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ACCESS2MOUNTAIN

Sustainable Mobility and Tourism in Sensitive Areas of the Alps and the Carpathians:

STUDY ON TRAFFIC FLOWS AND POSSIBLE SOLUTIONS IN EASTERN SERBIA (Timok region)

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1 SUMMARY

Eastern Serbia (Timok region; Borski and Zajecarski Districts) is one of the least developed regions of the Republic of Serbia. Constant reduction in population and desertion of settlements in the region is related to the lack of investments in creating jobs and enhancing the lifestyle of its residents. Its border position to EU countries and between Pan-European transport corridors IV, VII and X presents a great potential for the economic and social development of the region.

Diverse and abundant natural resources and cultural and historical heritage make this region unique, accordingly tourism is one of the key strategic development priorities defined in the Regional Development Strategy of Timok region. However, existing transport services do not support tourism in a satisfactory manner. The good position of the region does not guarantee good accessibility of its tourist attractions, especially in reaching locations that are not near main roads. The region has great potential for *intermodal transport development* in both passenger and freight transport. Existing non-road transport capacities of the region - rail infrastructure that connects municipalities of the region, the Danube river as one of the Pan-European transports corridors, and the airport in Bor - are all only moderately utilized when compared to the road network usage. Motorized individual (car) traffic (MIT) still prevails with the largest share among the transport modes in the region. One of the key directions in achieving sustainable transport related to tourism is reducing the MIT and promoting alternative environmentally friendly transportation modes (train, non-motorized boat, bicycle, walk), especially near and within valuable natural areas.

Significant investments are needed for transport infrastructure reconstruction and environmental protection to reduce negative effects but also to increase the attractiveness of the region to new investors and tourists.

2 INTRODUCTION

The ACCESS2MOUNTAIN project ("Sustainable Mobility and Tourism in Sensitive Areas of the Alps and the Carpathians") aims to achieve durable, environmentally friendly tourism, as well as to ensure accessibility and connection to, between and in sensitive regions of the Alps and the Carpathians. With the long-term perspective of increasing sustainable tourist mobility, railway and multimodal connections will be improved and attractive offers created. The study presented here was done as part of the Work Package 3: "Analysis, traffic flow models and follow-up tools" with the objective to develop a transport and environmental model for the pilot area in Eastern Serbia, namely Zajecarski and Borski districts, jointly forming the Timok region. The model seeks to analyse the impact of traffic flows on the surrounding environment and the affected ecological networks, and to develop alternative traffic scenarios for the pilot area.

The study presented here describes the overall geographic, environmental, transport and tourism setting of the Timok region, based on policy documents and data collected from national, district and local level sources in Serbia. Based on the available data, the study analyses existing and potential capacities and deficiencies of transport related to tourism in the Timok region, and proposes alternatives for future. Chapter 3 presents socio-economic and environmental background data for the region. Chapter 4 presents key determinants of tourism in Serbia and analyses tourism data for Timok region. Chapter 5 presents data on transport sector for Serbia and Timok region, selected key tourism sites of Timok region and their accessibility, and discusses transport capacities and challenges. Chapter 6 presents the role of Timok region in cross-border cooperation between Serbia and its neighbours: Romania and Bulgaria.

Ill. 1: Billboard *Welcome to Eastern Serbia* at the entrance to the municipality of Majdanpek

The key priorities of regional development in Serbia[1] and their implementation are defined in the Regional Development Strategies (RDS), in accordance with the National Plan for Regional Development[2]. In six of the eight municipalities of the Timok region, subsequent Local Development Strategies have been developed during 2009, with the support of the Regional Development Agency of Eastern Serbia (RARIS). As a preparation phase to the development of Timok RDS, local economic development offices were established in these municipalities to lead the strategic planning process. The main goal of the Timok RDS is strengthening regional economy by generating income and employment. One of the key strategic development priorities in Timok RDS is tourism, while accessibility and transport in the region and environmental issues are included as some of the inter-sectoral (horizontal) priorities. The Timok RDS also defines specific goals, such as: increased competitiveness of the Timok region as a touristic destination; increased accessibility in the Timok region and beyond; and enhanced quality and increased protection of the environment.

Fig. 1: Timok region in Serbia

[1] According to the Law on Regional Development (OG no.51/2009 and 30/2010).
[2] The National Plan covers a period of 10 years, while a Regional Development Strategy covers a 5-year span.

Vision of the Timok region

"In the year 2020 Timok region is an advanced and promising area within the European Union. Dynamic economic growth, increased revenues and new jobs are encouraged by new investments and innovative approaches that deliver high added value mainly in the SME sector. ***Good transport connections to other parts of Serbia and neighbouring countries promote socio-economic development. This region is becoming a new tourist destination for visitors from Serbia and abroad, as well as the ecological territory, which produces high-quality products in agriculture, the energy sector, and the exploitation and processing of mineral resources.*** *Highly educated and qualified people can be employed in the regional labour market. Development of the Timok region is based on close cooperation and dialogue between all levels of government, professional organizations, educational institutions and businesses. Strengthened economy of the Timok region helps in creating favourable conditions for the work, life and vacation."*

(Source: Regional Development Strategy of Timok region, for the period 2011-2015)

Touristic potential in the Timok region is unequally developed. In the framework of the Timok RDS, six tourism development areas are identified: cultural, spa, and mountain tourism among first category priorities, and nautical, rural, and specialized forms of tourism (such as hunting and speleology) as second category priorities. Current state of touristic infrastructure in the region can be described as unsatisfactory. Owing to insufficient investments and low quality of services the annual tourism occupancy is only 25 % of existing capacities. Tourism products and services in the region are not commercialized enough on domestic and foreign markets.

Road density in the Timok region is above the national average. However, first category roads do not correspond to modern standards. Public bus transportation network is underdeveloped, poorly organized and with only few passengers. Rail infrastructure is of poor quality, the low maximum speed allowed (40-80 km/h) extending travel times and reducing the number of passengers, making rail transport unattractive. The last port on the Danube river in Serbia, Prahovo, is in a deteriorated state, although along with the air terminal in Bor, it presents great potential for the development of the region.

Numerous protected areas are the pride of the Timok region. Nevertheless, exploitation of mineral resources has led to devastation of areas around Bor and Majdanpek, turning them into environmental degradation hot spots. Absence of regional waste management system is one of the greatest challenges of the region. Waste dumps spread across the territory in all municipalities, putting pressure on the environment and on human health. Industrial, agricultural and municipal wastewaters flow into watercourses without treatment, decreasing the quality of both surface and groundwater. Investing in environmental protection as an inter-sectoral development priority would reduce negative effects and prevent further contamination, and could increase the attractiveness of the region to new investors and tourists.

3 SOCIO-ECONOMIC AND ENVIRONMENTAL SETTING OF EASTERN SERBIA

3.1 Socio-economic situation

Timok region covers Borski and Zajecarski Districts of Eastern Serbia, and includes the following municipalities: Bor, Kladovo, Majdanpek and Negotin (Borski District), and Boljevac, Zajecar, Knjazevac and Sokobanja (Zajecarski District). The region shares borders with Romania on the north, Bulgaria on the east, Nisavski and Pirotski Districts to the south and Branicevski and Pomoravski Districts to the west. It covers a large portion of the Timok river basin, part of the lower Danube river area and its mountainous hinterland, the Pek river basin at its source and the upper and middle basin of Sokobanjska Moravica river. The region is characterized by high variations of altitude, ranging from 28 m above sea level at the confluence of the Great Timok into the Danube (the lowest point in Serbia) to 2,070 m above sea level at Stara Mountain in Knjazevac municipality.

249,502 inhabitants live in this region with a surface area of 7,131 km^2. The most populated municipality is Zajecar (60,045 inhabitants) while the least populated is Boljevac (13,175 inhabitants). Migration has caused significant decrease in the number of inhabitants in all municipalities, for example -24% in Majdanpek (Borski District) from 1991 to 2011, and -27% in Boljevac and -28% in Knjazevac (Zajecarski District) for the same period.

As for the age structure of the population, the youngest municipality is Bor (average age 41.85 years, just above the national average), while the oldest is Knjazevac (average age 48.15 years). Number of people per gender and age category in each district is shown on Figure 2.

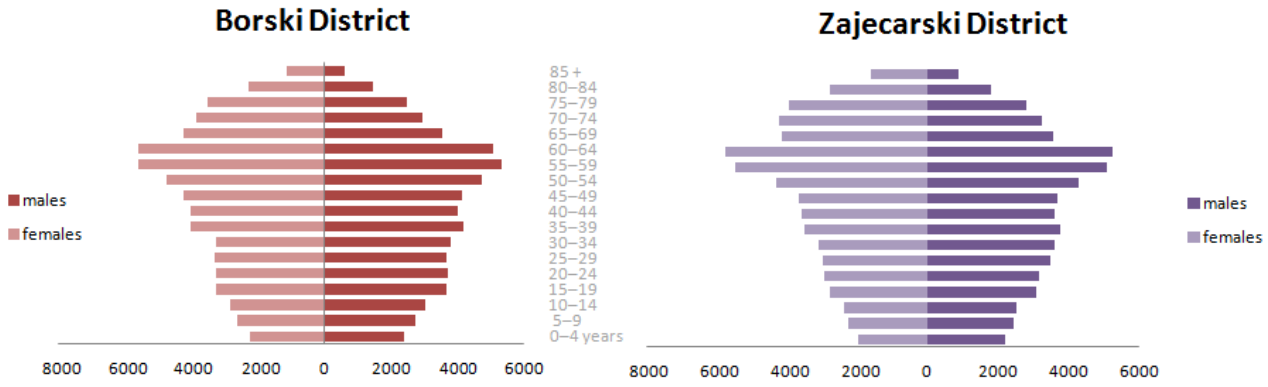


Fig. 2: Age pyramids – Absolute number of people per gender and age category in 2011 (thousands)
(Source of data: Municipalities and Regions in the Republic of Serbia, 2012. Statistical Office of the RS)

The unemployment rate in Serbia in 2011 was 27.7 %, the highest rate since 2007. Employment in the Timok region is generally low. The highest employment in terms of number of employed persons per 1,000 residents is in Bor (241, equal to the national level), and lowest in Boljevac (134). [3]

[3] Unemployment rates were not available with regional breakdown.

Judging on the available data and information, Timok region is economically underdeveloped with constant reduction in population and desertion of settlements. In general, balanced economic development of a country may be achieved when the relationship between developed and underdeveloped areas is at a proportion of 2:1 or less, measured by income per inhabitant. In Serbia, the relationship between developed regions (Belgrade and parts of Vojvodina) and Eastern Serbia is 11:1. This means that for 11 euros per capita income in the developed areas, there is only 1 euro in the less developed areas. Although the Republic of Serbia has other underdeveloped areas with similar negative relationship, Eastern Serbia has a special strategic importance especially in relation to the demographic survival of the region and its integration into the development of the country. Local authorities and the Regional Development Agency of Eastern Serbia (RARIS) have had an active role in developing the Regional Spatial Plan, led by the Republic Agency for Spatial Planning, with the main aim to stop negative demographic trends and economic backwardness and create conditions for the implementation of national, regional and local interests in Eastern Serbia.

Timok region has the advantage of having highly fertile soil on roughly half of its territory. Agricultural land occupies 48.4 % of the Borski District, and 57.2 % of Zajecarski District. The area is best suitable for orchards and vineyards, located mainly in the Danube and Timok area, between Kladovo and Negotin municipalities and around Knjazevac. Currently, vineyards in Negotin area occupy around 1,000 ha. Intensive field crops and vegetables are grown at relatively modest fertile soils of Kljuc and Negotinska Plain. Considering that organic production is identified as the fastest growing agricultural sector, it is included among development priorities of the Timok RDS. However, agricultural development is facing many challenges. Obsolete machinery and technology, inadequate use of fertilizers, and lack of cooperation between producers are just some of the barriers to increasing the agricultural competitiveness of the region.

3.2 Natural resources

3.2.1 Mineral resources

Exploitation and processing of mineral resources in Timok region date back over 100 years. The most significant mineral deposits are copper and gold. Numerous deposits of non-metals, stone and coal are also found in the area.

Metal and copper concentrate processing plants are located at Mining and Smelting Complex Bor (RTB Bor). Copper production represents 65.53% of total exports of Timok region. In 2008 metal prices were five times higher compared to 2002, and market demand for all mineral resources has generally increased. RTB Bor deposits are located in the western part of the Carpathian arc and most deposits are of the porphyry type in the Upper Timok volcanic field. Currently undeveloped underground site "Borska reka" located within the mine Jame is potentially a highly important mineral reserve.

Overall production at RTB Bor since the beginning of exploitation (late 1958) until the end of 2010 is provided in Table 1.

Tab. 1: Production at RTB Bor

Production	Quantity (t)
copper ore	369,055,198
zinc and lead ore (polymetallic)	575,800
tailings material	918,480,819
Total production	**1,288,111,817**
copper concentrate (dry)	7,857,572
copper in concentrate	1,696,746
gold in concentrate	84,325
silver in concentrate	438,119
zinc and lead concentrate (polymetallic)	25,383
zinc	9,145
lead	2,199

(Source: RTB Bor, http://rtb.rs/rtb-bor-doo/rudnik-bakra-majdanpek/povrsinski-kop-majdanpek/)

Despite the availability of raw material, mining industry in Serbia has stagnated in recent decades. Lack of funds for investment and development, obsolete technology, lack of professional staff, and insufficient control of inspection bodies have hampered the industry. Production has become ineffective and inefficient; production costs per ton of copper have increased continuously, leading to the closure of one of the mines. Obsolete equipment and technology have also caused high degree of environmental degradation, and created resistance from the local community towards the mining industry.

3.2.2 Forests

According to the National Forest Inventory of Serbia, 29.1% of the total national area is forested, close to the world average (30%). Annual national forest growth is 9 million m^3, or 4 m^3/ha. In broad-leaved forests, growth is around 3.7 m^3/ha, while in coniferous forests it is around 7.5m^3/ha. An indicator of the forest resource sustainability is the ratio between forest growth and forest cutting, where annual cutting should not exceed annual growth. Currently in Serbia, this ratio is around 3:1.

In Serbia, 53% of forests are under state management, while 47% are privately managed. Forest quality differs depending on their ownership. Timber volume in state forests equals 196 m^3/ha while in private properties it is 138 m^3/ha. The largest forest areas in Serbia are managed by public enterprises: "Srbijasume", "Sume Vojvodine", "Borjak" – Vrnjacka banja, and national parks. PE "Srbijasume" owns 17 forest farms, while 4 belong to PE "Sume Vojvodine". The PE "Srbijasume" manages 850,752.24 ha of state forests and forest land (as of 31st December 2010), details are provided in Table 2.

Tab. 2: Forest land structure and state of forests managed by PE "Srbijasume"

Forest and forest land structure, ha	Forests	721,844.82
	Forest cultures	41,269.98
	Forest land	87,637.44
	Total area	850,752.24
State of forests	Forest and forest cultures	763,114.80 ha
	Average volume	160.1 m^3/ha
	Average growth	4.2 m^3/ha

(Source: PE "Srbijasume", http://www.srbijasume.rs/sumskifonde.html)

The total forest land area in the Timok region is 682,632 ha, or 14.4 % of the total national forest land area. In relation to the number of inhabitants, forest coverage in Timok region is 1.13 ha per capita, similar to abundant forests of Romania (1.02 ha per capita) and far more than the national average of 0.3 ha per capita.

In Borski District, 54% are private forests while 46% are state owned. Similar situation is in Zajecarski District: 60% private forests and 40% state owned.

3.2.3 Water resources

In general, south-western, southern and eastern parts of Serbia are more abundant in water resources than north and central parts of Serbia.

The Danube River Basin (DRB), as the "most international" river basin in the world, covers territories of 19 countries. The Danube river itself is 2,587 km long and has an approximate discharge of 6,500 m^3/s at the river mouth. 10.7% flows over Serbian territory with an annual run-off of 23.5 km^3.

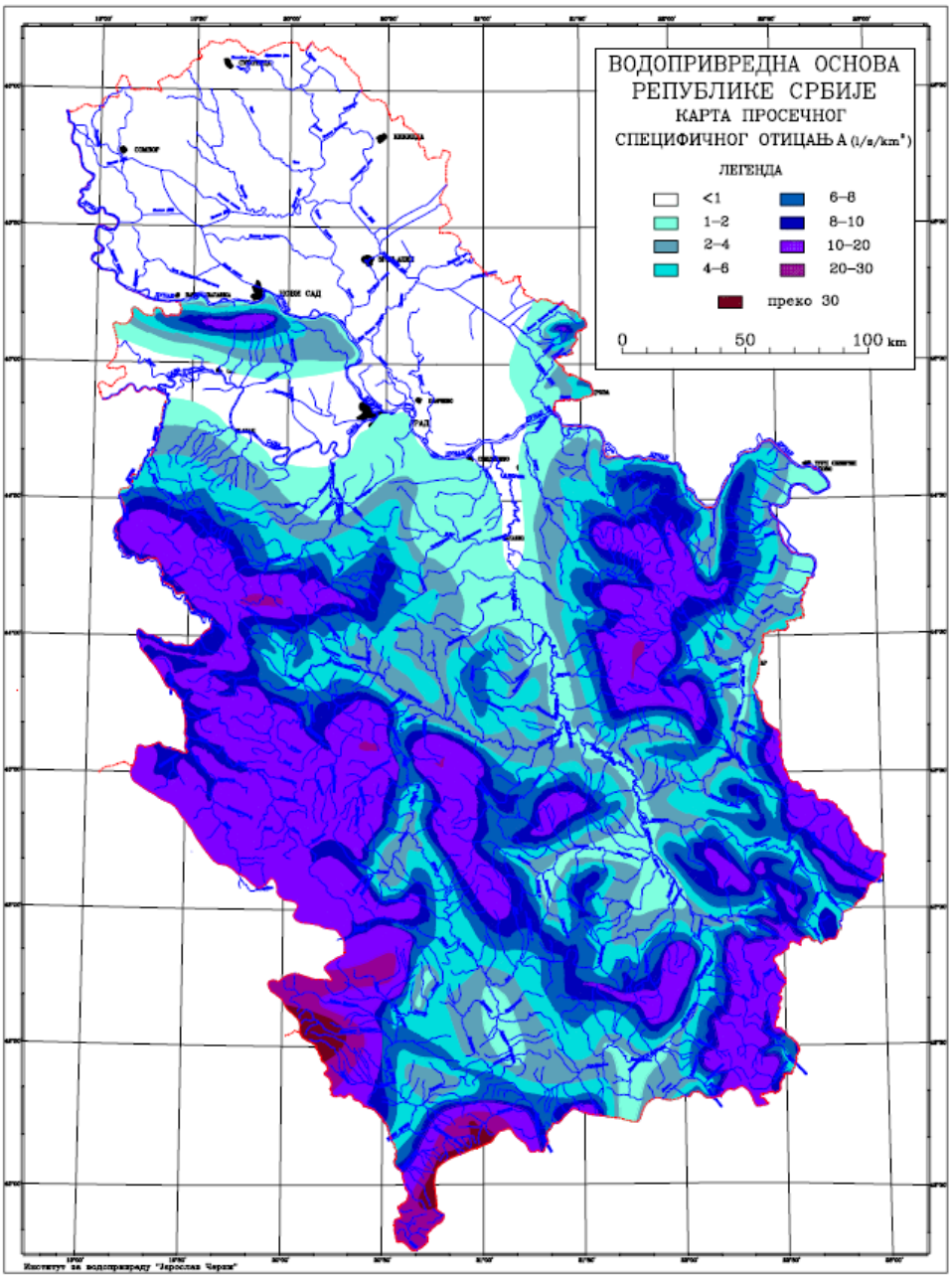


Fig. 3: Average specific run-off in the Republic of Serbia, in l/s/km²

(Source: Water Management Plan of the Republic of Serbia, Institute for the development of water resources - "Jaroslav Cerni", Belgrade, 2001)

The Iron Gate, a gorge between the Carpathian and Balkan mountains on the Danube river on the border between Romania and Serbia was historically an obstacle for ships. The Iron Gate I dam (upstream of Kladovo) hosts one of largest hydroelectric power stations in Europe. The dam was built by Romania and the former Yugoslavia between 1970 and 1972, while the Iron Gate II dam was built in 1987 (see Table 3).

Tab. 3: Main characteristics of Iron Gate Dams

Accumulation	Construction year	Dam height (m)	Length (m)	Dam body volume (thous. m^3)	Total volume (mil. m^3)
Djerdap (Iron Gate) I	1972	61	1,278	3,000	2,550
Djerdap (Iron Gate) II	1987	52	899	14,738	868

(Source: Water Management Plan of the Republic of Serbia, Institute for the development of water resources - "Jaroslav Cerni", Belgrade, 2001.)

Timok region is named after the Timok river, which, along with its tributaries, is responsible for the water supply for the region. The Timok river - a 180 km long river of the Danube Basin - starts at the confluence of the White Timok and Black Timok near Zajecar. One section of the river, 17.5 km, forms the border between Serbia and Bulgaria, subsequently flowing into the Danube. The sub-basin of the Timok river occupies 4,607 km^2 of the Serbian territory, while 2.8% of the basin is in Bulgaria. The peak altitude in the highly diverse relief of the Timok sub-basin is 2,070 m, the average elevation being 472 m.

Tab. 4: Basic parameters of Great Timok river

Average flow	**31 m^3/s**
Catchment area	4,191 km^2
Precipitation	759 mm/year (100.87 m^3/s)
Run-off	215 mm/year (28.60 m^3/s)
Evapotranspiration	544 mm/year (72.27 m^3/s)
Evapotranspiration coefficient	0.72

(Source: UNECE Second Assessment on transboundary rivers, lakes and groundwaters, 2011)

Water intake per capita for public water supply is higher in both districts than at the national level (Table 5). Drinking water is obtained from groundwater and surface waters of the Danube and Timok rivers, to which wastewater is discharged without any treatment or after only primary treatment. Total wastewater collection network length equals 241 km in Borski District and 249 km in Zajecarski District. Boljevac is the only municipalitynot connected to sewerage system.

Tab. 5: Public water supply and wastewater discharge, 2011

	Total water intake, m^3/cap	Wastewater discharged, m^3/cap
Republic of Serbia	92.68	49.31
Borski District	131.88	45.76
Zajecarski District	100.64	39.77

(Source: Municipalities and Regions in the Republic of Serbia, 2012. Statistical Office of the RS)

3.2.4 Fish stocks

The fishing area "Serbia East" is divided into two fishery districts: fishing community "Timocka Krajina" Ltd. in Zajecar and PE "Srbijasume".

The fishing community "Timocka Krajina" manages fishing waters of Great Timok basin, covering the following rivers: Timok, Beli Timok, Crni Timok, Crnovrska River, Janja, Aldinacka River, Papratska, Bela, Uslasnica, Koritska, Grlicka, Lasovacka, Lozica, Mirovstica, Arnauta, Radovanjska River, Zlotska River, Slatinska River, Kriveljska River, Ravna River, Salaska River, Sikolska River, Cuburska, Jasenicka River, Lukovsko Vrelo, Velika, Recica, Vratna, and Zamna; as well as other fishing waters in artificial and natural lakes, ponds, still waters, canals and other fishing waters between the watersheds of: Rtanj mountain, Juzni Kucaj, Veliki and Mali Krs, Deli Jovan, Stara mountain, Svrljiske mountains, Cevica and Miroc. Given that the total fish catch in 2012 was 25% lower than in 2011, and that the ratio of total annual catch to total annual natural yield was 35% in 2012, fishing in the waters managed by fishing community "Timocka Krajina" can be described as fully sustainable. Although natural fish production can be high, changes in the domination of different fish species in recent years suggest changes in the ecological conditions of the fishing waters

Fishing waters used by the PE "Srbijasume" include part of the Danube, from 938th km until 845th km; mountain rivers Jerma, Lustica and Nisava; and micro-accumulations Sukovsko, Divljansko and Krupacko Lakes. The establishment of large hydro-accumulation between Djerdap I and Djerdap II dams has changed fish stock characteristics of this part of the Danube River. The water level between the two dams and after the second dam is influenced by the operations of the hydropower plant Djerdap, and variations, if sudden, can impact spawning of certain fish species, particularly the endangered sturgeon species. Additionally, changes in flow velocity when operating turbines may have severe impact on all fish species.

3.2.5 Protected areas

According to the Law on Nature Protection (OG 36/2009 and 88/2010), protected areas of the Republic of Serbia are listed in the register of the Nature Protection Institute. The National Spatial Plan (OG 88/2010) envisages that approximately 10% of Serbian territory is protected by 2015.

