



ACCESS2MOUNTAIN

**Sustainable Mobility and Tourism in Sensitive Areas of the
Alps and the Carpathians:
ANALYSIS OF REGIONAL DATA - TRANSPORT AND ENVIRONMENT
PODKARPACIE VOIVODESHIP AND BORDER AREA – THE PRESOV
REGION IN SLOVAKIA**

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1 INTRODUCTION

An analysis of issues within the scope of transport is very important, not only for stimulation of socio-economic development process but also in the cognitive dimension, especially for the implementation of scientific research. The analysis of transport development becomes particularly important in the regional scope, because it is in the region, where the essential part of formulating aims and implementation of development policy take place. One also has to mention that the transport sector plays an important role in creating economic development, thus the analysis' results shall be useful for both regional and local administration practices. Taking into account the importance of the balanced development issue for the civilizational progress in Europe and in the world, one shall not omit the significance of natural environment and cultural heritage issues.

1.1 Description of the analysis process

Within scope of the analytic research in regards to regional data of Poland, Slovakia and especially the Podkarpackie Voivodeship and the Presov Region there has been conducted an exploration of sources of statistical data, studies of strategic character and essential maps and charts. The analytic process concerned two key dimensions. First of them is the time scope, the second one is dimensional scope.

In the process of source materials exploration a criterion of currency of available data, strategic studies, maps and charts has been assumed. In cases where it was necessary to broaden the time scope the properly long time series were presented, whereas in the lack of current data, the last available observations were provided. In general, as statistical data was available, the analysis period included years 2008-2010, so the ones that were most recent from the point of view of the official statistical reporting practice in the European Union.

In the dimensional scope the analysed objects were mostly treated according to the classification of the territorial units for statistical purposes of the European Union - NUTS (*Eng. Nomenclature of Territorial Units for Statistics*). According to that on the national level Slovakia is classified on the NUTS 0 and NUTS 1 level, region Východné Slovensko on the NUTS 2 level, whereas Prešovský Kraj is on the NUTS 3 level.¹ Poland is classified on the NUTS 0 level, the Eastern Region on the NUTS 1 level, the Podkarpackie Voivodeship on the NUTS 2 level and subregions: Rzeszów, Tarnobrzeg, Krosno and Przemyśl on the NUTS 3 level.²

¹Regional Statistic Yearbook of Slovakia 2010, Statistical Office of the Slovak Republic, Bratislava Marec 2011, p. 14.

²http://www.stat.gov.pl/gus/5840_7551_PLK_HTML.htm (accessed on 17.02.2012)

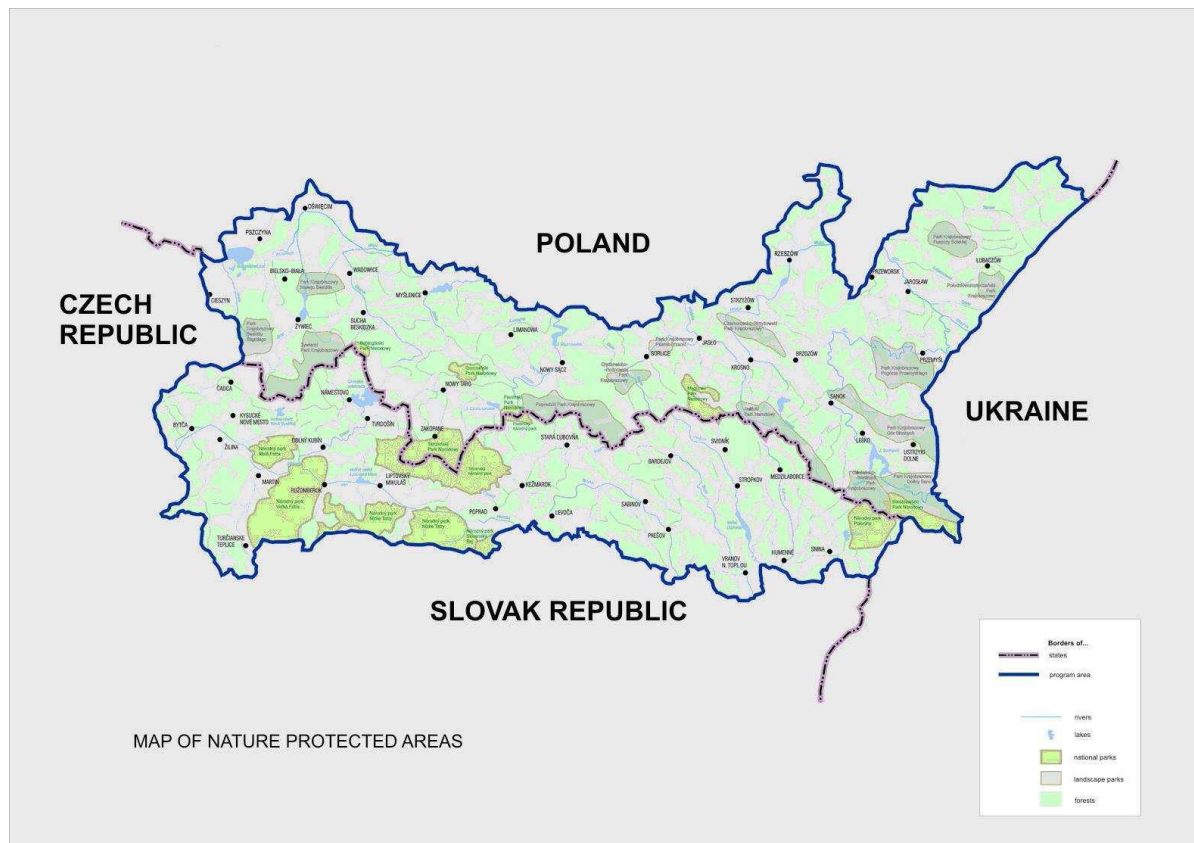
1.2 Main sources of statistical data, strategic documents, maps and charts

