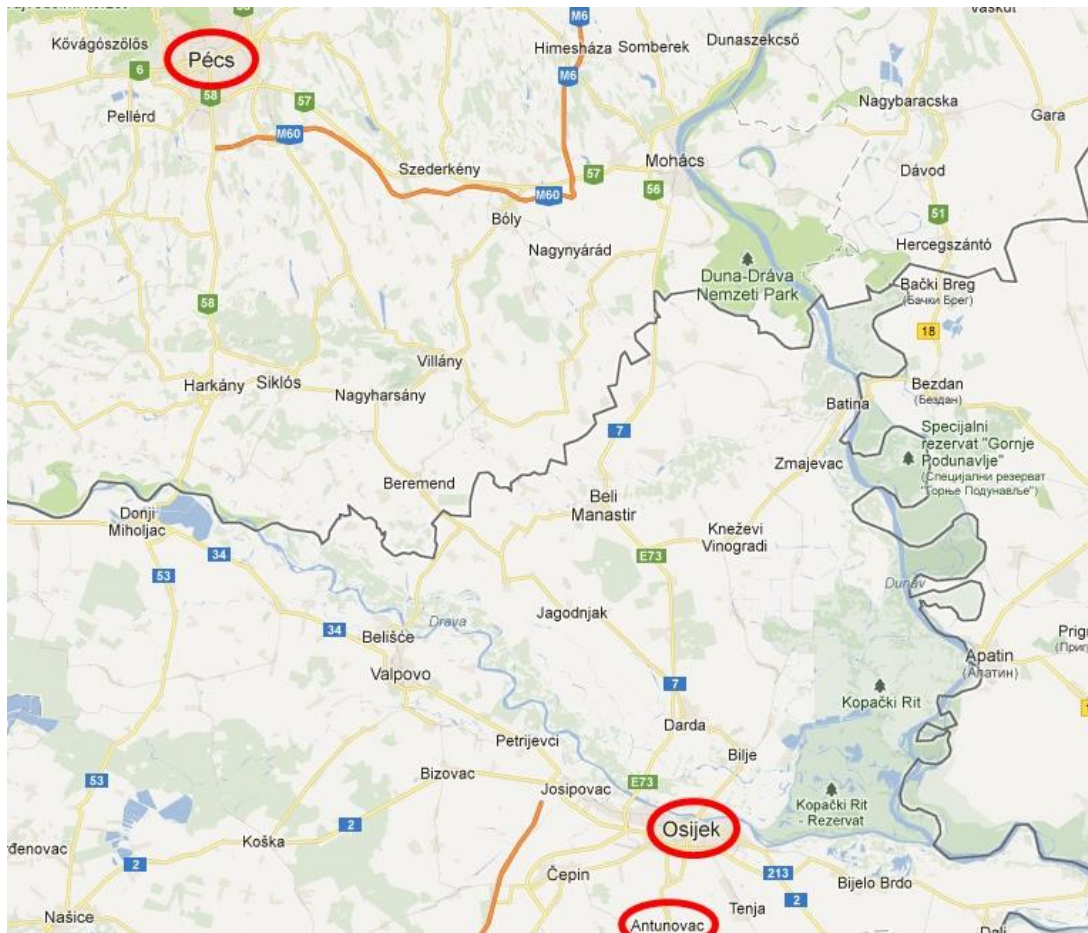
According to the 1991 census, 1554 Catholics lived in *Ivanovac*, but the number decreased to 1060 by 2001. In Ivanovac (previously Držanica, then Jovanovac) a church was built in 1904 at the request of the German community. The German inhabitants migrated from Tolna county and settled down in the area of Ivanovac. After the Second World War the German community fled, and settlers from nearby settlements arrived to take their place. The Balkan war did not spare the facade of the St. Rosalie virgin church, which was renovated after the war.

5. Tourist attractions along the planned bicycle road

Cycling as a specific form of transport does not require attractions and sights grouped in one location, but needs pleasant environment and landmarks continuously, along the route. As a result the surroundings of bicycle routes represent an important factor.

The main stations of the bicycle road to be implemented in the course of the project

Diagram 20



Source: Authors' edition, 2013

In the previous chapter the special, unique natural features and values (pleasant climatic conditions, characteristic wildlife and hydrography) of the area of implementation were presented, which can be defined as significant attraction in themselves.

However, in addition to natural feature the major stations of the bicycle road (major stations: Pécs, Osijek, Antunovac, minor stations. Siklós, Villány, Beremend) offer other tourist attractions. Apart from the natural values, wonderful views the pretty local buildings, cultural attractions, local events, festivals await visitors.

Main attractions at major stations:

- **Pécs:** The main tourist attractions of Pécs were visited by nearly 498 000 people in the first 10 months of 2012. There are several attractions in the county seat of Baranya that are popular with tourists, such as: Cathedral and the Dome Museum, the Cella Septichora Visitor Centre (UNESCO World Heritage Site), the Zoo of Pécs and the Aquarium-Terrarium in the city centre, several museums (Csontváry Museum, Folklore Museum, Zsolnay Museum, etc.), the Pannon Philharmonic Orchestra, cultural events, festivals, the Barbican of Pécs, the “Tall house”, TV Tower and observation tower, the Lovers’ Lockets, Széchenyi Square, Szent István Square and Zsolnay Fountain, but the list could continue. In 2010 the city, together with Essen and Istanbul was the Capital of Culture for Europe. The program was based on 4 cultural investments: the Pécs conference and concert hall, the South Transdanubian Regional Library and Knowledge Centre, the Museum Street and the Zsolnay Cultural Quarter.
- **Siklós:** The main attractions in the town and its vicinity: Siklós castle (13th-16th century). Gothic Franciscan monastery (15th century) including a ceramics workshop, the djami of Bey Malkocs (16th century), the Franciscan pilgrim church of Máriagyúd (18th century), the Reformed church of Máriagyúd (19th century), the Reformed church of Siklós (19th century), the Serbian church of Siklós (19th century), the Siklós Town Hall and the Siklós Spa.
- **Villány:** The Villány wine region played a pioneering role in the revival of Hungarian wine-making. This is one of Hungary’s most advanced wine-producing regions. Attractions in Villány: the Villány wine cellars, the wine cellars of Virágos, Wine Museum, Church Hill, Szársomlyó Mount, Reformed church, Serbian Greek Orthodox church, the church of Virágos, the Roman Catholic church, the statue park of Nagyarsány, open-air events.

In accordance with the concept, the attractions located along the routes will be accessible by bicycle, will completely satisfy requirements, and shall be suitably recommendable attractions for the target groups of the project.

5.1.1. Existing bicycle roads in Pécs, in Baranya and Osijek-Baranja counties

South-Transdanubia, and within it Baranya county is suitable for cycling due to its ideal features, as it takes tourists across a variety of beautiful landscapes with relatively low altitude differences. One of the Hungarian sections of the international bicycle “main road”, the EuroVelo network passes through the county.

The first bicycle road in Pécs was built in the 1980s, from Kertváros to the Malomvölgyi Lakes. At that time cycling was regarded merely as a pastime, and the establishment of circumstances for bicycle transport between the districts of the city was not on the agenda. In recent years several planned bicycle roads have been implemented, and the pleasant natural environment of the Mecsek is especially popular with the cyclist community.

