Study on Strategic Evaluation on Transport Investment Priorities under Structural and Cohesion funds for the Programming Period 2007-2013

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Country Report Slovenia

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Table of contents

1 Introduction

1.1 Background

The recent enlargement of the EU to 25 Member States clearly creates a new challenge for its Cohesion Policy. Disparity levels within the EU have increased substantially and will further increase with the accession of Bulgaria and Romania in 2007. This is an explicit point of attention as the Treaty states that, in order to strengthen its economic and social cohesion, the Community shall aim at reducing the disparities between the levels of development of various regions and the backwardness of the least favoured regions or islands, including rural areas. This aim lies at the core of the Commission's regional policy.

One of the key elements of the cohesion policy of the Commission is the contribution of the development of new transport infrastructure to regional economic development. Extensive spending has taken place in this domain under ERDF, Cohesion Fund and ISPA.

One of the prominent initiatives in the European Union in this respect is the development of the Trans-European transport networks (TEN-T). In 2003 the Commission has identified the 30 priority projects of the TEN-T up to 2020.[1] The priority projects include: *"the most important infrastructures for international traffic, bearing in mind the general objectives of the cohesion of the continent of Europe, modal balance, interoperability and the reduction of bottlenecks"*.

For the new programming period 2007-2013 the Commission seeks to strengthen the strategic dimension of cohesion policy to ensure that Community priorities are better integrated into national and regional development programmes. In accordance with the draft Council Regulation (article 23), the Council establishes Community Strategic Guidelines for cohesion policy to "give effect to the priorities of the Community with a view to promote balanced, harmonious and sustainable development"[2].

To assess the impact of programmes in relation to Community and national priorities the Commission has indicated that evaluations on a strategic level should be undertaken. The present evaluation should be seen as one of these specific strategic evaluations. The strategic evaluation should feed in the process of determining transport investment priorities and the preparation of the national strategic reference frameworks and

[1] Decision 884/2004/EC of 29 April 2004. The total investment of the 30 priority projects amounts to € 225 billion at the 2020 horizon.
[2] COM(2004)492

operational programmes. As such, it should serve to enhance the quality, effectiveness and consistency of Fund assistance.

1.2 The Strategic Evaluation

The strategic evaluation is directed at the transport sector.

Three specific objectives have been formulated for this strategic evaluation:

- To provide an analysis of the **situation** in selected fields relevant to transport, using structural indicators across Member States, plus Romania and Bulgaria;
- To assess the **contribution** of Structural and Cohesion funds relative to the current and previous programming periods and draw lessons of relevance for the purpose of the study in terms of identification of potential shortcomings in the development of transport priority projects that might have hampered the utilization of those funds or their expected benefits;
- To identify and evaluate **needs** in the selected fields and identify potential investment priorities of structural and cohesion funds for the programming period 2007-2013.

1.3 The Country Report

The strategic evaluation results in specific country reports for all 15 countries and a synthesis report. The current report is the Country Report for Slovenia. Its main aim is to give a more detailed indication of the strengths and weaknesses of the transport system in the country and to address areas for future intervention. Where relevant this accompanied by recommendations with respect to the overall transport policy of the country. The country reports feed into the joint programming effort with the Member States for the next period, as will be detailed in the National Strategic Reference Frameworks and the subsequent Operational Programmes.

1.4 Structure of the report

The report is structured around three building blocks.

- First a needs assessment is presented based on an analysis of the current transport systems and a modelling analysis which reveals the current (relative) level of accessibility per region. This leads to first conclusions strengths and weaknesses of the current transport system and related transport investment needs (Part A).
- Next an overview is presented of the transport investment priorities in the past period (Part B).
- Finally, future areas for priority transport investments are identified. This builds on the needs assessment in the first part but also addresses other factors such as the contribution to EU and national policy objectives, the availability of other sources of funding and the administrative capacity of the country (Part C).

Part A: Needs assessment current situation

2 Transport Sector: current situation

2.1 Introduction

This chapter describes the current transport situation and policy in Slovenia. After a brief introduction on the geographical and economic characteristics of the country, it first describes the situation per mode of transport. The analysis of the current situation is summarized in a SWOT table on the main strengths and weaknesses. The assessment of the transport system is followed by an analysis of the key transport policy issues in Slovenia.

2.2 Slovenia

Slovenia is a central European country, which borders the Adriatic Sea through a small coastal strip. Koper is the main port of the country. The terrain consists of an alpine mountain region adjacent to Italy and Austria and mixed mountains and valleys with numerous rivers to the east. Despite its small size, this eastern Alpine country controls some of Europe's major transit routes. The country is crossed by two TEN-T corridors: Corridor V (Venice-Trieste/Koper-Ljubljana-Budapest-Kiev) and corridor X (Salzburg-Ljubljana-Zagreb-Belgrade-Thessaloniki).

Basic data

Population	2.0 million
Total area	20,273 km^2
Population density	98.7 inh/km^2
Main cities	Ljubljana (capital; 260,000 inh), Maribor (94,000 inh)

Slovenia, with its historical ties to Western Europe, enjoys a GDP per capita substantially higher than that of the other transitioning economies of Central Europe. Structural reforms to improve the business environment have allowed for greater foreign participation in Slovenia's economy and have helped to lower unemployment, which currently hovers around 6%. The EU is the main trading partner of Slovenia, with Germany taking a clear lead position (23% of exports), followed by Italy (13%). Inflation has declined from 7.5% in 2002 to 4.1% in 2004.

Economic data

GDP (2004)	26.1 bn€
Government debt as % of GDP (2004)	29.8%
Government deficit as % of GDP (2004)	-2.1%
GDP per capita, Slovenia (2004)	13,100 €
GDP per capita, EU15 (2004)	25,700 €
GDP per capita, EU25 (2004)	22,600 €

Source: Eurostat

2.3 Situation per mode of transport

2.3.1 Roads and road transport

Infrastructure

In Slovenia a distinction is made between motorways (managed by DARS - the Motorways Company of Slovenia), state roads (managed by DRSC – Road Directorate of the Republic of Slovenia) and local roads (managed by municipalities).

Table 2.1 Length of road network in Slovenia (1994-2004) in kms

	1994	2004	% change
Motorways	277	483	74%
State roads	4,729	5,886[a]	24%
Local roads	9,781	13,814[a]	41%

[a] data refer to 2003

Source: Statistical office of the Republic of Slovenia

Slovenia has been focusing on expansion of the motorway network in the past decade. As part of its national programme for motorway construction has led to expansion of the motorway network in the east-west direction (corridor V) and the north south direction (corridor X). Part of this corridor is considered as the Slovene transport backbone (Pince

near Lendava on the Slovene-Hungarian border to the port of Koper). The largest share of the roads foreseen in this national programme has been opened for traffic at the end of 2004. Opening of some remaining sections is expected by 2007, 2008. After conclusion of this programme the Slovenian motorway network is largely completed.

As a result of the intensive motorway construction Slovenia has a very high motorway density compared to the EU average (see table 2.2). This is obviously also influenced by its relatively small size and its location at the crossroads of two major pan-European corridors.

Table 2.2 Motorway density in Slovenia

	Length motorwaykm/1000 km^2
Slovenia (2004)	23.8
EU15	16
EU25	14

Source: Eurostat (2005), Statistical Office Slovenia

In contrast to the high quality motorway network, the state road network is deteriorating rapidly and is in direct need of maintenance and rehabilitation. This is mainly due to Slovenia's continuous focus on motorway construction (and resulting lack of attention to the state road network) and the parallel overall increase of traffic volumes (approx. 2.3% per annum on state roads). According to pavement measurements more than half of the state road network is in bad to very bad condition[3].

Demand

Due to its relative wealth car ownership in Slovenia is high (see table 2.3). Some 80% of all households in Slovenia owns at least one car.

Table 2.3 Car ownership Slovenia

	Slovenia (2004)	EU15 (2002)	EU25 (2002)
Cars/1000 inh	455	491	459

Source: Eurostat (2005), Statistical Office Slovenia

The number of registered cars increased strongly in the past decade (44%). Also the number of freight vehicles showed a strong development in the same period.

Table 2.4 Number of vehicles 1993-2004 (in 1000 vehicles)

	1993	2004	Percentage change
Cars	632.6	910.7	44%
Trucks < 3.5 tons	9.1	25.6	180%
Trucks > 3.5 tons	40.6	70.7	74%

Source: Statistical Office Slovenia

[3] OMEGA Consult, 2004, Analysis od roads state and update of long-term development programme for state-roads 2004-2008 (*in Slovenian*)

The high car ownership is also reflected in the modal split of passenger demand. Of the total passenger transport performance (in passengerkilometers) passenger cars represent a share of 80%, which comes close to the EU15 average of 83.5%. Buses and coaches come second (share of 14%).

With respect to freight transport especially international road haulage has shown a strong increase (approx 10% per annum in the period 2001-2004). Of the total freight transport performance (tonnekilometers) international road haulage represent a share of 75% of the total road haulage.

Road charging

Slovenia has a system of annual levies for the use of Slovenian roads. In addition most motorways are tolled. Tolls increase with the size of the vehicles. At the end of 2004 toll rates for passenger cars were 0.05 €/km and 0.13 €/km for 2/3 axle trucks > 3.5 tons. The majority of the income from road charging is used for construction and/or maintenance of road infrastructure.

Road accidents

Road accident data indicate a strong increase in the number of accidents involving death or injury from 5177 in 1990 to 11676 in 2003. Nevertheless the number of fatalities more than halved in this period. Whereas in 1990 on average one out of ten accidents included fatalities this figures was reduced to one out of fifty accidents. Also the number of seriously injured people reduced. As a result, road safety in terms of injuries and fatalities clearly improved, although accident rates are still some 20% above the EU25 average (see table 2.5).

Table 2.5 Fatal road accidents (fatalities per mln inhabitants)

Slovenia			EU25
1994	1998	2003	2003
258	167	121	102

Source: Eurostat, Statistical Office Slovenia

2.3.2 Railways

Infrastructure

The total length of the Slovenian railway network is 1229 kms. Of this railway network 27% is double track (see figure 2.1). Some 41% is electrified (see figure 2.2). This situation has remained virtually unchanged during the past decade. In terms of railway density Slovenia compares well to the EU average (or even better in term of network per inhabitant).

Table 2.4 Railway density (2003)

	Railway line /1000 km^2	Railway line/100,000 inh
Slovenia	60	62
EU25	50	43

Source: Eurostat (2005)

Figure 2.1 Railway network Slovenia

Source: www.slo-zeleznice.si

Figure 2.2 Railway electrification Slovenia

Source: www.slo-zeleznice.si

In the future a second railway line on the section Divača –Koper is foreseen as part of the TEN-T priority projects (priority axis 6). Also upgrading and modernisation of existing railway lines is part of this priority axis. In addition, Slovenia has concluded an agreement with Italy on the alignment of a future high-speed rail link between Venice and Ljubljana. Current reconstruction works are undertaken on the sections: Austria/Jesenice-Ljubljana-Dobova/Croatia and Koper-Ljubljana-Hodoš/Hungary.

The condition of the public railway infrastructure has been deteriorating constantly[4] due to inadequate amount of funds intended for development, maintenance and modernization. The actions foreseen in the National Railway Infrastructure Development Programme of 1995 have only been realised in 25%. The bad condition is reflected in numerous damages and defects on the tracks, on the catenary, signalling and safety equipment as well as on the switches. Due to these defects the speed for trains driving on the Slovenian railways is reduced to be able to assure traffic safety.

Means

The new Railway Transport Act led to the establishment of a separate Railway Agency in 2002, which acts as the infrastructure manager.

The railways are operated by Slovenian Railways (SZ) a 100% state owned company. SZ is gradually renewing its rolling stock. Three new Pendolino trains are run between Ljubljana and Maribor and 30 new trains will be gradually introduced into the intercity railway service.

Railway charges

Prices of passenger rail transport are set by the government, while price setting for freight transport has been fully liberalised. User charges for the use of the railway infrastructure[5] are intended to cover the public railway infrastructure maintenance costs. Given the deteriorating state of the railway network a clear potential for further improvement exists in this respect.

Demand

Rail passenger transport is of modest importance. The share of rail in total passenger kilometres is 6.2%, which is slightly below the EU average. Even though the condition of the railway infrastructure is in need of rehabilitation and modernisation, rail transport demand has been increasing to 764 million passenger kilometres in 2004 (representing a change of 35% in the period 1993-2004).

Freight transport by rail has shown an even stronger increase with 53% in the period 1993-2004. The modal share of rail freight transport 40% (in tonnekilometers), which is far above the EU25 average of 16%.Rail accounts for one third of international freight and more than half of all goods in transit are carried by rail.

[4] Resolution on the National programme of the Slovenian Railway Infrastructure Development – Working Document (2005) (*in Slovenian*)

[5] Covered by the Decree on the Allocation of Trans Paths and the User Fees fro the Use of Public Railway Infrastructure (2001).

2.3.3 Urban transport

Public passenger transport is divided to long-distance transport (including also suburban passenger transport) that falls within the competence of State, and to urban passenger transport that falls within the competence of local conmmunities. Public urban passenger transport is performed in the urban municipalities of Ljubljana and Maribor. In the year 2000 103.3 million passengers were transported in the urban transport of Ljubljana municipality and 26.7 million passengers were transported in the urban transport of Maribor municipality.

The urban and suburban network serviced by buses is relatively dense. In Ljubljana there is a limited number of dedicated bus lanes. This poses a problem for public transport in peak hours when traffic becomes congested. The fleet is relatively modern. The average of the urban bus fleet in Ljubljana is 11 years, while the sub-urban fleet averages an age of 7 years[6].

There is no tram or light rail network in Slovenia.

Demand for urban transport decreased in the past decade with some 30%. Most likely this is related to the increase in car ownership in the same period.

2.3.4 Inland waterway transport

No inland waterways exist in Slovenia.