Statistical data was gathered from the following sources in an electronic form and as printed publications of the following institutions:

- Central Statistical Office of the Republic of Poland,
- Statistical Office in Rzeszów,
- Statistical Office in Szczecin,
- Statistical Office of the European Union EUROSTAT,
- General Directorate of National Roads and Motorways of the Republic of Poland
- Marshall's Office of the Podkarpackie Voivodeship
- Ministry of Regional Development of the Republic of Poland,
- Statistical Office of the Republic of Slovakia,
- Statistical Office in Presov,
- Statistical Office in Kosice,
- Polish Air Navigation Services Agency,
- Ministry of Transport, Post Office and Telecommunication of the Republic of Slovakia,
- Ministry of Construction and Regional Development of Slovak Republic,
- Railway Forum,
- Ministry of Finance of the Republic of Poland,
- Office of the Presov Region in Presov,
- UNESCO (United Nations Educational, Scientific and Cultural Organization),
- IUCN - International Union for Conservation of Nature.

2 GENERAL CHARACTERISTICS OF THE PODKARPACIE VOIVODESHIP AND BORDER AREA – THE PRESOV REGION IN SLOVAKIA

The Polish-Slovakian border area includes 38 096 km² (22 314 km² on the Polish side and 15 782 km² on the Slovakian side). The length of the Polish-Slovakian national border equals 541 km, what constitutes 15.40% of the total length of Polish borders and 39.93% of the total length of Slovakian borders.



Map 1. Polish-Slovakian border

The Podkarpackie Voivodeship is inhabited by 2.1 million people which makes 5.5% of the Poland's population, whereas the Presov Region is the most highly populated voivodeship in Slovakia and it is inhabited by 807 thousands people which constitutes 15% of the Slovakia's population. Taking into account the density of population, it is higher in the Podkarpackie voivodeship, where 118 people live on 1 km², whereas in the Presov Region 90 people live on 1 km².

Large areas of forests, including legally protected areas due to their natural values are typical for two described regions. In the Podkarpackie voivodeship there are i.a. 2 national parks and 7 scenic parks, whereas in the Presov Region – 6 national parks and 3 scenic parks. Natural values of both regions create conducive conditions for the development of tourism.

The tourist activity in the voivodeship is concentrated mainly in the southern region. The best tourist infrastructure can be found in the following districts: Bieszczady, Lesko, Sanok, Krosno, Jasło and cities of Przemyśl and Rzeszów. In the Podkarpackie Voivodeship there are 379 group accommodation facilities, including 171 hotel facilities and 10 guesthouses – this is data taken from the official statistics. According to the data published in the Tourist Development Strategy of the Podkarpackie voivodeship for years 2007-2013 (data comes from surveys, that are in the possession of document's authors and websites) total number of accommodation facilities amounts up to 1 197. There are 630 facilities providing accommodation services in the rural areas (which makes 52% of the total number of facilities). The number of tourists visiting the Podkarpackie Voivodeship is estimated at ca. 3 million a year.

Each year Slovakia is visited by circa 6-7 million tourists, who use the accommodation. The most tourists (except from Poland) come from the Czech Republic, Hungary, Germany, Austria and Italy. The most visited urban areas are: Bratislava, Kosice, Trenczyn, Zwolení, Bańska Bistrica, Nitra, Žylina and Poprad. Main tourist values of Slovakia are definitely mountains. Most tourists spend holiday in the High Tatras, in the Low Tatras and Lesser Fatra. Beside mountains many tourist are attracted to Slovakian health resorts, out of which the most famous are: Piszczany, Bardiowskie Kupele and Trencianskie Cieplice.

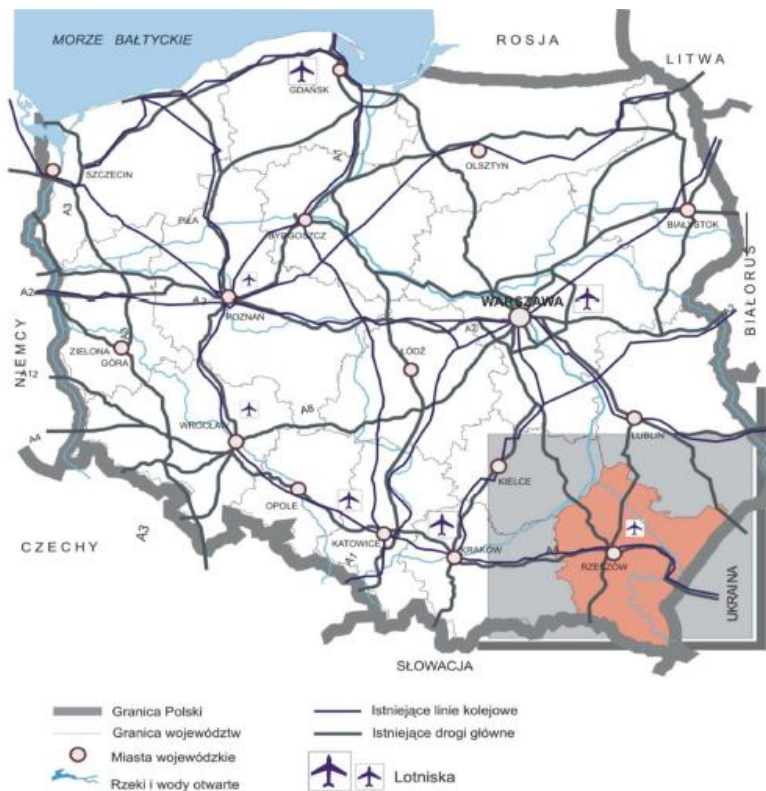
The greatest attraction of the Presov Region are High Tatra and their highest summit – Gerlach. Among many attractions of the region one can also enumerate the world-famous Andy Warhol museum in Medzilaborce, Astronomical Observatory Roztoky, Red Monastery – monument of national culture.