The list of existing bicycle roads and the planned roads in the authorisation phase in Baranya includes 72 items (Table 9).

With the presentation of these bicycle roads a map has been created, showing that – not counting certain missing sections – a contiguous network of bicycle lanes with the direction of east-west is being created from the Drava to the Danube. The map includes the bicycle routes designated by signs on low-traffic lanes and those running on flood dams (see the legend of the map!). It can be seen on the map that a number of bicycle roads are isolated solutions, but even where the contiguous network is being formed, there are some missing sections.¹ (Diagram 21.)

¹ www.kerekvaros.hu

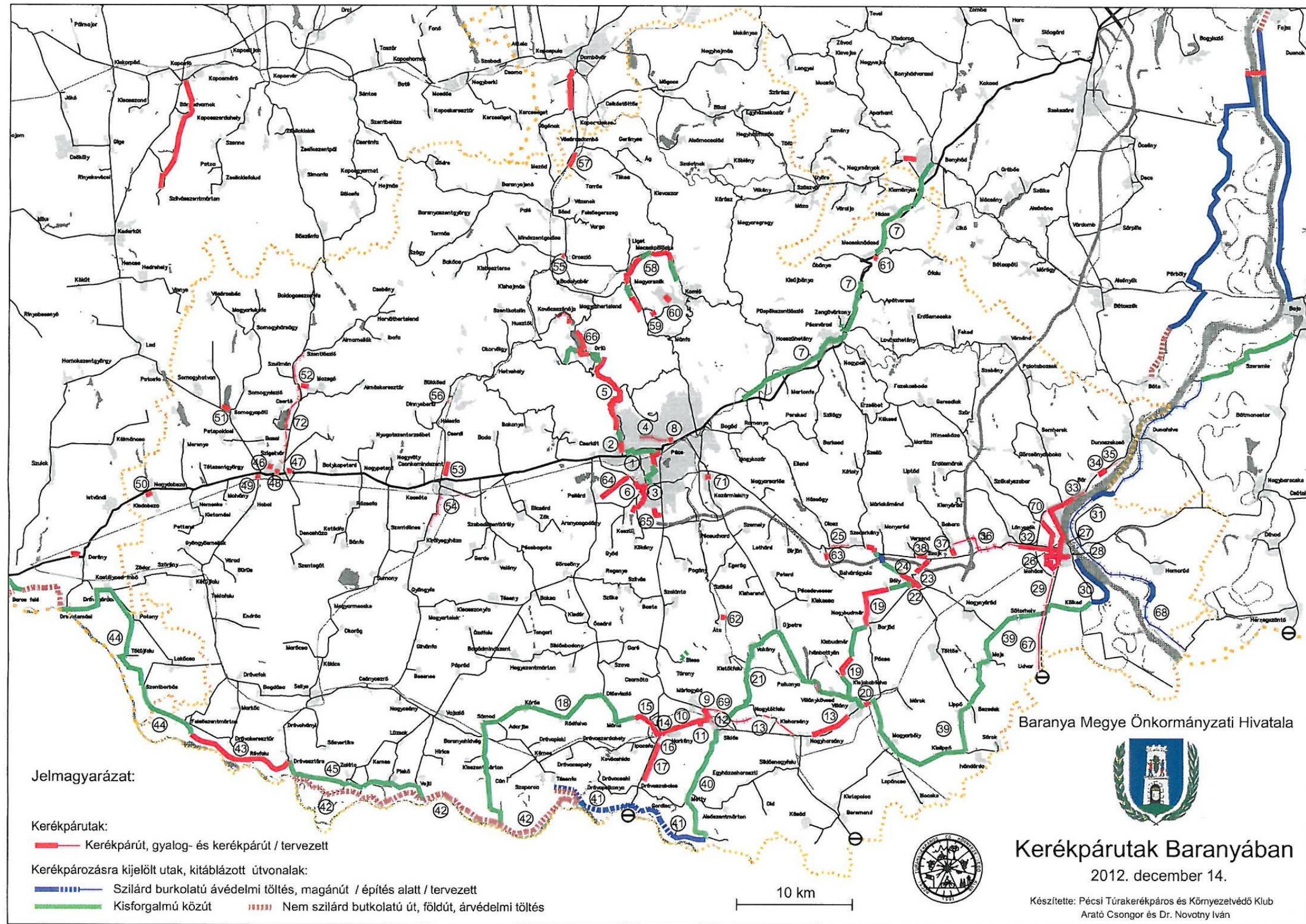
The list of existing and planned bicycle roads in the authorisation phase

2. Table

No.	Name	No of road /the road for the relieving of which the bicycle road was built or is planned/	Road-length (km)	Paving width (m)	Walkway and Bic.Rd.	Bic. Rd.	Road, street designated as bic. rd.	Road with low traffic	Existing	Under constr.	Planned	Solid paving	Unpaved	Flood dam
1	Pécs, Piac-Szigeti vám (K20)		3,8				x		x			x		
2	Magyarürögi Rd	6604	0,53	varies	x				x			x		
3	Malomvölgyi bic. rd. (K1)	5827	8,1	2,5-3,2	x	x	x		x			x		
4	Egyetemváros- Knowledge Centre	6/A			x		x			x		x		
5	- Orfű - Abaliget	6604	20,13	2,4	x	x	x	x	x			x		
6	Along the western bypass				x				x			x		
7.	- Pécsvárad – Bonyhád (6)	6505,6544,5613	24,943				x		x			x		
8	Felsővámház Str.		0,4	varies		x			x			x		
65	Kertváros Pascal and Galilei Rd, walkway-bic. road		1,6	2,5	x				x			x		
66	Orfű-Tekeres- Kovácsszénája				x	x			x		x	x		
9	Siklós - Máriagyúd	Gyúd Rd.	0,88	varies	x		x		x			x		
10	Harkány	57133	3,941	varies	x	x	x		x			x		
11	TESCO		0,16	4	x				x			x		
12	City centre					x					x	x		
13	Villány	5701			x		x			x		x		
68	along bypass road					x					x	x		
14	Harkány - in settlement		1,3	varies	x	x	x		x			x		
15	-Terehegy	5814	0,825		x	x			x			x		
16	in settlement, József A. Str.		0,49	2,6	x						x	x		
17	Drávaszabolcs	58	4	3,6	x	x			x			x		
18	-Diósvizsló–Kórós-Kissztm.	OKT9B	24					x	x			x		
19	Villány - Bóly	5701	16	varies	x	x	x		x			x		
20	Virágos	5701	1,5	2,4	x				x			x		
21	Újptre – Vókány - Siklós	57 075 711	22				x		x			x		
22	Bóly – in settlement. (Rákóczi,Ady,Szab.)	5701	2,2	1,8-3,6	x	x			x			x		
23	Szajk	5714	2,516	2	x	x			x			x		
24	Szederkény	57	4,4			x	x		x			x		
25	Szederkény – junction to Olasz	57	2,2		x	x					x	x		
26	Mohács – in settlement and vineyards Pécsi Rd Liszt F. Str	56,57	14,64	2,2-4,0	x	x			x			x		
27	Felszabadulás Str.		0,367	2,2	x	x					x	x		
28	Szabadság Str.		0,201	2,7-3,6	x						x	x		
29	Eszéki Str.- 5702 Rd junction.	56	4,297	2,2-2,6	x	x					x	x		
30	Eurovelo 6, Kölked, Béda		6		x	x			x			x		x
31	Eurovelo 6, Felsőkanda		7		x	x			x			x	x	x
32	bypass road – Lánycsók	57	1	2	x	x			x			x		
67	- Udvar				x						x	x		
70	- along bypass road 56				x						x	x		