2.3.5 Sea ports

Slovenia has a short coast line of 46.6 kms. Along this coastline are 3 ports: Koper, Izola and Piran. The Port of Koper is the main port which handles all Slovenian cargo throughput. The port functions as a clear intermodal node connecting sea, railway and road traffic. Rail has a strong position in the port's hinterland land connections (twothirds of all tons). The port is crucial in handling Slovenia's overseas cargo flows. In addition it serves as a major entry point for transit flows. There is a skewed balance in the direction of trade flows in the Port of Koper where import flows clearly outweigh export flows.

Table 2.5 (international) Cargo handled in ports (in 1000 tons)

	Total	Loaded in Slovenia	Unloaded in Slovenia	Transit
1990[a]	5542	648	1982	2897
1995	6811	137	2204	4470
2000	9038	184	2679	6175
2004	12063	154	2976	8933

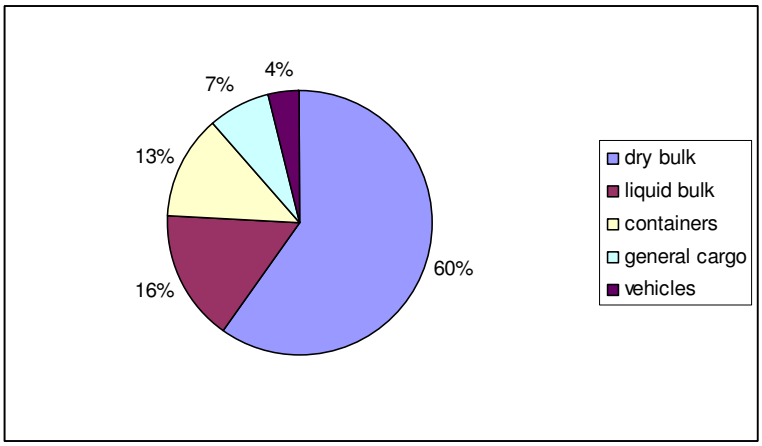
[a] national/international refers to territory of former Yugoslavia

Source: Statistical Office Slovenia

[6] See: www.jh-lj.si

Transport flows have almost doubled in the past decade. Especially dry bulk and container flows have shown strong increases. Cargo flows by short sea shipping is decreasing are of limited importance and show a decreasing trend. In 1993 4627 tons were categorised under short sea shipping, while this number decreased to 2113 in 2003.

Figure 2.3 Composition of cargo flows



Source: Statistical Office Slovenia

Further development of the port of Koper is expected in line with the growth of transport demand. This is realised through capacity expansion (new piers and berthing facilities), increased warehousing capacity and the construction of a second railway track from Koper to Divača (part of TEN-T priority axis). A second pier was formally opened in 2002 and further expansion with a third pier is planned.

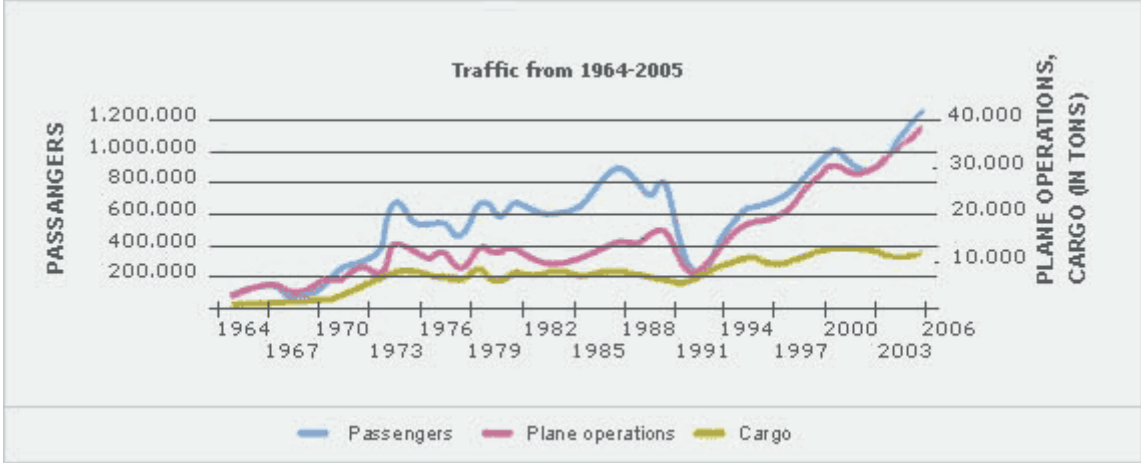
2.3.6 Airports

Infrastructure

There are four (international) airports in Slovenia: Ljubljana, Maribor, Portorož and Cerklje na Dolenjskem (military). Ljubljana, located 20 km north of the capital, is the only major airport. The capacity of the airport is sufficient to handle current transport volume although peak demand at times has a direct impact on the level of service and further modernisation may be required in due time. Most important actions foreseen are the further development of the air navigation system en the establishment of a high quality public transport (rail) link to the city of Ljubljana on the medium term.

The airport of Ljubljana handles 1.2 million passengers and approx 12.000 tons of cargo (half of which is trucked under airway bill). Passenger volumes have shown an average growth of 5.3% per annum in the period 2001-2005. The largest Slovenian airline is the state-owned Adria Airways (member of the Star Alliance). Since 2003 several new carriers entered the market, mostly low-cost airlines.

Figure 2.4 Traffic development Ljubljana airport



Source: www.lju-aiport.si

2.3.7 Trends and indicators

Modal split

The comparison of the modal split in passenger travel demand reveals the strong position of the passenger car in Slovenia. This is caused by the high degree of car ownership, and the well developed road network (esp. motorways in the country). Railway transport takes a relatively modest position (lower than the EU15 average) and bus transport can be recognized as the dominant mode of public transport. Notwithstanding the reported deterioration of the railway tracks infrastructure rail transport showed (other than in many other new member states) growing demand.

Table2.6 Modal split passenger transport (share in passengerkilometers, 2003)

	Passenger cars	Buses	Railways	Tram & metro
Slovenia	89.4	6.1	4.5	-
EU15	84.1	8.4	6.3	1.2

Source: Eurostat (2005)

For freight transport a similar strong position of rail can be noticed (although the relatively share decreased over the course of years). With a share of 40% the position of rail cargo transport remains strong.

Table2.7 Modal split freight transport (share in tonnekilometers, 2002)

	Road	Rail	Inland Waterways	Pipeline
Slovenia	59.8	40.2	-	-
EU15	75.5	12.9	6.9	4.6

Source: Eurostat (2004)

2.4 Conclusions: SWOT analysis transport system

The geographical location of Slovenia within Europe makes it an important transit country. Two TEN-T corridors cross the relatively small country. Transit traffic is high both on the motorways (approx. 15 and 30% transit traffic for respectively passengers and freight) and the port of Koper and connected railway linkages. The position of rail in freight transport is strong.

The country is also relatively wealthy, expressing itself in high levels of car ownership. The country has embarked on an ambitious programme of motorway construction in the past which will be close to completion in the coming period. The current state of the rail network and state road network clearly deserves future attention. In the coming period stringent budget discipline has to be attained in view of the expressed wish to join the Euro.

In conclusion the following SWOT analysis can be prepared for the transport sector in Slovenia.

Strengths	Weaknesses
• Well developed motorway network • Established position in EU hinterland transport • Access to sea • Flat land around port of Koper (room for warehousing development) • Pricing on (tolled) motorways guaranteeing funds for maintenance (also funding through income from driver permits) • Strong position rail transport in freight • Well developed bus services • Adequate airport capacity	• Dispersed settlement pattern • Poor quality of state road transport • Bad condition rail network • Old rolling stock • Limitations to public transport due to dispersed settlement pattern • Lack of tram/light rail network (relatively small city size) • Lack of inland waterway network • Lack of inland road/rail logistics terminals • Poor accessibility Ljubljana airport at congestion hours
Opportunities	**Threats**
• Central position of the Slovenia on TEN corridors V and X • Stabilisation Balkan region and approximation Turkey • Established strong position of rail (esp. in freight transport) • Relative wealth of country • Higher expected level of EU support in the 2007 – 2013 period • Future EU membership of Croatia and on longer term other countries of former Yugoslavia • Co-ordination with other ports (Trieste, Rijeka, Venice)	• Deteriorating condition of state road network • Increased pressure on safety • Condition of rail network • Lack of national funding as a result of Maastricht criteria (introduction Euro) • Obligations stemming from Kyoto targets • Increasing demands from Austria-Croatia transit traffic • Increased congestion in Ljubljana • Competition from other corridors (Croatia, Italy) • Competition other ports (Rijeka, Trieste, Venice)

3 Accessibility analysis

3.1 Introduction

This chapter presents a more quantitative transport needs assessment on a regional level. It clearly complements chapter 2 in which the current situation of the transport system is described where potential deficiencies are addressed. The analysis on the current situation together with the analysis of transport needs from a cohesion perspective forms a basis for identifying possible investment priorities.

In this chapter, first a description of the needs assessment methodology is presented. Especially the determination of the "composite accessibility problem indicator" which forms a central role in the approach is explained. The higher the value of the index, the higher the need for intervention. This approach has been labelled as the "red flag" analysis.

This composite accessibility problem indicator is a combined measure, which addresses transport network quality, population density and regional disparity (a more elaborate explanation is provided in Annex C). As such the accessibility analysis is much more linked to cohesion policy than a more traditional accessibility analysis. Next, results of the application for the specific country are illustrated and analysed. This analysis identifies main areas for intervention in rail and road transport for the current situation (2006).

3.2 Methodology: Accessibility Problem Indicator

To determine the need for transport investments, the SASI model has been used to assess the present situation of the road and rail systems in each country without the national transport projects to be examined later. For this the accessibility provided by the road and rail systems in each country was evaluated from both a national and a European perspective in order to identify regions with serious accessibility deficits that should be addressed by European transport policy taking account of the stated EU goals competitiveness and territorial cohesion. In the SASI model accessibility, which is directly influenced by transport policy and investments, is judged to play a crucial role in promoting the realisation of the cohesion objectives.

To determine the appropriate assessment of transport investment need from the cohesion policy perspective an agreement on the indicator of accessibility to be used is required. Traditional accessibility indicators are not useful for this. They measure the total effect of both geographical location (periphery v. core) and quality of transport provided by the

transport system. As a result they always show a steep gradation in accessibility from the core to the periphery. However, public policy cannot change the fact that some regions are central and some are peripheral, i.e. provide the same level of accessibility to all regions. Public policy can only alleviate disadvantages through unequal transport provision.

This distinction is relevant for European transport policy. To invest only in transport in the most peripheral regions with the lowest accessibility according to such an indicator would benefit only the relatively few people living there and would ignore the needs of the densely populated central regions to combat traffic congestion and so endanger the competitiveness goal of the Lisbon Strategy of the European Union. On the other hand, to invest only in transport in the most densely populated central regions with the greatest congestion problems would not only lead to ever more traffic but also widen the existing gap in accessibility between the central and peripheral regions and would so run counter to the territorial cohesion goal of the European Union.

The new accessibility indicator recognizes transport network quality, population density and regional disparity

To avoid this dilemma, a new composite accessibility indicator was defined which distinguishes between geographical location and quality of transport. This indicator assumes that people in the peripheral regions cannot expect to enjoy the same level of accessibility (measured in traditional terms) as the central regions but that they can demand to be able to reach relevant destinations with the same **travel speed** ("as the crow flies") as the people in the central regions. In addition the indicator recognises the utilitarian principle of the happiness of the greatest number, i.e. that the transport needs of **densely populated regions** should be given more weight than those of regions with only few inhabitants. And finally, the indicator recognises that **economically lagging regions** with severe deficits in accessibility may offer greater potential for stimulating economic effects by transport investments than regions which enjoy already high accessibility.

These three principles avoid the pitfalls of both an extreme egalitarian view, which postulates that all regions in Europe enjoy the same level of accessibility and a purely efficiency-oriented view which postulates that accessibility in the already highly accessibly central metropolitan areas should be further strengthened because they bring the largest economic benefits. In other words, the three principles aim at a rational trade-off between the stated EU goals of competitiveness and territorial cohesion. Annex C gives a more elaborate description of the Composite Accessibility Problem Indicator.

3.3 Transport needs

The composite accessibility problem indicator takes account of the transport system quality (travel speed), population density and regional disparity. Figure 3.2 and 3.3 depict the population density and the regional distribution of income between the different regions in Slovenia. Because of its large region the capital Ljubljana (population 260.000) does not stand out in terms of population density (figure 3.2). However, Ljubljana is clearly the dominant economic centre of Slovenia in terms of income per capita (figure 3.3).