According to data from 2006 published in the Statistical Bulletin - the Podkarpackie Voivodeship Presov and Kosice regions, published in 2008 in the Presov Region there were 345 accommodation facilities, used by more than 2 million tourists.

2.1 The Podkarpackie Voivodeship

2.1.1 General characteristics of the region

The Podkarpackie Voivodeship was formed as a result of the administrative reform in Poland by combining three previous voivodeships: Rzeszowskie, Przemyskie, Krośnieńskie, as well as partially Tarnowskie and Tarnobrzskie. It is the most southern-placed region of the country, that borders with following voivodeships: Lubelskie, Małopolskie and Świętokrzyskie. Eastern and southern borders of the voivodeship are simultaneously national border with Ukraine and Slovakia. The capital of the region and seat of self-government authorities is Rzeszów, inhabited by 172.7 thousand residents.



Map 2. Location of the Podkarpackie Voivodeship on the map of Poland

Source: Development Strategy of the Podkarpackie voivodeship for years 2007-2020

The Podkarpackie Voivodeship includes an area of 17 846 km², which makes 5.7% of the total area of the country and places it on the 11th position among other voivodeships. Population density of the voivodeship equals 118 people/km², in comparison in case of the country this value amounts up to 122 people/km². The voivodeship includes 159 communes and 21 districts. There are 47 towns and 1 706 villages in the region, which make 1 552 village council offices. According to the data of the Central Statistical Office at the end of 2010 the number of inhabitants in the voivodeship according to the actual place of living equalled 2 103 505 people. Inhabitants of the voivodeship make 5.5% of all citizens of the country.



Map 3. The Podkarpackie Voivodeship

Source: www.geoportal.gov.pl

The Podkarpackie Voivodeship is located in the area of two large geographic regions – Sandomierz Basin in its northern part and Carpathian Plateau in the southern part. They differ in natural topography and geologic structure. The border between them runs in the middle part of the region, in the city of Rzeszów.

2.1.2 Transport infrastructure

Geopolitical localization favours the transportation availability of the region and makes for an important development potential for the voivodeship. The Podkarpackie Voivodeship is located within the existing transport corridors of Trans-European range, placed on the intersection of historically formed transport routes, plays an important role as a communication hub in the south-eastern region of the country. The reason for that are road and railway routes as well as dynamically developing Rzeszów-Jasionka Airport. In the Podkarpackie Voivodeship there are intersections of international routes: route E-40 (Wrocław-Rzeszów-Lviv) connecting Western Europe with Ukraine, route E-371 (Radom-Rzeszów-Kosice) and national road No. 19, the so-called Via Baltica, connecting the Baltic countries with the southern part of Europe. There is a E-30

railway main line Drezno-Wrocław-Cracow-Rzeszów-Lviv-Kiev (the so-called European transport route) running through the region as well as steelworks-sulphur line, running through the northern part of the voivodeship, connecting Upper Silesia with Ukraine. The growing Rzeszów-Jasionka Airport operates passenger traffic and transport of goods on the national and international scale. Very good parameters of the airport and technical equipment make it possible even for the largest transport units to land there.

The voivodeship's transport network creates a system which is fully connected with the national and international structures, which makes favourable conditions for the development of communication connections of the Podkarpackie voivodeship with Europe.

Rzeszów – the voivodeship capital – plays an important role as a transport hub in the south-eastern region of the country. Favourable location of the city at the intersection of vital transport routes and close proximity of southern and eastern borders (ca. 90 km from the Ukrainian and Slovakian borders) decide about its significance as an important transport hub, favour the development of economy, trade and tourism.

1. Basic information relating to the road network in the Podkarpackie Voivodeship:

- Density of national roads in region equals 4.2 km/100 km²;
- Density of voivodeship roads in region equals 8.8 km/100 km²;
- Density of district roads in region equals 36.0 km/100 km²;
- Density of commune roads in region equals 30.6 km/100 km².

Density of national roads in the voivodeship area is lower than the national average of 5.8 km/100km². Density of voivodeship district and commune roads is also lower than the national average.

2. Motorways:

- A4 motorway (under construction).

3. Express roads:

- Express road S19 (planned);
- Express road S74 (planned).