No.	Name	No of road /the road for the relieving of which	Road-length (km)	Paving width (m)	Walkway and Bic.Rd.	Bic. Rd.	Road, street designated as bic. rd.	Road with low traffic	Existing	Under constr.	Planned	Solid paving	Unpaved	Flood dam
33	- Bár	56	1,515	2,2	x						x	x		
34	Bár – sports field	56	1		x							x		
35	Bár – Dunaszekcső	56	3,1			x					x	x		
36	Lánycsók – Babarc	57	6		x	x					x	x		
37	Babarc – Road 57.		1		x				x			x		
38	Szajk – Versend junctino	57	1,41	2	x				x			x		
39	3Rivers: Mohács-Majs-Villány	OKT9, EV	40,005				x		x			x		
40	Siklós–Matty-Keselyősfapta	OKT9, EV	12,4				x		x			x		
41	OH.-Dszabolcs-Tésenfa	OKT9, EV	20	5		x			x	x		x		x
42	Tésenfa-Drávasztára	OKT9, EV	30			x			x				x	x
43	Drávasztára-Felsősztmárton	OKT9, EV	10	5		x			x			x		x
44	Felsősztm-Sztorbás-Dtamási	OKT9, EV	22				x		x			x		
45	Vejti-Zaláta-Drávasztára	OKT9B	19,8				x		x			x		
46	Szigetvár: Vár Str.-Szt.István ltp	belt.	0,864	2,5	x				x			x		
47	along road 6	6	0,815	2,5	x				x			x		
48	József A. Str.	belt.	0,3	1,8		x			x			x		
49	Országút (towards Hobol)	5808	0,27	1,8		x			x			x		
50	Nagydobsza-Kisdobsza	6	0,97	1,8	x				x			x		
51	Somogyapáti-Adorjánpuszta	6607	0,96	1,8	x				x			x		
52	Mozgó – vasútállomás		0,681	2	x				x			x		
53	Szentlőrinc – cemetery – vineyard	6601	1,066	2,7	x				x			x		
54	Szentlőrinc - Tarcsapuszta - Királyegyháza	5805	3,805	2,2		x					x	x		
55	Oroszló – cemetery		0,78	1,8	x				x			x		
56	Bükkösd, Kossuth u.	6601	0,574	2	x				x			x		
57	Vásárosdombó	611	3,6	2,6	x						x	x		
58	Komló-Mecsekpölöske-Sikonda	66, 6542	11,6	varies	x				x			x		
59	Sikonda, Fürdő Str.		0,705	2,7	x				x			x		
60	Mecsekfalu		1		x				x			x		
61	Mecseknádasd,Rákóczi-Petőfi Str	in settlement.	0,557	1,8	x				x			x		
62	Áta – railways station		0,754	2,5	x				x			x		
63	Belvárdgyula – Road 57.	57102	1,981	1,8	x				x			x		
64	Pellérd – Pécs, SW bypass road		3,75	2,5		x			x			x		
65	Pécs Kertváros Pascal and Galilei Rd. walkway and bic. rd.		1,6	2,5	x				x			x		
66	Orfű - Tekeres- Kovácsszénája				x	x			x		x	x		
67	Mohács-Udvar					x					x	x		
68	Újmohács-border, planned dam constr.										x	x		x
69	Siklós along bypass road					x					x	x		
70	Mohács along road 56					x					x	x		
71	Kozármisleny in settlement, bic. rd,				x	x			x			x		
72	Szigetvár - Szentlászló planned					x					x	x		

Source: www.kerekvaros.hu downloaded: 30th 01. 2013.



Source: www.kerekvaros.hu downloaded: 30th 01. 2013.

Description of the major bicycle tour routes of Baranya county:

- **Pécs-Orfú:** It was an old dream of the cyclists of Pécs to have a long, continuous tour route between Pécs and Orfú, which enables them to embark on bicycle trips safely and comfortably, while enjoying the unique landscape of the Mecsek. The preparation works of the bicycle road began in autumn 2009, and the implementation of the tour route finished in October 2010. By this time the asphalt was laid on the road, but due to complementary works - such as the installation of lighting or railing on certain sections – the construction works lasted until December. The bicycle road starts from a suburb of Pécs, from the Ürögi district, and – running in the forest all the way – depending on the terrain, it was mostly built parallel to the main road to Orfú. It runs on the shore of the Orfú Lake for one and a half kilometres, and continues towards Abaliget. Thus it links the most beautiful landscapes and most interesting attractions of the area. Moreover, it creates an opportunity for cycling towards the Balaton.
- **Castle tour:** The total length of the tour: 405km, which takes 9 days. The route of the tour leads the cyclists through the characteristic landscapes of the region in a way that at the end of each stage they can relax in a different, historic castle converted into a hotel. The route passes through Baranya county: Fonyód - Kaposvár – the forest of Zselic - Inner-Somogy - Szigetvár - the Ormánság - Pécs - Pécsvárad - Mecsek mountain roads - the hills of Tolna, Szekszárd.
- **"Mura - Drava - Danube" three rivers bicycle tour route:** Certain sections of the international "Three Rivers bicycle tour" pass through in the South-Transdanubian Region, in Baranya county. The extension of the Austrian Mura bicycle road runs through Slovenia, then South Transdanubia – along the Mura and the Drava – to the Danube (Mohács). The route of the section passing through the region is: Gyékényes - Csurgó - Berzence - Bélavár - Vízvár - Babócsa - Barcs - Darány - Kastélyosdombó - Tótújfalu - then on the flood dam of the Drava: Drávasztára – Mailáth Plain - Keselyősfapuszta, on a low-traffic road: Matty - Siklós (possibilities for a detour from Siklós: Harkány 5 km, bicycle road, or Máriagyúd 2 km, bicycle road) - Nagytótfalu - Kisharsány - Nagyarsány - Villány - Bóly - Nagynyárad - Sátorhely - Kölked - Mohács. The first section was built in 2010 from the national border to Keselyősfapuszta, at a length of 5.2km.
- **South-Baranya tour of traditional red and white wine regions.** Route: Villány - Villánykövesd - Palkonya - Újpetre - Vokány - Siklós (opportunities for a detour to Harkány and/or Máriagyúd) - Nagytótfalu - Kisharsány - Nagyarsány - Villány. The total length and terrain of the tour: 42km, hilly landscape.
- **Mecsek** the mountain is steep at places but its roads are always beautiful, and popular with the cyclist community.
 1. Route: Pécs - Bogád - Hird – Dombay Lake, Pécsvárad – and on steep at the beginning, but beautiful and runs at mostly traffic-free forestry lanes - Zobákpuszta (part of Komló) - Koszonyatető - Árpádtető - Lapis – Remete-rét- Abaliget – Hetvehely - Kővágószőlős - Cserkút - Pécs. The total length and terrain of the tour: 90km, mountainous.
 2. Route: This 2nd route wanders through every side of the Mecsek : Pécs - Bogád - Pereked - Szilágy - Pécsvárad - on a low-traffic forestry road - Magyaregregy – on a main road: Szászvár - Egyházaskozár - Mágocs - Alsómocsolád - again on a forestry road: Kisvaszar - Mecsekpölöske – on a main road: Magyarszék - Magyarhertelend - Orfú - Abaliget -