Figure 3.2 Population density (population/sqkm) Slovenia 2006

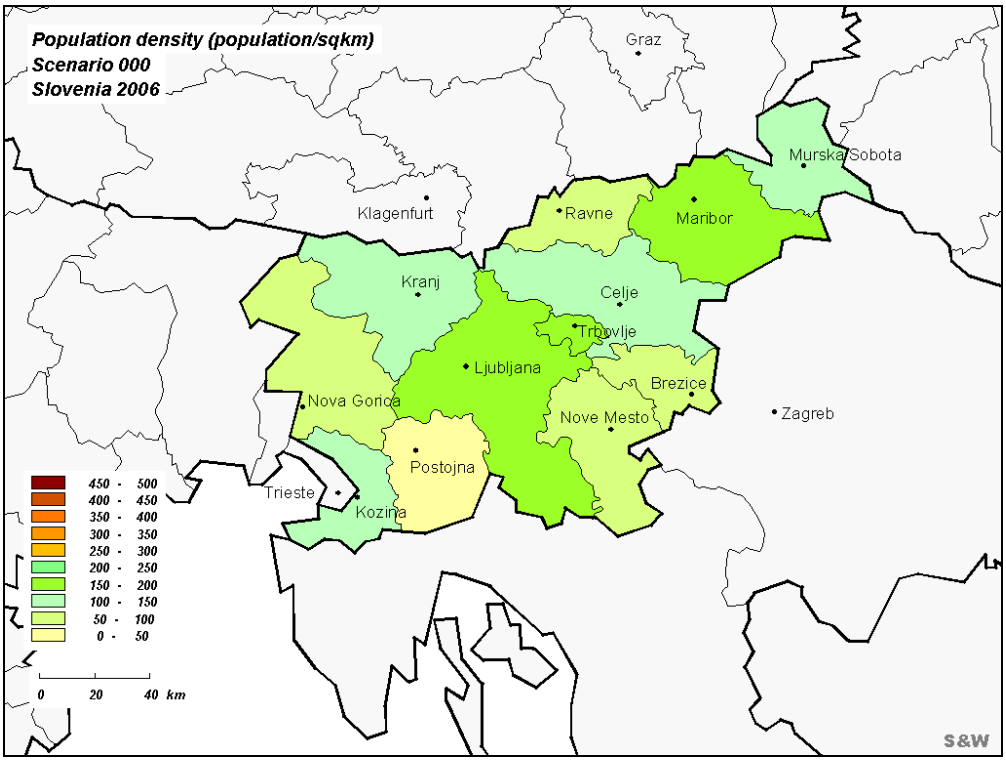
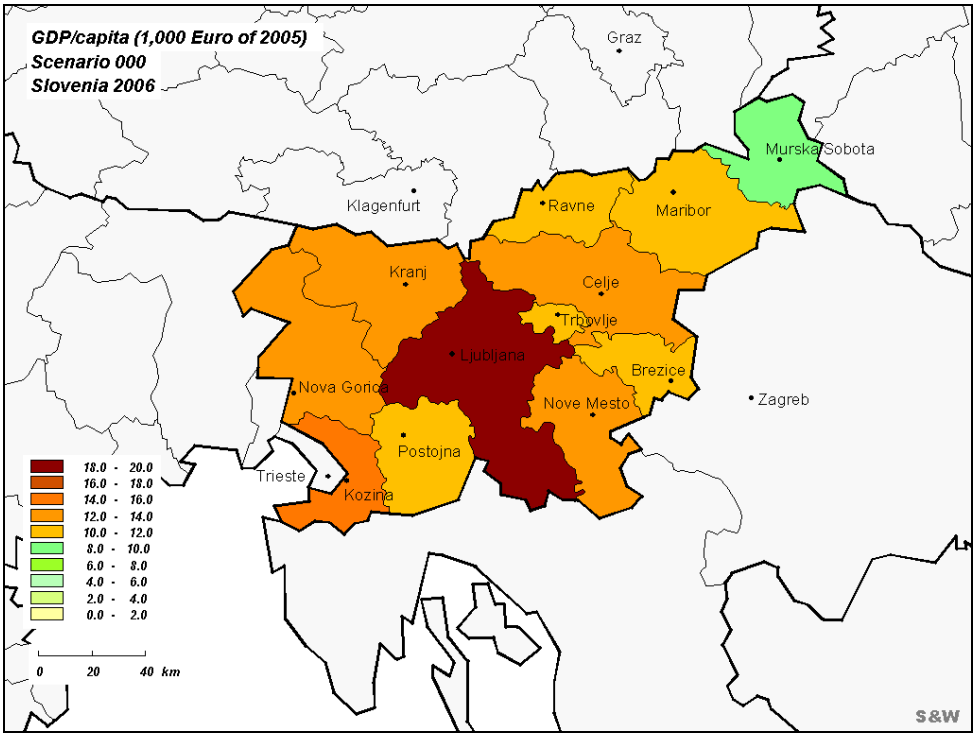


Figure 3.3 GDP/capita (Euro of 2005), Slovenia 2006



The results of the analysis of regions with accessibility deficits that should be addressed by European transport policy are presented in figures 3.4 to 3.7. These figures show the spatial distribution of the Accessibility Problem Index in Slovenia first for road and then

for rail from a national and a European perspective for the current situation (2006). The colour scale of the maps resembles that of a traffic light: green shades indicate average regional travel speeds above the national or European average, yellow values indicate speeds slightly above the national or European average and red shades indicate speeds significantly lower than the national or European average.

Overall accessibility

From a European perspective, Slovenia is favoured by its neighbourhood with Italy and Austria so that both road and rail average interregional travel speeds are near the European average (Figures 3.5 and 3.7).

Regional imbalances

There are only small differences in interregional road speeds in Slovenia, with slightly lower speeds in the area of Nova Gorica and the Murska Sobota region at the Hungarian border (Figure 3.4). There are larger differences in rail accessibility: the Ravne and Murska Sobota regions and also the Nove Mesto region near Ljubljana are underserved (Figure 3.6). However, compared to the European average (Figure 3.7) these differences appear much smaller.

It should be noted that these conclusion are drawn on the regional level as shown in the maps. Within these regions differences may occur.

Figure 3.4 Accessibility Problem Index Road (national), Slovenia 2006

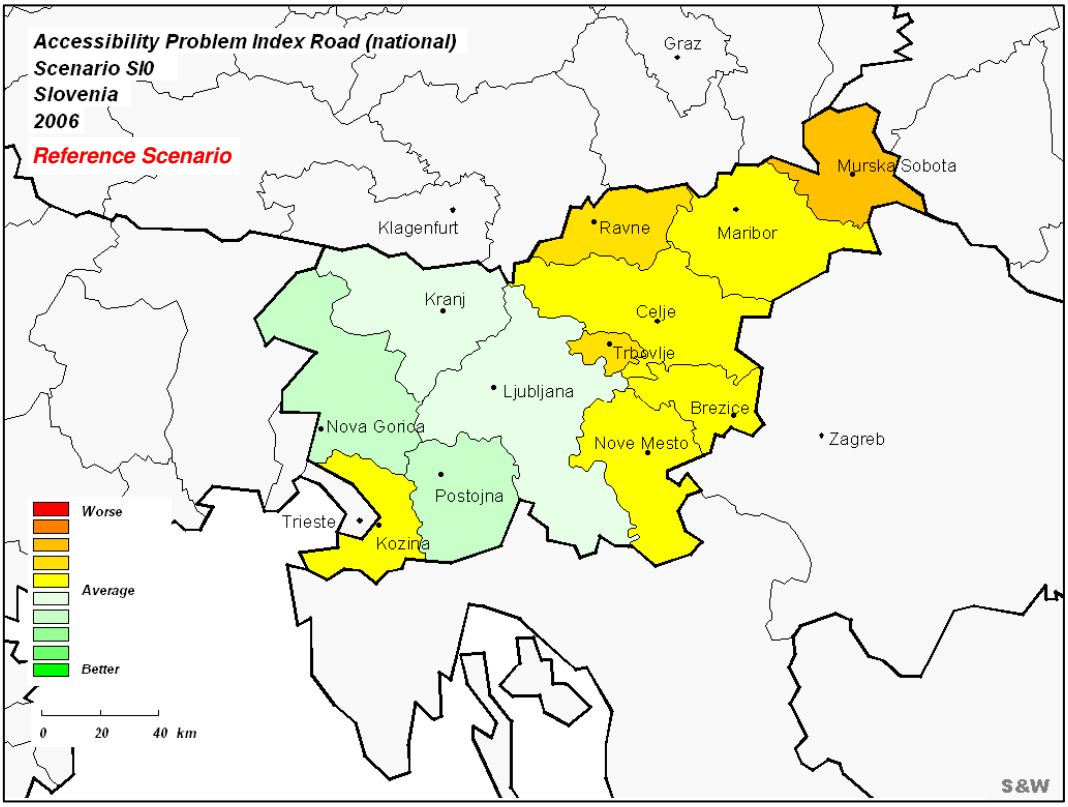


Figure 3.5 Accessibility Problem Index Road (European), Slovenia 2006

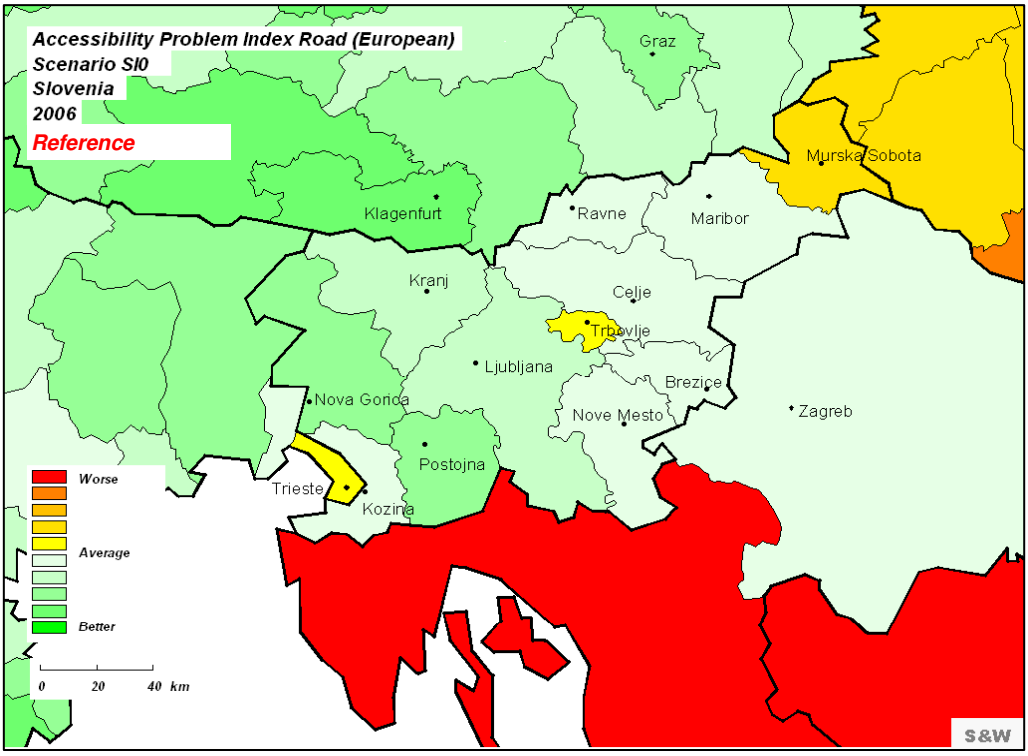


Figure 3.6 Accessibility Problem Index Rail (national), Slovenia 2006

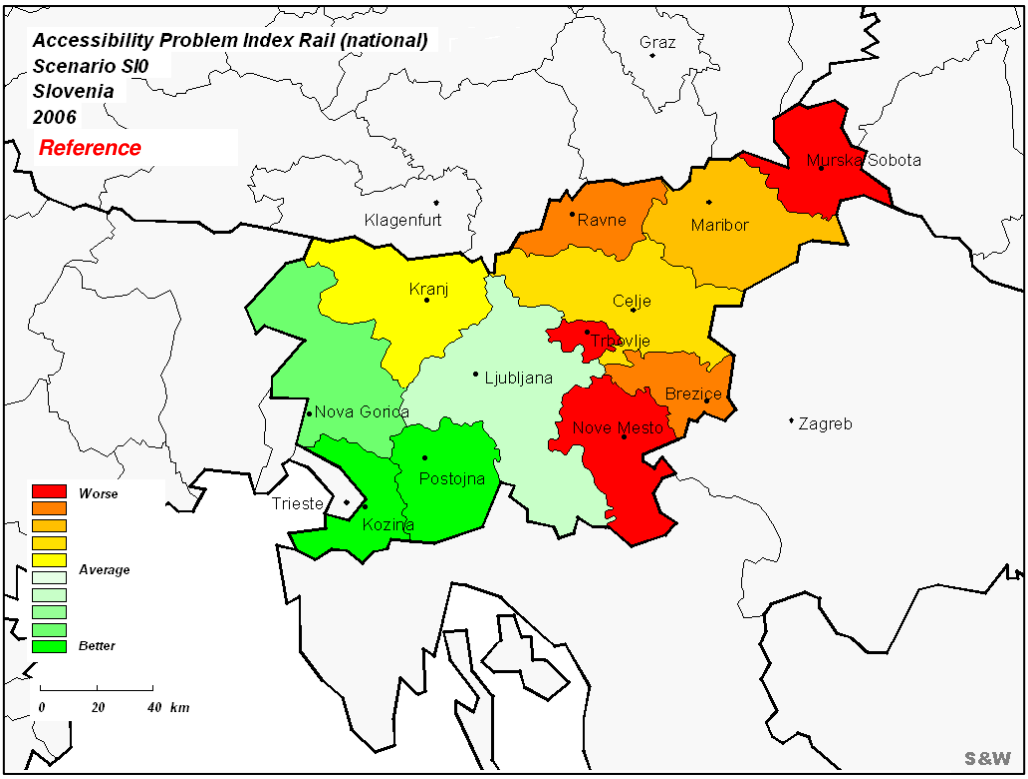


Figure 3.7 Accessibility Problem Index Rail (European), Slovenia 2006

This chapter presents a more quantitative transport needs assessment at a regional level. It complements Chapter 2 in which the current situation of the transport system has been described where potential deficiencies are addressed. The analysis of the current situation together with the analysis of transport needs from a cohesion perspective forms a basis for identifying possible investment priorities.

In this chapter, a description of the needs assessment methodology is presented. Especially the determination of the composite Accessibility Problem Index (API), which forms a central role in the approach is explained. The higher the value of the index, the higher the need for intervention. This approach has been labelled as the “red flag” analysis.

This composite Accessibility Problem Index is a combined measure, which addresses transport network quality, population density and regional disparity (a more elaborate explanation is provided in Annex C). As such, the accessibility analysis is much more linked to cohesion policy than a more traditional accessibility analysis. Next, results of the application for the specific country are illustrated and analysed. This analysis identifies main areas for intervention in rail and road transport for the current situation (2006).

3.4 Methodology: Accessibility Problem Index

To determine the need for transport investments, the SASI model has been used to assess the present situation of the road and rail systems in each country without the national transport projects to be examined later. For this the accessibility provided by the road and rail systems in each country was evaluated from both a national and a European perspective in order to identify regions with serious accessibility deficits that should be addressed by European transport policy taking account of the stated EU goals competitiveness and territorial cohesion. In the SASI model accessibility, which is directly influenced by transport policy and investments, is judged to play a crucial role in promoting the realisation of the cohesion objectives.