Out of the 461 protected areas in Serbia, 19 are located in the Timok region[4], accounting for 6,804 ha, or 0.95% of the regional territory. Nine protected areas are listed under the first category of protection (areas of international, national or special importance), four under the second category (provincial / regional or great importance) and four under the third category (local significance).[5] Eight areas are currently in the process of revision.

[4] See detailed list in Annex 1 - Protected areas and biodiversity centers of international importance in Timok region
[5] Categorization according to the Law on Nature Protection (latest amendments), Article 41 – Categorization of protected areas.

Furthermore, the Nature Protection Institute is currently considering protection of the following areas in Timok region:

1. Nature park Kucaj – Beljanica (Bor and Boljevac municipalities)
2. Volcanic breccia and tuffs in Brestovacka Spa (Bor)
3. Blederija (Kladovo)
4. Fish pond "Mala Vrbica" (Kladovo)
5. Rajko's cave (Majdanpek)
6. Baranica (Knjazevac)
7. Tupiznica – Ledenica (Knjazevac)

According to the Regulation on Ecological Networks (OG 102/2010), ecologically important areas in the Timok region are as follows: Djerdap, Mala Vrbica, Kladovo - Radujevac, Mustafa, Feljesana, Mali Krs, Stol – Veliki Krs, Deli Jovan, Bukovo, Kucaj Mountains, Rtanj, Mala Jasenova Glava, Ozren, Devica, Stara Mountain. Emerald Network Sites[6] in the region are: Stara Mountain, Derdap, Rtanj, Feljesana, Mustafa, Lazar's Canyon, Mala Jasenova Glava, Ozren Meadows and Kucaj Mountains.

Protected areas, ecologically important areas and especially areas to be protected present significant potential for tourism development in Timok region. This is discussed further in the Chapter 4.

3.3 Environmental pressures

3.3.1 State of water

Mining activities in the Bor area are of transboundary nature and pose significant pressure to the environment. Poor waste management and other unsustainable practices resulting in untreated effluent discharge have caused severe pollution of surface- and groundwaters. Heavy metal concentrations above limit values have been found in highly acidic streambeds of the Bor area. Tailings material deposited in the vicinity of riverbanks have resulted in high contamination of the Black Timok river and its tributaries, where bio-accumulation of pollutants has been noted in fish species as well as accumulation in river sediments of both Borska and Timok Rivers. Acidic streams can be found up to 10 km distance from the Bor metallurgical complex.

Another source of pollution of water ecosystems is urban wastewater discharged untreated into natural recipients.

Environmental monitoring of water, air and soil is under the responsibility of the Serbian Environmental Protection Agency (SEPA). In 2011, surface water was sampled in Borsko Lake and accumulation Grliste,

[6] The Emerald Network is an ecological network made up of "areas of special conservation interest", set up by the Council of Europe in 1989 and launched in 1996, as part of its work under the Bern Convention. It forms a pan-European ecological network.

while underground water samples were taken in Negotin. Results from Borsko Lake show oxygen deficit at the deepest point of the lake (class III). High concentration of dissolved cadmium was found in one sample and dissolved manganese in another sample. Similar trend was observed in the accumulation Grliste, with the exception of cadmium. High value of dissolved manganese in underground waters in Negotin was also detected during the analysis.

Tab. 6: Surface water quality in Timok region

Surface water	Examined	Quality/class[7]
Danube	Tekija	II/III
	Brza Palanka	III
	Radujevac	III
Porecka River	Mosna	II/III
Great Timok	Cokonjar	IV
Borska River	Rgotina	out of class
White Timok	Zajecar	III
Black Timok	Zajecar-	II/III
Grliska River	n.a.	-
Trgoviski Timok	n.a.	-

(Source: Quality analysis results of surface and underground waters in 2011, SEPA)

3.3.2 State of soil

In 2012, SEPA started initial preparation for soil monitoring on the territory of Serbia, taking samples from 78 locations, six in the Timok region: one in NP "Djerdap", three in Bor (private properties in the villages Slatina and Krivelj, in the vicinity of Mining and Smelting Complex Bor and in the village Gornjane, all in agricultural area), and two in Negotin (private properties in the vicinity of chemical-industrial zone Prahovo).

Impact of traffic on soil contamination around highway E75 was studied in a range from Belgrade to the Macedonian border.[8] 398 soil samples on 50 sampling points taken from the depth between 0-30cm surpassed the limits of total arsenic content in 1.51% of samples; in total chromium content in 16.58% (most probably due to geochemical composition); in total copper content in 1% of samples; in total nickel

[7] According to the Regulation on Water Classification of Inter-state Waters and Coastal Waters ("Official Gazette of Socialist Federal Republic of Yugoslavia no. 6/78"; still in force in the Republic of Serbia) waters are classified into following classes according to the purpose and the degree of purity:
I class: can be used for drinking and food industry in its natural state or possibly after disinfection, while surface waters can be also used for the cultivation of edible fish (salmonide);
II class: can be used for bathing and recreation in their natural state, for water sports, cultivation of other fish species (ciprinide) or used for drinking and food industry after the usual treatment – conditioning (coagulation, filtration, disinfection etc.);
III class: can be used for irrigation, and after the usual treatment – conditioning, in industrial use other than food industry;
IV class: can be used for other purposes only after appropriate treatment.

[8] Project "Investigation of the presence of hazardous substances in agricultural soils in the major fields and vegetable crops in the zone of the E75 highway", financed by the Ministry of Agriculture, Trade, Forestry and Water Management.

content in 28.64% of samples (according to previous studies, area of alluvial plains of Western and Great Morava is naturally rich in nickel); in total lead content in 5.53% of samples, and in total zinc in 1% of samples.

3.3.3 Air quality

SEPA's air quality monitoring network comprised 28 monitoring stations in 2010, with an increase to 36 stations in 2011. Of the 36 current stations, three are located in Bor: Brezonik, City park and Institute for Mining and Metallurgy, while the fourth is located in the city of Zajecar.
According to the Law on Air Protection (Article 21), air quality can be described as follows, per level of pollution:

I. First category – clean or slightly polluted air; concentrations of polluters are below MAC[9]s;
II. Second category – moderately polluted air; concentrations of one or more pollutants can be above MACs, but all of them are under the limit of tolerance;
III. Third category – highly polluted air; one or more pollutant concentrations are above the limit of tolerance.

Based on all measured parameters, all three locations in Bor indicated highly polluted air (III category), while air in Zajecar was slightly polluted (I category) in 2011.

Results from the monitoring in 2010 and 2011 do not show major differences. In 2011, average measured daily concentrations in Bor showed that 100% of samples were of very good quality regarding carbon monoxide (Figure 4). However, 45 % samples recorded air that is polluted and highly polluted of sulphur dioxide.

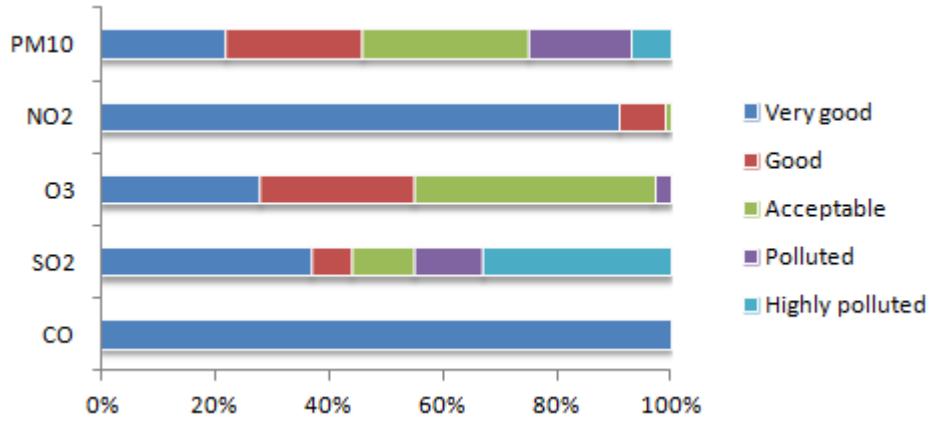


Fig. 4: Air quality in Bor in 2011: percentage of samples per category and pollutant
(Source of data: Report on the State of Air Quality in 2011, SEPA)

The Law on Air Protection (OG 36/2009) defines allergenic pollen as a natural polluter, and as such it needs to be monitored regularly. SEPA has established allergenic pollen monitoring network (birch, grass and ambrosia), which is still in expansion. Equipment for pollen measurements in Eastern Serbia is located only in Zajecar for the time being, and operated by the Public Health Institute. Concentration (in

[9] MAC=Maximum Allowed Concentration

the number of pollen grains/m^3 of air) of aero-pollen is monitored on a daily basis and available on the SEPA website including 7-day forecasts.

Transport is closely connected with economic development, but also with its negative impact on the environment. Every litre of fossil fuel burnt produces roughly 100 g of carbon monoxide (CO), 20 g of volatile organic compounds (VOC), 30 g of nitrogen oxides (NO_x) and 2.5 kg of carbon dioxide (CO_2), among others.

The Institute of the Faculty of Transport and Traffic Engineering, Belgrade University, in cooperation with SEPA, has determined emissions of air pollutants originating from road transportation. Software tool used for calculating emissions was COPERT IV (Version 7.1)[10]. Analysis covered the total territory of the Republic of Serbia for the period 1990 – 2009. The results show slight increase in emissions of CO_2, NO_x, SO_2, NH_3, PM10, PM2.5, carbon, heavy metals, slight increase in organic matters, but a slight decrease in emissions of VOC, NMVOC and CO from 2001, and stagnation in the emissions of CH_4. Observed sharp decrease in 1993 and 1999 for all pollutants can be explained by the difficult socio-economic situation in the country that resulted in reduction of registered vehicles.

3.3.4 Environmental protection

Local authorities in Timok region have recognized the importance of environmental protection in the Regional Development Strategy and set out priority measures and activities in the Regional Development Plan (2011-2015) as follows:

1. Developing a modern regional waste management system that includes waste prevention, separation, collection, treatment, recycling and/or waste disposal;
2. Analysing the current state of environmental monitoring system and introducing modern techniques;
3. Improvement of water resources management through improvement of public water supply system and support to the development of wastewater treatment system;
4. Solving the most prominent environmental problems; and
5. Increasing public awareness on the importance of environmental protection.

Implementation of the first measure started long before the Timok RDS was drafted and approved. Location “Halovo 2” for regional sanitary landfill was chosen in 2006. Located 11 km from Zajecar, virtually on the banks of Timok river, it covers the area of 18 ha. Agreement for joint construction and utilization of the landfill was signed in 2007 as a binding document to all municipalities except Sokobanja (where local authority decided to find joint solutions with the city of Nis). Detailed plan was finally accepted in May 2012, with land acquisition and construction tender process still pending implementation. Estimated annual quantity of waste from all municipalities equals 63,954.3 tonnes. If a system for separation of recyclable materials is built, along with primary separation and treatment of biodegradable materials, the lifetime of the landfill is projected to be 25 years. The project is funded by the National Investment Plan and the Instrument for Pre-Accession (IPA).

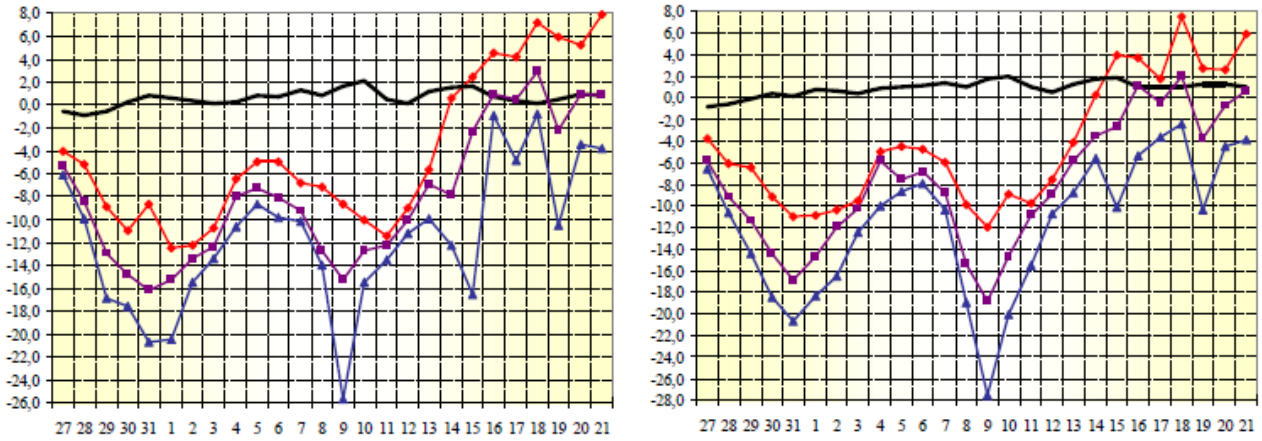
[10] COPERT IV was developed by the European Topic Center for Air Pollution and Climate Change (ETC/APCC) and financed by the European Environment Agency (EEA).

3.4 Relevant natural hazard episodes

3.4.1 Cold spells

Winter 2012 experienced a lowest extreme in Serbia. Very cold weather and heavy snowfall followed by snowstorms caused disruptions in transportation, electricity and food supply, damage to property, and even casualties. From January to February 2012, extremely low temperatures and snow cover heights on some stations in Serbia far exceeded recorded maximums. Maximum and minimum daily air temperatures in Serbia from late January to mid-February were well below normal in comparison to the reference period 1961 – 1990. As a consequence, emergency situation was declared by the Government of Serbia during February 2012.

In Zajecar, the greatest deviation in maximum temperature compared to normal was recorded on February 1st (17.0°C), whereas the greatest deviation in minimum temperature (-22.8 °C) was recorded nine days later. In Negotin, both maximum (-17.6°C) and minimum (-25.4 °C) greatest deviations were recorded on the same day, February 9th.



a) Zajecar **b) Negotin**

Fig. 5: Mean (purple), maximum (red) and minimum (blue) air temperature (°C) in Zajecar and Negotin in the period January 27 – February 21, 2012, compared to the reference period 1961 – 1990 (black)

(Source: Republic Hydrometeorological Service of Serbia, National Center for Climate Change: Climate analysis of the extreme event in Serbia – cold wave in February 2012)

Tab. 7: Maximum daily air temperature and ice days[11] (in blue) in Negotin and Zajecar for the period January 27 – February 21, 2012

Month	Day	NEGOTIN	ZAJECAR
January	27	- 3,8	- 4,0
	28	- 6,1	- 5,2
	29	- 6,5	- 8,9
	30	- 9,2	- 11,0
	31	- 11,0	- 8,6
February	01	- 10,9	- 12,5
	02	- 10,4	- 12,2
	03	- 9,5	- 10,7
	04	- 5,0	- 6,5
	05	- 4,5	- 5,0
	06	- 4,7	- 5,0
	07	- 6,0	- 6,8
	08	- 9,9	- 7,2
	09	- 12,0	- 8,7
	10	- 8,9	- 10,0
	11	- 9,8	- 11,4
	12	- 7,6	- 9,0
	13	- 4,1	- 5,7
	14	0,3	0,6
	15	4,0	2,4
	16	3,7	4,5
	17	1,8	4,2
	18	7,5	7,2
	19	2,7	5,9
	20	2,6	5,2
	21	5,9	7,9

(Source: Republic Hydrometeorological Service of Serbia, National Center for Climate Change: Climate analysis of the extreme event in Serbia – cold wave in February 2012)

3.4.2 Heat waves

Dry period was prevailing over much of the Balkan region during summer 2012. Lack of precipitation caused severe drought impacts. Very high temperatures and low precipitation (as indicated by the SPI index) characterized weather conditions in South-East Europe from mid-July until mid-August 2012. The dry weather accelerated harvesting of winter cereals, while inadequate water supply caused irreversible damages for summer crops.

[11] Ice day is a day when the maximum temperature is below 0 °C.

In 2012 Serbia saw its warmest summer since 1887, with air temperature passing 35 °C for more than 50 days. Particularly hard-hit was the northern province of Vojvodina, with cereal production estimated at only 50 % of normal. More than one million hectares were affected, mostly corn, maize and soya. The Palic Lake in the north was artificially filled with thousands of gallons of water from a river to save its fish and ecological system. Overall economic damage estimates of the heat wave exceed 130 million €.

3.4.3 Floods

Torrential (flash) floods[12] are the most common natural hazard in Serbia and the most significant in terms of the substantive material damage and loss of human lives. Torrential floods have become more frequent and destructive in recent decades. Human activities, such as land use change (for example construction of roads and houses), forestry activities (cutting, removal of timber), and inappropriate use of agricultural land, may intensify erosion and surface run-off, and subsequently increase the risk of torrential floods.

Some representative examples of the torrential floods that have occurred in the past 15 years in the watersheds of the main tributaries of the following rivers are: the Kolubara (June 1996; May 2011), the Great Morava (July 1999), the Kolubara and the Drina (June 2001), the South Morava (November 2007), the West Morava, the Drina and the Lim (November 2009), the Great Timok (February 2010), the Pcinja (May 2010), and the Drina (December 2010).

3.4.4 Earthquakes

Seismic activity in Serbia is moderate. The strongest earthquakes of last years have occurred in Gornji Milanovac in April 2009 (3.3 degrees of Richter scale), in Kraljevo in November 2010 (5.4) and in Prokuplje in July 2011 (4.3). The powerful Kraljevo earthquake (Raski District, southwest part of Serbia) on November 3rd 2010, caused 2 casualties, affected 27,030 people and caused material damage worth 132,260,000 USD.

3.4.5 Forest fires

Uncontrolled forest fires can cause many negative impacts on ecosystems such as desertification, erosion and water loss. Forest fires in Serbia destroyed 24,570 m^3 of wood in 2011, and up from 57 m^3 in 2010. Figure 6 shows damage caused to forests by different sources over 5 years.

[12] Torrential (flash) flood represents a sudden appearance of maximal discharge in a torrent bed with a high concentration of sediment. In extreme cases, the two-phase fluid flows out from the torrent bed with enormous destructive energy.

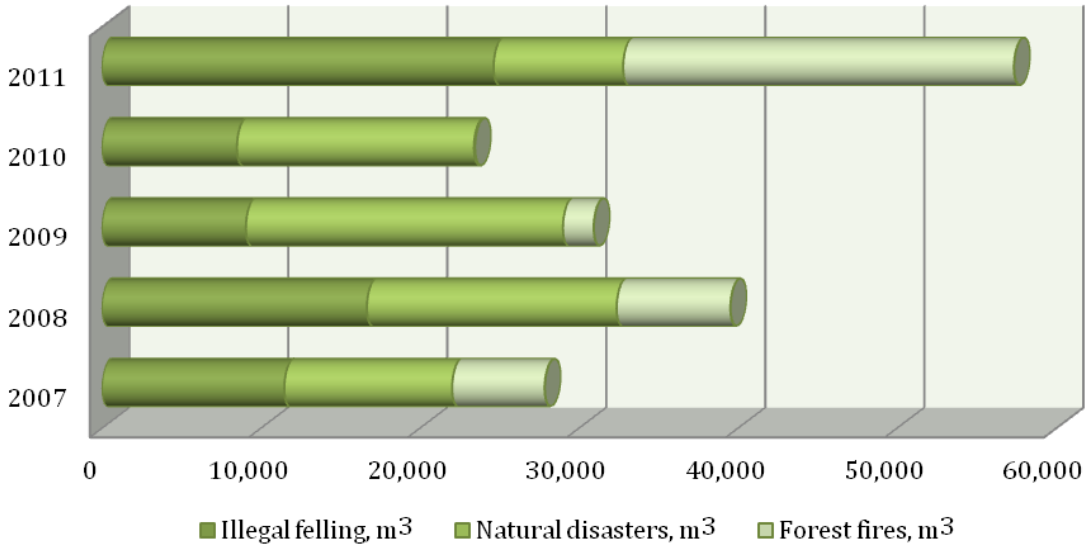


Fig. 6: Damages in Serbian forests in the period 2007-2011
(Source of data: Statistical Yearbook 2012, Statistical Office of the RS)

An analysis of forest fire occurrence per forest area over the period 1999 - 2008 shows that the largest areas destroyed by fire were in Eastern and South-eastern Serbia. In Boljevac forest estate alone, 4,321.97 ha were caught by forest fires, equalling to 26.4% of the total area managed by PE "Srbijasume" burnt in this period.

For the period from January to October 2012, PE "Srbijasume" published data on 328 forest fires burning on a territory of 11,462.73 ha, of which 292.40 ha was consumed by forest fires in the Municipality of Boljevac. Forest fires in the region are aggravated by a combined lack of human capacities, financial resources and fire extinguishing material. The cost of damage caused by forest fires was estimated at 9.66 billion RSD (85.7 million €) in 2012 alone.

4 TOURISM IN EASTERN SERBIA

Tourism industry presents great potential for the development of Serbia. The main characteristics of the existing and potential tourist sites of Eastern Serbia are the region's interesting and diverse natural resources, and its cultural and historical heritage.

Timok region is a part of the Central and Eastern Tourist Zone.[13] It possess good natural potential in a convenient location between Romania to the northeast and Bulgaria to the east, with strong gravitational centres (Belgrade, Nis, Sofia, Vidin) in the surroundings.

The Danube river gorge - or the "Iron Gate", as it is popularly called – located in Timok region is considered to be among the most beautiful sites in Europe. Caves in the surrounding areas are open for tourist visits. A still undiscovered pearl is the canyon of river Vratna, a treasure of natural beauty. All these locations spiced with mystic Vlach magic, legends and unusual customs, such as the telling of gold mining in river Pek, make the region unique. A selected list of the main touristic sites of the Timok region and their transport accessibility is included in Chapter 5.2, comprising a map indicating these sites and their access routes (Figure 30).

Abundance of natural areas and healthy environment are essential preconditions for developing rural tourism and tourism based on the hospitality and originality of rural households offering a variety of holiday programs over the whole year (hiking, hunting and other outdoor programs, organic food production, handicraft products, non-timber forest product collecting). A list of selected festivities and events taking place and providing potential for tourism in the Timok region is included in Annex 3 of this report.

4.1 Accommodation capacities

Total accommodation capacities in the Timok region are not satisfactory, the lack of categorized hotels resulting in low number of tourists. Funds for investment in the region are not adequate for creating complete tourist products, i.e. products which would be representative at the global tourist market, while respecting standards in hospitality and maintaining adequate prices. In addition, the quality of existing tourism products and associated services in the region is not, in the majority of cases, on a desirable level and not commercialized enough in the domestic and foreign markets. Since 2008, investors have however shown interest in the construction of contemporary accommodation of higher category in the Timok region; subsequently the quality of accommodation offer has gradually improved, leading to increased demand, number of visitors and overnight stays. In general, accommodation in the region is situated along the river Danube, in the spa complexes and in the city of Zajecar.

[13] According to the Spatial Plan of the Republic of Serbia.

Tab. 8: Accommodation with categories in the municipalities of the Timok region

Municipality	Hotels 2*	Hotels 3*	Hotels 4*
Boljevac	none	none	none
Sokobanja	none	3	none
Knjazevac	none	none	1
Zajecar	2	2	none
Bor	none	1	none
Majdanpek	none	1	none
Negotin	1	none	none
Kladovo	none	1	1

(Source: Ministry of Finance and Economy, Sector for Tourism, http://www.turizam.mfp.gov.rs/index.php/yu/dokumenta/sektor-za-turizam/kategorizacija (as of December 31, 2012))

According to Serbian tourism investment plans, and based on detailed projections for increasing accommodation facilities in all tourist clusters, the estimated total amount of required investment in the accommodation offer of Serbia until 2015 is approximately four billion euro. Investments required per region are shown in Table 9.

Tab. 9: Tourism investment needs per region in Serbia

Region	million €	%
Vojvodina	625.9	15.4
Belgrade region	1,134.7	28.1
Western Serbia	1,567.8	38.8
Eastern Serbia	**717.3**	**17.7**

(Source: Serbian Tourism Development Strategy - the first phase report, former Ministry of Trade, Tourism and Services, Belgrade, 2005)

Current situation of tourist infrastructure in Eastern Serbia is not satisfactory. However, the 17.7 % share in planned tourist investments in Eastern Serbia provides hope for improvements.
According to the Serbian Tourism Development Strategy, conservative (as opposed to 'ambitious') growth projections for the South-East Serbia region until 2015 are: 606,100 arrivals, 2,455,000 overnight stays and 27,000 beds.

4.2 Tourism flows in Timok region

Regular collection of statistical information regarding tourism in Serbia exists only partially (i.e. only some datasets are being collected). It is estimated that over 30% of the turnover from tourism is in the "grey"

economy. Inappropriate monitoring and application of international monitoring principles, methods and models does not allow for full analysis of tourism development.