Hetvehely - Kővágószőlős - Cserkút - Pécs. The total length and terrain of the tour: 150km, mountainous.²

The existing bicycle roads of Osijek-Baranja county:

The bicycle roads often run along busy roads, through long, well-built sections, in forested areas, wet dams. For instance, the **Danube bicycle road** is such, as it has been built along the bank of the Danube. The **Pannonian bicycle road** is similar, passing through Osijek (HR) and Zombor (SR), the towns of the Lower-Danube and most valuable natural areas. The international bicycle roads constitute a network after joining the local roads. *Bicycle tours constitute an integral part of the county's touristic offers.* Bicycle tourists usually spend one or two days taking part in recreational programs at weekends. Three international bicycle roads cross Osijek Baranja county, joined by the local bicycle roads.

The Croatian sections of bicycle roads Pannonian Peace and Danube

Diagram 22



Source: The implementation study of the bicycle roads of Osijek-Baranja Zeleni Osijek, 2009.

² Source: Berendy Brigitta: Dunántúli kerékpáros turizmus a jövő tükrében

The Drava bicycle road connects to the Pannonian Peace bicycle road. With the connection of **Belišće settlement**, the Drava network has expanded and thus the road takes the cyclist all the way to Osijek. At the edge of Belišće the road passes the Drava-bridge and follows the left bank of the Drava all the way. This section also passes through the forested areas of the Drava, while protecting the biosphere of the Mura-Drava-Danube. The users of the bicycle road can enjoy the natural “green” environment and the beauty of the landscape.

The bicycle roads of Osijek-Baranja

Table 10

Routes	Length (km)
Osijek-Višnjevac section	3
Line of the Main Drava	32
Zmajevac-Kopačevo section	31
Batina-Gombos section	4,5
The section leading to the national border	6
The section along the Borza Stream	10
Karašica section	26
Altogether	131,5

Source: The implementation study of the bicycle roads of Osijek-Baranja
Zeleni Osijek, 2009.

The road terminates on the right bank of the Drava, at the Osijek Bridge, at the Tvrđe side. This section **connects Belišće with the city of Osijek**. The route provides tourists with several opportunities for excursions. From the end of the Tvrđe Bridge, the bicycle road runs along the Drava promenade towards the Pampas shooting range. At the shooting range travellers encounter beautifully maintained forests. **From the mouth of the Karašica to Petrijevac** it follows a busy road. 3 km from the settlements, on the left of the Nehaj resort the special natural atmosphere of the Drava provides a unique cycling experience.

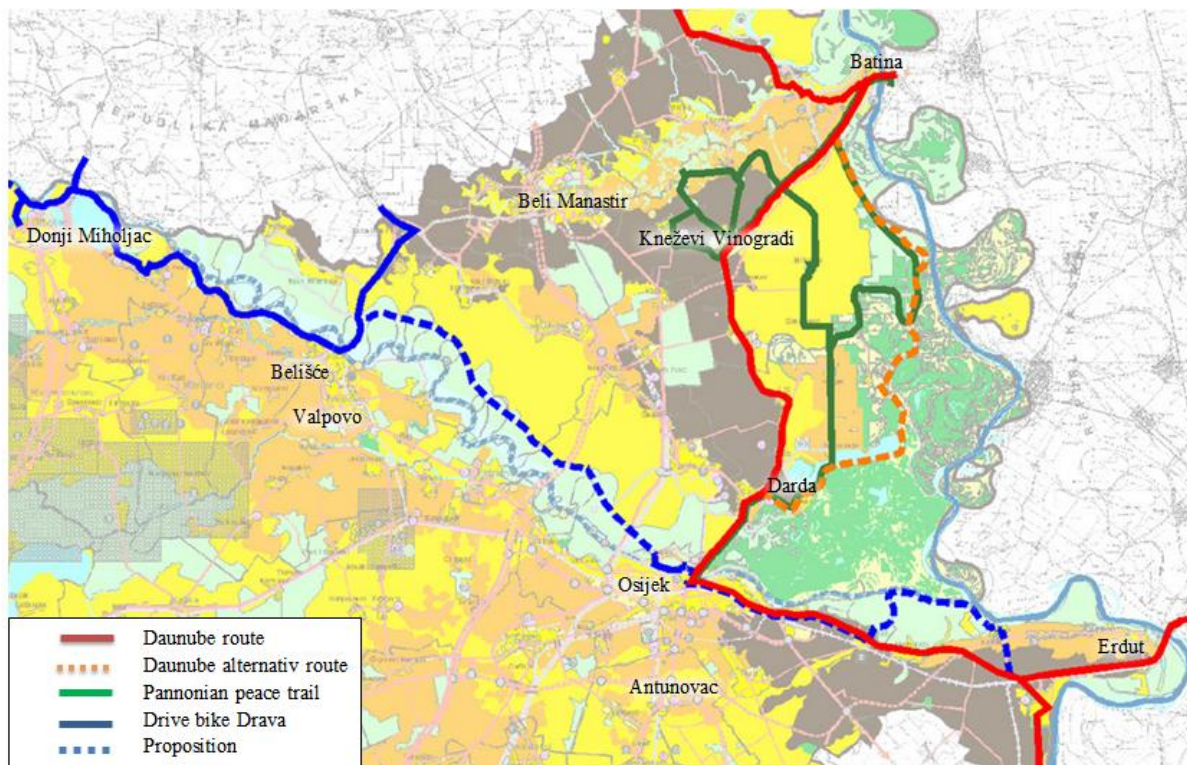
The Baranjsko **Petrovo Selo-Beli Manastir-Batina** sections of the Pannonian Peace bicycle road belong to the international section. The section between Petlovac and Beli Manastir is divided into two routes. One of them *turns right at Karanac*, and the other section *turns left, and follows the River Karašice*. The right section connects to the Pannonian Peace bicycle road, the left one passes through the slopes of the Bán Hills (Banskog brdo). The right route can be especially interesting for cyclists who would like to continue their journey on the Danube bicycle road, or proceed on the Pannonian Peace route to Serbia. The road passes through several smaller settlements, and provides the lovers of nature with unique experience. *From Karanac, across the Bán Hill, we can see the most beautiful landscape of Baranja. The bicycle road passes through vineyards, paths, forested areas before reaching Zmajevac.* The Karanac-Zmajevac section is the most difficult part physically and technically as well, so those seeking adventurous routes, will not be disappointed. *The entire route is on mountainous terrain.*

The **Osijek-Erdut-Osijek** section leads from the Drava-bridge (Tvrđa) to Szarvas (Servaš). At the bridge the cyclists have to turn left, and this route leads to Szarvas. At this point the Drava flows

into the Danube, and on the other side of the river the wet, marshy area of the Kopácsi wetland can be seen. After Almási (Aljmaš) the road goes on towards Erdut. Serbia and Croatia is connected by a Danube-bridge, and the *main road, linking Osijek and Erdut and providing a fast way for cyclists back to Osijek, joins the bridge*. The road back to Osijek is interesting during the festival of Assumption Day, as at this time a large number of pilgrims arrive to Almás (Aljmaš) on this road.