To determine the appropriate assessment of transport investment need from the cohesion policy perspective an agreement on the indicator of accessibility to be used is required. Traditional accessibility indicators are not useful for this. They measure the total effect of both geographical location (periphery v. core) and quality of transport provided by the transport system. As a result they always show a steep gradation in accessibility from the core to the periphery. However, public policy cannot change the fact that some regions are central and some are peripheral, i.e. provide the same level of accessibility to all regions. Public policy can only alleviate disadvantages through unequal transport provision.

This distinction is relevant for European transport policy. To invest only in transport in the most peripheral regions with the lowest accessibility according to such an indicator would benefit only the relatively few people living there and would ignore the needs of

the densely populated central regions to combat traffic congestion and so endanger the competitiveness goal of the Lisbon Strategy of the European Union. On the other hand, to invest only in transport in the most densely populated central regions with the greatest congestion problems would not only lead to ever more traffic but also widen the existing gap in accessibility between the central and peripheral regions and would so run counter to the territorial cohesion goal of the European Union.

The new accessibility indicator recognises transport network quality, population density and regional disparity

To avoid this dilemma, a new composite accessibility indicator was defined which distinguishes between geographical location and quality of transport. This indicator assumes that people in the peripheral regions cannot expect to enjoy the same level of accessibility (measured in traditional terms) as the central regions but that they can demand to be able to reach relevant destinations with the same **travel speed** ("as the crow flies") as the people in the central regions. In addition the indicator recognises the utilitarian principle of the happiness of the greatest number, i.e. that the transport needs of **densely populated regions** should be given more weight than those of regions with only few inhabitants. And finally, the indicator recognises that **economically lagging regions** with severe deficits in accessibility may offer greater potential for stimulating economic effects by transport investments than regions which enjoy already high accessibility.

These three principles avoid the pitfalls of both an extreme egalitarian view, which postulates that all regions in Europe enjoy the same level of accessibility and a purely efficiency-oriented view which postulates that accessibility in the already highly accessibly central metropolitan areas should be further strengthened because they bring the largest economic benefits. In other words, the three principles aim at a rational trade-off between the stated EU goals of competitiveness and territorial cohesion. Annex C gives a more elaborate description of the composite Accessibility Problem Index.

3.5 Transport needs

The composite accessibility problem indicator takes account of the transport system quality (travel speed), population density and regional disparity. Figures 3.1 and 3.2 depict the population density and the regional distribution of income between the different regions in Slovenia. Because of its large region the capital Ljubljana (population 260.000) does not stand out in terms of population density (Figure 3.1). However, Ljubljana is clearly the dominant economic centre of Slovenia in terms of income per capita (Figure 3.2).

Figure 3.1 Population density (population/sqkm), 2006

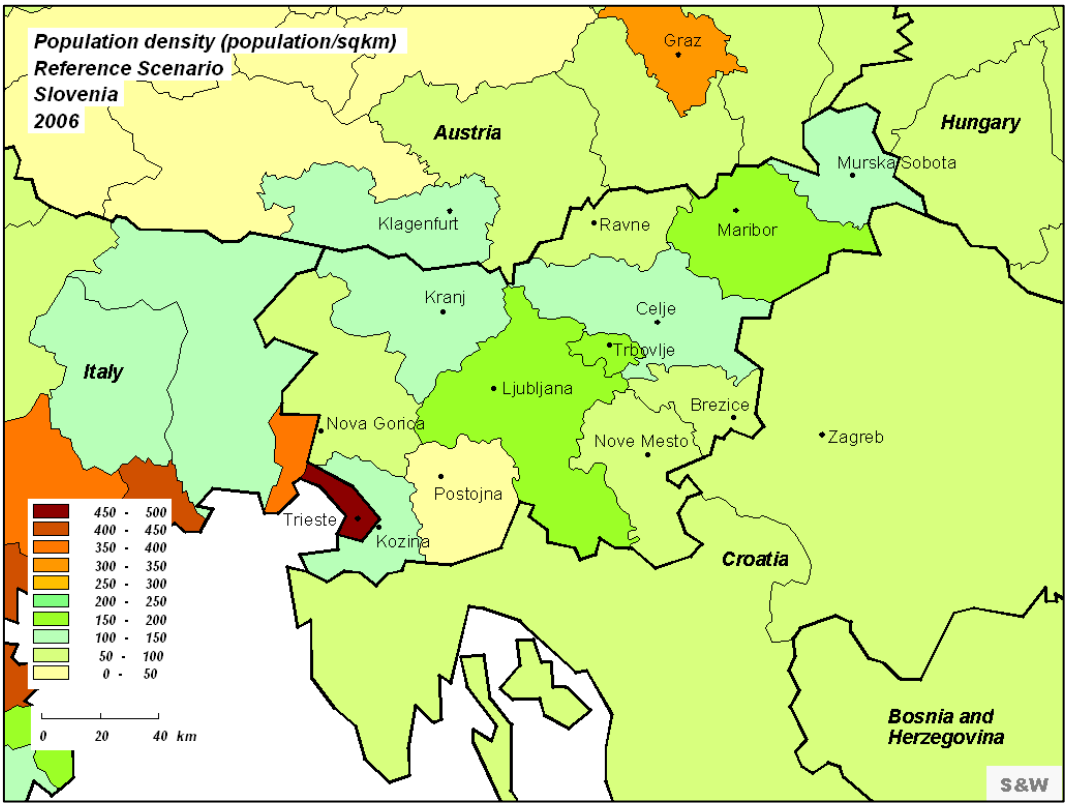
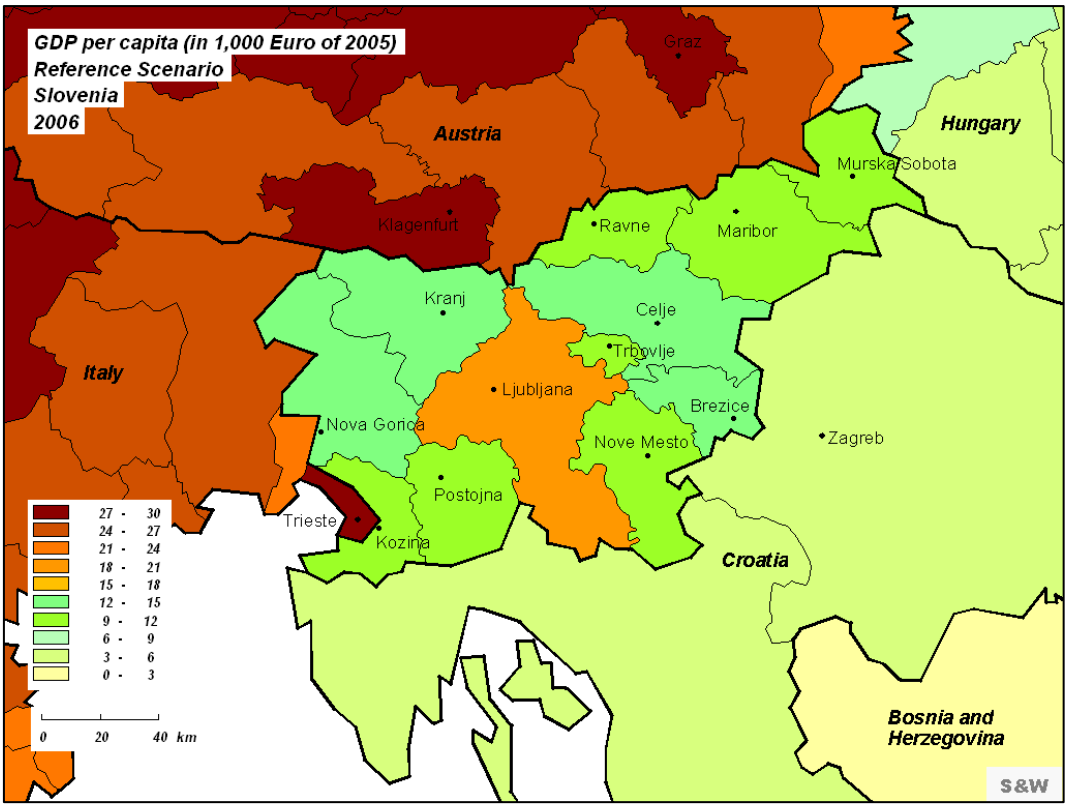


Figure 3.2 GDP/capita (Euro of 2005), 2006



The results of the analysis of regions with accessibility deficits that should be addressed by European transport policy are presented in Figures 3.3 to 3.6. These figures show the spatial distribution of the Accessibility Problem Index in Slovenia first for road and then for rail from a national and a European perspective for the current situation (2006). The colour scale of the maps resembles that of a traffic light: green shades indicate average regional travel speeds above the national or European average, yellow values indicate speeds slightly above the national or European average and red shades indicate speeds significantly lower than the national or European average.

Overall accessibility

From a European perspective, Slovenia is favoured by its neighbourhood with Italy and Austria so that road average interregional travel speeds are above the European average (Figure 3.4). However, rail accessibility in most of the country is below the European average (Figure 3.6).

Regional imbalances

There are only small differences in interregional road speeds in Slovenia, with slightly lower speeds in the eastern part of the country and the region close to the Italian border around Trieste (Figure 3.3). There are larger differences in rail accessibility: the Nove Mesto, Trbovlje and Murska Sobota regions and also the Ravne and Brezice regions are underserved compared to the western regions near the Italian border and around Trieste (Figure 3.5).