Based on the available information, the share of visitors in Timok region is around 7% of the total number (of both domestic and foreign origin) visiting the Republic of Serbia on an annual basis. The high percentage shows that Timok region has lot to offer to all tourists interested in its valuable sites. The number of both domestic and foreign visitors in 2012 was as low as 4,228 in Boljevac, and as high as 49,175 in Sokobanja. However, even in Sokobanja, the most visited municipality, there was a 26 % decrease in total number of visitors in the period 2008 - 2012 (Figure 7).

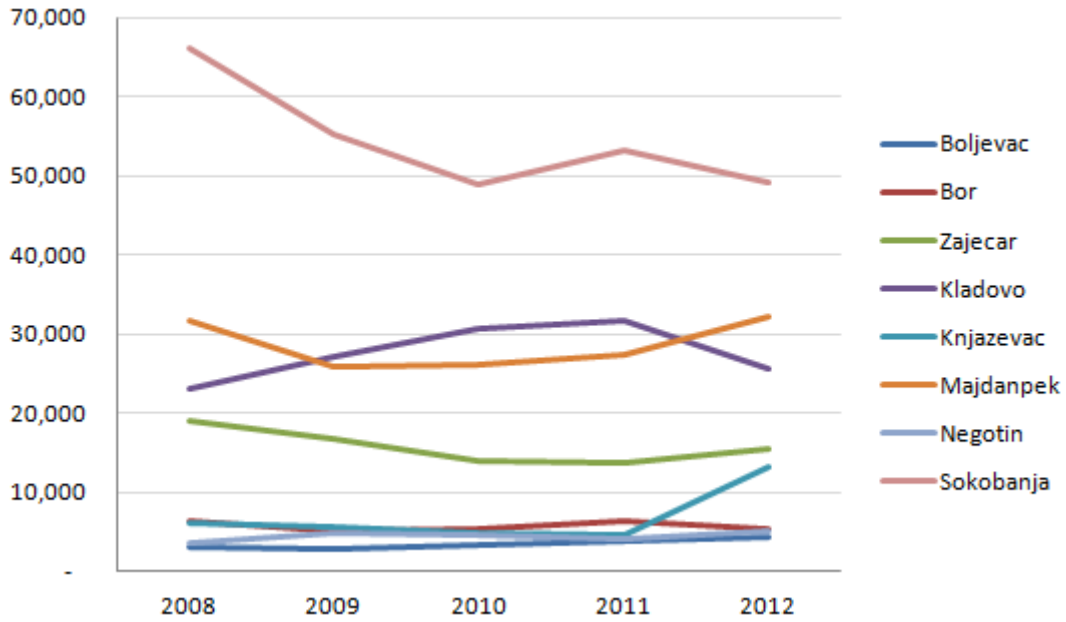


Fig. 7: Total number of visitors per municipality in Timok region

(Source of data: Statistical Office of the Republic of Serbia (data 2008-2011) and Statistical Office in Zajecar (data 2012))

Situation in other municipalities is showing somewhat different trend, with Negotin, Boljevac and Bor lagging behind as the most 'unpopular' municipalities, while Knjazevac has seen a significant increase of 66% in the number of visitors from 2011 to 2012.

Visitors are staying the longest in Sokobanja and in Zajecar, average six nights per visitor. Domestic tourists are generally outnumbering foreigners. Share of domestic tourists is highest in Sokobanja (98%) while foreign tourists mostly visit Bor.

The most visited tourist attraction in Timok region is Felix Romuliana (Figure 8). The archeological site of Lepenski Vir has been under renovation since 2008 and it was reopened to public on June 25, 2011. By end of 2011, the number of visitors in the modernized Lepenski Vir quickly mounted to 17,442.

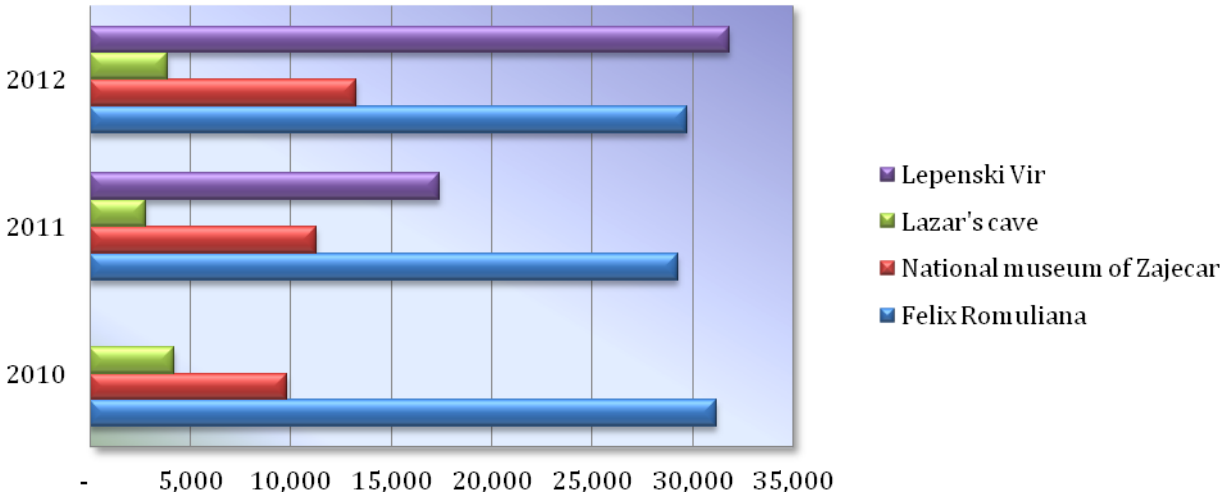


Fig. 8: Number of visitors per tourist attraction in Timok region

(Sources of data: Felix Romuliana, National museum of Zajecar, Touristic Organization of Bor, Archaeological site Lepenski Vir)

As for the spa resorts in Timok region, Gamzigradska spa and Sokobanja are the most visited. However, even though spa tourism is well developed, the number of visitors is decreasing every year in Gamzigradska spa. Sokobanja has ten times more visitors than Gamzigradska spa. On the other hand, the average length of stay is in favour of Gamzigradska spa where visitors stayed for 12.5 nights on average in 2011, compared to 6.1 nights in Sokobanja.

In 2011, visitors of the region's spas were coming from domestic rather than foreign origin (Figure 9). Clear conclusion could be drawn that spa tourism must work hard towards opening doors and offering attractive possibilities to the international community.

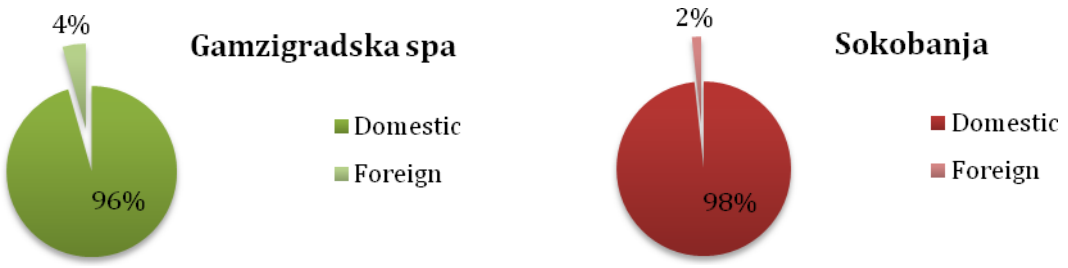


Fig. 9: Number of domestic and foreign visitors in Gamzigradska spa and Sokobanja in 2011

(Source of data: Statistical Office of the Republic of Serbia)

As for the mountain resorts in Timok region, the highest peak of the Deli Jovan mountain, Crni Vrh, remains the most visited over years, even though the total number of visitors is decreasing (Figure 10).

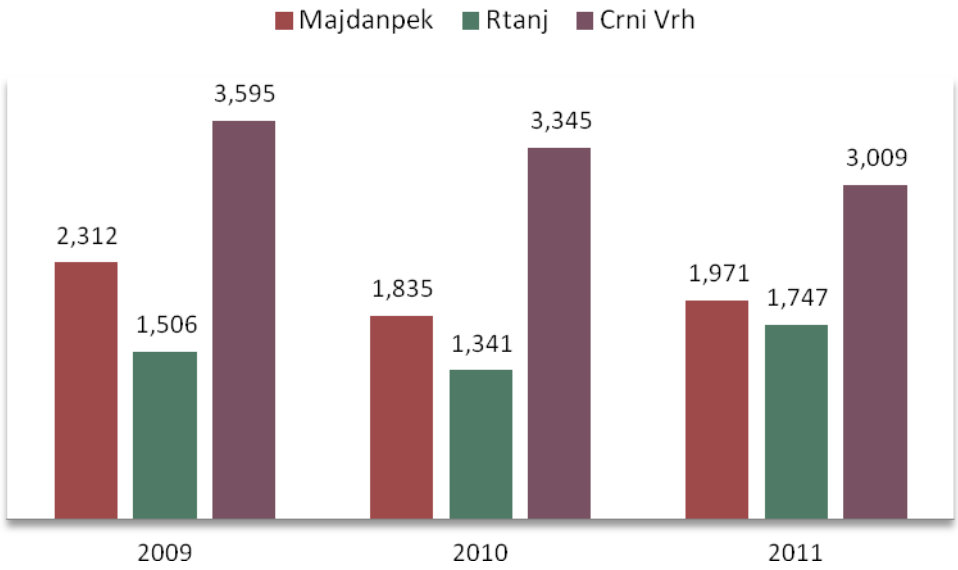


Fig. 10: Number of visitors in mountain resorts in Timok region, 2009-2011
(Source of data: Statistical Office of the Republic of Serbia)

4.3 Mountain areas

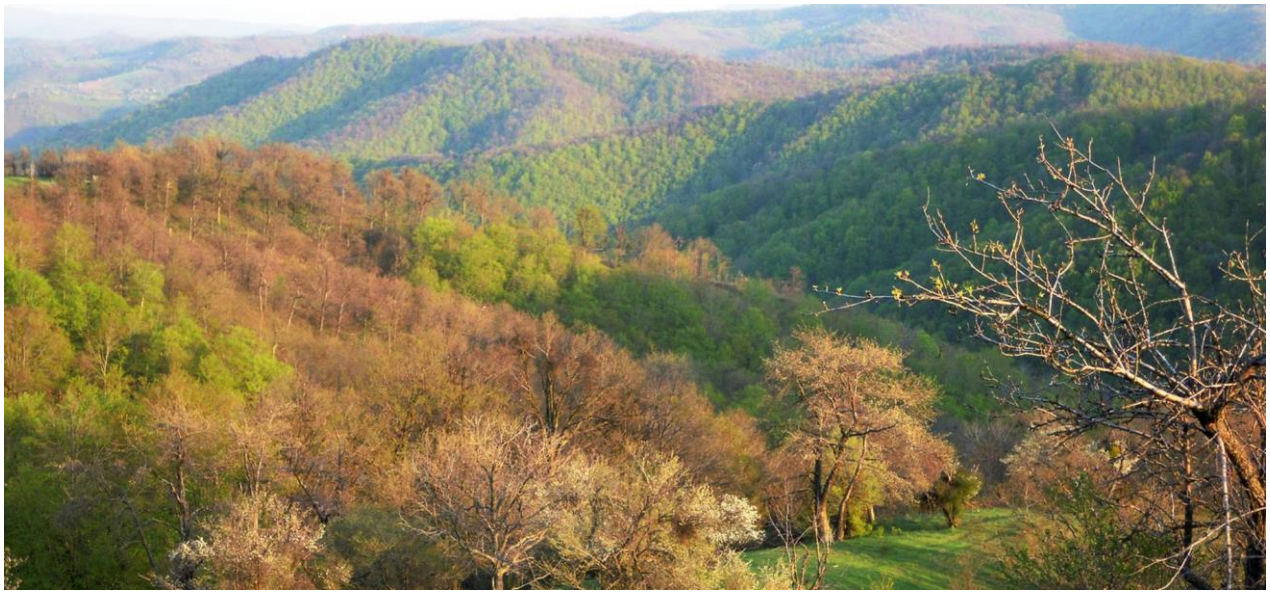
Due to their natural and environmental attributes, landscape qualities, geo- and biodiversity, as well as development potential, especially in tourism, high mountainous areas are a valuable resource for Serbia. In Eastern Serbia, ski slopes are located in Stara Mountain, in Majdanpek and Zajecar municipalities, Rtanj near Boljevac and Crni Vrh near Bor. Fast growth mountain tourism development has occurred recently in the Stara Mountain, where total state investments on infrastructure amounted to over 36 million euro for the period 2004-2009.

Among the mountain areas of national importance in Eastern Serbia are the mountains of the Carpathian-Balkan Arc with their highest peaks: Somrda (Somrdski kamen : 803m), Liskovac (V.liskovac : 803m), Miroc (Veliki Strbac : 768m), Veliki Greben (V.Crni Vrh : 656m), Deli Jovan (Crni Vrh : 1,141m), Homoljske planine (Stubej : 940m), Veliki Krs (no name : 1,148m), Mali Krs (Garvan : 929m), Beljanica (Velika Kapa : 1,339m), Kucajske Mountains (V.Tresta : 1,284m), Rtanj (Siljak : 1,570m), Tupiznica (Glogovacki vrh : 1,160m), Devica (Capljinac : 1,187m), Ozren (Leskovik : 1,174m) and Stara Mountain (Midzor: 2,170m).

High mountainous areas are however facing numerous problems related to tourism development, including:

- incomplete infrastructure;
- potential conflict between environmental protection and tourism development;
- inefficient system for sustainable management of protected areas;
- incomplete implementation of the strategy on development and environmental protection;
- gap between quality of infrastructure in high mountainous areas and the developed touristic areas of other parts of Serbia;
- slow legal and economic mechanisms hindering development of these areas;

- lack of planning, programs and project documents for the development of mountain areas, as well as insufficient support for the implementation of existing ones.



Ill. 2: Slopes of Liskovac mountain in Djerdap National Park, following the R104 road

4.4 Development of tourism in Timok region

The Government of Serbia, through the Ministry of Economy, is encouraging small and medium enterprises (SMEs) to come together in clusters. A cluster, in essence, is a group of related companies and entities from one economic branch, including governmental and non-governmental agencies, and scientific and educational institutions brought together to solve problems, improve business, and achieve success in competitiveness, and domestic and international promotion.

South-Eastern Serbia is one of the four main tourism clusters[14] in the country (Table 10).

Tab. 10: Tourism clusters in Serbia

Cluster	Key	Key products	Key destination
Vojvodina	Water treasure, Panonian pleasure	• events • special interests • navigation • mountains and lakes • rural tourism	○ Palic-Subotica ○ Fruska gora-Novi Sad ○ Gornje podunavlje ○ Deliblatska pescara-Vrsac ○ Zobnatica-Karadjordjevo

[14] Tourist clusters, as resource base and the main areas of tourism development, represent spatial - functional units integrated in tourism offer, with all tourist destinations related characteristics, urban centers and tourist places, spa resorts and location.

Tab. 10: Tourism clusters in Serbia – *continued*

Cluster	Key	Key products	Key destination
Belgrade	Seductive and exciting, creative and innovative	• business tourism + Meetings, Incentives, Conferencing, Exhibitions (MICE) • city breaks • events • special interests • navigation	○ Belgrade ○ Zemun ○ Smederevo ○ Vinca
South-Eastern Serbia	Life-loving, breathtaking, still undiscovered	• roundtrips • special interests • mountains and lakes • health tourism • rural tourism	○ Sokobanja ○ Nis ○ Djerdap-Lepenski Vir ○ Vlasinsko Lake ○ Stara Mountain
South-Western Serbia	History and traditions of the pleasures of nature	• events • special interests • mountain and lakes • health tourism • rural tourism	○ Zlatibor ○ Kopaonik ○ Divcibare ○ Golija ○ Tara

(Source: Serbian Tourism Development Strategy - the first phase report, former Ministry of Trade, Tourism and Services, Belgrade, 2005)

4.4.1 Tourism as a regional key strategic development priority

Four key strategic development priorities are identified in the Regional Development Strategy of Timok: Agriculture and food processing; Energy based on renewable energy resources; Tourism; and Exploitation and processing of mineral resources. Accessibility and transport in the region and Environmental issues are included as inter-sectoral (horizontal) priorities.

Regarding tourism, six specific tourism development areas are identified in the RDS, as follows:

1) **Cultural tourism** → various cultural monuments, archaeological sites, historical monuments and natural areas exist in the region;
2) **Health (spa) tourism** → long tradition in this type of tourism (over 170 years) and great potential in existing hydrothermal sources used for therapeutic treatments;
3) **Mountain tourism** → suitability for hiking and skiing, for example the Stara Mountain with the highest peak in Serbia (Midzor, 2,169 m) and the highest number of snowy days per year;
4) **Nautical tourism** → Danube river; attractive parts such as Donji Milanovac, where the Danube is at its widest in its lower course and provides the best conditions for boat sailing (Balkan boat sailing championships often taking place there);
5) **Rural tourism** → preserved authentic rural areas with traditional rural life, including unique wine cellars of Rajac, Rogljevo and Smedovac. More than 100 wine cellars, in the characteristic style of traditional architecture;

6) **Specialized forms of tourism such as hunting and speleology** → one of the best hunting grounds in Serbia (Dubasnica) belongs to the Municipality of Bor.

According to the RDS, the development of tourism will be based on two elements: flexibility in order to maintain long-term profitability, continuous adjustments to the competitive environment and the needs of tourists, and improving the attractiveness and originality of destinations; and sustainability, as the ability to achieve and maintain profitability with minimum negative impact on society and the environment.

It will be of great importance for Serbia to implement concrete actions for better positioning at the global tourist market. Additionally, having a unique slogan, which will be recognizable by everyone, is a useful tool for reaching more potential tourists. Comparison between the national slogan**,** created by the Tourist Organization of Serbia, and other countries' slogans is presented in Table 11. Creation of a tourist slogan for Timok region would distinguish it from other parts of Serbia and increase its interest for future visitors.

Tab. 11: Tourist slogans of Serbia and neighbouring countries

Country	Slogan
Serbia	***"Life in the Rhythm of the Heartbeat"***
Slovenia	*"I feel SLOVEnia"*
Hungary	*"Go to Hungary"*
Romania	*"Explore the Carpathian garden"*
Bulgaria	*"Unique in its diversity"*
Montenegro	*"Wild Beauty"*

(Source: www.wtmlondon.com)

4.4.2 Branding products

Touristic products of Serbia are not commercialized enough in either domestic or foreign markets. Tourism development in the Zajecarski and Borski Districts is highly dependent on proper marketing and encouragement of tourist venues, while competitiveness should be upgraded based on the types of tourism this region is able to offer.

The tourism products selected as the most important for Timok region and relevant for the sustainable development of rural tourism according to research supported by the Millennium Development Goals Achievement Fund are: lambs, cheese, white cheese, honey, traditional sausage "peglana", "belmuz" (cheese with corn flour prepared in traditional way), traditional dish prepared from grape leafs, filled dry peppers, wine, fruit brandy, sour cherries, and pottery handcrafts.

Within the Timok region, municipal touristic organizations, the City of Zajecar and the Regional Development Agency of Eastern Serbia (RARIS) are in charge of tourism promotion, coordination of

supply and demand, and cultural and educational activities. Establishment of a Regional Body for Touristic Management in the whole Timok region is currently under development. Several spatial plans, urban development plans and master plans for the region - already completed or in their final phases (relating to Stara Planina, the Danube, cultural heritage, Sokobanja etc.) – should encourage tourism-related investments in the Timok region.

A critical limitation for the development of tourism in Timok region is related to its political and socio-economic context, particularly in undeveloped areas. Availability of a varied and diversified tourism offer in Serbia could attract increasing foreign demand (particularly in cultural sites and sites of ecological value). However, the existing low level of services and low quality of touristic offer is coupled with disproportionally high prices due to the lack of competition in the tourism industry. Furthermore, the involvement of local population in tourism projects is currently quite limited. Organized tourism content is available only in few destinations. There is an urgent need of affirmation of the tourism development planned by the Ministry of Finance and Economy (Sector for Tourism) in particular, but also by the National Tourism Organization of Serbia, RARIS and local tourism organizations of Timok region.

4.4.3 Related on-going and completed projects

RARIS is a project partner on the *TRANSDANUBE project* (Sustainable Transport and Tourism along the Danube). The project aims to develop sustainable mobility along the Danube by promoting train, bus, bike and ship transport to disseminate the concept of sustainable tourism in the whole Danube region. The project is funded by the South East Europe Program with European Regional Development Fund and IPA contributions of over 2 million €. During the two-year project implementation (10/2012 – 09/2014) the following activities are foreseen:

- Transnational state-of-the-art report on sustainable mobility in the Danube region (including collection good practices);
- Common vision on soft mobility;
- Regional action plans;
- Sustainable transport offers => Soft mobility tourism packages;
- Digital map, presenting information on existing mobility and tourism offers;
- Regional marketing plans and specific marketing activities.

The *Raising competitiveness of Eastern Serbia tourism -project* was implemented by RARIS in cooperation with tourism organizations of 8 Eastern Serbia municipalities and the municipality of Pirot, from September 2007 to May 2008, with the overall aim to develop a joint tourism offer for Eastern Serbia. It was funded by the Organization for Security and Co-operation in Europe (OSCE), the Ministry of Economy and Regional Development – Sector for Tourism, and local authorities. The following activities were carried out during project implementation:

- Main tourism providers were identified and data on tourism offer of Eastern Serbia was gathered;
- Network of key tourism providers in Eastern Serbia was established by signing a Protocol of Cooperation between 9 tourism organizations, RARIS and the Regional Chamber of Commerce of Zajecar;
- Regional tourism packages for Eastern Serbia were prepared;

- A study tour of Eastern Serbia was organized for the main tourism agencies of Belgrade and Novi Sad and for the national media;
- Regional promotional materials were prepared and distributed;
- Regional web portal http://www.traveleastserbia.org/ was set up;
- Joint tourism offer for Eastern Serbia was developed and promoted in Belgrade and Novi Sad;
- A regional seminar 'Competitiveness of Eastern Serbia tourism' was organized

The *Advancement of tourist signalization in Eastern Serbia -project* was jointly implemented by RARIS and the Road Enterprise "Zajecar", and financed by PE "Roads of Serbia". The project covered all 8 municipalities of Eastern Serbia plus the municipality of Zagubica, whose roads are being maintained by the Road Enterprise "Zajecar". Within the project, the following was set up:

- 10 "Gates of Eastern Serbia", i.e. large tourist info billboards, on each road that enters into Eastern Serbia. The billboards contain a touristic map of the whole region and a touristic map of the municipality where the respective billboard is located.
- 10 billboards / town tourist maps, in the centers of the following settlements: Majdanpek, Kladovo, Bor, Negotin, Zajecar, Boljevac, Knjazevac, Sokobanja, Zagubica and Donji Milanovac. These billboards display a tourist map of the town on one side and a tourist map of the municipality on the other side.

5 TRANSPORT SECTOR AND ACCESSIBILITY RELATED TO TOURISM

5.1 Transport characteristics at national and regional level

The Republic of Serbia has medium population density and developed road network. Compared with European Union countries, Serbia is one of the countries with a lower road density (Figure 11).