The existing and planned bicycle routes of Osijek-Baranja

Diagram 23



Source: Authors' edition

The **Osijek- Našice-Đakovo-Osijek** section also starts at the foot of the Drava-bridge and a separate bicycle road leads to Čepin. In the centre of **Čepin**, turning left, the road takes the traveller to Čokadinac, Poganovac, Budimaca and eventually Podgorač. The road forks in three directions in Podgorač, *the right one takes the traveller to Našicima, to the left to Đakovo, and straight on we arrive to the Borovik Lake*. The bicycle road to the right terminates in Našicima, at the Pejačević castle. On the way back, at Vukojevac, an unsurfaced road leads to the Borovik Lake. The lake and its area is a popular hiking destination and beauty spot. In the summer months camping and swimming is also possible. Two directions can be taken from the Borovik Lake, to the left, through Podgorač back to Osijek, and to the right through Mandićevo to Đakovo. It is worth spending longer time in Đakov and visiting the Cathedral the Bishop's Palace, the Croatian National Museum, the Vezovi folklore festival, etc. On the way back from Đakovo, the road passes through Tomašica, Gorjana, Krndije, Čepenskih Martinica to Osijek.

5.1.2. The description and significance of the planned bicycle road

As a result of the project, a new touristic product will be available, the possibility of cycling will be created from north to south, on the Pécs- Osijek-Antunovac – Ivanovac route, on the Hungarian side a bike road leading out from Pécs will be built, and the approved plan of the green way designation of a bicycle road leading to the border will be realised. In addition, a new educational package will be created and a special virtual map will be prepared which can be applied on mobile devices.

In the project, the fact that Antunovac and Ivanovac will be linked in the circulation of the large international cycling networks can be considered a novelty, as with the construction of the bicycle road it will be connected to the Pannonian Peace and the Drava Bike bicycle roads.

Parallel to the increasing popularity of **health-oriented lifestyle** and the increasing appreciation of environmental values, the various leisure and touristic activities are becoming available worldwide. Cycling has a prominent place within active tourism, as it is not only a leisure and touristic activity, but – mainly within settlements – it is also popular as an environmentally-friendly and, in certain terms, extremely practical means of transport.

Cycling, **in addition to maintaining the physical and mental health** of its pursuers, does not pollute the environment, reduces dependence on motorised transportation and provides the rural settlements with an opportunity of joining tourism and economic circulation. Developed European countries treat the question of cycling (in addition to tourism, also in order to make everyday life, commuting to work easier) as special issue, and we cannot lag behind in popularizing bicycle transport.

The **economic importance** of bicycle tourism is not insignificant. Experience shows that the participants of bicycle tourism do not spend less than “conventional” tourists. The average daily expenses of bicycle tourists in Western Europe are approximately 15 percent higher than those of other guests, mainly because they can carry a smaller amount of luggage, so they have to purchase more items at their destination. Mainly those belonging to the middle class and the group of youth living in outstandingly good financial conditions can afford to purchase the occasionally seriously expensive equipment. “Rural development” places a special emphasis on the construction of bicycle roads, as sustainable development cannot miss cycling, as an efficient, environmentally-friendly way of transport.

In the course of the project there will be opportunities **for developing joint products and services**, for the creation of an integrated, cross-border touristic offer, the cultured presentation of the area of the Duna-Dráva National Park, and the involvement of the local businesses and local governments in the process of product development.

5.1.3. The brief description of the cyclist community of the region

Bicycle tourists place several special demands concerning attractions, environment, services, and infrastructure. They use the most well-known routes the most frequently, the Danube valley for instance is visited by 100 000 tourists every year. The bicycle tours are most often organised without the help of a tour operator or any other organising company. In case of long-distance cycling, 50% of tourists arrive by means of public transportation. However, if they are embarking on a shorter, thematic tour in a cyclist or mountain-bike zone, they prefer to use cars. *The majority of bicycle tourists travel in pairs, or, in the second place, as families, however the number of larger groups of six*

or more people is increasing. Half of tourists wander from one settlement to the other. 40% of the visitors stay in one location and embark on tours from there, and 5% are urban tourists, who go on various routes within a city or its vicinity.