Figure 3.3 Accessibility Problem Index Road (national), 2006

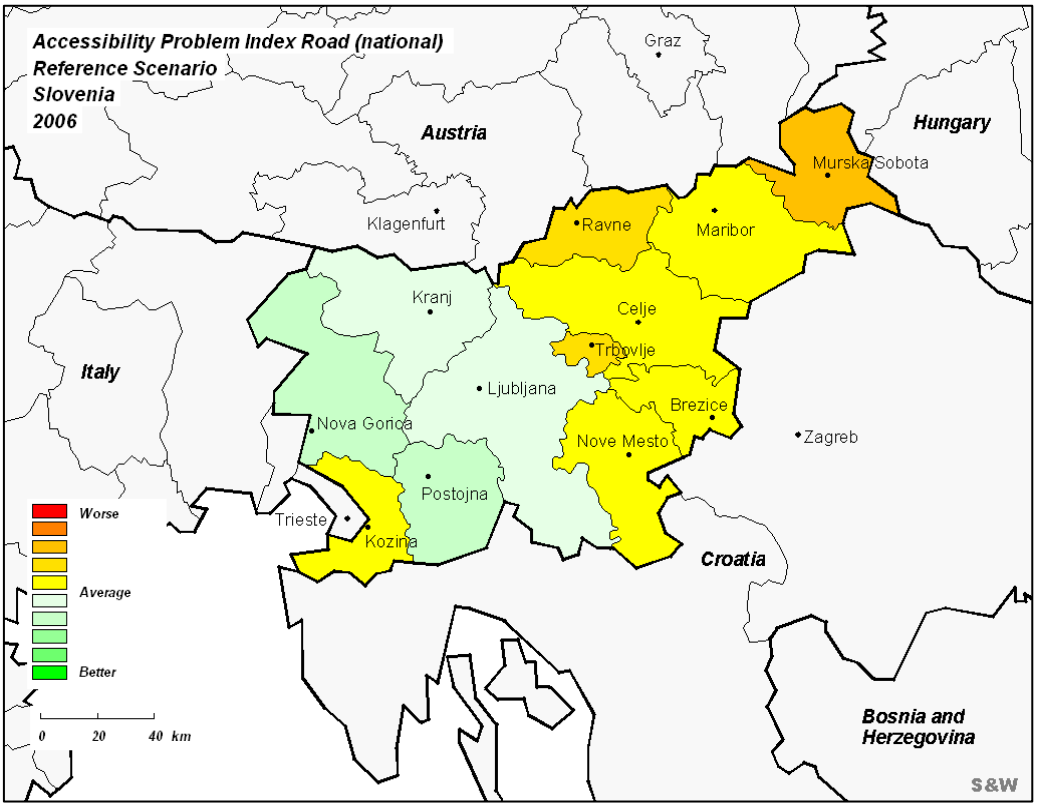


Figure 3.4 Accessibility Problem Index Road (European), 2006

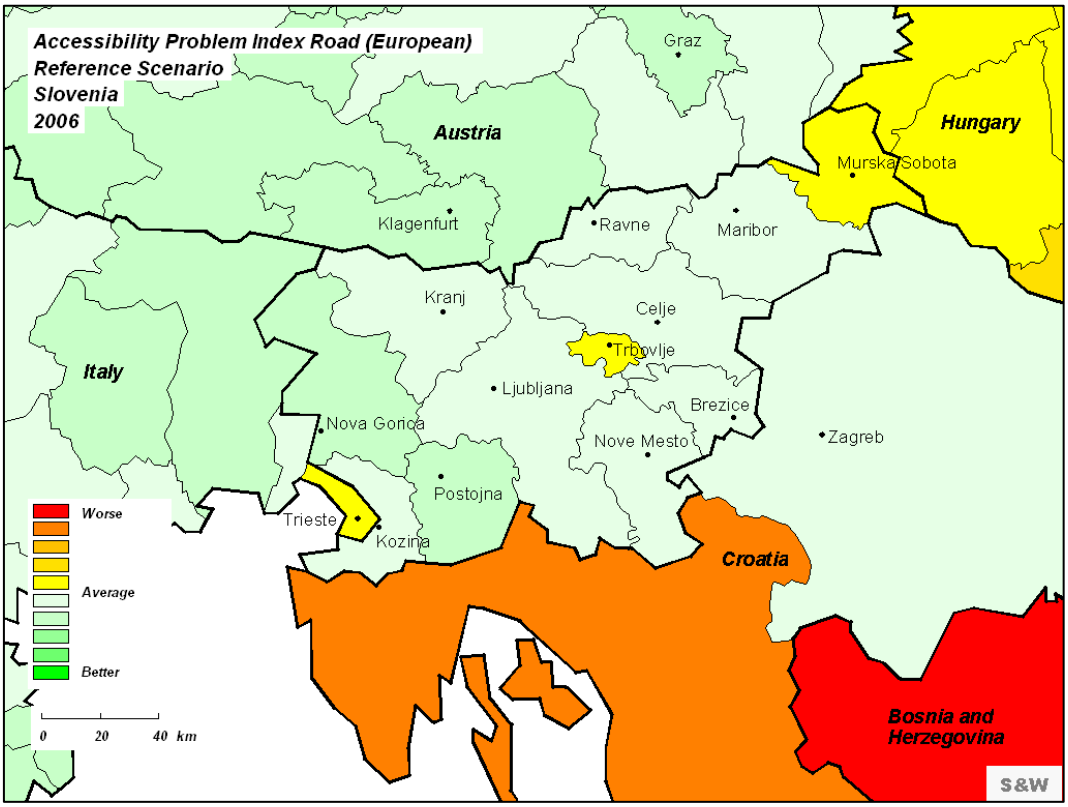


Figure 3.5 Accessibility Problem Index Rail (national), 2006

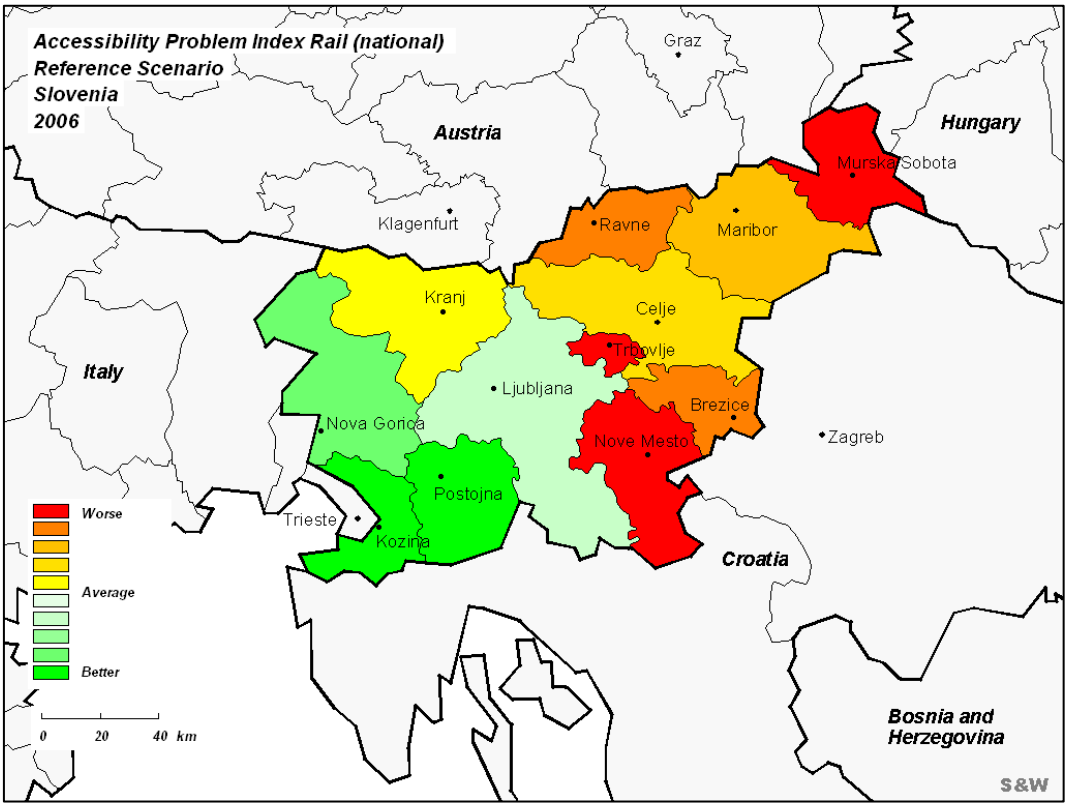
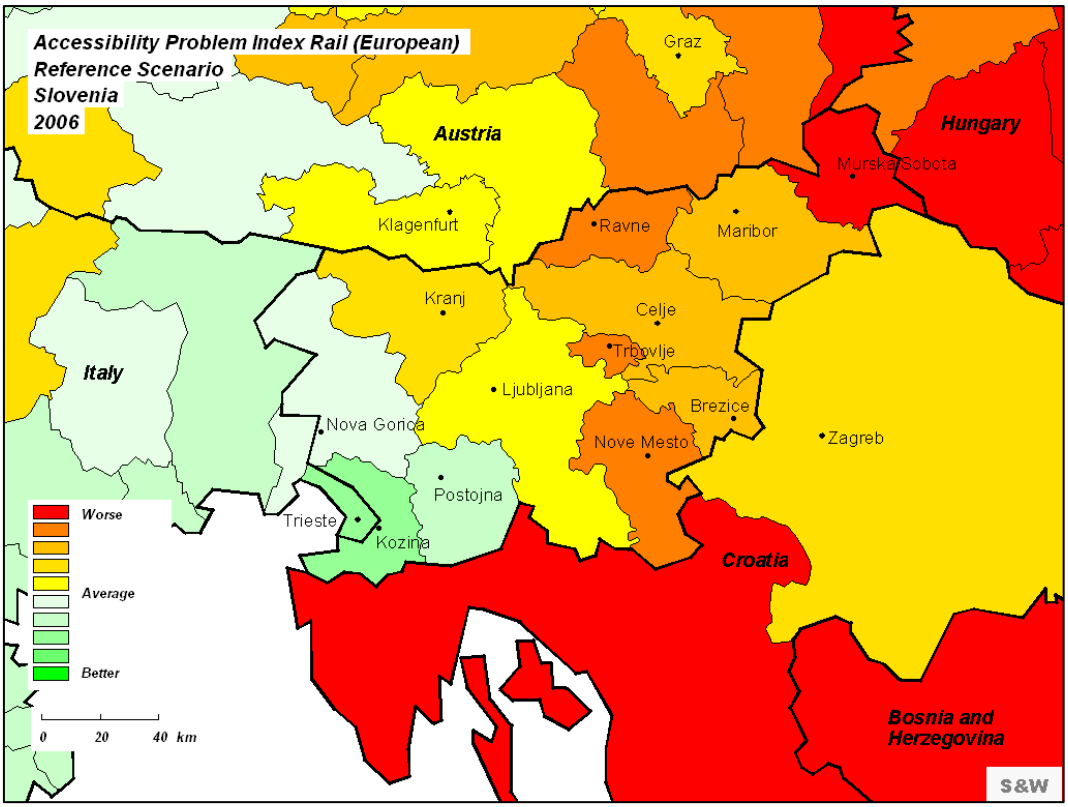


Figure 3.6 Accessibility Problem Index Rail (European), 2006



Part B: Past transport investment priorities

4 Previous support programmes

4.1 National public funding for transport infrastructure

Slovenia is one of the wealthier new Member States. Still the country is adopting a prudent policy with respect to government spending in the light of its intention to adopt the Euro by 2007. This leads to meeting stringent criteria with respect to public debt, inflation and budget deficits. Table 3.1 gives an overview of the budgetary expenditure on transport infrastructure.

Table 4.1 National funding (budget allocation) by mode of transport, 2001-2004 (mln €)

	Road	Rail	Air	Water
2001	220.4	100.5	9.5	1.9
2002	243.8	96.4	8.6	1.4
2003	261.6	101.0	9.8	1.7
2004	289.6	134.6	8.9	2.0
2005	301.3	127.9	9.0	2.0
Total 2001-2005	1316.7	560.4	45.8	9.0
share	68%	29%	2%	0%

Source: Official Journal of the Republic of Slovenia

The budget allocation by modes clearly shows the high level of spending on motorway development in the past period and the more limited spending on rail. Waterborne transport only receives very limited government expenditure.

In Slovenia a number of specific taxes and levies are linked to road financing:

- Annual levies for road use
- Road tolls for motorways
- Levies for exceptional transport
- Road tax for foreign vehicles.

At the adoption of the new National Motorway Programme in 1998 an important source of finance for motorway construction was created by the “Petrol Tolar”, a special levy which accounts for 20% of the petrol price. Revenues from this source are earmarked to motorway construction. The levy was planned to expire in 2007 at the completion of the programme. However with the implementation of the Value Added Tax Act and the Excise Duty Act a new system of levies and duties on oil products emerged. As a result the government adopted a decision at the end of 1999, which replaced the income from the Petrol Tolar by a direct contribution for motorway construction from the State budget. From 2003 onwards this contribution amounts to at least 154 m€ per annum until completion of the Motorway Programme.

4.2 EU funding

EU funding until now under the Phare and ISPA programmes has clearly focused on rail transport. Phare funding for transport has been limited to under 2 m€ for institution building (mainly in the rail transport sector). Implementation of ISPA is attuned to completing / upgrading the main Trans-European networks and developing border connections (strategic location between Austria, Italy, Croatia and Hungary).

ISPA and Phare had an exclusive emphasis on rail transport (not a single road project under ISPA or Phare). A first road project is only adopted under the 2004 Cohesion Fund (construction Smednik-Krska vas motorway section). In the same year also a railway project was selected (modernisation Pragersko-Ormoz, phase 1). Overall ISPA and Cohesion Fund allocations therefore benefit mainly the rail transport sector (EU contribution of 53.4 m€), followed by road transport (EU contribution of 42.5 m€). In 2005, again a motorway project (motorway section Vrba-Peracica) and a railway project (remote control system of fixed devices for electric traction on the Slovenian railway network) were applied for, however the motorway project was forwarded to 2006.

The Structural Funds did not include any specific transport priority.

4.3 Other sources of financing

This section gives an overview of other sources of financing for transport infrastructure.

EBRD

EBRD has committed loans to the railways (42 m€) and motorway construction (43 m€) in 1994. After that no direct EBRD involvement in transport has taken place in Slovenia, although in 2006 discussion took place for a renewed involvement in railway and state road investments.

EIB

EIB involvement has been mainly focused on motorway construction. In the period 1991-2005 total cumulative lending for motorway construction amounted to some 1 bn €. Most of the loans were committed in the period after 1998. In addition, three loans were supplied to the railway sector although it should be remarked that two of them were committed in the early nineties. The last railway loan was approved in 2003. Total EIB financing to the railway sector in the period 1991-2005 amounted to 94 m€.

PPP financing

The use of PPP In Slovenia is present in the field of public utilities, whereas in the field of transport there are currently no projects that include PPP. However, several attempts have been made in order to promote this way of financing, which until now failed to produce results.

Part C: Future transport investment priorities

Introduction

Part C, Future investment priorities is structured around a number of subsequent chapters.

First, chapter 5 deals with the current national transport policy and resulting investment priorities. In the next chapter these investment priorities are confronted with an analysis of possible sources of financing, and other factors such as their contribution to EU policy objectives, the administrative capacity of the country, the socio-economic impacts in relation to the costs of the projects, and the extent to which the projects contribute to the needs identified in Part A of this report. Subsequently in chapter 7, the impacts of different packages of investment priorities are assessed. Finally conclusions are drawn with respect to investment priorities for the next programming period 2007-2013.

5 National Transport Strategy

5.1 Introduction

This is the first section of Part C which aims to determine transport investment priorities at a strategic level. This chapter deals with the current national transport policy and resulting investment priorities. In puts the investment priorities in the national planning perspective.

5.2 Long term National Transport Strategy and Planning

The national planning process

Slovenia has a well established process of national planning. Mandatory provisions for the formulation of national plans are determined in the Public Finance Act and in the Decree on the Criteria and Procedures for Preparing the Draft National Budget, whereas individual procedures are determined in the sectoral legislation.

Developmental policies in the field of transport and transport infrastructure include financial and non-financial measures. Core elements that are included are:

- legislation;
- construction and maintenance of infrastructure as public good;
- assistance for enterprises (mainly compensations in public passenger transport).

Environment in the planning process

For all major infrastructure activities that have an impact on the physical environment (new construction, major reconstruction) the Spatial Planning Act describes the necessity to alaborate a comparative study of variants. Variant solution must be assessed from the functional, environmental and economic point of view, and must incorporate their acceptance by the local communities.

Relevant environmental requirements stemming from realted EU Directives have been fully implemented in Slovenian legislation. Especially the new Environmental Protection Act which was adopted in 2004 is important in this respect as it underlines the principles of sustainability, integrety and prevention. It also regulates the requirements with respect to SEA and EIA.

Most relevant planning documents

The most important documents of long-term development planning in the field of transport are:

- Resolution on Transport Policy of the Republic of Slovenia (Resolucija o prometni politiki Republike Slovenije);
- National Motorway Construction Programme in the Republic of Slovenia (Nacionalni program izgradnje avtocest v Republiki Sloveniji);
- National Programme for Development and Maintenance of State Roads in the Republic of Slovenia (Nacionalni program razvoja in vzdrževanja državnih cest);
- National Programme of the Slovenian Railway Infrastructure Development (Nacionalni program razvoja javne železniške infrastrukture);
- Resolution on the National Programme of the Maritime Transport Development in the Republic of Slovenia (Resolucija o nacionalnem programu razvoja pomorstva Republike Slovenije);
- National Airport Infrastructure Programme (Nacionalni program na področju letališke infrastrukture).

The National Motorway Construction Programme in the Republic of Slovenia was adopted, whereas other national programmes are drafts.

Beside the documents listed it is necessary to consider also the Spatial Development Strategy of the Republic of Slovenia (SDSS) that represents, together with the Development Strategy of the Republic of Slovenia (DSS), a comprehensive document for directing of development and a basis for the harmonization of sector policies. The purpose of the Spatial Strategy is better spatial integration and sustainable spatial development in Slovenia.

5.3 National strategy for the period 2007-2013

5.4 Main objectives

Strategic objectives in the field of transport and transport infrastructure are determined within the Transport Policy of Slovenia[7] and comprise of the following:

- increase of traffic safety and security;
- effective use of energy and environmental protection;
- increasing the role and quality of public road and railway transport;
- harmonized operation of the whole transport system;
- establishment of intelligent transport systems architecture with the implementation of regional, national and European specificities, directions and interests;
- assurance of the necessary transport infrastructure for land, maritime and air transport, following the principles of sustainable and balanced regional development;
- assurance of the reliable, safe, price competitive and environmentally friendly freight and passenger transport;
- optimal use of the available resources;
- implementation of market principles;

[7] This section is based on the "Resolution of the transportation policy of the Republic of Slovenia" which was adopted by Parliament on 6th June, 2006.