Total length of national roads running through the area of the Podkarpackie Voivodeship equals 771.5 km. The structure of the most important communication connections is made by:

- National road No. 4 (international E 40) line: Germany (Dresden) – national border – Jędrzychowice – Wrocław – Cracow – Rzeszów – Korczowa – national border – Ukraine (Lviv, Kiev);

- National road No. 9 (international E 371) line: Radom – Rzeszów – Barwinek – national border – Slovakia (Kosice);
- National road No. 19 line: Rzeszów – Lublin – Białystok – Kuźnica Białostocka – national border – Lithuania (the Baltic countries);
- National road No. 28 line: Wiśniówka - Kielce - Morawica - Busko Zdrój - Szczucin - Dąbrowa Tarnowska - Tarnów - Pilzno – Jasło
- National road No. 73 Wiśniówka - Kielce - Morawica - Busko Zdrój – Szczucin-Dąbrowa Tarnowska - Tarnów - Pilzno – Jasło
- National road No. 77 line: Lipnik - Sandomierz - Stalowa Wola - Leżajsk - Tryńcza - Jarosław - Radymno – Przemyśl
- National road No. 84 line: Sanok - Lesko - Ustrzyki Dolne - Krościenko - National border

4. Main border crossings to Slovakia:

- Roztoki Górne - Ruske Sedlo – Lesko district, Cisna commune, road border crossing for tourist traffic;
- Balnica - Osadne – Sanok district, Komańcza commune, road border crossing for tourist traffic;
- Łupków - Palota – Sanok district, Komańcza commune, railway border crossing for personal and freight traffic;
- Radoszyce - Palota - Sanok district, Komańcza commune, international border crossing for personal and truck traffic for trucks up to 7,5 tonnes;
- Czeremcha - Certizne - Krosno district, Dukla commune, road border crossing for tourist traffic;
- Jaśliska - Certizne - Krosno district, Dukla commune, road border crossing for small border traffic;
- Barwinek - Vysny Komarnik - Krosno district, Dukla commune, border crossing for personal, freight and small border traffic;
- Ożenna - Nizna Polianka – Jasło district, Krempna commune, border crossing for tourist traffic.

The technical condition of national road network in the voivodeship is unsatisfactory. Circa 16.7% of the network is in bad condition, requiring immediate renovation, circa 36.6% in the unsatisfactory condition, while 46.7% can be considered as good, not requiring any maintenance.

Total length of voivodeship roads in the voivodeship area equals 1 667.2 km. Their technical condition is also unsatisfactory. Circa 30% of the road network is in bad condition, 52% in an objection-raising condition, while only 18% are in good condition. There is a dense network of district roads in the voivodeship, their total length equals circa 6 800 km. About 7% of district roads is of ground surface, whereas technical condition of roads with better surface is unsatisfactory in 70%. Only 25% of district roads do not require renovation. Network of commune roads in the voivodeship area totals 8 974.8 km, including roads with hardened improved surface (5 346.3 km, which constitutes 61% of their total length).

Condition of roads is one of the principal barriers for the regional development of the Podkarpackie Voivodeship. There is a lack of main road arteries in the east-west and north-south directions as well as city ring-roads in the sequence of national and voivodeship roads, which would definitely improve the traffic in cities.

2.1.3 Railway infrastructure

Total length of railway lines in the Podkarpackie Voivodeship in 2009 equaled 1027 km. There are following lines running through the voivodeship area: ones of national importance (decision of the Council of Ministers from 20 March 2007 on the list of railway lines of national importance Journal of Laws from 6 April 2007) – division made based on economic, social, defensive or environmental reasons):

- line No. 91 Kraków Główny Osobowy – Medyka (166.6 km in the area of the Podkarpackie Voivodeship), double-track line, electrified. Line is located in the E-30 transport corridor – international railway line E-30 – which is a part of III Paneuropean transport corridor connecting Germany – Poland and Ukraine (Via Regia route), included in the transport agreements AGC and AGTC; including reloading hub Medyka – Przemyśl – Żurawica, connected with the border traffic, standard and wide tracks (mutually). Within the hub there are smaller reloading sidings;
- linia No. 25 Skarżysko Kamienna – Ocice, line section of national importance, included in the Łódź Kaliska – Dębica railway line;
- line No. 68 Lublin – Stalowa Wola Rozwadów – Przeworsk, single and double-track line, electrified;
- line No. 71 Ocice – Rzeszów (ca.66.0 km), single-track line, non-electrified, modernized and adapted for speeds of 110–120 km/h;
- line No. 74 Sobów – Stalowa Wola Rozwadów (24.4k m) – double-track line, electrified.

The main axis of the railway transport is the main railway line of international character No. 91 and belonging to the E-30 route, leading traffic from the Western Europe to Ukraine. Moreover, in the voivodeship area is running a Steelworks Broad-Gauge Line (83.0 km), single-track, non-electrified, with a broadened rail distance in the section: national border with Ukraine – Sławków Południowy. Line runs through the northern part of voivodeship.

There are also 2 narrow-gauge railway lines (71 km) in the voivodeship area, dealing mainly with the tourist traffic.

The technical condition of railway infrastructure is very disappointing, especially on the lines of local significance, which require renovation and electrification – this fact has a negative influence on the competitiveness of the railway transport. Condition of connections, especially with the middle and northern Poland, requires improvement.

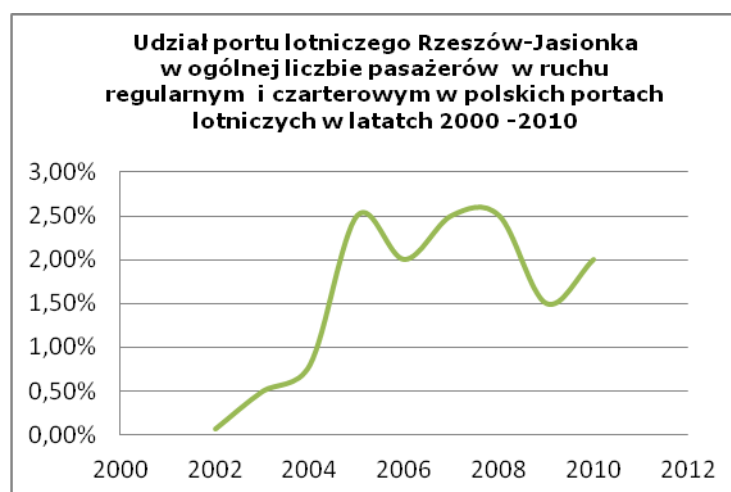
2.1.4 Airline infrastructure

Air transport is more and more important for the development of the Podkarpackie Voivodeship area. It can be characterized with high dynamics of growth in carriage. The Rzeszów – Jasionka Airport plays a key role here, it is adapted to operate international passenger traffic. It is of strategic significance for the region and it has a chance of becoming the largest airport on the east border of the European Union. It is the only communication airport in the south-east Poland, equipped with high, international standard