6. The presentation of problems concerning the implementation of the project

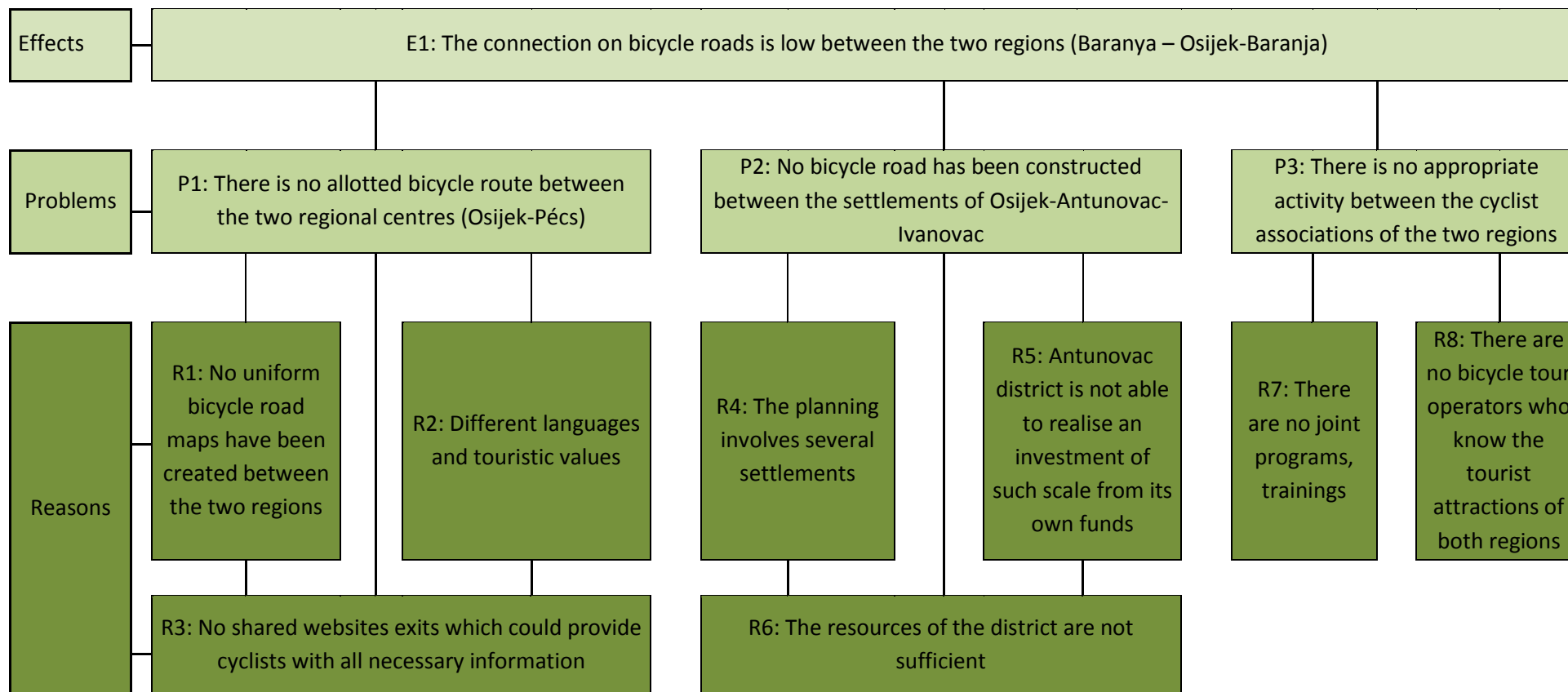
The basic problem is the low level of communication though the bicycle roads of Baranya – Osijek-Baranja counties. This can be the result of the spatial, political, social diversity of the regions, or their different historic heritage, or mother tongues, etc. The closure resulting from the Balkan wars can only be dissolved with difficulties. *The permeability of the Schengen borders constitutes a blockage in the close cooperation of the two regions.* With the accession of Croatia to the European Union, true spatial integration, living together without boundaries can begin. One of the key aims of the bicycle road is to overcome these inhibiting factors and contribute to the better use of an eco-friendly way of transportation. *The media also scarcely present the wonderful touristic opportunities of the two neighbouring regions.* Only a small number of programmes, flyers and brochures detailing the tourist attractions, services of the settlements located on the two sides of the border are available. *There are existing bicycle roads in both regions, but no unified map system belongs to them, nor does any platform, which could provide the interested tourists with detailed information on the landscape or the area.* There are no information boards along the bicycle road that could lead the enthusiastic cyclers among the natural, historical or architectural values of the region. Tour operators do not know the bicycle roads on the other side of the border, nor the touristic facilities connected to them, or the possibilities that are available in such bicycle tours. *Cyclist organisations are not aware of each other's activities, thus their relationship is at a low level.* An increasing proportion of the population is becoming regular cyclist, but *there is no appropriate infrastructure and road sign system to make it possible to tour other regions outside their own.* The district of Antonovac is not able to overcome these obstacles itself. It would be an important factor of the district's transportation if the bicycle road connecting it to the county seat was built and joined the bicycle road network of the region and could connect to the southern counties of Hungary.

The inhibiting factors of the project implementation:

- Different historical heritage,
- Different languages hindering communication between the two regions,
- Low level of activity between the regions due to the closure resulting from the Balkan wars,
- The Schengen border between the two regions inhibits free movement,
- The financial resources of Antunovac district do not enable it to implement a project of such scale
- The possibilities of cycling are not appropriately emphasized,
- Even local residents do not know the tourist attractions of the neighbouring region,
- There are no tour operators in the two regions that know the tourist attractions of the regions
- The media only scarcely deal with the touristic possibilities of the neighbouring regions.

THE NETWORK OF PROBLEMS REGARDING THE CROSS-BORDER BIKE PROJECT /PROBLEM TREE/

Diagram 24



6.1. Defining the aims of the project

6.1.1. General aims:

The general aim of the project is to increase the number of tourists visiting the region, the time spent here, the number of services used, and finally, the touristic revenue, in addition to enhancing the touristic attractiveness of the region and the development of a nationally competitive, complex touristic product package. A further goal is to create a uniform bicycle road network in order to develop bicycle tourism. As in our area no bicycle roads exist at all, cyclists use the roads and sidewalks, which is highly dangerous due to the heavy traffic, thus we would like to overcome this problem with our concept. Our international renown could increase, and the Hungarian partner also can assist with it and our cooperation can strengthen as well.

6.1.2. Local aims:

6.1.2.1. The aims of Osijek-Baranja county (CRO):

The construction of a bicycle road between Ivanovac-Antunovac-Osijek, that would increase the accessibility of the region and reduce the number of bicycle accidents. *With the construction of a bicycle road leading across the county seat a connection could be built with other bicycle roads of the county and a closer cooperation based on economy and tourism could be created.* Cyclist organisations could forge closer connections with each other, become familiar with each other's activity and could encourage the population for a more environmentally-friendly way of transportation.

6.1.2.2. The aims of Baranya county (HU):

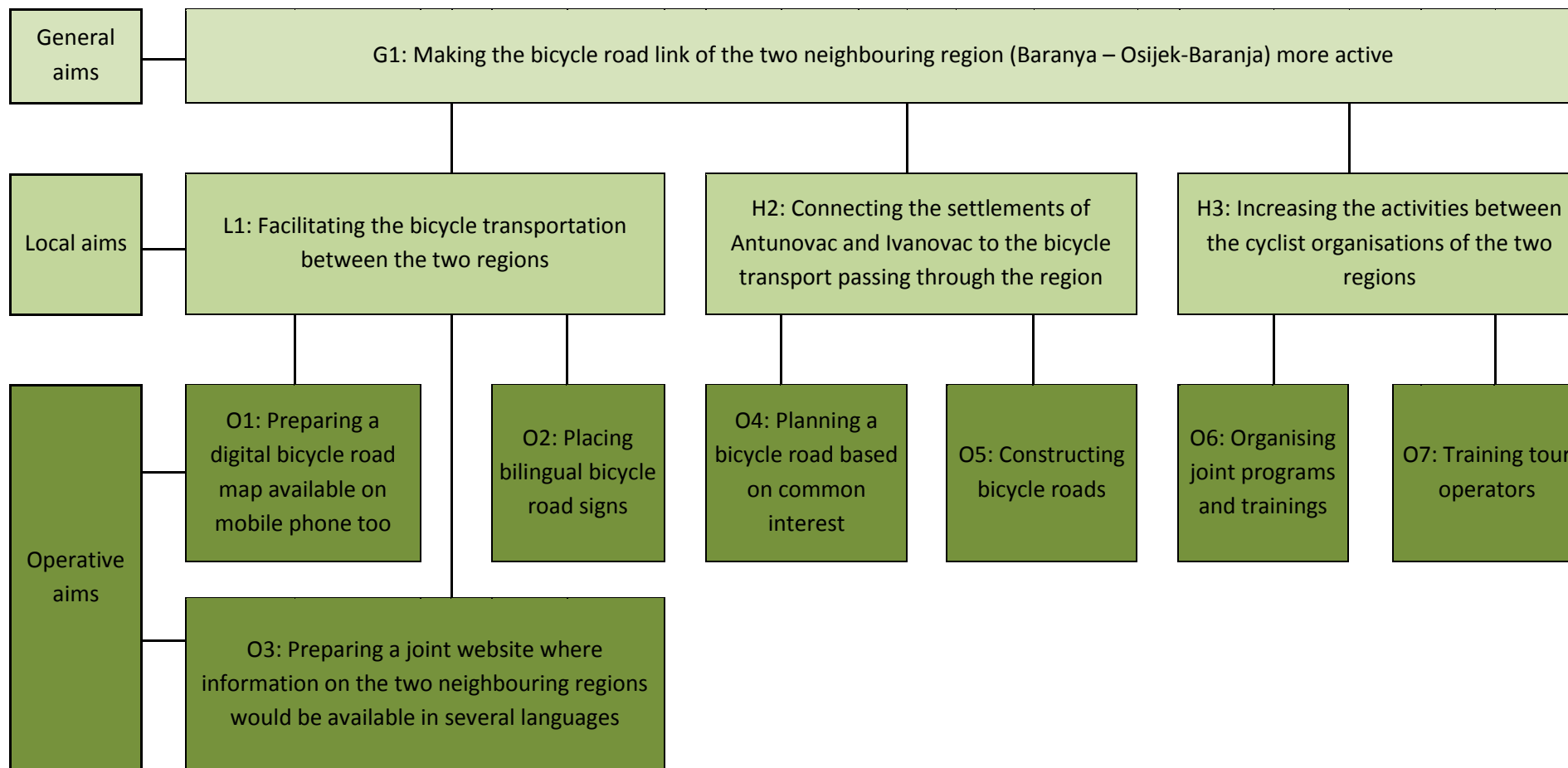
In Pécs cycling has a long history, so it is important for Baranya to have *a bicycle road leading out of the city, which would connect it with other settlements of the region and link it to the Croatian people living on the other side of the border.* The cultural heritage of Pécs can become accessible through a safe bicycle road as well. Through this project, tourists arriving on the bicycle road could *explore the natural, historic heritage of the neighbouring counties and the development of local tourism can expand through new demands.*