- sale of the state interests and deregulation, where the private bidders can, according to the principle of market economy, ensure more competitive and higher quality service, while assuring at least the same level of safety;
- use of fiscal measures for assuring the services that can not be provided considering the principles of market economy.

5.5 National needs in by sector

Operational objectives are determined on the basis of needs assessment which was carried out for the Transport policy of the Republic of Slovenia[8] and represent a draft, since no similar operational objectives were present before.

Operational objectives for the time period 2007 – 2013 in the field of transport and transport infrastructure which have been identified:

a) transport in general:
- establishment of an integrated public passenger transport system (common tariff system, integrated ticket, synchronized timetable and integrated information system, intermodal terminals);
- promotion of integral logistics services and simultaneous establishment of intelligent transport systems architecture;
- sale of the state interests and deregulation, where this is eligible from the competition, quality and safety viewpoint;
- changes of internal legislation in the field of railway transport;
- adoption of the new act on ports that will form legal conditions for management of ports, performing of port activities and use of sea resources;
- unification of transport-technological, technical and safety regulations in the field of air transport and introduction of more liberal procedures related to commercial aspects of transport.

b) road infrastructure:
- completion of the basic programme of motorway construction in total length of 573 km by the end of year 2008;
- realization of the additional programme of motorway construction in total length of 68 km by the end of year 2013;
- introduction of the electronic free flow toll system by 2008;
- construction of the motorway connections in the areas of international border crossings;
- construction of additional motorway and expressway accesses;
- construction of a new North-South corridor from Dravograd in the North (Austrian border) to Metlika in the South (Croatian border), passing Celje and Novo Mesto.

[8] This section is based on a document called “Draft contribution for National development plan 2007-2013”. The document is a technical paper prepared for the Ministry of Transport; its purpose being to make an all-encompassing inventory of investment needs in the field of public transport infrastructure. Its contents should be included and later adopted in the eventual National Development Plan which was under preparation at the time of drafting this report.

- preservation of state road network by using measures of road improvement and overlays;
- improvement of the attained level of traffic safety on state roads using technical measures for improvement of traffic safety;
- decrease in travel times and lowering of transport costs by removing bottlenecks on the state road network;
- better accessibility to individual regions and settlements by repairing bridges, landslides and similar on the state road network;
- improvement of living conditions and impacts on the environment by preventing and removing environmental burdens on the state road network;
- establishment of cycle tracks.

c) railway infrastructure[9]:
- assuring the allowed axle load to the standard of at least D3 (225 kN/axle and 72 kN/m) on the whole network of main lines;
- electrification of the Pragersko – Hodoš – State border line (corridor V), including the interventions necessary for the final double-track line;
- construction of the second track Ljubljana – Jesenice, including the connection to airport at Brnik - corridor X and second track Maribor – Šentilj – branch of the corridor X;
- modernization of the tracks to the level that will ensure their interoperability in accordance with the provisions of the Directive EU 2001/16 and Directive EU 50/2004;
- consistent implementation of measures, determined in the Articles 18, 21 and 25 of the Safety of Railway Transport Act, relating to level crossings of road and railway as well as level accesses to platforms;
- increase of the highest permitted line speeds to 160 km/h (with permitted deviations) on the main lines that coincide with the corridors V and X;
- modernization of safety-signalling devices and assuring of modern remote operation of transport on the main lines;
- renovation of catenary and renovation of remote control of fixed devices for electric traction;
- preparation of documentation for the new lines – high-capacity lines and lines whicht are still under examination.

d) port infrastructure:
- adjustment of Koper port management to European legal-economic conditions by granting suitable concessions;
- construction of the new port capacities using one of the forms of public private partnership;
- connection to road and railway infrastructure of the V. corridor.

e) airport infrastructure:
- modernization of international airports;

[9] Objectives to be attained by the year 2020.

- modernization of infrastructure for management and control of air traffic by constructing new centre for management and control of air traffic including the new airport control tower at the Ljubljana airport;
- modernisation Maribor Airport.

Strategies for the attainment of the objectives set are or will be determined within the Slovenian transport policy and within the national programmes for individual infrastructure systems (railways, motorways, state roads, maritime and airport infrastructure).

Priorities for EU funding

On the basis of the operational objectives the government of Slovenia established a priority listing of projects for the period 2007-2013. The last priority listing includes:

- Railway upgrading and expansion on Koper-Hodoš corridor
- Construction of a new north-south road corridor from Dravograd to Metlika, connecting the remote, relatively poor areas in the north and south to the backbone motorway network.
- Modernisation Maribor Airport
- Construction of a third pier at the Port of Koper
- Investments in urban, public transport (integrated ticketing)
- Intermodal terminals
- Investment in intelligent transport systems architecture aimed at the promotion of intermodal transport and the surveilance of passenger transport.

6 Factors influencing Prioritisation of Transport Investments

6.1 Introduction

This chapter intends to identify main factors that influence the setting of transport investment priorities for the next programming period.

Community Strategic Guidelines

The context for identifying strategic investment priorities is set by the Community Strategic guidelines. In accordance with the draft Council Regulation (article 23), the Council establishes Community Strategic Guidelines for cohesion policy to "give effect to the priorities of the Community with a view to promote balanced, harmonious and sustainable development"[10].

These Strategic Guidelines form the basis for identifying investment priorities, which are then be elaborated in National Strategic Reference Frameworks at the Member State level, which are subsequently further detailed in Operational Programmes (OPs) for thematic areas. A Commission proposal on these Strategic Guidelines was published in July 2005[11]. In parallel, Member States have already started preparations for their National Strategic Reference Frameworks and OPs.

Additional factors influencing investment priorities

As indicated the Strategic Guidelines form the context in which investment priorities for Community financing should be identified. In addition to these strategic guidelines a number of other factor shape the eventual establishment of transport investment priorities. These other factors include:

- Cost-effectiveness of projects;
- Availability of other sources of funding;
- Appropriateness of transport policy
- Administrative capacity to adequately absorb and manage funds.

In the next section the Strategic Guidelines and the other factors are elaborated in more detail.

[10] COM(2004)492

[11] COM(2005)299 Cohesion Policy in Support of Growth and Jobs: Community Strategic Guidelines, 2007-2013.

6.2 Community Strategic Guidelines

The (draft) Community Strategic Guidelines set the scene for any future transport investment financed as part of the Commission's cohesion policy. According to the communication of the Commission (COM(2005)299) the guidelines with respect to the expansion and improvement of transport infrastructures for the period 2007-2013 determine clear guidelines for action (see text box 6.1)

Box 6.1 Community Strategic Guidelines: Guidelines for action

The Community Strategic Guidelines distinguish the following guidelines for action:

- Member States should give priority to **the 30 projects of European interest**, located in Member States and regions eligible under the Convergence objective[12]. Other TEN projects should be supported where this is a strong case in terms of their contribution to growth and competitiveness. Within this group of projects, cross-border links and those overseen by the specially designated European co-ordinators in the Member States merit special attention. Member States should make use of the co-ordinators as a means of shortening the time that elapses between designation of the planning of the network and the physical construction
- Complementary investment in **secondary connections** will also be important in the context of an integrated regional transport and communications strategy covering urban and rural areas, in order to ensure that the regions benefit from the opportunities created by the major networks.
- Support for **rail infrastructure** should seek to ensure greater access. Track fees should facilitate access for independent operators. They should also enhance the creation of an EU-wide interoperable network. Compliance and applications of the interoperability and the fitting of ERTMS on board and on track should be part of all projects financed.
- Promoting environmentally sustainable **transport networks**. This includes public transport facilities (including park-and-ride infrastructures), mobility plans, ring roads, increasing safety at road junctions, soft traffic (cycle lanes, pedestrian tracks). It also includes actions providing for accessibility to common public transport services for certain target groups (the elderly, disabled persons) and providing distribution networks for alternative vehicle fuels.
- In order to guarantee the optimum efficiency of transport infrastructures for promoting regional development, attention should be paid to improving the **connectivity** of landlocked territories to the Trans-European network (TEN-T) (…). In this respect, the development of secondary links, with a focus on inter-modality and sustainable transport, should be promoted. In particular, harbours and airports should be connected to their hinterland.
- More attention should be paid to developing the "**motorways of the sea**" and to short-sea shipping as a viable alternative to long-distance road and rail transport.

In addition the Guidelines give specific instructions with respect to the **territorial dimension** of Cohesion policy in stressing that Member States should pay particular attention to prevent uneven regional development and improve territorial integration and cooperation between and within regions.

6.3 Additional factors for the prioritisation of transport investments

As indicated in the introduction a number of other factors determine the eventual prioritisation of transport investment priorities under the Commission's cohesion policy instruments. These are subsequently elaborated.

[12] Decision n°. 884/2004/EC of the European Parliament and of the Council, 29 April 2004.

Cost-effectiveness

Cost-effectiveness or value for money stands at the core of any sound investment programme. It is also fully embedded in the procedures and structure of the cohesion policy of the Commission in which cost-benefit assessments of proposed projects are standard procedure. Also EIB applies CBA as standard assessment methodology before granting new loans.

The cost-effectiveness criterion is especially important if budget resources are limited. In this case cost-benefit analyses can be used to phase foreseen transport investment in time or to seek alternatives with a similar functionality that offer a higher value for money.

Availability of other sources of financing

A can be observed from the previous investment programmes other sources of finance should not be overlooked with respect to future transport investments Apart from public financing by the country itself important potential sources are:

TEN-T budget

The Commission recently reached an agreement with the EP on future TEN-T financing. Total budget available is 7 bn€ for the coming programming period. Financing can be up to 20%. It should be noted however that this financing is only a fraction of total cohesion financing (e.g. Cohesion Fund financing for transport approximates 45 m€), while TEN-T funds are valid for all EU members. It is expected that TEN-T funds will be focused on cross-border TEN-T projects.

EIB

EIB financing is another source of financing available for transport investment. EIB has been very active in Slovenia in the previous decade, especially in supplying loans for motorway investment. Further involvement of EIB is certainly expected in Slovenia. An important criterion in EIB involvement is the level of public debt which should be below 60% of GDP. In Slovenia this currently stands around 30%.

EBRD

In addition to EIB, EBRD can become active in Slovenia. Until now EBRD involvement has been limited to three projects in the early nineties. In the beginning of 2006 EBRD expressed its interest to become more actively involved in Slovenia. Possible areas mentioned are: State Roads and railways.

PPPs

PPPs are explicitly mentioned in the Community Strategic Guidelines as a possible appropriate method of financing investment when there is significant scope for involving the private sector. Apart from the financial leverage positive impacts are expected on implementation and management of projects.

Experience with private involvement in transport infrastructure in the form of PPPs has been limited until now. However, based on the experience in other countries logical sectors for a more intense private sector involvement are: ports, airports and logistics centres. Also motorways sometimes figure as typical PPP models. However, Slovenia has clearly chosen to implement its highway programme without a concession model, although the corporatization of DARS (Motorway Company) starts to resemble a sort of PPP approach.

The current business climate in Slovenia is expected to be sufficiently open not to hamper PPPs.

Both EBRD and EIB can also get involved if PPP constructions are considered through direct equity participations.

In summary, other financing sources are expected to relevant for the following areas:

Table 6.1 Potential financing sources and expected destination of funding

Source	Destination
TEN-T	TEN projects, especially cross border sections
EIB	Motorways and to a lesser extent railways
EBRD	Possibly state roads (road rehabilitation) and rail
PPP & private capital	Income generating transport investments: ports, airports, logistic centres

Appropriateness of the transport policy

Apart from the investment policy of the Slovenia other aspect of the country's transport policy are relevant to contribute to EU and national policy objectives. Two specific elements are identified on the basis of the analysis of the current transport system:

- Transport safety
- Transport pricing and charging

Transport safety is clearly an area for attention as accident levels are still clearly above the EU average, notwithstanding a clear decrease in the past decade. This can be partly solved by improving the quality of the state road network. Another point of attention is the development of a specific transport safety policy and an adequate level of enforcement.

With respect to transport pricing Slovenia has already taken an important step forward through the standard introduction of pricing on the motorway network at a level which is comparable to other EU countries. Nevertheless further attention should be paid to the generation of income from user of the transport system. This is specifically important with respect to the financing of the maintenance and operation of the state road network and possibly also the rail network which both are in a bad state. Further studies on the financing of regular O&M are strongly recommended.

Administrative capacity

Although no specific drawbacks with respect to the administrative capacity in Slovenia are noted[13], it should be realised that until now external funding of transport investments has remained relatively limited, apart from the extensive investments in the motorway network. In this respect especially DARS has built significant experience in applying and managing funds and projects. A cross-country comparison of staffing levels reveals that staff size at the Managing Authority is relatively small. This is a clear point of attention

[13] The absorption capacity of the country, given its short experience with structural funds, appears to be satisfactory.

with respect to the coming programming period. A positive aspect with respect to the administrative capacity is the changes that will take place with respect to the public procurement regulation, which will limit the current (high number) of appeal opportunities, which can lead to substantial delays in the current setting.

In the forthcoming programming period a more intense level of project financing is expected for especially the railways and possibly also the state roads (national road administration). Railway projects are expected to be managed by the newly established Railway Agency, which is not so much lacking capable staff but is lacking experience in managing large externally financed projects. It could be considered to transfer part of DARS' experience by means of a special task force to the railways and the national road administration directly or to have them function as a sounding board for all project beneficiaries at the level of the Managing Authority. Another option is to outsource the management to a dedicated project organisation.

Based on the previously stated argument a risk assessment has been prepared with respect to the administrative capacity in Slovenia. This assessment has been summarized in table 6.2. Moderate to high levels indicate that additional attention should be paid to this aspect in the implementation of the programme.