devices, with a 3 200m-long runway, ready to land all types of aircrafts. Favourable location of the Rzeszów - Jasionka Airport is a natural factor positively influencing economic growth in the region. The airport is near national road No. 19 Rzeszów-Lublin and road No. 9 Rzeszów-Radom. During last two years the passenger traffic in Jasionka has increased more than 40%. In 2010 the airport near Rzeszów cleared almost 454 thousands of passengers.

Table 1. Number of passengers in regular and charter traffic in the Polish airports

Airports	2010 (in millions)	Dynamics 2005 -2010
Warsaw	8,667	123%
Katowice	2,366	218%
Cracow	2,839	181%
Gdańsk	2,209	326%
Poznań	1,384	347%
Wrocław	1,599	352%
Rzeszów	0,452	494%
Łódź	0,413	2289%
Szczecin	0,269	264%
Bydgoszcz	0,266	689%
Zielona Góra	0,004	849%



Source: <http://monitoruj.podkarpackie.pl>

In 2010 Rzeszów-Jasionka Airport placed 7th in the country in the scope of number of cleared passengers. In 2010 the airport cleared 454 237 passengers, almost 5 times more than in 2005. According to statistics kept by the airport in 2011 number of carried passengers increased to 491 325 passengers. Number of

aircraft operations (take-offs and landings of airplanes) equalled in 2010 – 10 970. According to statistics kept by the airport in 2011 number of aircraft operations increased to 12 357.

Rzeszów – Jasionka Airport provides regular national and international connections on following routes:

- Barcelona Girona Ryanair
- Birmingham Ryanair
- Bristol Ryanair
- Dublin Ryanair
- East Midlands Ryanair
- Frankfurt Lufthansa
- Gdańsk OLT Ekspres
- Katowice OLT Ekspres
- Londyn–Luton Ryanair
- Londyn Stansted Ryanair
- Manchester Ryanair
- Warsaw OLT Ekspres
- Warsaw PLL LOT

The airport is one of the fastest-developing airports in Poland. It has the most modern runway of 3200 m, one of the longest in Poland, enabling landing of every type of aircraft, including the largest wide-body aircrafts i.e. Boeing 747. Lack of aircraft obstacles in the approach zones, high class of lighting and navigational systems for landing, make the Airport in Rzeszów available 24 hours a day, whole year long. In 2012 a new passenger terminal is planned to be opened. However, one has to underline that its potential still remains not used to the full extent.

In the voivodeship area there are also located local airports, which do not have proper complete navigational equipment. These airports are: in Mielec, Krosno, Turbia and the ones not functional in Wola Korzeniecka and Krajna in Bircza commune. Both at the airports - in Rzeszów and in Mielec – there are Customs Offices. The rest of airports in the voivodeship – in Krosno and in Turbia – are sport airports.

2.1.5 Environmental protection

The Podkarpackie Voivodeship is one of the regions with rich natural values, because circa 48% of the total area is under different types of protection. In the Podkarpackie Voivodeship area there are 2 national parks: Bieszczadzki with an area of 29 thousand hectares and protection zone on the area of 56 thousand hectares; Magurski with an area of 19 thousand hectares and protection zone on the area of 23 thousand hectares. In scope of area occupied by national parks the Podkarpackie Voivodeship takes the second place in country (after the Podlaskie Voivodeship). Moreover, in the Podkarpackie Voivodeship there are 93 nature reserves, on the area of 10.7 thousands hectares. The Podkarpackie Voivodeship takes first place in the country in scope of protected areas in form of scenic parks (ca. 280 thousands hectares), which makes almost 16% of the voivodeship area, whereas in Poland less than 8% of the total area is under this type of protection.

In the Podkarpackie Voivodeship area there are NATURA 2000 areas of total area of 852 056 hectares i.a. 1) special bird protection areas with an area of 507 600 hectares; 2) special habitation protection areas with an area of 344 456 hectares.

2.2 The Presov Region

2.2.1 General characteristics of the region

The Presov Region is located in the north-eastern area of the Republic of Slovakia. Slovakia is divided into 8 regions (voivodeships). The Presov Region is the most populated out of all Slovakian regions, while in scope of area it takes 2nd place in country. It comprises of historic regions of north, middle and partially south Spiš, Upper and Lower Saris (Horný a Dolný Šariš) and Upper Zemplin (Horný Zemplín).



Map 4. Location of the Presov Region on the map of Slovakia

Source: Popis súčasného stavu v Prešovskom kraji, 2008

The country stretches in the West-East direction. With length of 250 km it exceeds its width almost three times. It takes whole north-eastern part of Slovakia (it is the most East-located region in country). The Presov Region borders with Poland (360 km), Ukraine (38 km) and with three other Slovakian regions: Kosice, Banskabistrica and Žylioski.