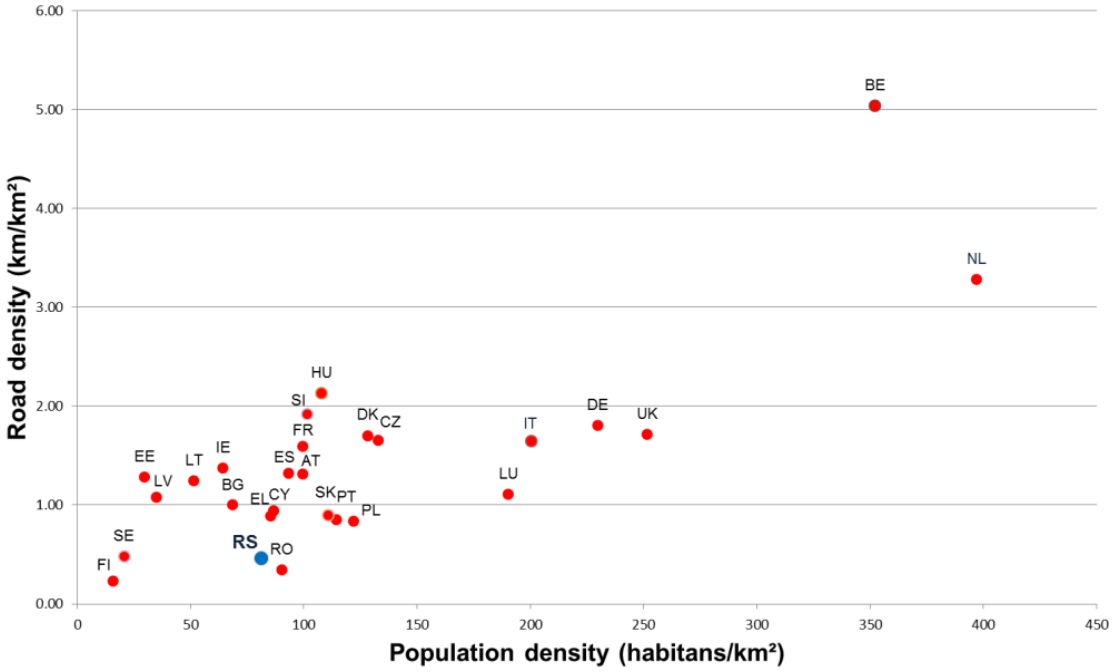


Fig. 11: Road and population density
(Source: ec.europa.eu/eurostat)

5.1.1 Pan-European corridors

Ten Pan-European transport corridors were defined at the second Pan-European transport Conference in Crete in 1994. These routes were chosen based on the amount of required investments in Central and Eastern Europe over the next ten to fifteen years. Additions were made at the third conference in Helsinki in 1997. The purpose of establishing the Pan-European transport corridor network was balancing between the development of European networks and the selection of corridors outside the European Union, with the aim of improving not only connections between Europe and the neighbouring countries from Eastern Europe and the Mediterranean region but also links between neighbouring countries themselves. The network of Southeast Pan-European corridors is presented in Figure 12.

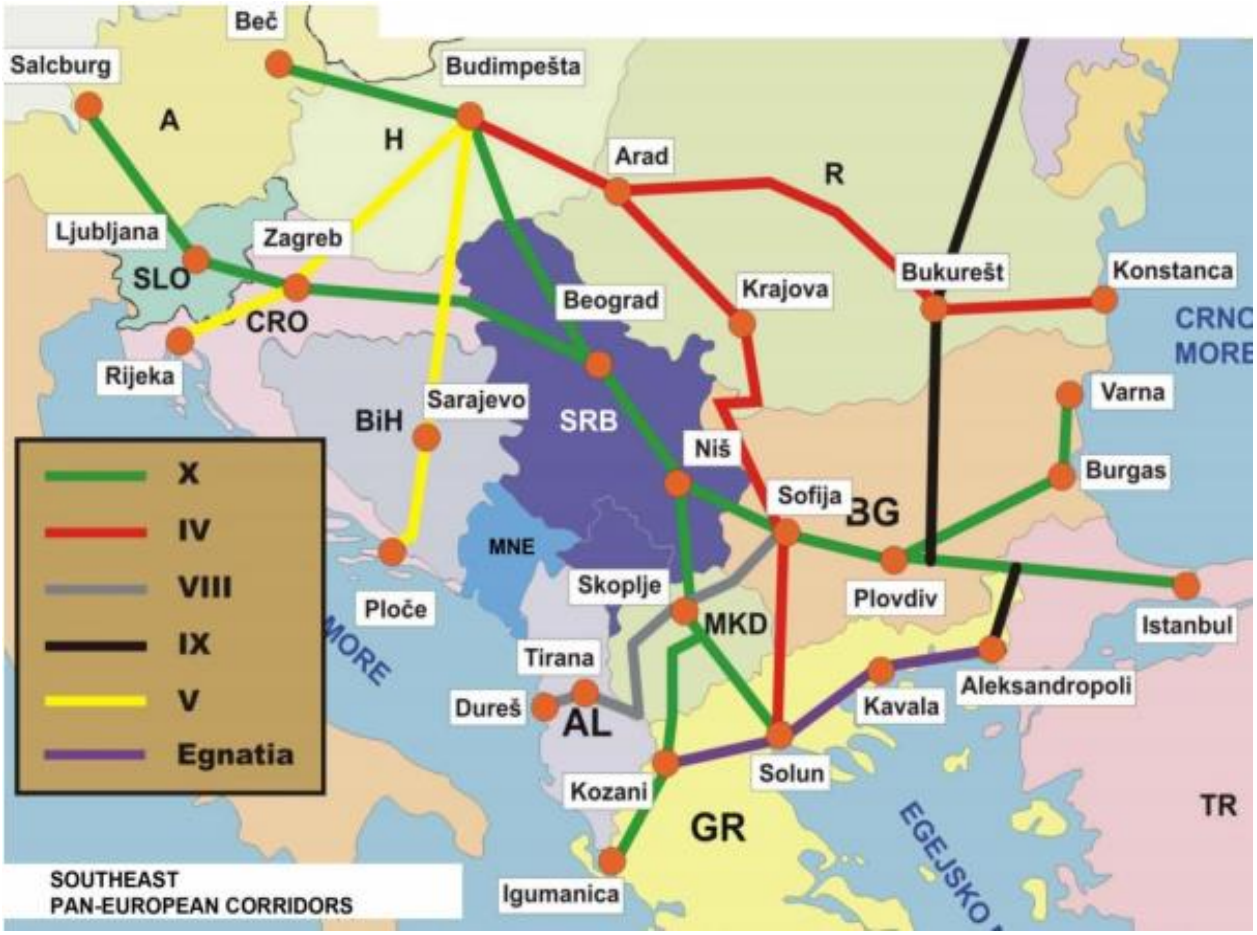


Fig. 12: Southeast Pan-European transport corridors
(Source: Public Enterprise "Roads of Serbia")

More than two thousand kilometres (2,150 km) of the main road network in Serbia is part of the international E- road network (E-roads).

The South-East Europe Transport Observatory (SEETO) is a regional transport organization established by a Memorandum of Understanding (MoU) for the development of the Core Regional Transport Network (CRTN), signed on 11th June 2004 by the Governments of Albania, Bosnia and Herzegovina, Croatia, the former Yugoslav Republic of Macedonia, Montenegro, Serbia, United Nations Mission in Kosovo and the European Commission. The aim of the SEETO is to promote cooperation on the development of the main and ancillary infrastructure on the multimodal South East Europe CRTN, to promote and enhance local capacity for the implementation of investment programmes, management and data collection and analysis on the CRTN. SEETO Comprehensive Road Network is presented in Figure 13.

Fig. 13: SEETO Comprehensive Road Network

(Source: www.seetoint.org)

Corridors and routes that pass through the territory of the Republic of Serbia are presented in Table 12.

Tab. 12: Corridors and routes through the Republic of Serbia

Corridor and Route	Route/Direction	Through Serbia (km)
Corridor X (1016 km)	Bregana (Slovenian border) - Zagreb (Croatia) - Belgrade (Serbia) - Skopje (the former Yugoslav Republic of Macedonia) - Bogorodica (Greek border)	514
Corridor Xb (185 km)	Horgos (Hungarian border) - Belgrade (Serbia)	185
Corridor Xc (110 km)	Nis (Serbia) - Gradina (Bulgarian border)	110
Route 3 (185 km)	Sarajevo (Bosnia and Hercegovina) - Uzice (Serbia)	54
Route 4 (590 km)	Vatin (Romanian border) - Belgrade (Serbia) - Bar (Montenegro)	414

Tab. 12: Corridors and routes through the Republic of Serbia – *continued*

Corridor and Route	Route/Direction	Through Serbia (km)
Route 5 (107 km)	Paracin (Serbia) - Vrska Cuka (Bulgarian border)	107
Route 6 (259 km)	Ribarevina (Montenegro) - Ribarici (Serbia) - Pristina (Kosovo under the UNSCR 1244/99) - Skopje (the former Yugoslav Republic of Macedonia)	25
Route 7 (345 km)	Lezhe (Albania) - Pristina (Kosovo under the UNSCR 1244/99) - Doljevac (Serbia)	96

(Source: General Master Plan for Transport in Serbia, 2009)

There are approximately 800 km of road and 760 km of railways on Corridor X in Serbia. Some sections are still under construction, as displayed in Figure 14.

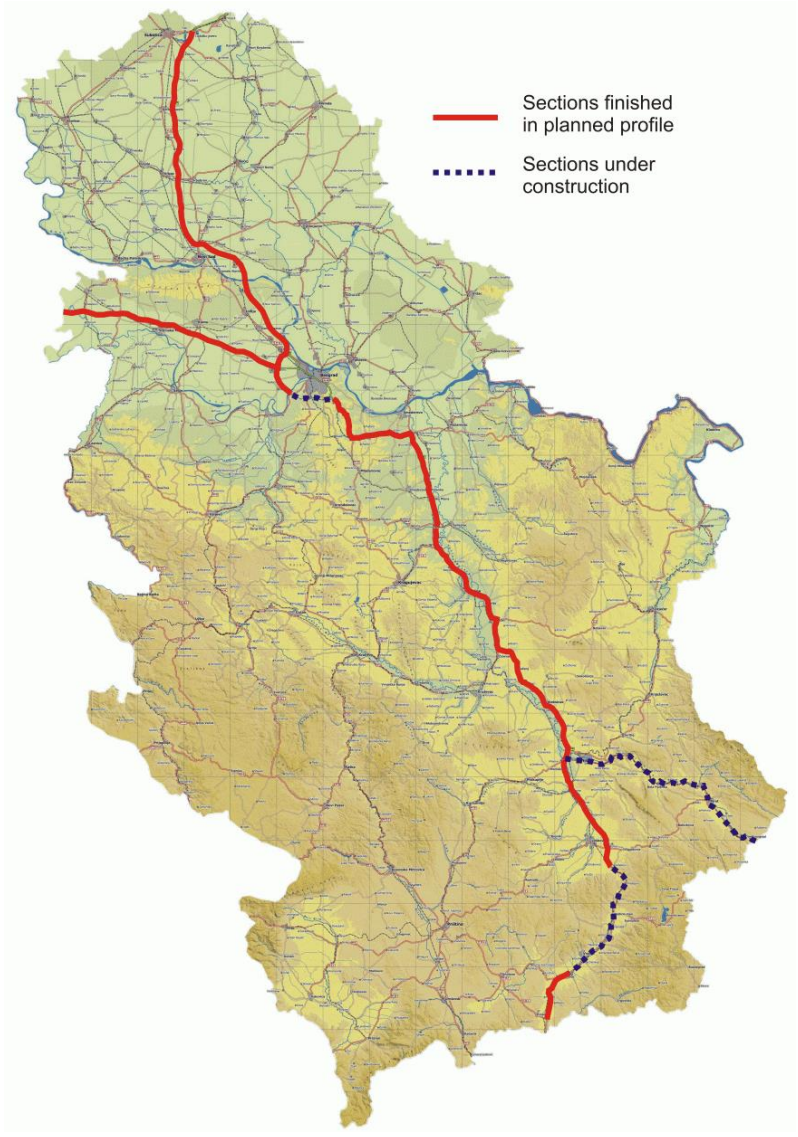


Fig. 14: Sections on Corridor X in Serbia

(Source: "Corridors of Serbia" Ltd.)

Integration of Serbian transport networks to the main regional network is regarded as one of the basic preconditions for economic and social development of the country.

5.1.2 Modal split

It is of vital importance for the development of Serbia that all transport modes are present in both passenger and freight transport. Current modal split for passenger and freight transport on national level shows that there is no balance between different transport modes. Road transport mode has the highest share (70%) compared to other transport modes in passenger transport, while in the case of freight transport railway transport mode forms approximately 60%. Percentage share of each transport mode in total passenger and freight transport from 2007 to 2011 can be seen on Figure 15.

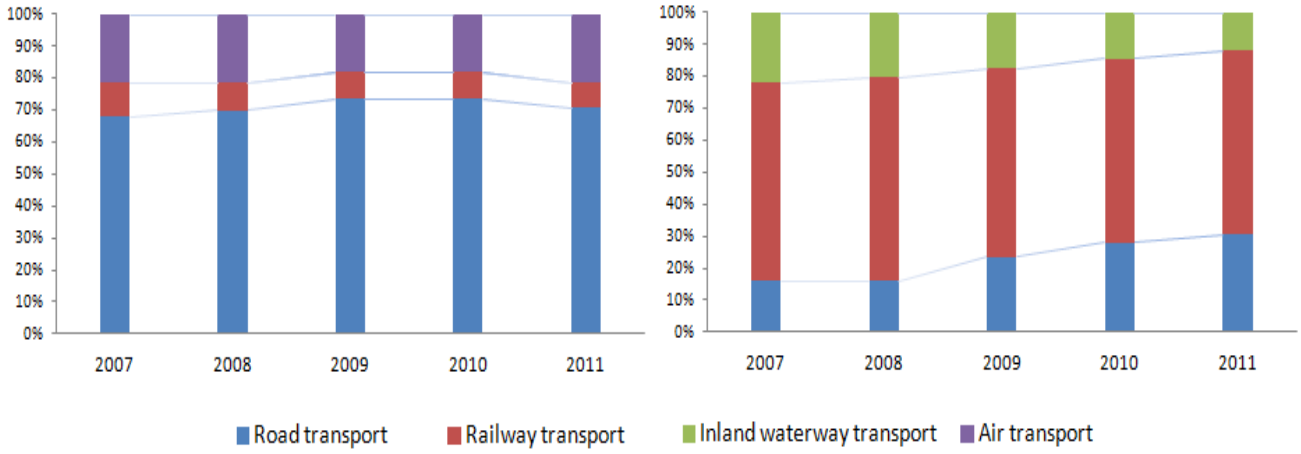


Fig. 15: Modal split for passenger (left) and freight (right) transport on national level
(Source of data: Statistical Office of the Republic of Serbia, Transport, 2012)

In terms of passenger transport, the low share of rail transport undeniably does not support sustainable transport development, nor does the inland waterway transport which practically does not participate in passenger transportation at all. Furthermore, its share in freight transport is constantly decreasing since 2007. Share of air transport differs in passenger and freight transport, while it is more or less constant in the first case, cargo transported via air is not comparable to other modes, and thus not visible on the Figure 15.

5.1.3 Road transport

Serbia's road network is composed of first and second category roads, and its estimated value is approximately 13 billion USD.

The national road network is situated between the altitudes of 30 meters (Negotin) up to 1,700 meters (Golija). 40% of the road network length is on altitudes over 600 meters. Asphalt roads of first and

second category were mostly constructed during the period from 1962 to 1985, whereby many routes kept old alignments so that asphalt was placed over the existing crushed stone.

The 40,845 km road network[15] of Serbia consists of (Figure 16):

- 5,525 km of I Category roads[16]
- 11,540 km of II Category[17] roads
- 23,780 km of Local roads

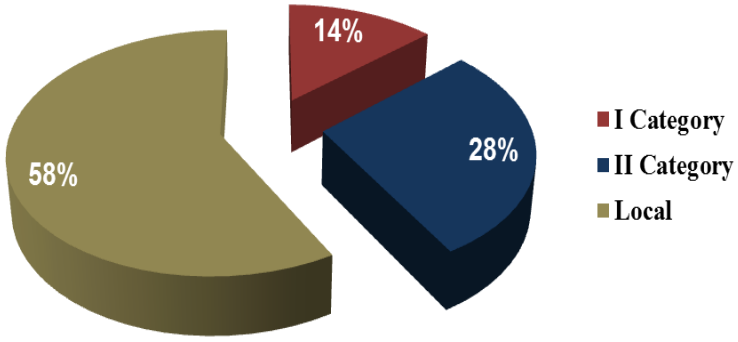


Fig. 16: Road categories in Serbia
(Source of data: Public Enterprise "Roads of Serbia")

The road network includes:
- 498 km of toll motorways
- 136 km of toll semi-motorways

On the level of the entire road network, two fifths of the sections are crushed stone and earth carriageways. 32% of first and second category roads are over 20 years old, and only 14% are 10 years or less old. Due to insufficient investment in road maintenance and absence of new road construction for many years, current condition of the Serbian road network is not satisfactory.

The Timok region is situated between three Pan-European Corridors: Corridor 10 (Republic of Serbia), Corridor 4 (Bulgaria) and Corridor 7 (Danube river). This good position is one of the main potentials for economic and social development of the region (Figure 17).

[15] It is important to note that at the end of 2012 a re-categorization of Serbia road network was carried out, however this new categorization has not been fully accepted. Therefore, all data shown here is related to the old categorization. This does not affect the quality of the analysis.
[16] I category road definition: link the territory of the country with the European road network, ie. constitute a segment of the European road network, link the territory of the country with the territories of the neighbouring states, link all segments of the territory of the country and interconnect economically significant conurbations in the territory of the country.
[17] II category road definition: link the territories of two or more districts, ie. segments within the territory of the district.

Fig. 17: Position of Timok region

(Source: Regional Development Strategy of the Timok region)

The good position of the Timok region does not, however, guarantee good accessibility of the region. Accessibility refers to the ease of reaching goods, services, activities and destinations, which are together called opportunities. Access *per se* is the goal of most transport activities, also in tourism. Transport infrastructure is fundamental for the smooth operation of the internal market, for the mobility of persons and goods, and for the economic, social and territorial cohesion of the region.

Road network of the Timok region consists of (Figure 18):

- 479 km of I Category roads
- 1055 km of II Category roads
- 1403 km of Local roads

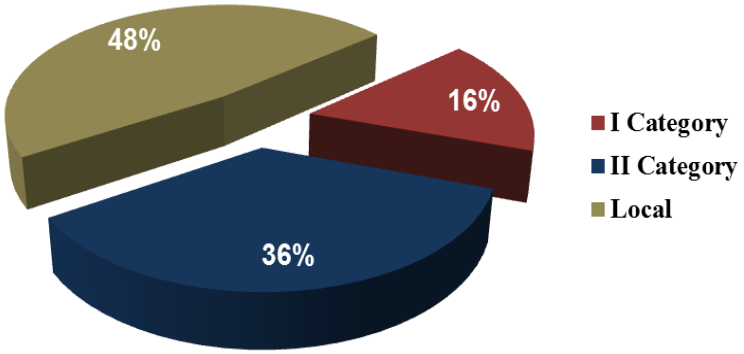


Fig. 18: Road categories in Timok region

(Source of data: Municipalities and Regions in the Republic of Serbia, 2012. Statistical Office of the RS)

There are different road categories between settlements and municipalities in the Timok region. Categorization of the road network per municipality is given in Table 13.

Tab. 13: Road network characteristics of Timok region

District/Municipality	Total	Modern[18] road surface	I Category		II Category		Local (km)	
			All	Modern road surface	All	Modern road surface	All	Modern road surface
Borski District	**1510**	**1020**	**319**	**319**	**473**	**423**	**718**	**278**
Bor	390	267	46	46	192	175	152	71
Kladovo	255	145	64	64	47	40	144	41
Majdanpek	412	232	120	120	91	91	201	22
Negotin	453	351	89	89	143	118	221	144
Zajecarski District	**1427**	**1113**	**160**	**160**	**582**	**470**	**685**	**483**
Boljevac	271	168	38	38	108	65	125	65
Zajecar	493	378	89	89	211	172	194	117
Knjazevac	501	421	33	33	185	161	283	228
Sokobanja	161	146	-	-	78	73	83	73

(Source: Municipalities and Regions in the Republic of Serbia, 2012. Statistical Office of the RS)

In Borski District 67% of the total road network has modern surface, whereas in the Zajecarski District the percentage is 78%. The highest percentage of unpaved roads is on the local road network, especially in Borski District.

First category roads of Timok region are shown on Figure 19.

[18] Modern road surface means asphalt or concrete surface.

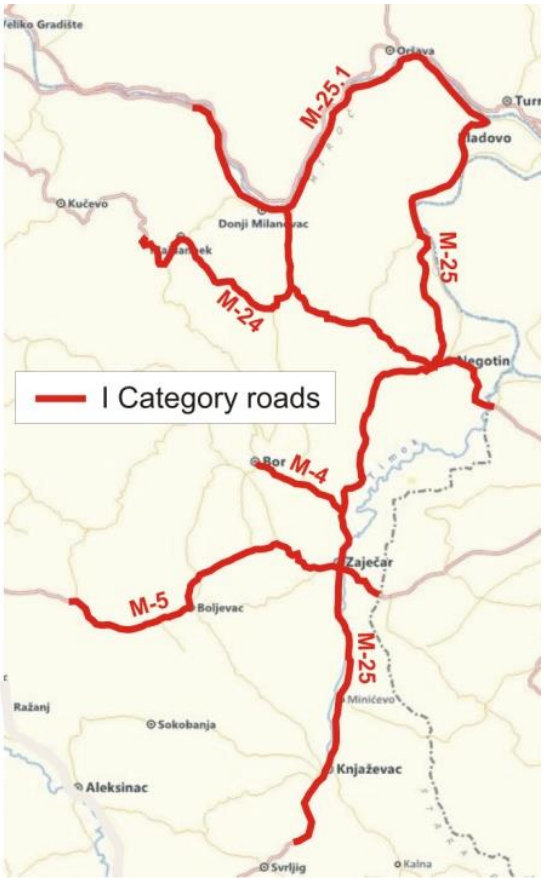


Fig. 19: First category roads in Timok region

I. M-5 (E761[19]): Paracin – Zajecar – Vrska Cuka

II. M-25 (E771): Nis – Zajecar – Kladovo

III. M-25.1: Kladovo – Donji Milanovac – Veliko Gradiste – Pozarevac

IV. M-24: Negotin – Majdanpek – Pozarevac

V. M-4: Zajecar – Bor

The road network density of first and second road category in Timok region is above the national average level, while the density of local roads is below the national average. Comparison at national and regional level is provided in Table 14.

Tab. 14: Road category comparison at national and region level

	Highways (km)	I category roads (km)	II category roads (km)
Serbia	634	5,525	11,540
Timok region		479	1,055
%		8.67	9.14

(Source: Municipalities and Regions in Republic of Serbia, 2012, Statistical Office of the Republic of Serbia, and PE "Roads of Serbia")

In Serbia there are 2,638 bridges and 78 tunnels, including:

- 215 bridges and 1 tunnel situated on highways;
- 996 bridges and 71 tunnels situated on I category roads;
- 1,427 bridges and 6 tunnels situated on II category roads.

[19] The international E-road network is a numbering system for roads in Europe developed by the United Nations Economic Commission for Europe (UNECE).

Out of this total, 22 tunnels are located in the Timok region: four on the section Paracin – Zajecar (road M-5), and eighteen on the section Kladovo – Pozarevac (road M-25.1). Most tunnels do not have appropriate traffic signalization and only two of them, on the road M-5 (Strmen and Grza), have lights.

Motorisation rate, as external socio-economic indicator, is very important for passengers' mobility and modal choice. In Table 15, motorisation rate in 2011 is shown for all vehicle categories at national and regional level.

Tab. 15: Motorisation rate per vehicle category at national and regional level

Type of vehicle	Republic of Serbia		Timok region	
	Number	Motorisation rate per 1000 inhabitants	Number	Motorisation rate per 1000 inhabitants
Mopeds	10,266	1.42	493	1.74
Motorcycle	29,190	4.06	1,071	3.77
Passenger cars	1,677,510	233.41	53,192	187.22
Buses	8,805	1.22	226	0.80
Lorries (trucks)	158,873	22.10	3,878	13.65
Trailers and semi-trailers	124,111	17.27	44	0.15
Special purpose motor	2,736	0.38	129	0.45
Road tractors	228,641	31.81	13,781	48.51

(Source: Statistical Office of the Republic of Serbia, Transport, 2012)

In both cases, the highest level of motorization rate is in case of passenger cars. Interestingly, the motorization rate of mopeds, special purpose motor vehicles and road tractors in Timok region is above the national average.

Figure 20 illustrates traffic volume in Timok region expressed through Annual Average Daily Traffic (AADT) for 2011. It is based on a 24-hour, two-directional counting at a given location.