Table 6.2 Risk assessment administrative capacity

Sector	Risk level	Explanation
Overall	Moderate	TEN projects, especially cross border sections
Roads	low/moderate	Motorways (DARS) low risk; state roads moderate to high risk due too limited experience. Option: transfer knowledge from DARS to Road Administration.
Rail	moderate/high	Limited investment experience with large scale investments. Railway Agency only recently established.
Ports	Moderate	Independent port company; existing experience with second pier
Urban transport	moderate/high	Depending on size of project. Limited experience with large scale projects

7 Impact assessment of scenarios

7.1 Introduction

This chapter assesses different scenarios with respect to their impacts on three different (EU) policy objectives:

- Economic competitiveness
- Territorial cohesion
- Environmental sustainability

In addition the impacts are assessed on the Accessibility Problem Index (see Chapter 3).

First the methodological approach is described, including the SASI model that has been used to assess the impacts. Next the scenarios are described, followed by a presentation of the impacts.

7.2 Methodology

The SASI model

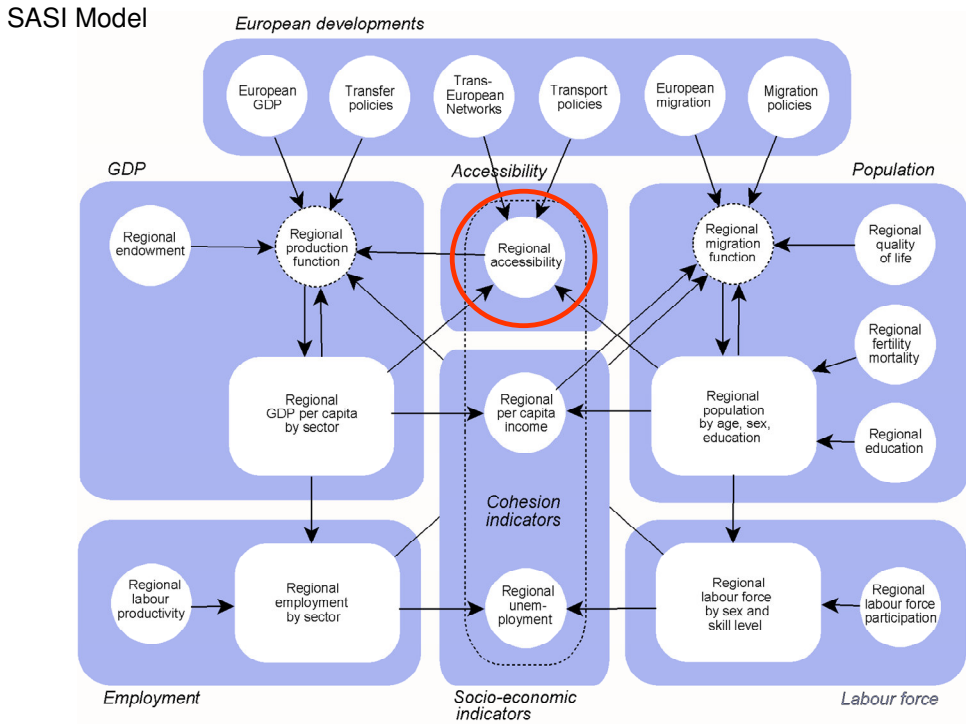
The impacts are assessed with the support of the SASI model. The SASI model is a recursive-dynamic simulation model of socio-economic development of 1330 regions in Europe. The model was developed to assess socio-economic and spatial impacts of transport infrastructure investment and transport system improvements. Is has been applied and validated in several large EU projects including the IASON and ESPON projects.

The SASI model differs from other forecasting models of regional development by modelling not only production (the demand side of labour markets) but also population (the supply side of labour markets). Regional production by industry is forecast by regional production functions containing production factors capital, labour, regional endowment and accessibility. Regional population is forecast by a demographic model including fertility, mortality and migration.

The SASI model is specifically relevant for projects that serve a function on a European level (e.g. the TEN projects). Such projects cannot be adequately evaluated using traditional cost-benefit analysis on a national scale, since they are less able to capture the international effect and the indirect effects occurring in non-transport sectors[14].

[14] See e.g. Rothengatter, The relevance of Transeuropean Transport Networks for Integration and Growth in the Extended European Union.

Figure 7.1 Main structure of the SASI model



The reference network

To assess the impacts of new transport investments a reference scenario has been prepared. This mainly implies an adjustment of the transport network in the SASI model[15]. The dynamic network database of SASI is based on highly detailed pan-European transport networks with respect to:

- Roads (including short-sea shipping)
- Rail (including ferries)
- Air (including regional airports).

Network calculations are based on travel times or generalised costs including border waiting times and (political, economic cultural and language) barriers.

The reference network has been updated based on the most recent information from the countries on implementation schedules and alignment with respect to TEN and national transport projects (also information on toll is included). The reference network includes all projects that are already under construction and will be operational in at latest 2007.

In addition the reference scenario assumes the further development of the European integration with the accession of Bulgaria and Romania to the European Union in 2007. Further European integration results in reductions in waiting times and lower barriers between countries.

[15] Which relies on the trans-European transport network database developed by IRPUD (2003) and now maintained and further developed by RRG (2005)

7.3 Scenarios

Impacts have been assessed for different scenarios to be able to compare the outcomes and draw conclusions on the different impacts. Although the study aims to identify strategic areas for investment priorities, these areas need to be "translated" into projects to enable the SASI model to assess impacts. As a result assumptions have been made on projects within the scenarios. These projects have not been listed separately as this would distract the discussion from strategic priorities to projects. Where possible, these projects are based on existing planned projects and related cost estimates[16]. Where no existing data existed, estimates are based on existing unit parameters in EU wide infrastructure needs assessments[17]. In all scenarios, after 2016 no further transport projects are implemented. However, it is assumed that European integration proceeds as in the Reference Scenario.

In addition to the Reference scenario, two major scenarios have been distinguished:

- The **Maximum** Scenario, which comprises a listing of possible projects[18] that have been identified in the respective countries;
- The **Balanced** Scenario, which applies a budget restriction (with in parallel an assessment of additional financing opportunities). Projects are prioritised on the basis of their benefit-cost ratio and their contribution to specific objectives and needs (sustainability, regional disparity, and contribution to accessibility[19]).

On the basis of the maximum scenario, two sub-sets are determined: the **Maximum Road** Scenario and the **Maximum Rail** Scenario which illustrates the differential impact of rail versus road projects.

The Maximum Scenario

The Maximum Scenario is based on an extensive listing of possible investment projects that have been identified by the national project partners in the project. Where relevant these projects lists have been extended with projects that have been identified on the basis of existing network analyses and studies[20], projects identified on the basis of interviews that have been carried out in the countries, or projects that can be additionally identified on the basis of the needs assessment in Part A of this report (including the "red flag" analysis).

This results in a scenario of all TEN priority projects and additional national projects that are planned to be constructed (or start construction) in the period 2007-2013 and which are operational by 2016. An important notion with respect to the maximum scenario is that no budget restriction is applied.

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16 This can be national studies or information, information on TEN priority projects 2005 (EU 2005), or recent studies on the Pan-European corridors (VTT 2006).

17 E.g. TINA, TEN-Invest, TEN-STAC

18 The impact assessment in SASI has only been done on a selected set of road and rail projects. This is done because these sub-sectors in general will receive the majority of funding and an assessment of their impacts can be done without having to go into too much project detail. It is assessed that this approach gives sufficient feedback on the potential impacts.

19 Are projects solving "missing links" in the network.

20 For example the recent study carried out by VTT on the Pan-European corridors (VTT 2006).

Within the Maximum Scenario two specific sub-sector scenarios are distinguished:

- The **Maximum Road Scenario** assumes the implementation of all proposed road projects including cross-border transport corridors.
- The **Maximum Rail Scenario** assumes the implementation of all proposed rail projects including cross-border transport corridors.

The Balanced Scenario

The Balanced Scenario starts from the Maximum Scenario. First, an assessment is made of the available EU funding in comparison to the total budget requirements of the projects. If a budget restriction applies projects are selected and prioritised[21] on the basis of a number of criteria:

- **Cost -benefit ratio.** Are projects in this field expected to deliver value for money (socio-economic rate of return[22])?
- **Accessibility.** Are they contributing to a clear improvement in accessibility both on a European and national scale (missing links in networks, main transport corridors, secondary connections to backbone network)?
- **Sustainability.** Do interventions facilitate modal shift to more environmentally friendly transport modes;
- **Territorial cohesion.** Is there a contribution to improving the accessibility of more backward regions;
- **Safety.** Do measures contribute to improved transport safety?

The assessment in this respect draws strongly on the finding in Part A of the report (SWOT-analysis of the transport system and "red flag" analysis).

Finally, an assessment is made to which extent other financing sources could play a role. In this respect especially the potential of EIB involvement and PPP is included (see also Chapter 6):

- **Other sources of finance.** Are projects able or likely to attract other sources of finance. In those cases application for EU financing might not be necessary.

In addition, the possible impact of limitations in the administrative capacity and changes in the pricing policy (if large distortions exist in this respect) are taken into account.

Table 7.1 gives an overview of the criteria that have been applied per identified priority area. It should be noted that these same criteria should also be applied with respect to the selection of eventual projects within the strategic priority areas.

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[21] In the calculations in certain countries this leads to the elaboration of an interim scenario, which is called the Restricted scenario (strict application of the budget restriction, i.e. no other sources of finance).

[22] Based on TEN-STAC

Table 7.1 Assessment of selected areas for road and rail investment

Sub sector	Cost-effectiveness	Accessibility	Sustainability	Territorial Cohesion	Safety	Other sources of finance
Railway:						
- TEN-T priority project Koper-Hodoš	0	+	+	0	+	0
- double track section to Austrian border	0	+	+	0	+	0
Roads:						
- Implement missing links corridor V & X	+	+	-	0	0	+
- Rehabilitation state road network	+	+	-	+	+	0

Legend: + positive score; 0 neutral score; - negative score on criterion

Railways

- Implementation of the main hinterland connection between the port of Koper and Hungary is judged to be essential to maintain the strong position of rail freight transport. The corresponding TEN-T priority project with respect to the railway connection between Koper and Hodoš (Hungarian border), includes upgrading and modernisation and electrification of rail and expansion of tracks (e.g. Koper-Divača).
- Strongly connected to this project is the enhancement of the capacity on the line Maribor-Sentilj (Austrian) border which is the last section without double track towards Austria (after construction of the Koper-Divača double track).

Roads

- Most missing links on the motorway network are expected to be financed through EIB loans. No CF/ERDF involvement is required, with the possible exception of the section between Ptuj and the Gruskovje at the Croatian border. Current planning in Slovenia does not consider this to be a high priority section, while after construction of the Slivnica-Ptuj in 2012 and the already completed connecting section in Croatia, this is clearly the missing link. Acceleration of motorway construction could be aided through additional grant financing from ERDF/CF funds (or TEN-T budgets).
- A clear point of attention is upgrading the state road network which is presently in poor condition. ERDF funds may be used to establish improved (secondary network) links to the existing motorway networks. Specific attention is warranted to connect relatively backward regions to the motorway network. Possibly this action can be combined with overall upgrading of the state road network through an EBRD loan. Specific attention should be paid to the financing of regular maintenance of the state road network.

Table 7.2 gives on overview of the assessment which areas for the road and rail projects can be (potentially) financed by other sources.

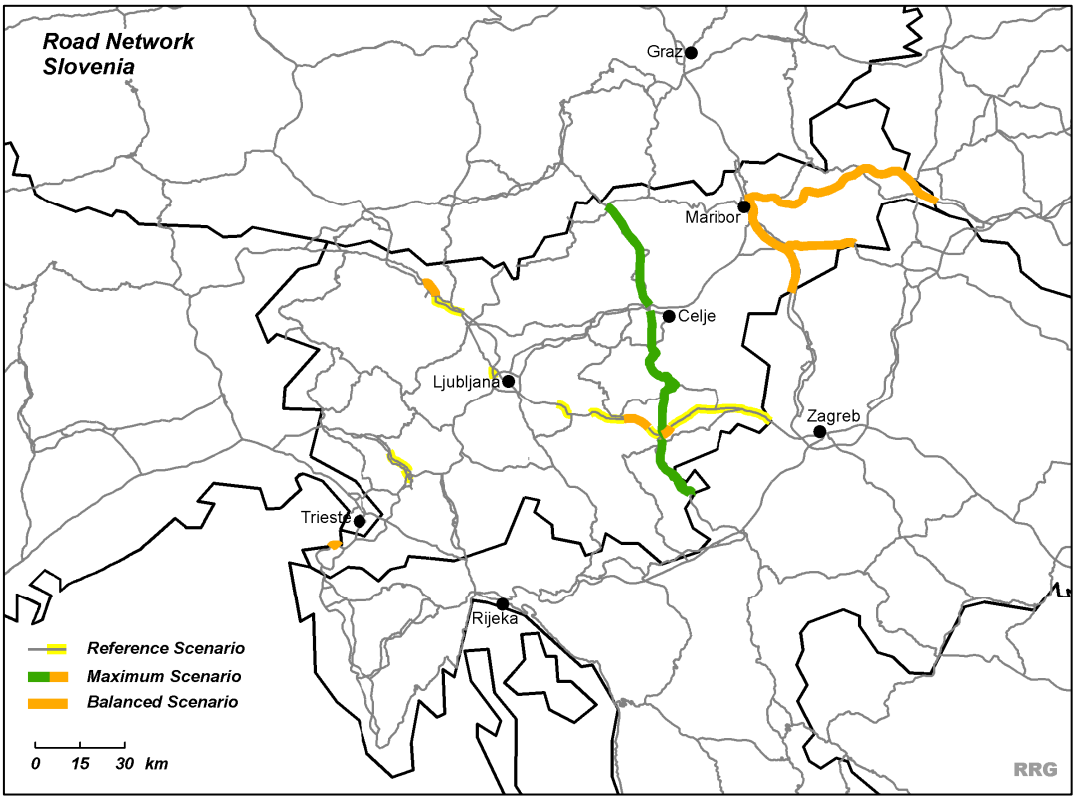
Table 7.2 Potential financing sources and expected destination of funding

Sub sector	CF/ERDF	EIB	EBRD	PPP
Railway: - TEN-T priority project Koper-Hodoš - double track section to Austrian border	√	?		
Roads: - Implement missing links corridor V & X - Rehabilitation state road network	√	√	?	