6.1.2.3. Specific aims:

A significant aim of the project is to improve the competitiveness of organisations and businesses dealing with tourism. Besides, it aims at providing the tourists with a complex product package encompassing the area. Thus the local economic stakeholders could establish active connections with organisations across the border. Services created along the bicycle road and the placement of bilingual road signs can contribute to the increase of the number of tourists, primarily cyclists, crossing the border. By increasing the activity related to tourism, the number of the unemployed can decrease in the area of the regions.

THE NETWORK OF AIMS CONCERNING THE CROSS-BORDER BIKE PROJECT /AIM TREE/

Diagram 25



7. SWOT analysis (Examining strengths, weaknesses, opportunities and threats)

Diagram 26

Strengths	Weaknesses
<ul style="list-style-type: none"> - The regions are easily accessible – M6 motorway, road, railway - Varied touristic possibilities - Attractive natural environment - Climate is favourable for bicycle tourism - Osijek and Pécs are regional centres - Existing bicycle road and bicycle networks (Drava Bike, Three Rivers Bicycle Road, Pannonian Peace) - Cycling becomes increasingly popular - Improvements related to the project (e.g. building an east-west bicycle road in Pécs city centre) - Excellent twin town relationship between Pécs and Osijek - The reputation of Pécs as the Capital Culture of Europe - Spas (Siklós, Harkány) - Wine regions (Siklós-Villány wine region) - Important historical values (Siklós castle, bridge of Osijek) - Existence of local media - Touristic Destination Management organisations in the region - Existence of institutions of higher education in the region (Pécs, Osijek) - Excellent connection between Croatian and Hungarian settlements - Drava, as highlighted natural value - Important values of vegetation and wildlife - Favourable geomorphological features 	<ul style="list-style-type: none"> - Lack of bicycle services - Low number of quality accommodation - Low number of quality spa or other health tourism services - Low standard of the settlement marketing - Lack of language knowledge of colleagues working in tourism and services, that of foreign language signs and information. - No uniform image - Low number of guest nights spent in the region - Low number and quality of catering and entertainment facilities - Lack of professional training in tourism - No capital intensive investors in the region - Lack of concerted marketing activities, cooperation - The insufficient quality of secondary roads - The issue of a bicycle road leading out of Pécs is not yet solved

Opportunities	Threats
<ul style="list-style-type: none"> - Further projects can be generated as a result of the implemented bicycle road - The number of touristic services will increase along the bicycle road - The number of tourists will increase - The importance of settlements along the road will increase in the region - Cross-border cooperation can develop - Unemployment will decrease - The accessibility of settlements will be enhanced - As a result of the project, infrastructure development will begin - Increase in the income of the population - The connection of Antunovac and Ivanovac to Osijek on an asphalt-surfaced bicycle road - The connection of the two large regional centres, Pécs and Osijek with a bicycle road - The creation of an alternative, environmentally friendly means of transport - Linking the settlements along the bicycle road into the international cyclist network – Pannonian Peace, Drava Bike bicycle routes - Improving the health condition of the people living in the area - The settlements along the bicycle road can become bicycle tourist destinations - The affected settlements will become more widely known in the region - Not only the large cities will be connected by the bicycle road 	<ul style="list-style-type: none"> - Further touristic improvements will not take place - Less bicycle tourists will arrive in the area than expected - The population will use the bicycle road to a lesser extent than expected - The economic recession affects tourism as well, thus foreign and national interest will not increase or will do so only slowly - The other bicycle roads in the region will drain potential demand - The lack of appropriately trained professionals (tour guides, information staff, etc.) with foreign language proficiency (English, German, Croatian) will reduce the chance of the successful implementation and maintenance of the project - Equity is usually low or difficult to raise for development investments - Groups of visitors who usually spend little time and money in one settlement - The escalation of ethnic problems, conflicts of disadvantaged area can discourage the potential tourists planning to visit the region. - As a result of the substandard implementation and maintenance of the improvements the attractiveness of the bicycle road will decrease, its marketing value will be lost and it will be unused - The appropriate improvement of tourist attractions along the road will not take place

8. Sustainability

The implementation of a project is often a difficult task, but sustaining an already implemented improvement is even more laborious. Although the costs concerning the maintenance of an implemented bicycle road are not permanent, as they *do not occur monthly, their occurrence still must be taken into consideration.*

One of the important elements of bicycle road maintenance is *removing the vegetation.* Vegetation always finds its way everywhere, so the removal of plants on the entire length of the bicycle road and on the hard-shoulder is vital, not only because it can cause accidents, but because it can also affect the condition of the road. It is important to pay attention to the *correction of potential road defects,* which might also cause accidents.

The implementation and also the maintenance of the project are shared among the four contracting partners. The Main Beneficiary of the project, Antunovac will be responsible for the construction of the Osijek-Antunovac-Ivanovac bicycle road, rest areas and for the road signs marking the bicycle road. As weather conditions can damage the road and also the rest areas, Antunovac undertakes to inspect the route annually following the implementation, and to repair the defects if necessary. The Ecologic Association Green Osijek will be in charge of the project's website, the maintenance thereof and also of the maintenance of the road signs placed along the bicycle road.

The Pécs Urban Development Company (PVF Zrt) will be responsible for the implementation of the project on the Hungarian side, which includes the placement of approximately 300 bicycle stands in the area of Pécs, and the full-scale maintenance thereof. The GeoScience Nonprofit Ltd will be in charge of the virtual map and the Hungarian parts of the website during the implementation of the project. It undertakes the placement of road signs marking the bicycle road, the placement and maintenance of information boards and also the maintenance of the green way bicycle road.