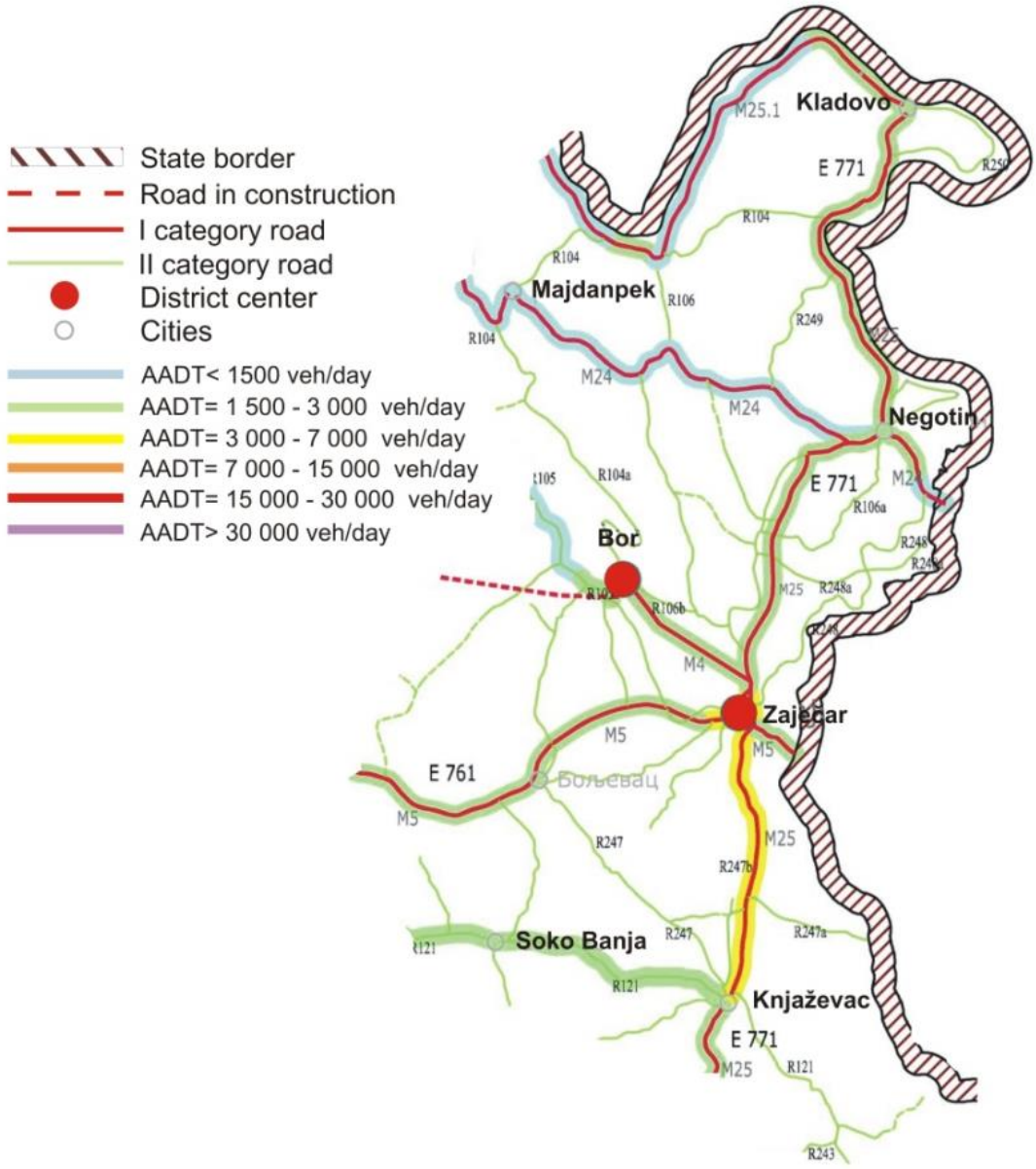


Fig. 20: Traffic volume in Timok region in 2011
(Source: Public Enterprise "Roads of Serbia")

AADT on the main roads in the region is in the range of 1,500 to 3,600 vehicles/day. Figure 20 shows that only on road M-25 the AADT measured was greater than 3,000 vehicles/day.

In terms of traffic flow composition on these roads, passenger cars (PC) have the largest share followed by commercial vehicles (CV) as shown in Table 16. The share of passenger cars in traffic flow composition increased in the period 2007-2011 for about 8%, while share of commercial vehicles decreased for about 62%. The share of buses in traffic flow composition is very small compared to other vehicles.

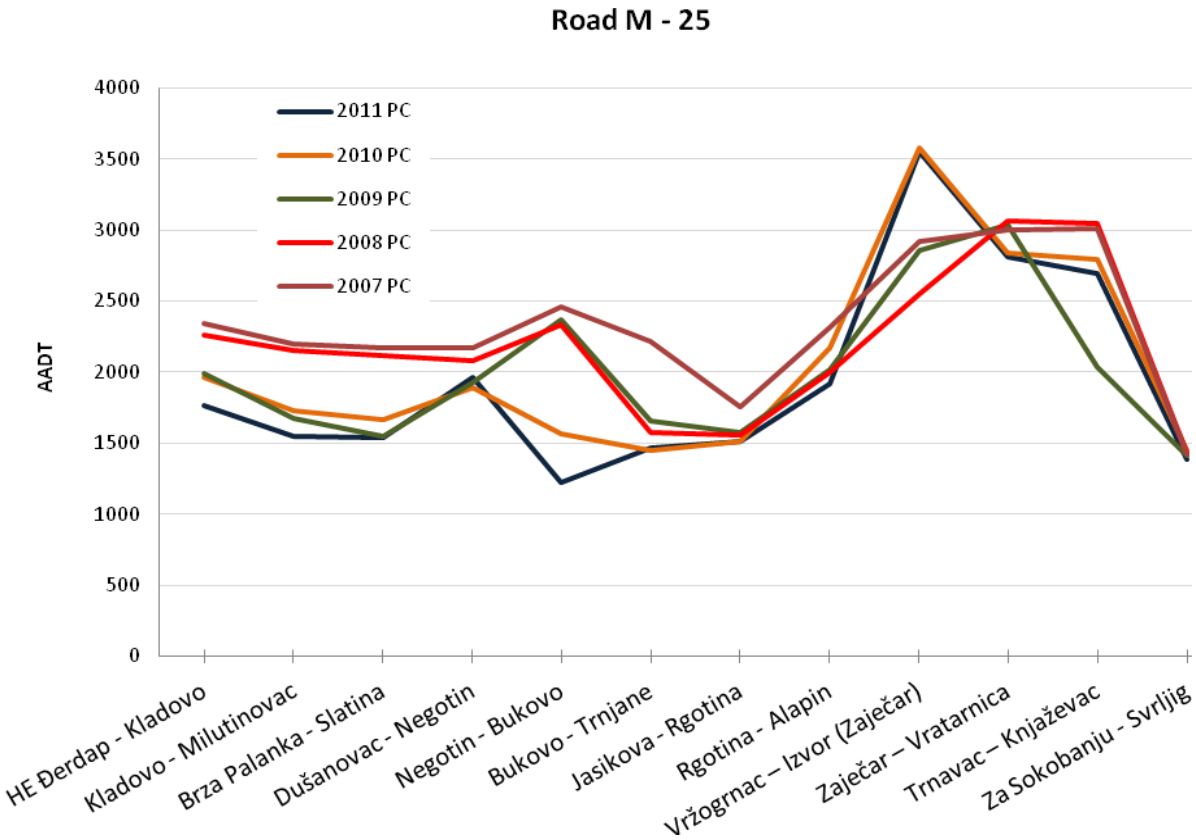
Tab. 16: Traffic flow composition, %

	PC	Bus	CV*
2007	80.7	1.18	18.12
2008	79.37	1.22	19.41
2009	79.94	1.31	18.74
2010	85.95	1.58	12.47
2011	87.02	1.83	11.15

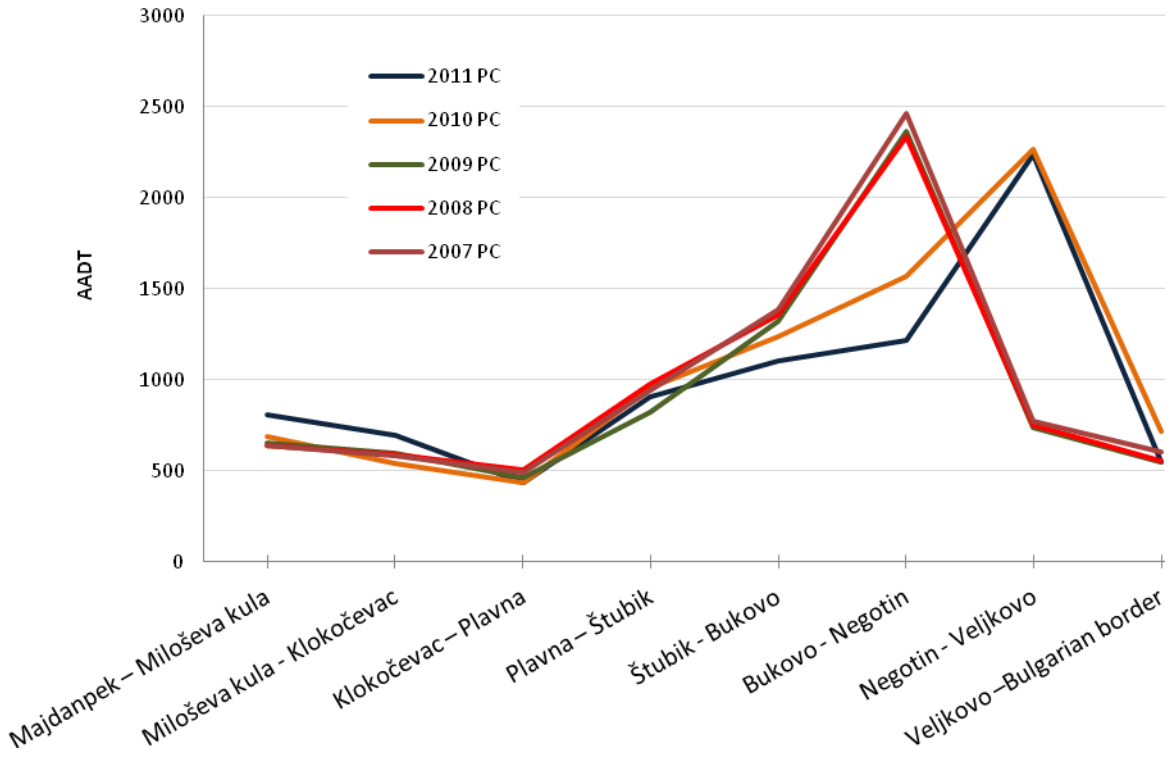
* Commercial vehicles include all types of freight vehicles

(Source: Public Enterprise "Roads of Serbia")

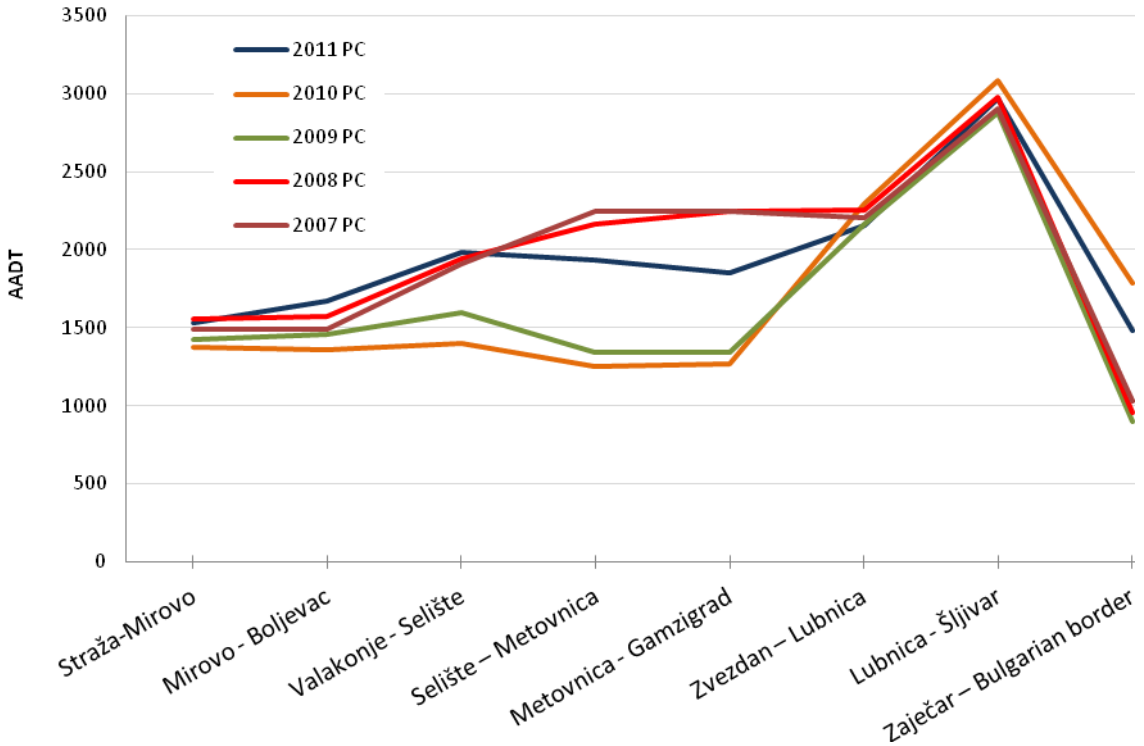
The following graphs show changes in AADT of passenger cars on the characteristic sections of main roads in Timok region from 2007 to 2011 (Figure 21).

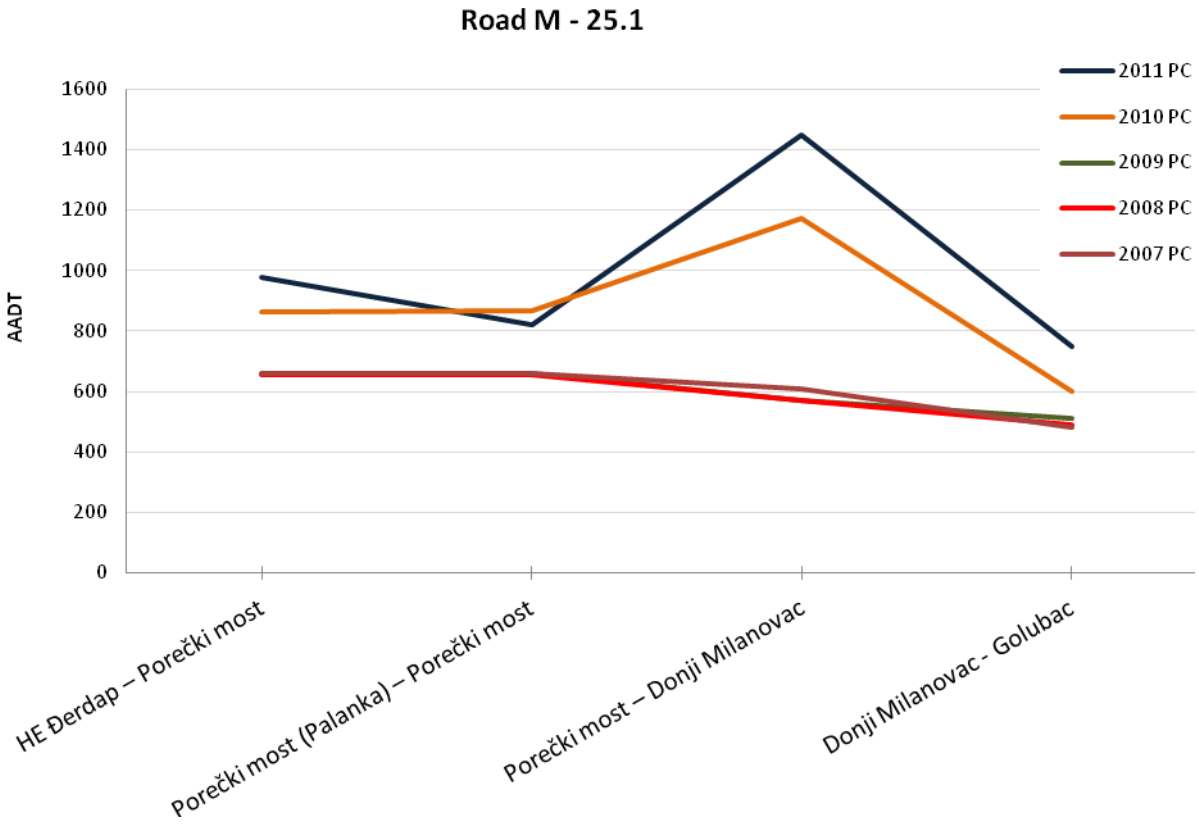


Road M - 24



Road M - 5





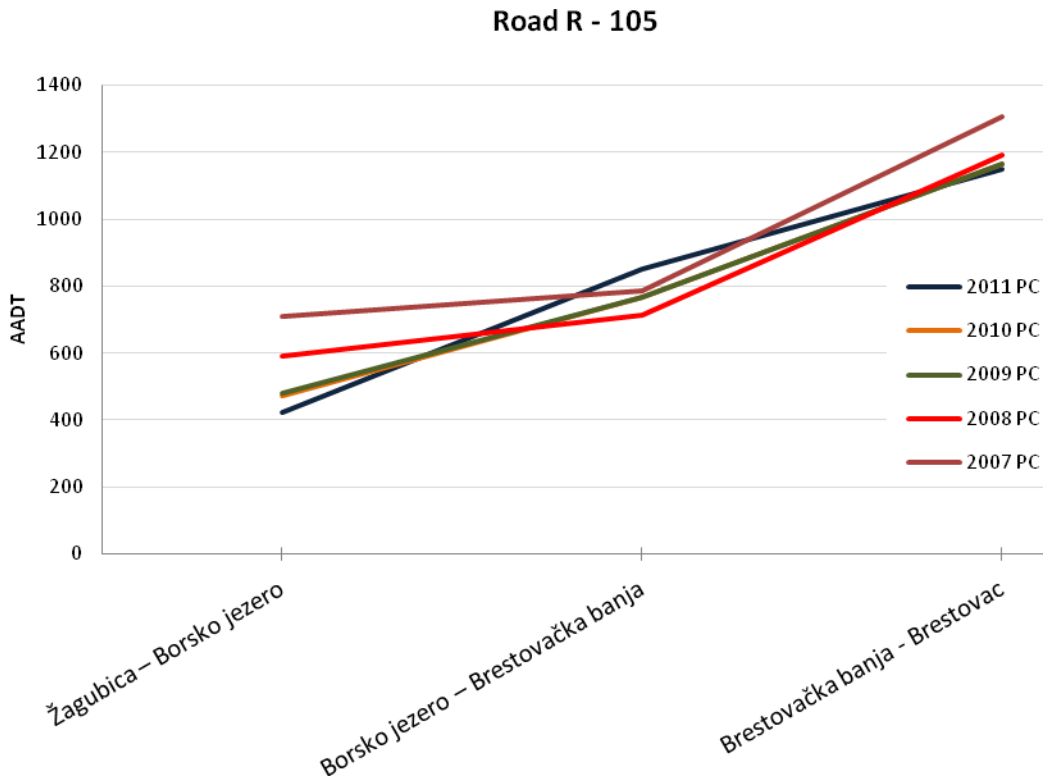


Fig. 21: Changes in AADT of passenger cars on main roads in Timok region

(Source of data: Public Enterprise "Roads of Serbia")

The measured values of AADT on these sections are low and varied over the years. The variations are small and it is very difficult to determine trends in the variations. Increase in AADT in 2011 is recorded in some sections of the road M-25.1. Reduction of AADT in the same year is recorded in some sections of roads M-24 and M-25. Measurements on one section of the road M-4 started only in 2010, and data show 12% decrease in AADT from 2010 to 2011.

In Timok region, there is public transport bus service but it cannot be considered to be of satisfactory quality, particularly when it comes to the network of local lines. Data relating to both regional centres, Bor and Zajecar, indicate that there is a considerable lag in these areas compared to the existing public transport systems in Central Serbia. Bus transportation in the region is poorly organized and it is used by small number of passengers.

In Timok region there are seven checkpoints operating alongside the border to Bulgaria and Romania.

Serbian – Bulgarian border

Checkpoint *Mokranje – Bregovo:* access is comparatively good, but due to economic reasons, traffic intensity is low. Low traffic intensity keeps the road in a good condition and upcoming investments in building a new checkpoint will enhance the mutual cross-border activities. Situation is similar at the border in *Vrska Cuka*. At this checkpoint access is also comparatively good but the traffic intensity is still very low.

Serbian – Romanian border

Border crossings are: Iron Gate I Hydroelectric Power Station, on the first category road M-25, at port Prahovo, and docks Kladovo, Donji Milanovac and Tekija.

5.1.4 Railway transport

Serbia's railway network includes 3,819 km of lines, which are partly located within the Pan-European Transport Corridor X, but also within other important international routes connecting Serbia with neighbouring countries. The network is of regional and local importance and it is operated by the Public Enterprise "Railways of Serbia".

The railway network dates to the end of the 19th century (the first railway line in Serbia was put into operation in 1884), and more than 55% of all lines were built during that time. The first railway connection between Serbia and Western Europe, the Belgrade-Subotica-Budapest line is still operational. It connects three major Serbian cities: Belgrade, Novi Sad and Subotica with Budapest and Vienna, and further on to whole Europe. The current characteristics of railway network is summarised in the Table 17.

Tab. 17: Rail network characteristics at national level

	Length (km)
Total length	3,819
Single track lines	3,819
Double track lines	276
Narrow gauge lines	21.7
Non electrified lines	2,540
Electrified lines	1,279

(Source: Statistical Office of the Republic of Serbia, Transport, 2012)

The backbone of the Serbian rail network is part of the Pan-European Transport Corridor X with branches from Subotica, on the Hungarian border (Corridor X_b, Figure 13), and Dimitrovgrad on the Bulgarian border (Corridor X_c, Figure 13). In total, the backbone rail line has a length of 872 km, or 23% of the Serbian rail network.

The efficiency of the Serbian rail network is subject to temporary speed restrictions. This is due to the unsatisfactory track conditions caused by insufficient investments in railway maintenance and development. In addition, as a consequence of the disintegration of the former Yugoslavia and the transition period during the 1990's, transport on most parts of the Serbian railway network rapidly declined. Over the last 15 years the number of passengers, as well as the number of passenger trains, has been in constant decline. There are external and internal reasons for this trend. First, the decrease of railway passenger transport is a consequence of the war in former Yugoslavia and the economic crisis during the 1990's. Second the rail infrastructure was not maintained during that period. Third, there have been structural changes to the rail market.

Most of the railways have standard gauge (1,435 mm), except the railway *Sargan – Mokra gora –National border* with narrow gauge (760 mm). Main railway lines are designed for a maximum speed of 120 km/h.

Today, average speed on Serbian railways varies slightly over 60 km/h. There is no problem with ruling gradient.

The performance of rail network infrastructure, the quality of rail rolling stock, and the quality of services are all below European standards and do not meet modern transportation expectations and standards. Freight transport contributes 38% of PE "Railways of Serbia" total revenues, i.e. about 45% of whole transport income. Trend of passenger railway transport in passenger–kilometres and freight railway transport in ton–kilometres on Serbian railways from 2007 to 2011 is shown on Figure 22.

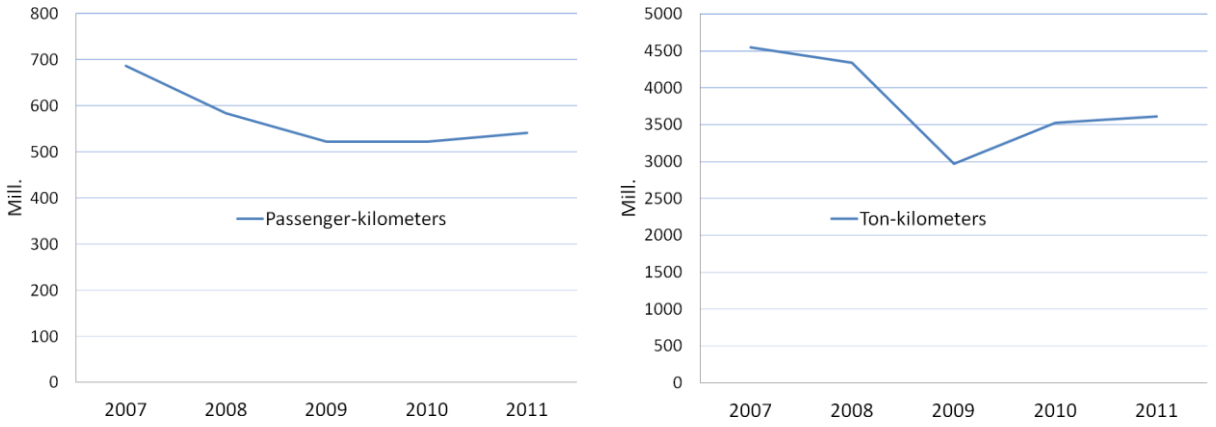


Fig. 22: Passenger and freight railway transport

(Source of data: Statistical Office of the Republic of Serbia, Transport, 2012)

The passenger and freight transport have experiences a trend of decrease during the observed period. A large reduction in ton-kilometres in 2009 could be explained with reduced needs for rail transport on national (e.g. one of the main beneficiary of Serbian railways was company "U.S. Steel" which greatly reduced demand in that year) and international level due to the economic crisis. It is encouraging that the passenger-kilometres increased from 2009 to 2011, but the overall results show that the railways capacities are not sufficiently used in the passenger and freight transport.