Geographical location of the Presov Region enables development of relations and international cooperation with neighbouring countries. Due to well-developed communication network, both road and railway ones, this region has an important position in the whole Eastern Slovakia. There is an

international road E 50 running through the voivodeship area, from West to East, from the Czech Republic to Ukraine. One important section of motorway is the D1 Presov – Kosice, gradually connecting with the western direction through the already constructed Branisko tunnel. From the Czech Republic runs the main railway line through The Presov Region from Žylna to Kosice in the direction of border with Ukraine. The line dividing whole eastern Slovakia from south to north, which runs from Hungary through Presov and Orlov to Poland, is also important. Poprad airport, as the highest located international airport in Middle Europe (718 m above sea level), connects the whole region with many European cities.



Map 5. The Presov Region

Source: Popis súčasného stavu v Prešovskom kraji, 2008

2.2.2 Road infrastructure

In the Presov Region area there is a total of 3 077 kilometres of roads, including 632 km of I class roads (main national roads), 524 km of II class roads (national roads of regional significance), 1922 km of III class roads (local roads). Total length of road network in the Republic of Slovakia amounts up to 17 809 km, whereas participation of roads of the Presov Region in the general road network amounts up to 17.27%. In the total length of Slovakian motorways, sections in the Presov Region amount up to 9.14%. Density of road network in the described region amounts up to ca. 351.7 km/1000 km². In comparison with the average road network density in Slovakia, the Presov Region is characterized by much lower indicators. Density of motorways in Slovakia amounts up to 3.865/1000 km² in comparison, while the density of motorways in the Presov Region amounts up to 0.505/1000 km².

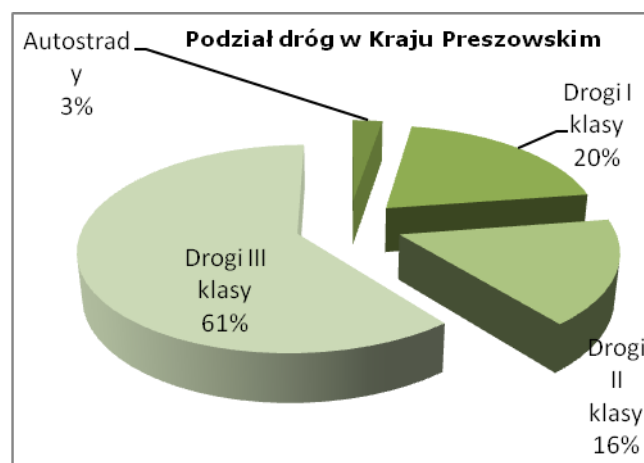
There are multimedia transport corridors³ of European significance running through the Presov Region (defined in the Transport Infrastructure Needs Assessment TINA). There is a motorway that connects this region with other ones in Slovakia running through the Presov Region. About 30 km long motorway connects cities of Kosice and Presov. The motorway connects Presov with the country's capital Bratislava through Kosice. The quality of road connections in the north-south direction from Presov towards border with Poland and Hungary is unsatisfactory.

1. Motorways:

- D1 Motorway Presov – Kosice

2. Roads of international significance, which are located in the Presov Region area:

- National road I class No. E 50 connecting Czech-Slovakian border with Ukrainian border Drietoma – Žylina – Presov – Kosice – SR/UA border – Užhorod;
- National road I class No. E 71 Košice - Seňa – Slovakian-Hungarian border Miškolc;
- National road II class No. 371 section Presov – Swidnik – Wysny Komarnik – Slovakian-Polish border (Rzeszów);
- National road II class No. E 68 leading to Poland through Mníšek nad Popradem;
- National road II class No. E 71 Bratislava - Nitra - Zvolen - Lučenec – Košice.



3. International border crossing in the Presov Region

3.1. The Presov Region – Poland:

- Konieczna-Becherov – border crossing for personal and freight traffic up to 3,5 tonnes;
- Łysa nad Dunajcem-Niedzica - border crossing for personal and freight traffic up to 3,5 tonnes;

³ Transport corridors including road and railway transport

- Łupków-Palota - the only railway border crossing in Beskid. Border crossing is located on the line from Zagórz to Medzilaborce;
- Łysa Polana–Tatrzańska Łomnica - border crossing for personal and freight traffic up to 3,5 tonnes;
- Plavec – Muszyna – railway border crossing;
- Piwniczna-Zdrój-Mnisek Nad Popradom - border crossing for personal and freight traffic up to 3,5 tonnes;
- Barwinek-Vysny Komarnik – located near the E371 road and for personal traffic, passenger vehicles, coaches, trucks, small border traffic.

3.2. The Presov Region– Ukraine:

- Małyj Bereznyj-Ubľa- this is a border crossing for personal and freight traffic up to 3,5 tonnes, it is located near the city of Wełykyj Bereznyj.

3.3. Small border traffic border crossings:

- Oženna-Nižná Polianka;
- Veľká Franková - Kacwin
- Jašíliska-Čertižné
- Leluchów-Čirč

There are 214.7 km of bicycle paths in the Presov Region as well as 1266.16 km of pavements along the streets and roads.

The road network in the Presov Region can be characterized with relatively high density in comparison to local roads, it becomes lower while class of the road increases. In scope of road density the city of Presov – region’s capital – takes 7th place in Slovakia. The lowest road density in region have Districts of Kiežmark, Poprad, Svidník. It is a result of land form – these are mountain areas.

Since 1 January 2004 the Presov Region has taken over administration of class II and III roads. There are ca. 2446 kilometres of class II and III roads in the voivodeship’s area. The administration over roads is provided by means of own organization – Administration and Maintenance of the Presov Region Roads (Správa a údržba ciest PSK). Weakly developed infrastructure is the reason of worsening the possibilities of development in the region, while simultaneously the climatic conditions in the region are one of the reasons of deteriorating conditions of roads and increasing demand for renovations and maintenance of infrastructure. The length of class II roads in bad technical condition in the Presov Region is estimated at 148 km, out of which 11.74 km (2.25%) is in a very bad condition. It constitutes ca. 28.24% of national roads of regional importance (class II). Out of total length of 1922 km class III roads (local roads) 33.62% are in unsatisfactory technical condition and 13.39% in a very bad condition.