The project will be professionally sustainable, as there is a party among the project partners who has significant professional history. The financial sustainability will not pose a problem, as it is a budgetary authority, and, in addition

8.1. Environmental sustainability

In the course of implementing the project, both the Hungarian and the Croatian partners pay special attention to sustainable development which is becoming increasingly important today. In accordance with the report named "Our Common Future", published by the UN Environment and Development Commission, ***"sustainable development is a form of development that fulfils the demands of the present without risking the opportunity of the future generations to satisfy their needs as well."***

In order to assert these principles, we will strive to use means, techniques in the course of the implementation, which protect our environment, conserve natural resources and encourage the population to change their attitude. In the course of procuring information technology devices

Sustainable development will receive special attention during the implementation of the project. *At the acquisition of the information technology devices environmentally friendly technology will be preferred and we will make the use of environmentally-friendly devices a priority. In case of*

printed documents recycled paper will be used when possible. Each e-mail and intranet surface will be provided with the inscription “only print this document if necessary”. In brochures, publications and events we will raise awareness to the necessity of sustainable development. At trainings, we will favour the use of electronic documents, thus protecting the environment.

9. Conclusion

The bicycle road project set several aims. The most important, all-encompassing goal is to connect the settlements located between Pécs-Osijek and Osijek-Antunovac-Ivanovac to the international bicycle road transportation network. As a result, Baranya and Osijek-Baranja counties will become closer physically, and, with the help of a website, virtually as well. In addition, the project strives to overcome the historical, economical and linguistic differences characteristic of the two counties, and also to encourage the closer cooperation of the two neighbouring regions.

The project also attempts to lessen or dissolve the closure of Croatia caused by the Balkan wars. Both counties abound in natural, historic and religious heritage. The project aims to present these wonderful, unique treasures to the tourists arriving on bicycle roads, and provide the visitors with a journey rich in experiences.

Both regions are affected by economic recession, as the population has decreased, the number of unemployed people is high, economic activity is low, etc. In spite of these negative tendencies, tourism is developed in both counties, due mainly to the natural values: Kopácsi Wetland, Bán Hills, the flood area of the Drava, Mecsek mountains, the Duna-Dráva National Park, the lakes of Abaliget, etc., and also to gastronomy: wine roads, traditional dishes, in addition to religious and cultural values. These can be important attractions of the destination for tourists arriving by bicycle.

As it has been mentioned, the implementation of the project serves several local and special aims. The aims are built on each other and have economic and social impact. As every project, this one also has inhibiting factors, and through overcoming these, the aims can successfully be realised and the bicycle road connection between the two neighbouring counties will be established and enhanced. Through its implementation, the project can create new workplaces and income for local residents. In addition, it will provide opportunities for establishing closer connections to the neighbouring settlements, districts, or county. Cyclist associations can become more familiar with each other's activity, can facilitate the expansion of the cyclist community and the protection of natural values and clean environment. Local governments can include rural tourism, bicycle tourism in their development policy and targets, thus the improvement of local economies can gain greater emphasis.

10. Literature

- [1] **Bali Lóránt (2009):** *A horvát-magyar határon átnyúló kapcsolatok politikai földrajzi sajátosságai az egyes területi szinteken.* Pécsi Tudományegyetem Földtudományok Doktori Iskola, Pécs.
- [2] **Buday-Sántha Attila (2012):** *Dél-Dunántúli régió kutatás.* TÁMOP - 4.2.1.B - 10/2/KONV - 2010-0002. Munkaváltozat. Pécs: PTE KTK Regionális Politika és Gazdaságtan Doktori Iskola.
- [3] **Dél-Dunántúli Regionális Fejlesztési Ügynökség Kht. (2006):** *Dél-Dunántúli Régió Turizmus Stratégiai Fejlesztési Programja.* KPMG Tanácsadó Kft. 129p.,
- [4] **Horvát Idegenforgalmi Közösség (2012):** *A fantasztikus Baranya.* Eszék. letölthető: <https://croatia.hr/Documents/901/A-fantasztikus-Baranya-HU.pdf>
- [5] **Hrvatska Gospodarska Komora županijska komora Osijek (2012):** *Stanje gospodarstva Osječko-Baranjske županije.* Osijek.
- [6] **Központi Statisztikai Hivatal (2011):** *Megyei Statisztikai Évkönyve,* Központi Statisztikai Hivatal, Budapest.
- [7] **Projekt FEDREEA (2012):** *Analiza gospodarstva i poslovnog okruženja u Osijekus naglaskom na sektor obnovljivih izvora energije i sektor zaštite okoliša.* Nacrt verzija, Osijek.
- [8] **Republika Hrvatska Osječko-Baranjska Županija Skupština (2012):** *Informacija o prometnoj povezanosti Osječko-Baranjske županije.* Osijek.
- [9] **Republika Hrvatska Osječko-Baranjska Županija Skupština (2012):** *Informacija o stanju i razvojnim mogućnostima turizma na području Osječko-Baranjske županije i radu turističke zajednice županije,* Osijek
- [10] **Republika Hrvatska Osječko-Baranjska Županija Skupština (2011):** *Prijedlog strategije razvoja ljudskih potencijala osječkobaranjske županije 2011. - 2013.,* Osijek.
- [11] **Republika Hrvatska Osječko-Baranjska Županija (2006):** *Regionalni operativni program Osječko-baranjske županije 2006. - 2013.* Osijek.
- [12] **Sipos Zsivics Tünde (Szerk.) (2010):** *A Drávaszög régen és ma.* Magyar Egyesületek Szövetség, Beli Manastir.
- [13] **Szigetvári Krisztián (2004):** *A horvátországi magyarlakta falvak története.* MATARKA, Budapest, 359-374.

10.1. Internet sources

- [1] <http://www.tixik.hu/eszek-2231868.htm>
- [2] http://www.terkepkalauz.hu/index.php?option=com_content&task=view&id=768
- [3] <http://veke.hu/2005/04/az-eszeki-villamos/>
- [4] <http://www.bama.hu/baranya/kozelet/pecs-es-eszek-kozlekedes-hatar-menti-programok-303003>
- [5] <http://www.nagyutazas.hu/magyar/iranytu/country.php?id=HR>
- [6] <http://www.portanova.hr/hu/rolunk/eszek/>
- [7] <http://www.croatia.abbcenter.com/?id=52787&cim=1>
- [9] <http://www.tvt-pecs.sulinet.hu/tvarosok/leiras/eszek.htm>
- [10] <http://www.isztranauta.hu/jo-tudni/tomegkozlekedes.html>
- [11] <http://pecsistop.hu/regio/sikerrel-tiltakoztak-busz-indul-eszek-es-pecs-kozott/1112252/>
- [12] <http://wmoc2011.hu/images/staticfilesimage/Bulletin%20anyagok/Baranya.JPG>
- [13] <http://statinfo.ksh.hu>
- [14] www.kozlony.magyarorszag.hu/pdf/13826
- [15] <http://www.pincefalvak.hu/tema/110-pannon-szolofajtak>
- [16] www.afsz.hu