In Eastern Serbia there are only 240 kilometres of standard gauge railways, which is 6.3% of the total railways length in Serbia. There are no electrified railways in the Timok region.

In the Timok region there are sections of railways Nis – Knjazevac - Zajecar - Prahovo and Zajecar - Bor - Majdanpek – Pozarevac. Main characteristics of these sections are presented in the Figure 23.

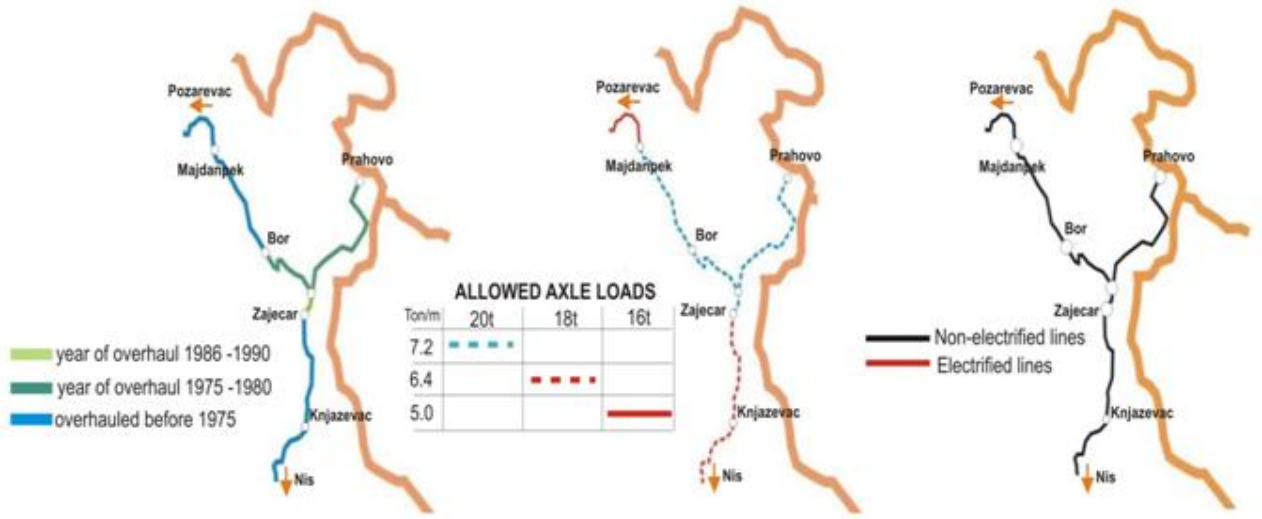


Fig. 23: Characteristics of railway network in Timok region

(Source: General Master Plan for Transport in Serbia, 2009)

Conditions on railway lines in Timok region are not satisfactory, which is evidenced by the fact that the speed limits in the region are in the range of 40 km/h to 80 km/h.

Due to the planned connection of the port "Prahovo" with the Republic of Romania via Djerdap II in the future, railways in the Timok region would get international importance, and would have to meet the EU requirements (particularly with regard to operation efficiency, quality of transport services and infrastructure management). The main restraint for further development of railway transport is the existing poor infrastructure. Long travel time reduces the number of passengers because it is less attractive, making this transportation mode less profitable.

It would be of significant importance to introduce new train connections, which would directly connect the major urban centers of the region (Zajecar, Negotin, Bor) with key urban centers in the Republic of Serbia (Belgrade, Nis, Kragujevac). Currently the only direct connection exists between Nis and Zajecar.

On the four railway stations in Timok region with the highest number of passengers, during the period from 2010 – 2012 a continuous decrease in sold tickets was registered (Figure 24).

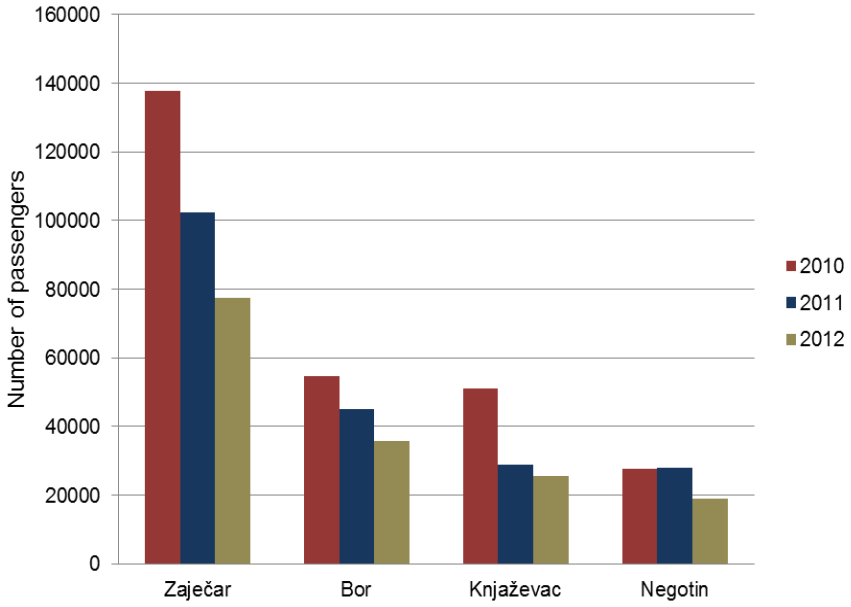


Fig. 24: Number of sold tickets at railway stations; Timok region
(Source of data: Serbian Railways JSC)

When it comes to freight transport, the most significant stations are Prahovo, Zajecar and Bor. The volume of freight railway transport depends on the economic development of the region. There are concerns that the current state of the railways will not be able to provide the needed support for the projected economic growth of the region. In order to avoid this scenario, it is necessary to harmonize the development of railway infrastructure with planned processes of urbanization, economic development and development of urban centres and settlements.

5.1.5 Air transport

Serbia has two main airports, *"Nikola Tesla" Airport* in Belgrade and *"Constantine the Great" Airport* in Nis. Almost 100% of all civil aviation operations are performed on these two airports. However, according to the Spatial Plan of Serbia there are further 22 civil airports in addition to the two above-mentioned. In addition, there are several military airports operated by the Defence System of Serbia. Out of the total 30 airports only 11 have a concrete runway (Figure 25).

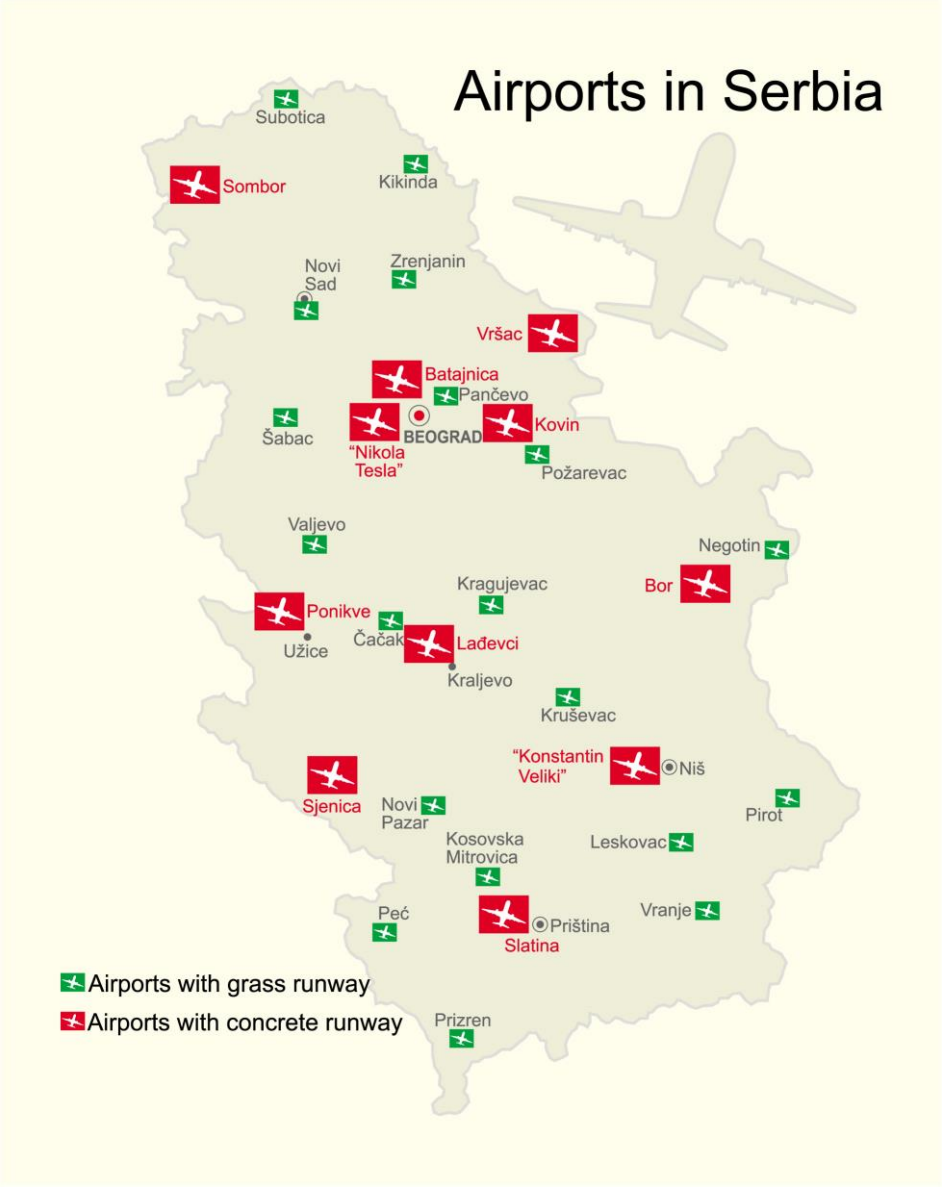


Fig. 25: Airports in the Republic of Serbia
(Source: General Master Plan for Transport in Serbia, 2009)

International air transport in Serbia records positive trends in passenger transport.

Cargo air transport records an increase in cargo dispatched, while cargo arrived by air transport records decrease (Figure 26).

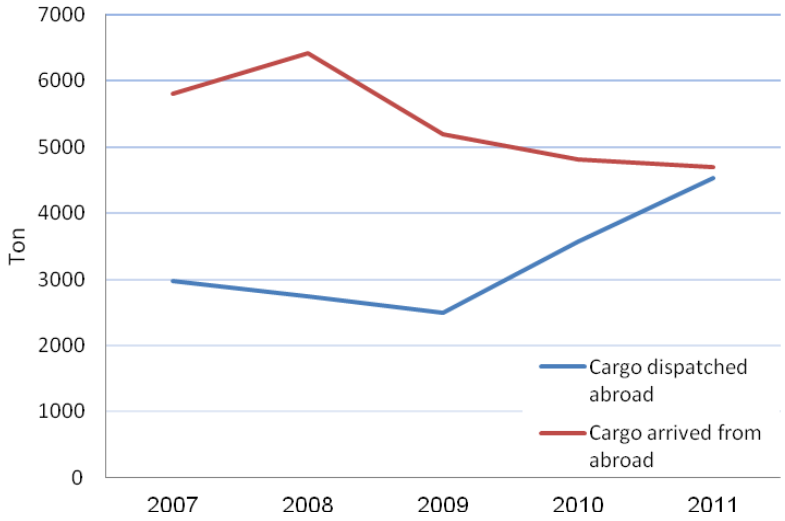


Fig. 26: Air cargo transport in Serbia
(Source of data: Statistical Office of the Republic of Serbia, Transport, 2012)

In Timok region there are three airports: *"Bor" Airport, "Minicevo" Airfield* and *"Kobisnica" Airfield.*

"Bor" Airport is located southeast of the town Bor (coordinates: 44° 1′ 5.65″ N and 22° 8′ 13.69″ E; elevation 386 m). It is designed for civil aviation, such as sport flying and commercial air transport. There is one terminal building with flight control and hangar, one runway, parking slots for eight airplanes and a heliport.
Airport "Bor" is one of the key transport hubs for Timok region, because the existing road or rail networks cannot satisfy the transport needs of this region of +200,000 inhabitants. Bor airport has a comparative advantage due to its proximity to Bulgaria and Romania. Opening of air transport market in this area may create conditions for development not only for this particular airport, but also for the region as a whole. The draft of the new Air Transport Law of Serbia includes a development component, which could present an opportunity for the Bor airport. It presents the unused potential of the Timok region that could significantly improve transport connection across the area.
On March 19th 2012, the first airplane in 15 years landed at Bor Airport, and ever since light/medium aircraft, recreational and training flights have revived on the Airport. Bor Airport management plans to improve the airport facilities, especially to provide lights for night operations, expand the runway and create conditions for obtaining international traffic certificates.

Airfields "Minicevo" and "Kobisnica" are airfields with grass runways that are currently not in use.

Airfield "Minicevo" is located 15 km north of town Knjazevac, near the village Minicevo. This airport is designed for sport flying of ultra-light aircraft, gliders and parachuting. Currently this facility is not in use because the grass runway is used for agriculture.

Airfield "Kobisnica" is located 6 km southeast of town Negotin, near the village Bukovac. It is agricultural airfield with grass runway, currently not in use.

5.1.6 Inland waterway transport

The Danube river forms the important Pan-European transport Corridor VII and the strategic link between Europe and Eurasia that could support the development of trade, tourism and services in Serbia. Out of the total navigable length of the Danube (the total of 2,580km), 588 km lies on the territory of Serbia (Figure 27).

Fig. 27: Pan-European inland waterway corridor VII
(Source: EU Strategy for the Danube Region)

Two Pan-European transport corridors run through Serbia: land Corridor X and inland waterway Corridor VII that links 10 European countries with navigable section of the Danube. In Serbia, starting from the state border with Hungary and all the way to Belgrade, the Danube runs almost parallel with the European highway and railroad, making this geographical area extremely valuable and important from economic and mobility point of view.

The basic infrastructure of the internal water transport of Serbia is made up of the Danube, Sava and Tisa rivers and the Danube-Tisa-Danube canal, eight international ports on the Danube, as well as several ports on the Sava river and one port on the Tisa river. Serbia uses the Danube as its main freight transport route to Croatia, Hungary, Slovakia, Austria and Germany upstream, and with Romania, Bulgaria,

Moldavia and Ukraine downstream. The Sava river is used as an inland transport route with Croatia and Bosnia and Herzegovina, and the Tisza river is used as an inland transport route to Hungary. Table 18 shows the length of inland waterways in Serbia.

Tab. 18: Length of national inland waterways in Serbia

Inland	Total navigable length (km)	Waterway length (km) by vessel carrying capacity				
		up to150t	up to 400t	up to 650t	up to 1500t	over 1500t
Danube	588	588	588	588	588	588
Sava	207	207	207	207	207	-
Tisza	164	164	164	164	164	-
Tamis	41	41	3	3	3	-
Begej	77	77	77	77	31	-
DTD[20]	600	342	321	321	-	-
Total	**1,677**	**1,419**	**1,360**	**1,360**	**993**	**588**

(Source: Statistical Office of the Republic of Serbia, Transport, Storage and Connections Bulletin for 2009 (2011))

With the average density of its inland waterways of 21.7 km/1,000 km^2, Serbia is above the EU-25 and EU-27 averages (Figure 28).

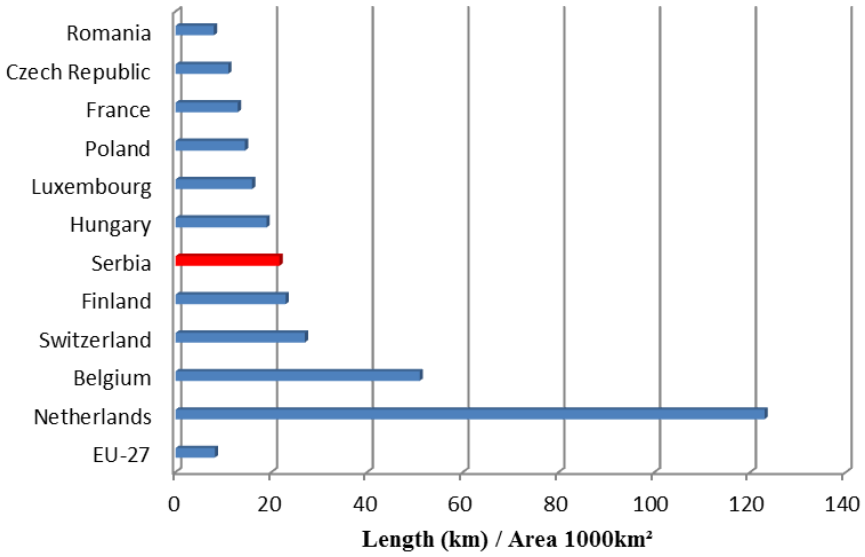


Fig. 28: Density of inland waterways network

(Source: Eurostat; Energy, Transport and Environment indicators 2009)

[20] Danube-Tisza-Danube Canal

Passenger transport on Serbia's inland waterways is very low and is around 100 passengers per year. In the case of freight inland waterway transport, a negative trend is recorded. The situation is similar when it comes to the movement of goods in transit at river ports (Figure 29).

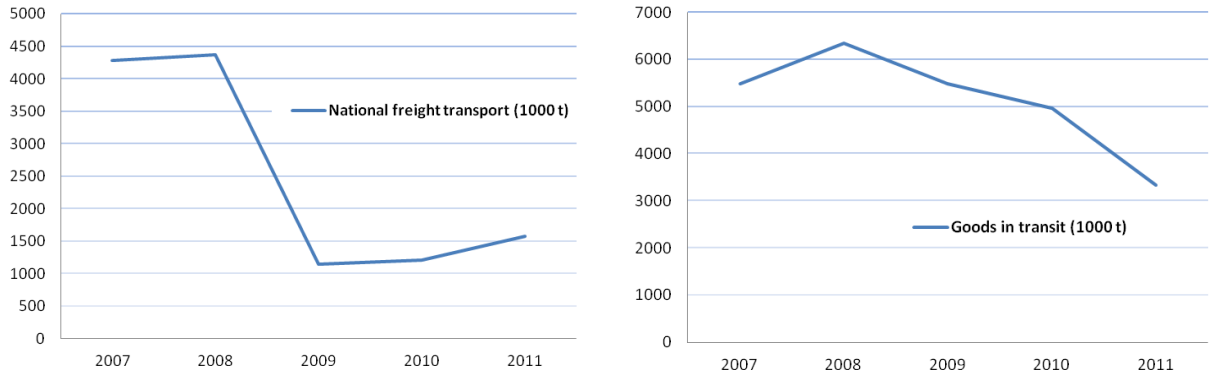


Fig. 29: National freight transport and goods in transit at river ports

(Source of data: Statistical Office of the Republic of Serbia, Transport, 2012)

According to the classification of the European Economic Commission (EEC), the Danube in the Timok region belongs to the highest category of class VII of large waterways. It offers great potential for the development of Timok region both in terms of tourism and economy.

Specific waterway infrastructure of Danube within the Timor region include:

1) Port "Prahovo", which is the last operational freight port on the Danube river flow in Serbia. This port is located 4 km downstream the Hydroelectric Power Plant (HPP) Djerdap II and it is connected by railway and roads with other parts of Serbia. An average capacity of load processing per day is 12,000 tons with a simultaneous processing of 7 vessels. The port has three parallel railway tracks, with the total length of 971 m, enabling simultaneous processing of 160 wagons. However, its technical equipment and supporting infrastructure are in a very poor condition;
2) Docks Donji Milanovac, Tekija, Kladovo and Lepenski Vir with the primary function of accepting tourist ships and presenting cultural heritage (except in Kladovo where there is a shipyard and port for cargo ships with very low capacity); and
3) Numerous smaller piers.

5.2 Main touristic attractions in the Timok region and their accessibility

In Timok region there are eight municipalities, four of them belong to Borski District, and other four to Zajecarski District. Distance between these administrative centres, and their distance from Belgrade, is presented in Table 19.

Tab. 19: Distance between cities in Timok region and from Belgrade

Distance (km)	Bor	Majdanpek	Negotin	Kladovo	Zajecar	Knjazevac	Boljevac	Sokobanja	Belgrade
Bor	-	66	72	124	29	82	34	69	245
Majdanpek	66	-	72	90	81	134	105	160	184
Negotin	72	72	-	57	54	107	91	133	241
Kladovo	124	90	57	-	106	159	143	185	249
Zajecar	29	81	54	106	-	55	41	81	248
Knjazevac	82	134	107	159	55	-	60	53	290
Boljevac	34	105	91	143	41	60	-	30	208
Sokobanja	69	160	133	185	81	53	30	-	237

(Source: Travel Planner, http://www.banje-srbije.com/udaljenost_izmedju_gradova.php)

The main touristic attractions of the Timok region are described below, including a presentation of their accessibility by different means of transport. The touristic sites and main transport routes are also displayed in the detailed map below (Figure 30)[21].

[21] Detailed analysis of accessibility of other protected areas (listed in Annex 1) and mountain sites is beyond the scope of this study. Considering that the nature tourism represents great potential of the region, its development should be planned according to the results from future studies that will deal with accessibility of protected areas and mountain sites in particular, with an emphasis on mapping the hiking routes of the region and developing nature-based tourism packages.

Fig. 30: Accessibility of main touristic attractions in Timok region

Note: Due to the complexity of the road network in the region, only roads relevant for the accessibility of the analysed tourist attractions are shown on the map.

5.2.1 Borski District

Municipality of Bor

The municipality of Bor is located in the central part of Timok region. The most important roads in this municipality are first category road M4, which connects Bor with Zajecar, and second category roads R105 (which connects Bor with Belgrade) and R104 (connection between Bor and Majdanpek). The construction of road Bor - Svilajnac that would connect Bor with the Pan-European Corridor X is planned. Railway line passes through the municipality of Bor and connects it north with Belgrade and south, through Zajecar, with Nis. Furthermore, in Bor there is a small civil airport whose potential is not adequately used.

The area surrounding Zlot village is well know for cave sites such as Lazar's cave, Vodena, Mandina, Vernjikica and Hajducica. The complex is known as Zlot caves.

The village of Zlot is situated 18 km from Bor. The village can be reached via local road from the municipality of Brestovacka Banja. Several public buses run daily from Bor to Zlot village. Entrance to Lazar's cave is approximately 3 km from the Zlot village. Few hundred meters further there is an entrance to another cave - Vernjikica cave. Tourists often use the opportunity to take a walk from the village Zlot to these sites.

Lazar's cave is an important speleological site. The cave has two channels of which the older is dry (fossil), and the younger is wet (active). The total length of the longer channel is 1592 m. The main channel with the entry hall is 623 m long.

The Lazar's river canyon (1,755 ha) is the deepest and longest canyon in Eastern Serbia, it was awarded protected status of Nature Monument in 2000. Due to the steepness of its rocky sides, it still has not been completely explored. The canyon is famous for its numerous caves and pits. It is characterized by a unique combination of limestone canyon valleys and distinct morphological traits, numerous caves. The entrance to the canyon is directly next to the entrance of Lazar's cave.

Brestovacka spa offers treatments for various diseases and injuries related to joints and bones, skin, kidney, digestive tract and nerves, to name a few. The Brestovacka Spa combines 10 sources of thermal waters, with temperatures ranging from 32 °C to 42 °C.

Brestovacka spa is located 6 km northwest of Brestovac municipality and 10 km southwest of municipality of Bor. It is situated in the valley of the Borska river, a tributary of the Black Timok. Accessibility to tourists is via Bor. Bor and Brestrovacka Spa are connected with intercity public transport.

Municipality of Majdanpek

Majdanpek municipality is situated in the northern part of Timok region The municipality is 131 km (Pozarevac direction) and 170 km (Paracin direction) from the Pan-European Corridor X. Main road connections to the municipality include first category road M24 (which runs through Majdanpek) and M25.1 representing the connection with the Corridor X. The main second category roads are R104 (runs through Majdanpek) and R106[22]. There are also 172 local roads, which complete the transport connections. The Danube (Corridor VII) runs for 54 km along the northern border of the Majdanpek. The municipality is connected with Belgrade and rest of Eastern Serbia by railway (station just outside of the town of Majdanpek).

Lepenski Vir (Lepen Whirl) is one of the most significant Mesolithic and Neolithic archeological sites, dating back 8,000 years. It is located on the banks of the Danube in Djerdapska Klisura (The Iron Gates). This locality, which was named after the Danube whirl, was the centre of one of the most important and complex prehistoric cultures.