2.2.3 Railway infrastructure

Railway network in the Presov Region is weakly developed. Total length of line amounts up to 420 km, including 41 km of Tatrzánska Kolej Elektryczna (Tatra Electric Railway). Density of railway lines amounts up to 46.8 km/1000 km² and it is the lowest in Slovakia. On the national level density of railway lines amounts up to 73.94 km /1000 km². In comparison, total length of railway lines in Slovakia amounts up to 3 592 km, out of which 11.7% are located in the Presov Region area. The most important railway reloading stations are Presov and Poprad.

Main railway lines:

- Railway line Žylina – Kosice is of national significance and is subordinate to the AGC and AGTC international network system. Thanks to gradual modernisation trains are able to travel with speeds of 120 km/h;

Railway line Kysak – Prešov – Plaveč creates a north-south passage of international significance and is subordinate to the AGTC route system. The following lines of regional significance from Bardejov, Vranov nad Topľou, Humenného, Sniny to Medzilaborzec connect by the railway junction to the above mentioned line.

2.2.4 Airline infrastructure

Airline connection in the Presov Region is provided by an international Poprad-Tatry airport, the highest-located airport in the Central Europe (718 m above sea level). After complete reconstruction conducted in 1992 a regular and charter transport of passengers and goods has been taking place. The airport also offers sightseeing flights.

Airport is located 5 km to the west from Poprad. The airport serves among other the Polish city of Zakopane.

According to statistics conducted by the airport in 2010 it cleared 27 693 passengers, whereas in 2011 the number of processed passengers increased to 24 625 passengers. Number of aircraft operations (take-offs and landings of planes) amounted in 2010 up to 7 595, whereas in 2011 number of aircraft operations increased up to 6 954. Planes take off and land on the runway of 2600 metres. Decrease in number of passengers and aircraft operations is the result of withdrawal from the market of the Slovakian carrier SKY Europe.

Table 2. Airports in Slovakia along with number of passengers

City	Name of the airport	Type of airport	Length of runway (m)	Number of passengers in 2010
Bratislava	M.R. Stefanik	civil	3170	1644851
Kosice	Kosice	civil	3078	266532

Malacky	Malacky	military	2438	n.d
Nitra	Nitra	civil	1067	n.d
Piestany	Piestany	civil	1981	1366
Poprad	Tatry	civil	2591	28682
Presov	Presov	military	823	24625
Prievidza	Prievidza	civil	945	n.d
Sliac	Sliac	civil	2316	0
Trencin	Trencin	civil	1981	n.d
Zilina	Zilina	civil	1128	9756

The Poprad – Tatry Airport provides regular national and international connections on following routes:

- Poprad - Londyn-Gatwick CSA Czech Airlines;
- Poprad - Praga CSA Czech Airlines;
- Poprad - Warsaw EuroLOT;
- Poprad - Gdańsk EuroLOT.

Customers from the Presov Region also use the international airport in Kosice, located only 47 km from the region's seat - Presov. In Presov there is also a military airport in Nizna Sebastowa (Nižna Šebastova).

Moreover, in the Presov Region there are a couple of airports of regional significance, which are mainly used for sport purposes. These are the airports in Zborov, Kucine (Kučine), Kamenici nad Cirochou and in Ražňany.

2.2.5 Environmental protection

Region of the Presov voivodeship from the point of view of natural values is among the most significant ones in Slovakia. This is where the oldest national park in Slovakia (1949) is located. Tatra National Park (Tatrzanski Park Narodowy - TANAP), which since 1993 is also a biosphere reserve, the oldest international nature park in Europe (Pieniny National Park) Pieniński Park Narodowy (PIENAP) and Połoniny National Park, whose primeval forests are included on the World Heritage List of UNESCO. Low Tatra National Park (Park Narodowy Niskie Tatry - NAPANT) and Slovensky Raj National Park (Park Narodowy Slowacki Raj) with its peculiar area of crevices and gorges also belong to the Presov voivodeship. The Ukrainian Carpathians protected area can be characterized with rich forests, whereas landscape area Vihorlat has rich fauna and flora. Except surface positioned protected areas in the Presov voivodeship there are a few dozen small-surface protected areas – national nature reserves, nature reserves, national nature monuments, nature monuments, protected areas.

There are 382 Natura 2000 areas of total area of 573 thousands hectares (11.7% of the Slovakian territory) in Slovakia. 86.5% of these areas are located in woods. Areas of Special Bird Protection (SPA) occupy 357 667 hectares, the rest of them are Special Habitation Protection Areas.