Lepenski Vir can be reached by boat on the Danube (Corridor VII), by first category road M25.1 (Belgrade - Kladovo), and by bike on the bicycle route “Eurovelo 6” (section Belgrade - Iron Gates).

Valja Prerast is a natural stone bridge, protected as a natural monument of great importance within the first category of protection. It is 150 m long and 9.7 m wide, opening at the bottom towards the riverbed. The protected area also covers the scenic mountain river of the same name.

Valja Prerast is located 12 km from the municipality of Majdanpek, near the village of Blizna. Majdanpek and the Blizna village are connected with intercity public bus lines.

Rajko`s Cave belongs to a group of river caves. The Rajko river flows through the cave. After flowing underground for 893m, the river reappears and adjoins the Pasco river at the exit of the cave.

Rajko's cave is located 2.5 km from the municipality of Majdanpek; therefore it is possible to visit the cave on foot from Majdanpek.

Municipality of Negotin

The municipality of Negotin is located in the northeast part of Timok region, near the border with Bulgaria and Romania. Negotin is connected with the neighbouring municipalities and the rest of the

[22] Re-categorized to first category by the new, still non-official, national road categorization.

country by first and second category roads, the railway and the waterway system. Part of the eastern border of the municipality formed by Danube (Corridor VII), and this represents one of the main potentials for the municipality and its connection with Europe. The main first category roads are M24 and M25, connecting Negotin with Belgrade, land Corridor X and other parts of the Timok region. There are a large number of second category roads that pass through the municipality. A railway line also runs through Negotin (Nis - Zajecar - Negotin - Prahovo). In Prahovo there is a port, which is equipped mainly for the receipt and dispatch of goods.

The Vratna Canyon (Gates) has been under first category protection since 1957. At this site a crystal clear mountain river flows through Vratna stone gates. The Vratna Canyon is rich in numerous species of flora and fauna, unique in Europe, and hosts several under-explored caves of exceptional beauty and configuration.

Vratna gates are located in Negotinska Krajina, 30 km from Negotin, in the village Vratna, in the valley of the river Vratna with limited access. A local bus service is runs from the municipality of Negotin to the village Vratna.

Zamna river has its origins at the Deli Jovan mountain and flows into the Danube near the village of Mihajlovac. Zamna runs through a steep canyon in the village of Plavno, including through a tunnel in a huge natural rock. Fans of extreme sports are frequent visitors to the Zamna canyon. The site was proclaimed first category Natural Monument the same year as Vratna Canyon.

Plavno village is located close to a first category road M24 (section Negotin – Majdanpek).

Rajacke Pimnice wine cellars are specialized in the processing of grapes and the production of high quality white and red wines. The underground cellars were built of stone in the 18th century. At the beginning of the 20th century, Rajac wines were famous in Europe and won top medals in wine fairs.

Rajacke Pimnice is located on a hill known as the White Hill, 2 km from the village of Rajac, and 24 km from Negotin. From Negotin, Rajac can be reached through a local road. Rajac can also be reached by train, as it is located on the railway line Negotin – Zajecar, trains run runs five times daily. Public bus lines departing from Negotin pass through Rajac.

Municipality of Kladovo

Kladovo municipality is located in north-eastern Timok region, on the banks of Danube (Corridor VII). Kladovo is peripheral in relation to the main road network corridors in the country, but due to main roads M25.1 (Belgrade - Kladovo) and M25 (Nis - Kladovo), it is relatively well connected with Belgrade and other parts of Serbia. Main regional roads include the second category roads R250 and R104. It is possible to arrive via Danube in Kladovo town, however docks in the area are not adequately equipped.

IRON GATE AND NP DJERDAP

After the Donji Milanovac gorge, the Danube enters a 19 km long gorge – the Djerdap gorge (or Iron Gate). It is the narrowest (140 m) and the deepest (90 m) point of the Danube. Before the construction of the Hydroelectric Power Plant Djerdap, beluga and sturgeon from the Black Sea used to spawn in the deep whirlpools of the Djerdap gorge. In the gorge, up to 800 m high cliffs come down to the river almost vertically.

Iron Gate forms part of the National Park Djerdap (63,608 ha), the largest national park in Serbia. It has distinct cultural and historical values, significant natural ecosystems of exceptional value and well-preserved natural forest. The area is under protection since 1993. The National Park provides excellent opportunities for the development of different types of nature-based tourism (cycling, hiking, bird watching, etc.), as well as controlled hunting and fishing, respecting the rules of conduct in a national park.

Ill. 3: National Park Djerdap – glimpse of the Danube, near Donji Milanovac

A first category road M25.1 runs all along the National Park Djerdap (and along the Danube), making the NP Djerdap and Iron Gate very accessible for tourist visits. Unfortunately, the road has many tunnels with inadequate equipment. Since the area is located on the Danube, it is also possible to arrive by boat/ship. Part of the M25.1 road, which goes through NP Djerdap, is also on of the biking corridor ”Eurovelo 6”.

HYDROELECTRIC POWER PLANT "DJERDAP I"

Djerdap I is the biggest hydroelectric facility on the Danube, with the total length of 1,278 m, it is completely symmetrical and designed so that each country (Serbia and Romania) has equal parts of the main structure available which they use according to a joint agreement on exploitation.

HPP “Djerdap I” is located 10 km from Kladovo, on the main road M25.1. From the power plant there is also a connection road to Romania, the HPP also forming the border between Serbia and Romania.

Mala Vrbica is one of the 35 identified 'Important Bird Areas' (IBA) in Serbia, identified for their importance for bird identification, monitoring and protection.

Mala Vrbica is village 9 km from Kladovo, downstream on the Danube. It can be reached by a second category road. A public bus line runs from Kladovo to Mala Vrbica.

The Diana Fortress is located on the banks of Danube, on a hill near the village Sip. Construction of the oldest earthen and wooden fort is linked to the arrival of the first army troops to the Danube, at the beginning of the first century. First sonic excavations started in 1964 and have been conducted, with some breaks, up to date. Diana is one of the best-preserved Roman forts in the region, and the excavated structures have been conserved.

The fort of Diana is situated near the Danube, 8 km upstream from Kladovo, near turnoff from the main road M25.1.

The Trajan's Bridge, constructed in only two years between 103 and 105, was the work of a Syrian architect Apollodorus. It represents one of the most remarkable ancient construction works. The length of the bridge including the portals, was 1,133.90 m, and the part directly above the river had the length of 1,071 m.

The Trajan's Bridge is located near the village Kostol, 5 km downstream from Kladovo, on a second category road. Between Kladovo and Kostol village there is a bus line.

The Roman emperor Trajan constructed a road from Belgrade through the Iron Gate, up to the point where he constructed a bridge over the Danube (Trajan's Bridge). The board is now known as Trajan's board (Tabula Trajana). After the HPP Djerdap was constructed, the Roman road was flooded, and in order to preserve the Trajan's board, it was cut and placed 50 m higher. Today it can only be seen from the Danube.

5.2.2 Zajecarski District

Municipality of Zajecar

The municipality of Zajecar is located in the central part of Timok region. The Zajecar town is at the intersection of first category roads: M5 (Paracin - Zajecar - Kula) which connects the municipality with Corridor X to the west and with Bulgaria to the east; M25 (Nis - Zajecar - Kladovo) connecting Zajecar and Knjazevac; and M4, which connects Zajecar with Bor. With these roads, Zajecar has very good connections within Timok region and with other parts of Serbia. Zajecar is also an important railway centre, where the rail lines Nis – Prahovo and Majdanpek - Bor – Prahovo intersect.

FELIX ROMULIANA

Felix Romuliana was an imperial palace built by the orders of Galerius Maximianus on the spacious plateau of Gamzigrad, near the city of Zajecar. It belongs to a special category of Roman court architecture associated only with the period of the Tetrarchy and is the best-preserved example of this style. Since 2007, the archeological site Felix Romuliana has been listed on the UNESCO World Cultural Heritage List.

Felix Romuliana is located 11 km from Zajecar. Approximately 3 km after turning from the first category road M5 there is Gamzigrad. From Gamzigrad to Felix Romuliana there is about 2 km. Local public buses run between Zajecar and Gamzigrad.

GAMZIGRADSKA SPA

Gamzigradska Spa is surrounded by wooded hills, and it offers an excellent place for treatment, rest and recreation, sports and fishing, in pristine nature. Since 1978, a special hospital for rehabilitation has been working in the spa, using natural of mineral waters for cures. Temperature of water is 42 ℃.

Gamzigradska Spa is near Gamzigrad and 11 km from Zajecar. It is nestled in the valley of the lower course of the Black Timok river, and not far from the main road between Zajecar and Paracin (M5). Gamzigradska Spa is connected with Zajecar by local bus lines.

Municipality of Boljevac

The Boljevac municipality is located between the mountains of Kucaj, Rtanj, Tumba, Slemena, and Tupiznica. Despite the mountainous area, Boljevac is relatively well connected by roads. The main road route is a first category road M5 (Paracin – Zajecar), which intersects the municipality at east-west direction and connects Timok region with Corridor X.

BOGOVINSKA CAVE

Bogovinska Cave is a protected area of the third category. It is one of the longest caves in Serbia (6 km). It stands out for its beauty and richness of speleothems. Bogovinska Cave has very interesting fauna of cave arthropods, such as pseudoscorpion, endemic land crab and subtroglofile insect.

The Bogovinska cave is located on the south-eastern edge of Kucajske Mountains, near the village of Bogovina, right next to a first category road M5 (Paracin - Zajecar). There is a bus service, which runs from Boljevac to Bogovina.

Municipality of Sokobanja

The Sokobanja municipality is located on the Moravica riverbank, between Ozren and Rtanj mountains. The main traffic route is a second category route R121. Through this road Sokobanja municipality is associated with Corridor X, and through it with all other parts of Serbia. On the other hand, road R121 connects Sokobanja municipality with a first category road M25 (Knjazevac - Zajecar - Kladovo), which represents a good connection between Sokobanja and the rest of the Timok region. A second category road R120, which runs through the municipality in a north-south direction, connects Sokobanja with the Boljevac municipality.

SOKOBANJA

Sokobanja is one of the most popular spas in Serbia. Clean air without air pollution, a large number of mineral springs, high concentration of anions, and pleasant climate are some of the reasons tourists come to the spa. The water temperature is between 28 and 45.5 °C, with a high level of radioactivity.

SOKOGRAD

Sokograd (Soko-town) is a medieval town also called Sokolac, built in the late 13th and early 14th century on the foundations of a Roman fortress.

Sokograd is situated 3 km from Sokobanja town. In addition to a road connection from Sokobanja, it can be reached on foot on maintained paths through the nature.

JOSANICKA SPA

Health tourism in this spa is based on the use of mineral water and peloid. There are 5 thermal sources – sulphur water, iron water I and II, stomach and red water. Until now there has not been any proper research and valorisation of its natural treatment values, being in the shadow of Sokobanja due to vicinity of the two spas.

Josanicka Spa is approximately 15 km from Sokobanja, in the north-western part of the Sokobanja valley, and on the eastern slopes of Bukovik mountains. Josanica is 9 km from the second category road R121. A public bus service from Sokobanja to Josanica exists.

WATERFALL RIPALJKA

Waterfall "Ripaljka" is the first natural monument the state protected by law in 1948. It is characterized by valuable aesthetic qualities, a great tourist attraction and is directly involved in tourism of Sokobanja Spa.

Ripaljka waterfall is located at 5 km from the centre of Sokobanja, on the river Gradasnica. Near the waterfall there is specialized hospital "Ozren" which can be reached by car or by bus, and then reach the waterfall by foot.

Municipality of Knjazevac

Knjazevac municipality is located in eastern Timok region, near the border of Bulgaria. A first category road (M25) passes through Knjazevac, and represents one of the main traffic arteries of the region. Knjazevac is also connected with the Corridor X, by a second category road R121 via Sokobanja. Very significant potential for municipal development is railway transit (Nis - Zajecar) through the city of Knjazevac.

RGOSKA SPA

Rgoska Spa is warm or sub-thermal (20-37^{o}C). From a therapeutic point of view it belongs to hypothermal spa (20-34^{o}C), recommended for people with cardiovascular diseases.

Rgoska Spa is located 5 km southwest from Knjazevac, on the coast of Svrljiski Timok, near the village Rgoste.

When it comes to transport accessibility for the sites described above, the overall score would be that investments in transportation infrastructure are critically needed. This is especially necessary for locations that are not near main roads. The Regional Development Agency of Eastern Serbia (RARIS) has implemented a project of tourist signalization, which has undoubtedly contributed to a better image of the region, but investments in the renewal of road signs indicating touristic and other key locations are still necessary.

Regarding intercity transport, all major cities of the Timok region are connected, but the quality of public transport is not at a satisfactory level, neither in terms of organization nor functionalities. For well operating public transportation in the Timok region it is necessary to achieve good communication and cooperation between the municipalities of the region. As mentioned above, certain touristic locations near village centers are accessible by public transport. However, many public transport lines are very rare (some of them run only once a day) and service quality is low, consequently tourists often cannot rely on public transportation for getting into their destination.

5.3 Transport related to tourism in Eastern Serbia

5.3.1 Existing transport capacities

The border position of Timok region with EU countries and between transport corridors IV, VII and X offers potential for intensive development of the region. However, despite its good position and importance within the European context (particularly northern part of Timok), the region maintains only relatively modest cross-border and international cooperation with its neighbouring countries. The good density of its road network, rail infrastructure that connects municipalities of the region, the Danube river as one of the Pan-European corridors, and the airport in Bor represent existing transport capacities in the region. Yet, as described earlier, the capacity of these existing transportation modes is not adequately used in the region. Notwithstanding this gap, sustainable mobility should be promoted in order to assure achieving better accessibility standards and furthermore to develop sustainable and environmentally sound mobility systems within the most valuable natural and tourist areas.

5.3.2 Challenges for achieving sustainability in transport

Transport is one of the most important factors that contribute to the development of sustainable tourism. This relation between transport and tourism can be described in the following way: when it comes to tourism, the existence of transport is indispensable, whereas when it comes to transport, the existence of tourism is not essential. If sustainable tourism development is defined as meeting the needs of present tourists and host regions while protecting and enhancing opportunities for the future, the way in which transport is organized in support of tourism, is crucial. Therefore, if we want to achieve sustainable tourism, one of the objectives we should strive towards is sustainable transport.

Tourism is reliant on transport and can generate considerable transport demand. Tourism in the Timok region has yet not reached a level of development that can significantly influence transportation demand, but this does not mean the situation will stay the same in the future. It is also important to keep in mind that good quality transport infrastructure, organized public transport, high quality railway transport, maintained river banks, among others, contribute greatly to the decision of a potential visitor to visit particular tourist attractions.

When it comes to transportation infrastructure in Timok region, there is plenty of room for further improvement. The basic limitations regarding road transportation infrastructure are reflected in the insufficiently constructed first category roads but also in the poor condition of the overall road network. It is necessary to accelerate reconstruction of existing municipal roads, both first and second category roads, and construction of entirely new roads. Furthermore, nearly half of the local network roads in Timok region do not have modern pavement surfacing.

The situation is similar in railway transport. Further development of the railways sector (i.e. electrification, higher speed, modern trains) is constrained by the poor condition of existing railway tracks, which should be reconstructed to a large extent. Railways in Timok region are not electrified and

the average speed at some sections is less than 30 km/h. Consequently, this transport mode in Timok region is mainly used for cargo transport.

Although public bus transport exists in Timok region, its level of development is not satisfactory, particularly in terms of local network lines. Some of the key reasons for this situation are the poor quality of the local road network, and the low service quality in public bus transport. Despite the existence of bus stations in largest cities in Timok region, public bus transport is poorly organized and it is used by a small number of passengers only.

The Danube river hosts numerous tourist attractions, and it also represents a transport route for visiting and discovering interesting sites. However, the small number of poorly equipped docks does not encourage passengers to use this form of transportation, keeping in mind that the first tourist impression of a particular destination is formed when leaving the boat in marina. Danube has also great potential in cargo transport because it represents a connection between the Timok region and rest of Europe, but existing ports are characterized by outdated equipment and insufficient port facilities.

The "Bor" airport represents a significant transport hub in the region, especially due to its proximity to Bulgaria and Romania. Bor airport has been recently reconstructed and after 15 years it is finally able to receive public aircrafts. The airport is currently in the C category and planes up to 5,700 kg of bearing capacity (approximately 40 passengers) can land on the runway. Bor airport could play a potentially important role in touristic and economic development of Timok region.

The current situation in Timok region where most passenger transport takes place by road (mostly passenger cars) does not go in favour of developing sustainable transport. Timok region is economically underdeveloped and given the global downturn, large-scale projects such as construction of new roads and railway lines can only take place over long-term and if adequate financial resources are allocated. Therefore, the initial step in achieving sustainability in transport related to tourism should be reconstruction and maximum exploitation of the existing infrastructure, while in the same time reducing motorized individual transport.

5.3.3 Transport objectives

Timok region is rich in tourism contents and it has great potential for development of sustainable tourism. However, existing transport offer does not provide adequate support to tourism. SWAT analysis of tourism within the Regional Development Strategy highlights the impact of neglected transport infrastructure on tourism and low level of traffic signalization as weaknesses. It can be observed that the residents of the region are fully aware of this situation, including the facts that there are no foreseen financial resources and support to change the situation.

Transport objectives related to tourism enhancement in the Timok region can be proposed[23] as follows:

[23] following the National Development Strategy for Transport (2008-2015) in accordance with Recommendations of the Draft Study on the Transport System in the Carpathians, prepared by the European Academy (EURAC), 2007

→ Good connection between Timok region and other parts of Serbia, but also with neighbouring countries (Bulgaria, Romania). Systematic approach for developing and rationalizing transport network.
→ Efficient use of the advantages of each mode of transport. Reduced external costs and introduced fair compensation for the use of transport infrastructure for all transport modes. Intermodal transport, which includes socially acceptable transport modes, well used.
→ Improved service quality of the transport system. Increased efficiency of all transport modes. Transport system adapted to users demands.
→ Increased level of safety and security of transport system. Reduced number of accidents in all transportation modes.
→ Improved competitiveness of transport modes in the transport market. Established regulatory and operational management functions in the transport sector. Improved cooperation between state bodies and companies from the transport sector.
→ Reduced negative impact of transport on the environment and human health. Transportation system consistent with the principles of sustainable development, environmental protection (decreased air pollution, greenhouse gas emissions and noise), and social responsibility. Environmental impact considered, particularly in sensitive areas.
→ Stable financing of transport system established. Conditions for sustainable transport system development in terms of stable sources of funding created.

5.3.4 Measures to achieve transport objectives

Specific measures for the development and enhancement of transport capacities are identified in the Regional Development Strategy of the Timok region (RDS) and the Regional Spatial Plan of Timok region (RSP). Following measures are proposed based on the information available in RDS and RSP, and previous analysis of the state of each transport mode.

Priorities for improving the quality of road transport network in Timok region are:

- Development of a potential corridor, i.e. highway, between Nis - Zajecar - Kladovo, as well as construction of a highway from Paracin to Vidin (Bulgaria) on the first category road M5, which would form a connection between Timok region and Corridor IV;
- Construction of a road from Svilajnac to Bor, as a part of a transversal corridor through all Serbia (from Bosnia and Herzegovina to Bulgaria). Subsequently, Timok region would benefit from short connection to the Pan-European Corridor X. When planning high-speed roads, minimizing the negative impacts on society and the environment should be taken into account, including both in road construction and exploitation;
- Modernization of roads (especially M24 and M25) by upgrading and reconstructing the roadways and elements on sections that currently do not meet the standards of first category roads, increasing maintenance at the level required for this road category;
- In order to increase the accessibility of the area and traffic safety, the feasibility of constructing a tunnel on the first category road M25 through the massif Tresibaba, and on the first category road M4 through massif Cestobrodica, should be explored;

- Supplying existing tunnels with appropriate lighting, and existing roads with prescribed traffic signalization;
- Completing the network (construction and reconstruction), modernization, rehabilitation, and increased maintenance on second category roads. Modernization of roads by improving approximately 200 km which there is no modern valance, and by correcting elements on the sections that do not meet the standards of this road category.
- Construction and reconstruction of local road network, on approximately 525 km, in order to improve transport accessibility and connectivity of settlements, i.e. with municipality/city and regional centers, as well as tourism development zones (particularly towards the Stara Planina mountain).
- Increasing the functionality of existing road border crossings "Djerdap I", "Bregovo" and "Vrska cuka" and construction of new border crossings, with: Romania on the first category road M25, “Djerdap / Kusjak”; Bulgaria on the second category road R247 “Kadibogaz”, and additionally on the second category state road R243 “Sveti Nikola”.

The Ministry of Infrastructure (MoI) and the Public Enterprise “Serbia Roads” are responsible for construction and reconstruction of the state road network. Transport infrastructure needs to be planned and built in a manner that is rational and functional to trans-European axes, as well as making use of Best Available Technologies (BAT) for the construction of transport systems and for transportation. Traffic management and controlling systems could be introduced in order to regulate traffic, also with the support of Intelligent Traffic System (ITS).

Currently Timok region there is no real competition between passenger car use and other modes of transport. Most trips are made by passenger car and there is little demand for alternative modes, because of their low quality. This situation does not contribute to sustainable transport. One of the key directions in achieving sustainable transport is reducing passenger car use and promoting alternative transport modes (train, bus, boat, bicycle, walk, etc.) as environmentally friendly choices.

Rail transport is currently not competitive. Reconstruction and modernisation of the whole railway system in this region for the level of projected speeds and improvement of technical and other elements of railways, in accordance with European requirements, is necessary. At this moment, railway system has very low quality of offer when it comes to punctuality and reliability. It would be strategic to introduce new train connections, which would directly connect major urban centres of the region (Zajecar, Negotin, Bor…) with urban centres in the rest of Republic of Serbia (Belgrade, Nis…) but also with neighbouring countries. One of the measures, which would significantly contribute to the development of sustainable tourism, is easily available information on railway passenger ticket prices and timetables (including timely information in case of delays and interruptions in service). In order to attract visitors to use rail transport it is necessary to promote this mode emphasizing direct and indirect benefits from its use (i.e. transport costs and positive/negative effects on the environment by using railway compared to passenger cars).

In the long-term development strategies of Timok region, construction of new railway section are planned as follows:

- Port “Prahovo” – Romania, via HPP "Djerdap II";
- Negotin - Bulgarian border, and further to Vidin.

Public bus transport service needs improvements in terms of functionality and organization (extension of public bus transport network, frequency of departures, modern vehicles, etc.). One of the proposed activities in the Regional Development Strategy of Timok region is the establishment of a regional body for public transport, which would contribute to the improving the quality of public bus transport system management and control.

Measures for improving the quality of public bus transport system in Timok region are:

- Incorporating the geographic distribution of activities, destinations, settlements in the planning of the public bus transport system;
- Connecting municipalities/cities and regional centres with other urban centres, municipalities and regions, with the appropriate quality of public bus service;
- Analysing the needs of the region and creating flexible and demand-oriented bus service. Introducing smaller buses with capacity to meet the transportation requirements towards specific destinations;
- Introducing coordination mechanism of public transport providers;
- Activities to support the advancement of the public transport, e.g. elaborate marketing strategies and plans and monitor their return on investment, provide integrated services such as availability of information, including on tariffs, and creating of fare products;
- Raising attractiveness of public bus transport on local, regional and interregional level.

Measures, which would increase the competitiveness of inland waterway mode of transport in Danube, are:

- Construction, reconstruction, equipping and operation of marinas and piers on the Danube, in the Timok region;
- Analysing the possibilities of revitalization and modernization of the port “Prahovo” as an intermodal centre of the Timok region;
- Development of ports and other facilities (marinas, bindings, etc.) in Donji Milanovac, Tekija and Kladovo for the purposes of passenger transport and tourism;
- Regulation of river border crossings.

The airport "Bor" with its recent modernization and good equipment can be qualified for receiving and dispatching domestic and international flights and thus greatly contribute to attractiveness of the region, although this potential is not being exploited. The Bor airport plans to improve its facilities, especially by installing approaching lights for night operation. The plan is to expand the runway for 800 m and create conditions for international traffic certificates. The two airfields "Minicevo" and "Kobisnica" could be returned in use for sport, agricultural flying and parachuting. The possibility of constructing a small airport in the area of Stara Mountain, in Leskovo, is to be assessed in the near future.