3 PROBLEMS IN COLLECTING STATISTICAL DATA

The question of analyzing transport issues is connected with occurrence of objective difficulties. Among the analyzing difficulties one can enumerate:

1. In order to present all available data collected it was necessary to modify Annex No. 2. The division on particular, main categories i.e. road infrastructure, railway infrastructure was kept, whereas the data included in each category was modified. The original division did not take into account the diversity of available data present in both regions. As an example we can mention the division of roads, in Slovakia roads are divided into Motorways, Class I Roads, Class II Roads and Class III roads, while in Poland district, commune, urban, rural roads etc.
2. Additionally, table was enhanced with other categories characterizing transport infrastructure in particular regions i.e. transport of goods, passenger transport. This data was aggregated in one place, without dividing it into separate categories.
3. Environment, biodiversity, protected areas categories were also modified. The original division within this category made it impossible to input available data.
4. In order to keep the data clear, separate tables were made for Slovakia and for Poland. The structure of the table made it impossible to collect data in one document. Other collected data for given regions was provided in the additional sheet.
5. Another problem was dispersal of sources of statistical data, strategic studies and maps. Both for Poland and for Slovakia, source documents were available in many institutions and were very dissipated, in most cases one could get access to them in an electronic and printed form in the institutions responsible for official statistical reporting, appropriate ministries and government agencies, territorial self-government institutions, as well as international organizations.
6. Data description in many languages - data was mainly described in English and Polish simultaneously, however in the process of source exploration one encountered documents prepared only in Slovakian or Polish (without English translation).
7. Available statistical data was saved in many different formats, mainly: xls, pdf, or databases in form of text.
8. Diverse time scope of data and reports – in the research process on the basis of analysis of available source documents a heterogeneity of statistical data time scope was observed. Some data was available for example for years 2008-2010, whereas other data was available only for 2009.
9. Lack of cohesion of terms and classification – there were occasional small problems in scope of terms and data descriptions, concerning for example vehicles in the motorcycles and mopeds category.

10. In the research process some data was not gathered due to two reasons. First of them was not gathering of data within the period of analysis from the most important institutions which were supposed to be a potential source of transport data, especially of financial character. The second one was of course non-existence of analyzed category (e.g. *protected areas: marine and coastal ones*).
11. Diverse level of data aggregation – resources of particular institutions which were source of data were aggregated on the following levels: national, regional, voivodeship (NUTS levels: 0,1,2,3). As a rule central institutions had data on the national level, while regional ones on the local and regional levels. System of the statistical data aggregation was also differentiated due to country, which the data concerned. Due to this fact it was not always possible to gain parallel data for given factor from both countries, on the identical spatial aggregation level and in the same time periods.
12. Due to the very short period assigned for the analysis implementation, during the research process there were used no such research methods as individual interviews and library and electronic stocks exploration (not being in the Internet), especially ones being geographically distant from the place of conducting the analysis as well as ones being abroad. Due to potentially high costs of databases and maps purchase as well as costs of business travels and relatively long time of data generation by proper institutions, it was impossible to purchase some parts of data and maps.
13. It was virtually impossible to generate data for 2011. It was the result of official statistical reporting functioning specifics, where statistical data is published with a delay ranging from a couple up to a dozen months.

4 CONCLUSIONS AND RECOMMENDATIONS

On the basis of evaluation of general transport structure characteristics and environment condition of the Podkarpackie Voivodeship and the Presov Region the conclusions are as follows:

- great diversity of analyzed regions can be observed, first of all due to the level of transport infrastructure development;
- influence of transport on space i.e. natural environment, as well as on entirety of socio-economic relations of regions can be observed;
- in the last few years there has been an increase in intensity of vehicle traffic in the analyzed regions, unequal to the changes in railway;
- there has been a significant increase in transport traffic intensity, both in urban and rural areas;
- development of road, railway and airline network is uneven for particular regions.

Collected data is sufficient to begin scientific analysis in scope of development of transport infrastructure in the Podkarpackie Voivodeship and the Presov Region. However, innovative, complex approach to the issue requires undertaking additional initiatives, especially the ones analysis-related:

- in order to make the analysis process up-to-date in the future, it is necessary to currently update the statistical data collection, strategic documents and maps;
- analysis of the transport influence on environment is significant, especially in the prognostic perspective, including consequences of the socio-economic development and simultaneous respect for natural and cultural heritage, it should take place with a presence of experts. Due to this fact we propose conducting of expert analysis by means of group and individual interviews or analysis of surveys;
- complexity of the problem forces the necessity of using multidimensional techniques for analysis (i.a. taxonomic method), in connection with qualitative analysis methods (i.a. interviews);
- the necessity of implementation of qualitative analysis, i. a. individual and deepened interviews as well as focused group interviews has been observed; - in cases where there is no access to data or occurrence exists as unmeasurable;
- there are problems resulting from the lack of plans of spatial development of significant part of the Podkarpackie Voivodeship – this fact impedes the planning and organizational activity in scope of extension of existing and development of new transport networks;
- the necessity of keeping a systematic transport monitoring in analysed regions, as well as analysis of its influence on environment is seen;
- we propose discussing introduction of innovative research concerning pollution emission by vehicles with a significant exploitation period based on measurement of actual emission of fumes and toxic compounds in them in a representative samples from vehicles from

- analyzed regions and then estimation of dangers resulting from this fact and eventually formulation of recommendation for eliminating threats for natural environment;
- there should be undertaken activities aimed at introducing complex system of measuring the noise emitted by transport, both in urban and rural areas, with particular attention for protected areas, as well as introducing system preventing the excessive noise emission – this proposal is of particular significance, not only for natural environment but also for quality of life of inhabitants of the analyzed regions;
 - one needs to conduct studies on the development of network of ring-roads for cities in the analyzed regions, as well as areas particularly valuable in scope of nature;
 - there is need for complex analysis of services of enterprises cooperating with the transport sector (including ones operating in an informal way, the so-called grey area), especially its influence on the environment (i.a. illegal car paint shops, garage shops), in addition one has to pay attention to recycling and utilization issues;
 - analysis of environmental awareness of the society in scope of using transport seems to be necessary, there is need for providing appropriate solutions and gaining social acceptance along with increasing awareness of inhabitants of analyzed regions.
 - conducting systematic prognostic analyses concerning projections on development of particular transport branches; railway, airline, vehicle) in analyzed regions.

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