6 CROSS-BORDER COOPERATION

A large part of the Timok region belongs to the Carpathians, Europe's largest mountain range, shared by seven Central and Eastern European countries: the Czech Republic, Hungary, Poland, Romania, Serbia, Slovak Republic and Ukraine. The Framework Convention on the Protection and Sustainable Development of the Carpathians (Carpathian Convention), signed in 2003 in Kyiv, enshrines a common vision, integrates developmental and environmental goals, provides objectives for action and constitutes the strategic framework for cooperation to address these challenges in a transnational context.

The common vision of the Parties to the Carpathian Convention is to pursue comprehensive policy and cooperation in order to guarantee protection and sustainable development of the Carpathians. Specific obligations for parties to the Carpathian Convention are defined in Protocols to the Convention. Three Protocols have been already adopted (on Conservation and Sustainable Use of Biological and Landscape Diversity; on Sustainable Forest Management; and on Sustainable Tourism) while the Protocol on Sustainable Transport and Infrastructure is in drafting phase.

The Convention provides a framework for cooperation and multi-sectoral policy coordination, a platform for joint strategies for sustainable development, and a forum for dialogue between all stakeholders involved – from the local community and various NGO's up to the regional and national Governments, Institutions of the European Union and the United Nations.

The actions for achieving better internal cohesion among Parties in the Carpathian region are as follows[24]:

- Development and improvement of transport and communication networks across and within the Carpathians;
- Supporting partnership and cooperation agreements between Carpathian countries, regions and cities;
- Supporting the creation of Euro-regions and converting them to regions of genuine common projects and efforts;
- Facilitating border crossing also for citizens from non-EU Carpathian regions;
- Establishing cross-border passenger transport networks between the neighbouring parts of the Carpathian countries to strengthen micro-regional linkages, to promote tourism and facilitate commuting;
- Formulating more joint cross-border projects for improving the systems infrastructure;
- Enhancing exchanges of pupils and students and supporting language courses on the languages of the neighbours;
- Supporting mutual visits of theatres, ensembles and artists in the Carpathian regions.

6.1 Euro-regions

In the last ten years, there have been several attempts to institutionalize cooperation between border countries of Serbia, Bulgaria and Romania through the establishment of "Euro-regions". In Euro-regions,

[24] Visions and Strategies in the Carpathian Area (VASICA), Carpathian Project 2009.

regional and local authorities collaborate and work together to address common interests across frontiers. Serbia has formed three Euro-regions with its neighbouring countries Romania and Bulgaria: Euro-region *"Stara planina"* (BG/SRB border), Euro-region *"Danube-Kris-Mures-Tisa"* (HU/RO/SRB border) and Euro-region *"Nisava"* (BG/SRB border)[25]. The primary goal of this cross-border cooperation is to unite efforts in solving some of the most important problems; with the members of this cooperation having a much better chance of receiving support from the European Union and other relevant international entities for the implementation of development programs through different projects. The projects of interest are mainly related to environmental protection, linking countries through culture, promotion of sustainable development, construction of infrastructure, and spatial planning.

6.2 EuroVelo corridors

An important number of sustainable transnational thematic tourism related products and services have been developed with a great potential to contribute to tourism growth, such as cycling corridors through Europe. EuroVelo (EV), the European cycle route network, is a project initiated and managed by the European Cyclists' Federation (ECF). The network comprises of 14 long-distance cycle routes, which, when complete, will total over 70,000 km.

Three routes – EV6, EV11 and EV13 – will connect Serbia with other countries by promoting cycling as a non-motorized individual mode of transport.

EuroVelo 6 is one of the most popular routes, linking Atlantic and the Black Sea. Also called the "Danube route", it enters in the north of Sebia near the town of Backi Breg, following the Danube's meandering flow through the country, along the Djerdap main road towards Negotin and further to Bulgaria.

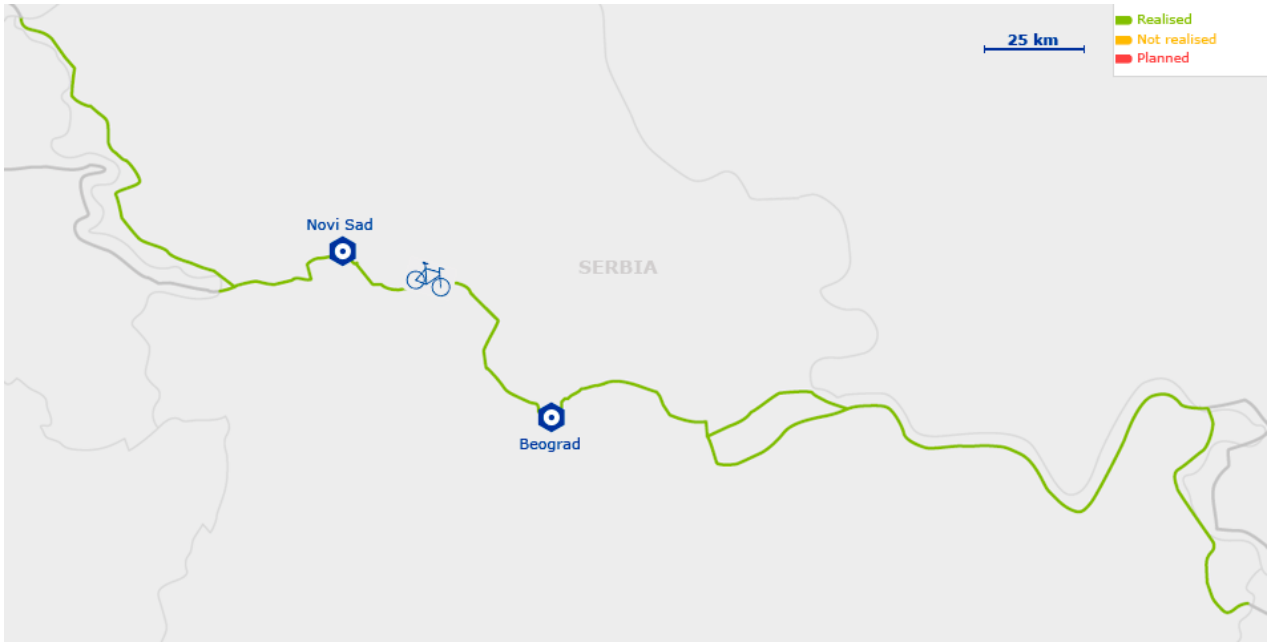


Fig. 31: EuroVelo 6 corridor through Serbia
(Source: EuroVelo – the European cycle route network, http://www.eurovelo.com/en)

[25] Registered as member regions on the List of Association of European Border Regions (AEBR): http://www.aebr.eu/en/members/list_of_members.php

EuroVelo 11 and EuroVelo 13, should pass through and on the borderline of Serbian territory, but only small sections are finalized so far. EV11 should run mainly through the central parts of Serbia, splitting northern authonomous province of Vojvodina all the way until Belgrade, than crossing river Danube and moving south into the central parts of Serbia. EV13 is planned to run all along the Serbian borderline with Hungary, Romania and Bulgaria.

Cycling routes represent interesting touristic potential for this region. Promotion of cycling as a transportation mode and not just as recreation along with enhancement of pedestrian routes should start from urban areas. One of the possible measures that would contribute to increased attractiveness of cycling is intermodal tourism transport development at local level by combining bus, cycling and walking.

7 CONCLUSIONS AND RECOMMENDATIONS

The wealth of natural resources in Timok region, as outlined in detail in Chapter 3, presents great potential for tourism development, especially the areas that are protected, or under process of protection. In order to achieve sustainable tourism, pressures on the environment as an important integral part in reaching sustainability need to be reduced. Environmental pollution in the region is not, yet, an alarming issue (except in hotspots such as Bor and Majdanpek), but one should bear in mind that detailed analysis of road transport impact on soil contamination and air pollution from exhaust gases is missing. This information, once available, should be used to raise public awareness about negative effects of motorized individual (car) transport. In addition, defining specific environmental quality standards is necessary, which can, especially in sensitive areas, lead to enhanced environmental tourism.

Another basic condition for the development of sustainable tourism in Timok region is appropriate level of accessibility to tourist attractions. One of the definitions of accessible tourism is: "*Accessible tourism refers to tourism that caters to the needs of a full range of consumers including persons with disabilities, older persons and cross-generational families. It entails removal of attitudinal and institutional barriers in society, and encompasses accessibility in the physical environment, in transportation, information and communications and other facilities and services. It encompasses publicly and privately owned tourist locations.*"[26] Considering the comprehensiveness of this definition, it must be noted that the majority of tourist destinations in the Timok region are currently unable to meet this criteria.
Favouring *public transport* and reducing the use of passenger cars are very important in achieving transport and tourism sustainability, especially when it comes to tourist destinations that are sensitive to air pollution and noise (such as unique natural reserves).

Based on the analysed transport data and information, it can be concluded that Timok region has great potential for *intermodal transport* development. This concept could be used for both passenger and freight transport. By providing quality services for tourists to reach their desired destination by combining passenger car/train/bus with cycling and walking, multiple positive effects can be achieved, all in favour of sustainable tourism. Freight intermodal transport concept, in turn, could be based on a combination of road, rail and waterway transport modes. This form of transport is particularly cost-effective in the case of long-distance transport. In addition to exploiting fully the port Prahovo, which currently represents the intermodal centre of Timok region, the Regional Development Strategy of Timok emphasises the benefits of intermodal freight transportation and proposes the construction of a new freight terminal at the border crossing "Vrska cuka". Special attention should be directed towards the connection of mentioned intermodal terminals with other national and international industrial centres. Intermodal transport implies very good integration and coordination between various modes of transport that is not easy to achieve, but the implementation of this kind of concept greatly contributes to the promotion and attractiveness of the region. Additionally, the development of intermodal transport at regional level requires good cooperation between the municipalities of the region and subsequently, interregional and international cooperation.

[26] Takayama City and UNESCAP Conference - Press Release - Takayama, 2009

Possible initial steps in improving transport related to tourism could be analysing transport demand and evaluating access quality to various types of transport modes (bus, train, bicycle, walk etc.) from Timok region residents' point of view, and subsequently address deficiencies e.g. apply measures that enable local residents to be satisfied and assured for using public bus transport, for example. These measures, while primarily addressing the residents of Timok region, would indirectly have an important impact on sustainable tourism development. Tourists have specific needs and travel requirements, but they frequently use the same transport infrastructure designed for resident population. Achieving higher accessibility and quality of transportation modes can produce new attractive tourist destinations. Sustainable tourism development at a local authority level in Timok region needs to be incorporated into road planning, transportation service development and capacity building for the transport network.

Due to enormous economic constraints, attention should be focused on the creation of scenarios that use existing resources and infrastructures, and meet the needs of several stakeholders, not just of tourists. A research program and pilot projects focusing on measures and instruments for sustainable transport in the region should also be considered.

Example of transport related tourism product: Specific ticket offers for tourism transport

The accessibility of the city of Zajecar is very satisfactory. It is located at the intersection of important roads, railway runs through the city, there is a public transport system and bus lines across the country stop at Zajecar, indicating good potential for intermodal transport.
The city offers numerous tourist attractions: a National Museum in the city, Gamzigradska Spa and Felix Romulijana at 11 km from Zajecar, and when heading north towards Negotin one can reach Rajacke pimnice, close to the village Rajac, which can be reached by train.

Average tourist stays in the Timok region for approximately 4 nights. A 5-day ticket could be proposed in Zajecar, as an all-encompassing pass for visiting mentioned touristic attractions, including both transportation and access to the sites. Proper marketing of this product could attract more tourists.

This concept implies organized and quality transport, both by rail and by road, for example in terms of frequency and reliability of departures.

Characteristics of tourists' behaviour often indicate that the quality of time spent on travel is more important than the travel time itself. The key features of the proposed concept are the ease of purchase, ease of travel, ease of use and ease of access to relevant information.

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ANNEX 1. PROTECTED AREAS AND BIODIVERSITY CENTERS OF INTERNATIONAL IMPORTANCE IN EASTERN SERBIA

Tab. 20: Protected areas

Name	Type[27]	Municipality	Area, ha	Management	Category[28]	First protected, year	Revision, year
Lazar's Canyon	SP	Bor, Boljevac	1,755[29]	PE "Srbijasume", New Belgrade	I	1949	2000
Bogovinska cave	SP	Boljevac	14.5	Tourist organization of Boljevac	III	1974	2008
Rtanj*	StPR	Boljevac	4,997.17		I	1959	
Jasenova Glava*	StPR	Boljevac	6.3		II	1961	
Djerdap	NP	Golubac[30], Majdanpek, Kladovo	45,491.15[31]	PE NP Djerdap, Donji Milanovac	I	1993	
Natural bridge on the river bed Valje (Suplja stena)*	SP	Majdanpek	8.27		I	1959	
Tufa (limestone) accumulation Beli Izvorac	SP	Majdanpek	6.2	Tourist organization of Majdanpek	III	2006	
Feljesana	StPR	Majdanpek	45		I	1948	1950
Mustafa*	StPR	Majdanpek	79.64		I	1948	1969
Bukovo	ORP	Negotin	10.42	PE "Srbijasume", New Belgrade	II	1961	2007
Canyon of the Vratna river with two natural bridges: "Kapije" (Gates)*	SP	Negotin	144.76		I	1957	

[27] Abbreviations and types according to the Law on Nature Protection (Official Gazette of the RS, no. 36/09, 88/10 and 91/10) as follows: NP - National Park, PP - Nature Park, PIO - Landscape of outstanding features; Abbreviations according to previous laws: SP - Natural monument, ORP - General nature reserve, StPR - Strict nature reserve, NKD - Protected area of cultural and historical value, PnPL - Landscape of outstanding natural beauty.

[28] Categorization according to the Law on Nature Protection (latest amendments), Article 41 – Categorization of protected areas: 1) Category I - protected area of international, national or special importance; 2) Category II - protected area of the provincial / regional or great importance; 3) Category III - protected area of local significance.

[29] 1,176 ha in Bor; 579 ha in Boljevac

[30] Municipality outside Timok region

[31] Refers to area within Timok region (29,467.15 ha in Majdanpek, 16,024.75 ha in Kladovo); total area 63,608 ha

Tab. 20: Protected areas - *continued*

Name	Type	Municipality	Area, ha	Management	Category	First protected, year	Revision, year
Canyon of the Zamna river with natural bridge:"Prerast"*	SP	Negotin	41.4		I	1957	
Conjunction of Sikolska River with waterfall on Mokranj rock	SP	Negotin	22.34	PE "Srbijasume", New Belgrade	II	2009	
Natural area around archeological site Gamzigrad-Romulijana	NKD	Zajecar	175.92			1990	
Stara Planina	PP	Zajecar, Knjazevac, Pirot[32], Dimitrovgrad[33]	48,588[34]	PE "Srbijasume", New Belgrade	I	1997	2009
Waterfall of the Bigren stream*	SP	Knjazevac	1.67			1981	
Lepterija-Sokograd	PIO	Sokobanja	405.71	PE "Srbijasume", New Belgrade	II	1969	2002
Ozren meadows*	PnPL	Sokobanja	838.14		III	1971	
Ripaljka, waterfall	SP	Sokobanja	6.82	Department for Planning and Construction of Sokobanja	III	1949	2009

* Currently under revision

Source: *The Central Registry of Protected Natural Values,* Nature Protection Institute of Serbia, Belgrade

[32] Municipality outside Timok region
[33] Municipality outside Timok region
[34] Refers to area within Timok region (6,295 ha in Zajecar and 42,293 ha in Knjazevac); total area114,332 ha

Tab. 21: Biodiversity centers of international importance

Important Bird Areas (IBA)	Area, ha	Municipality
Stara Mountain	149,782	Zajecar, Dimitrovgrad*, Pirot*, Knjazevac
Zlotska Gorge	14,672	Bor and Zagubica*
Djerdap Gorge	77,095	Golubac, Majdanpek, Kladovo
Mala Vrbica	1,915	Kladovo
Rtanj	11,234	Sokobanja and Boljevac

Important Plant Areas (IPA)	Area, ha	Municipality
Djerdap	65,283.30	Majdanpek, Golubac, Kladovo and Negotin
Kladovo	/	Radujevac (Kladovo)
Veliki Krs and Stol	2,483.31	Bor and Majdanpek
Lazar's River Gorge	1,916.97	Bor and Boljevac
Rtanj	7,007.46	Boljevac and Sokobanja
Stara Mountain	54,408.21	Pirot*, Knjazevac, Dimitrovgrad*

Prime Butterfly Areas (PBA)	Area, ha	Number of species
Djerdap	73,234	104
Lazar's Canyon	6,236	70
Mali Krs	3,722	86
Rtanj	12,488	102
Devica	11,273	87
Stara Mountain	153,253	134
Stol-Veliki Krs	4,989	101
Deli Jovan	9,232	67

* Municipality outside Timok region

Source: *The Central Registry of Protected Natural Values,* Nature Protection Institute of Serbia, Belgrade

ANNEX 2. MAIN LEGAL INSTRUMENTS AND REGULATIONS RELATED TO ENVIRONMENT, TOURISM AND TRANSPORT IN THE REPUBLIC OF SERBIA

Environment

- Law on Environmental Protection | OG RS[35], no. 135/2004, 36/2009
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- Law on Water | OG RS, no. 30/2010
- Law on Air Protection | OG RS, no. 36/2009
- Law on Meteorological and Hydrological Activities | OG RS, no. 88/2010
- Law on Chemicals | OG RS, no. 36/2009, 88/2010
- Law on Biocidal Products | OG RS, no. 36/2009, 88/2010
- Law on Integrated Pollution Prevention and Control | OG RS, no. 135/2004
- Law on Emergency Situations | OG RS, no. 11/2009
- Law on Fire Protection | OG RS, no. 11/2009
- Law on Transport of Dangerous Goods | OG RS, no. 88/2010
- Law on Nature Protection | OG RS, no. 36/2009, 88/2010, 91/2010
- Law on National Parks | OG RS, no. 39/1993, 44/1993, 53/1993, 67/1993, 48/1994, 101/2005, 36/2009
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- National Sustainable Development Strategy | OG RS, no. 57/2008
- Biodiversity Strategy of the Republic of Serbia 2011-2018
- Waste Management Strategy 2010-2019
- Energy Sector Development Strategy by 2015
- National Forestry Development Strategy 2010-2020
- Strategy on Mineral Resources Management by 2030

[35] Official Gazette of the Republic of Serbia

Tourism

- Law on Tourism | OG RS, no. 36/2009, 88/2010, 93/2012
- Tourism Development Strategy | OG RS, no. 91/2006[36]
- SPA Law | OG RS, Nos. 80/1992, 67/1993
- Regulation on Categorization of Touristic Locations | OG RS, no. 24/2012, 31/2012
- Regulation on Technical Standards of Accessibility | OG RS, no. 19/2012
- Master Plan of Touristic Destination: Stig - Kucajske Planine – Beljanica, 2007
- Master Plan of Touristic Destination: Sokobanja, 2007
- Master Plan of Touristic Destination: The Lower Danube Basin, 2007
- Master Plan of Cultural and Historical Route: Road of Roman Emperors, 2007
- Stara Mountain Tourism Development Plan, 2007

Transport

- Law on Public Roads | OG RS, no. 101/2005, 123/2007, 101/2011, 93/2012
- Law on Road Safety | OG RS, no. 41/2009, 53/2010, 101/2011, 32/2013
- Regulation on Criteria for State Road Categorization | OG RS, no. 37/2009
- Regulation on State Road Categorization, OG RS, no. 14/2012
- Law on Navigation and Ports on Inland Waterways, OG RS, no. 73/2010, 121/2012
- Law on Air Transport | OG RS, no. 73/2010, 57/2011
- Law on Railways | OG RS, no. 18/2005
- Strategy on Railway, Road, Water, Air and Intermodal Transport Development in the Republic of Serbia 2008-2015

Spatial Planning and Regional Development

- Law on Planning and Construction | OG RS, no. 72/2009, 81/2009, 24/2011, 121/2012
- Spatial Development Strategy of the Republic of Serbia 2009-2020
- The Spatial Plan of the Republic of Serbia 2010-2020 | OG RS, no. 88/2010
- The Regional Spatial Plan of the Timok region | OG RS, no. 51/2011
- The Spatial Plan for the "Bovan" Storage Basin Special-Purpose Area | OG RS, no/. 14/2009
- The Spatial Plan for the Special-Purpose Area of the Stara Planina Natural Park and Tourist Region | OG RS, no. 115/2008
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- Law on Regional Development | OG RS, no. 51/2009, 30/2010
- Regional Development Strategy of Timok region 2011-2015

[36] based on the previous Law on Tourism, OG RS no. 45/2005.

ANNEX 3. SELECTED FESTIVITIES AND EVENTS IN EASTERN SERBIA

Tab. 22: Selected festivities and events in Eastern Serbia per municipality

Municipality	Events (selection)	Month
NEGOTIN	***Days of Mokranjac*** *– music festival in memory of Serbian composer Stevan Stojanovic Mokranjac*	September
	St. Tryphon *– in honour of the protector of winemakers and vineyards, in Rajacke pimnice*	February
	Festival of Vlach Music *– Vlach and Serbian creativity in songs and dances*	April
	International Fair of Honey and Wine	May
	Customs of Negotinska Krajina *- contests of musicians, pastoral plays, preparing of national dishes, and shepherdess beauty contest*	June
	Danube Day	June
	Motorcycle Rally	July
	Rogljevo Harvest *– traditional customs in the vineyards*	September
BOLJEVAC	***Ethno-festival "Crnorecje in song and dance"***	second weekend of June
	Christmas hike on Rtanj Mountain	January
	Boljevacke bekrijade *– bohemian competition in drinking and eating*	June
	Days of St. Makavej *- trumpet festival*	August
KLADOVO	***Ethno-festival***	end of June
	Blue Week *- to promote and develop towns on the Danube river and countries connected by the Danube by exchanging cultural, economic, sports and tourism values and potentials*	June
	Assumption Day Funfair	August
	Gold 'bucka' of Iron Gates *- competition in a traditional method of catching catfish*	first half of August
	TID Regatta *– the longest regatta in the world; starting in Ingolstadt (Germany) and ending in Silistra (Bulgaria) with the total length of 2030km of the Danube*	June – August
	St. Tryphon *– day of fruit and wine growers*	February
	Honey and bee products exhibition	September
MAJDANPEK	***Female Painters*** *- international exhibition promoting female painters*	April – May

Tab. 22: Selected festivities and events in Eastern Serbia per municipality - *continued*

Municipality	Events (selection)	Month
MAJDANPEK	***Guitar Festival "Golden Note"***	April
	Easter Days of Folk Dance *– presentation of folk customs and plays in Crnajka*	May
	Rural Olympics	May
	Lilac Festival *– festival of flowers and domestic customs on Miroc (Stara Montain)*	May
	"Teen" Festival *– musical event cherishing children's and teenagers' music*	July
	'Porec' kettle *- competition in preparing fish broth and fish stew in a traditional way in Donji Milanovac*	August
	"Bacija Jasikova" *– festival of cultural creativity and preservation of old Vlach customs*	August
	Iron Gate Sailing Cup	August
	"Let's save the bagpipes and old folk dance from oblivion" *– performance of Culture and Art Folk Groups and Bagpipers in Rudna Glava*	September
BOR	***Bor villages meetings***	every weekend in February, March, April
	Days of Brestovacka Spa	third weekend in August
ZAJECAR	***Days of Humour and Satire***	April
	Zajecar Commemoration Day	May
	Days of Poetry *– festival of young poets*	May – June
	"Ecological Truth" *– International salon of art photography*	June
	Guitar festival in Zajecar	July - August
	Ethno-festival "Vrazogrnacki wheel"	August
	International School of Philosophy "Felix Romuliana"	August – September
SOKOBANJA	***Sailing Regatta at Bovansko Lake***	April and September
	"Biljoberske svecanosti" *- picking herbs on the slopes of Ozren and Rtanj mountains*	July
	International Festival "First *accordion"*	July

Tab. 22: Selected festivities and events in Eastern Serbia per municipality - *continued*

Municipality	Events (selection)	Month
KNJAZEVAC	***Spritzer Fest*** *- event in the honour of a well-known drink – a mixture of white wine and club soda called Spritzer*	April
	Prayer under Midzor	starts in May
	Festival of Youth Culture in Serbia	July

Project Partners

Lead partner
U-AT – Environment Agency Austria, AT

ERDF partner
bmvit – Federal Ministry of Transport, Innovation and Technology, AT

ERDF partner
Gesäuse – National Park Gesäuse, AT

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CJIT Maramures – County Center for Tourism Information, RO

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ARR-KE – Agency for the Support of Regional Development Kosice, SK

20% ERDF partner
RARR-PL – Rzeszow Regional Development Agency, PL

10% partner
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10% partner
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