Location of projects

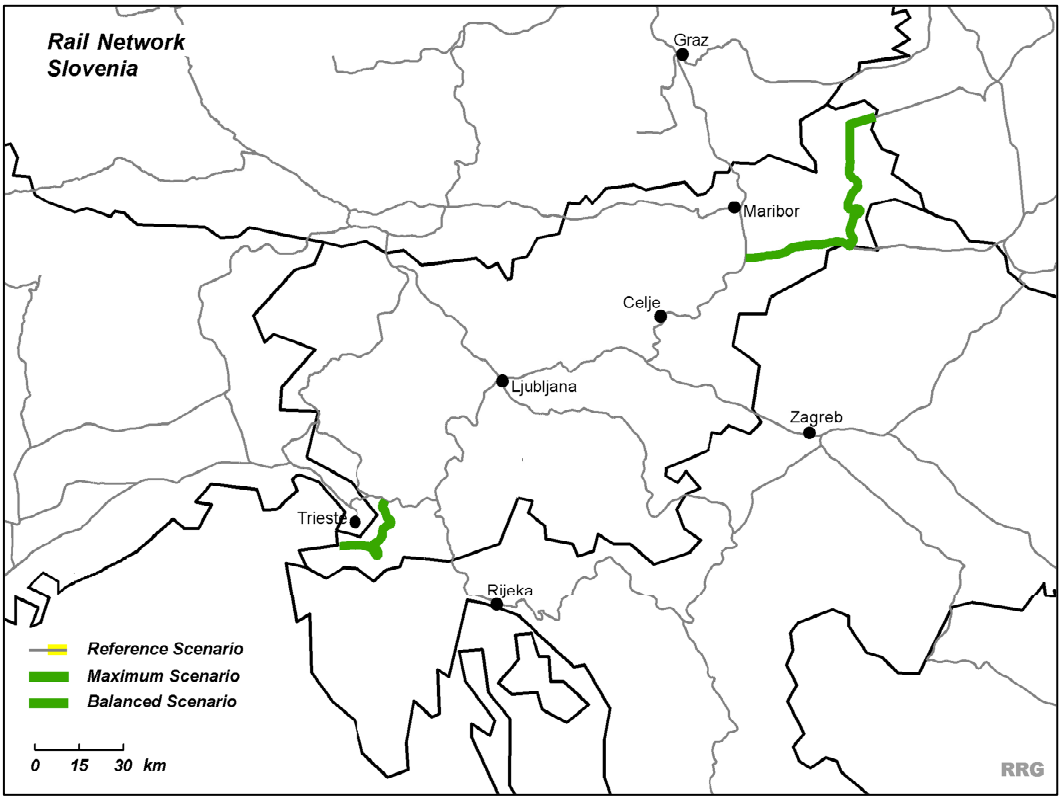
Figures 7.2 and 7.3 show the location of the expected projects under the Maximum (Road and Rail) and Balanced Scenarios that have been included in the impact analysis.

Figure 7.2 Road network in Reference, Maximum and Balanced Scenarios



National road projects
- Motorway Maribor north - Maribor center - Maribor South
- Motorway Maribor - Lenart - Spodnja Senarska - Cogetinci - Vučja vas
- Motorway Beltinci - Lendava - Pince
- Motorway Koper - Izola
- Motorway Vrba - Peračica
- Motorway Pluska - Ponikve - Hrastje
- Motorway Lešnica - Kronovo
- Motorway Slivnica - Draženci (Ptuj) - Gruškovje
- Road Hajdina (Ptuj) - Ormož
- Road Dravograd - Arja vas
- Motorway Arja Vas - Novo Mesto
- Road Novo Mesto - Melnika (Croatian border)

Figure 7.3 Rail network in Reference, Maximum and Balanced Scenarios



TEN priority rail projects
- Koper - Divaca
- Pragersko - Hodos (Hungarian border)

7.4 Impact assessment

The impacts of the balanced transport scenario are measured as differences between the balanced scenario and reference scenario. These impacts are evaluated with respect to the strategic objectives:

- Economic competitiveness
- Territorial cohesion, and
- Environmental sustainability

The following objectives have been identified to describe the impact on the different policy objectives:

Table 7.3 Strategic objectives and related indicators

Objective	Indicator	Level
Economic competitiveness	Average speed of interregional road trips (kph)	National, regional average
	Average speed of interregional rail trips (kph)	National, regional average
	GDP per capita (Euro)	National, regional average
Territorial cohesion	Primacy rate population (%)	National
	Primacy rate GDP (%)	National
	Gini coefficient[23] of GDP per capita (0-1)	National
Environmental sustainability	Share of interregional rail trips (%)	National, regional average

It should be realised that these spatial impacts are long term effects, as:

- Location decision of firms result in changes in economic activity and employment only after some time;
- Secondary effects of economic activity (i.e. attraction of other firms) take even longer.

This is accounted for in the SASI model by time delays of one to five years. In order to take due account of the long-term spatial impact of transport infrastructure investments in the period 2007-2013, the target year for the model simulations is set at 2031.

Overall Impacts

Table 7.4 presents the impacts of the proposed priority transport investments.

[23] A Gini coefficient is a measure which represent the deviation from a fully egalitarian distribution of income between NUTS 3 regions (i.e. equal regional GDP/capita)

Table 7.4 Strategic objectives and related indicators (2031 impacts)

Objective	Indicator		Scenarios				
			Refer-ence	Maxi-mum Road	Maxi-mum Rail	Maxi-mum	Bal-anced
		2006	2031	2031	2031	2031	2031
Economic competitiveness	Average speed of inter-regional road trips (kph)	47.8	50.2	51.5 *+2.6%*	50.2 *0.0%*	51.5 *+2.6%*	51.2 *+2.0%*
	Average speed of inter-regional rail trips (kph)	27.9	28.0	28.0 *0.0%*	28.2 *+0.5%*	28.2 *+0.5%*	28.2 *+0.5%*
	GDP per capita (Euro)[24]	14,309	27,276	27,310 *+0.1%*	27,278 *+0.0%*	27,312 *+0.1%*	27,307 *+0.1%*
Territorial cohesion	Primacy rate (%) population	24.8	25.4	25.4 *0.0%*	25.4 *0.0%*	25.4 *0.0%*	25.4 *0.0%*
	Primacy rate (%) GDP	36.3	36.5	36.5 *-0.0%*	36.5 *-0.0%*	36.5 *-0.0%*	36.5 *-0.0%*
	Gini coefficient[25] of accessibility (0-100)	1.29	1.27	1.28 *+0.7%*	1.25 *-1.3%*	1.26 *-0.6%*	1.31 *+3.7%*
	Gini coefficient of GDP per capita (0-100)	14.09	13.41	13.39 *-0.2%*	13.41 *-0.0%*	13.38 *-0.2%*	13.39 *-0.2%*
Environmental sustainability	Share of interregional rail trips (%)	20.8	19.4	18.6 *-4.0%*	19.6 *+1.4%*	18.8 *+2.7%*	19.0 *-1.9%*

Table 7.4 indicates that the overall impact of the scenarios on Slovenia is relatively modest. In absolute terms, the effects are small: the transport infrastructure improvements of the Balanced Scenario increase the average income in Slovenia by about 30 Euro per capita per year. The main explanation is the already high level of accessibility in Slovenia. However, the improvements of the road and rail networks in Slovenia do not only favour the national traffic, but also the international traffic which is not captured in Slovenian growth figures. Figure 7.5 shows that this EU impact is clearly present. Especially Croatia profits from the improvement of the international connections. The environmental effects in terms of increased rail share are more significant. However, these improvements refer only to interregional person trips, which constitute only a relatively small component of total transport.

The comparison between the scenarios confirms that the effects of the scenarios on rail speed are small compared to those on road speed. The new toll motorways in the north-east of the country near the Hungarian are important for international transit traffic but affect only a relatively small proportion of interregional trips originating in the Slovenian regions. The largest effect would be the establishment of a new north-south corridor between the Croatian and Austrian borders. However, this (3rd axis) motorway consists only in the Maximum Scenario and it is unlikely whether these effects are justified by the costs of the road. In general in Slovenia the economic impact of the road projects on GDP is stronger than rail. The two rail projects at the opposite end of the country near the

[24] The GDP per capita value for 2006 is not an official statistic but a result of the SASI model based on regional GDP per capita statistics for 2001 by Eurostat. Regional GDP is forecast in the SASI model in terms of international exchange value; in purchasing power standards all GDP figures for Slovenia would be significantly higher.

[25] The Gini coefficient is a measure which represents the deviation from a fully egalitarian distribution of indicator values between regions (i.e. equal indicator values in all regions).

Italian and Hungarian borders are too short to result in a large overall increases in rail accessibility for Slovenia as a whole, even though they are built for relatively high speeds.

If only road projects are implemented (Maximum Road), the main effect is that more interregional trips are attracted from rail to road. If only rail projects are implemented (Maximum Rail), the share of rail trips grows only little. In the Balanced scenario the share of rail trips declines because of the competition of the new motorway projects.

The impact with respect to the cohesion indicators, which reflect the impact of the transport policy scenarios on the spatial structure of the country, is negligible. The dominant role of Ljubljana in terms of population and economic activity increases in all scenarios; however, no significant differences between the scenarios can be detected, not even between the transport policy scenarios and the Reference Scenario. This may be explained by the fact that none of the transport projects examined in the scenarios is directly linked with Ljubljana. However, it may also suggest that other factors than accessibility are more important for the process of spatial polarisation.

Regional impacts

Figure 7.4 shows gross domestic product (GDP) per capita of the NUTS-3 regions in Slovenia in the Reference Scenario in the year 2031. Because of the rapid economic growth predicted for Slovenia, a different legend scale than in Figure 3.2 had to be used. Compared with the current distribution of GDP per capita in Figure 3.2, the dominant position of the capital Ljubljana has become even more pronounced by 2031.

Figure 7.5 shows the effects of the Balanced Scenario on GDP per capita. The regional economic effects of the transport infrastructure scenarios reflect the improvements in road and rail accessibility. The impact maps show the percentage differences in regional indicator values. The more intense the colour green, the higher the impact. Because the differences shown are relative differences (in percent of the Reference Scenario), the economically less prosperous eastern regions benefit more – if absolute differences were shown, the effect would be less pronounced or even reversed. It is important to note that even large improvements in accessibility translate into only small improvements in economic performance, as accessibility is not the only relevant production factor. Also road accessibility in Slovenia is already well above the European average.

Of the new or upgraded motorways, the sections of the motorway links between Ljubljana and Zagreb and between Maribor and Zagreb are the most effective. They improve the economic situations of the Brezice and Murska Sobota regions. However, as it was noted before, Croatia benefits most from these improved connections, though, as Figure 3.2 shows, from a lower starting level.

The upgrading of the short rail section between Koper and Divača on the Trieste-Ljubljana railway is not expected to lead to significant speed increases, whereas the upgrading to high speed of the link from Pragersko near Celje to Ormoz and further on to Hodoš at Hungarian border bypassing Maribor has a quite significant effect for the north-eastern part of the country, but contributes also to the economic gains of Croatia.

Figure 7.4 GDP per capita (in 1,000 Euro 2005), Reference Scenario, 2031

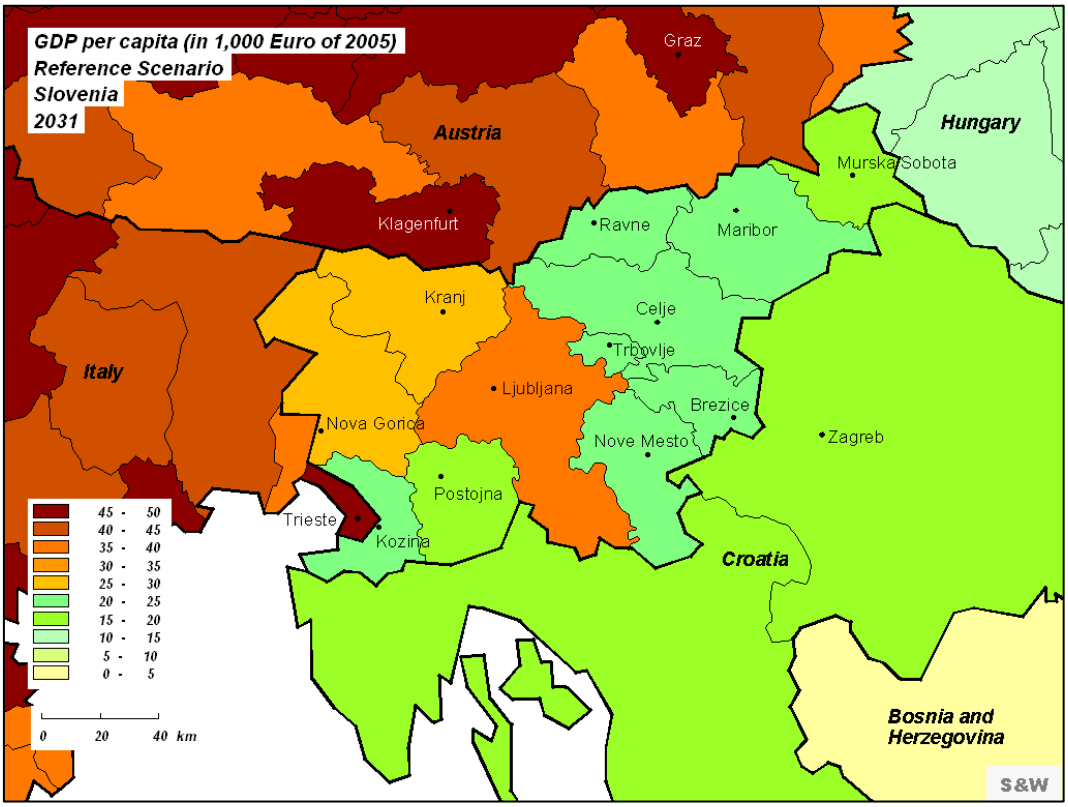
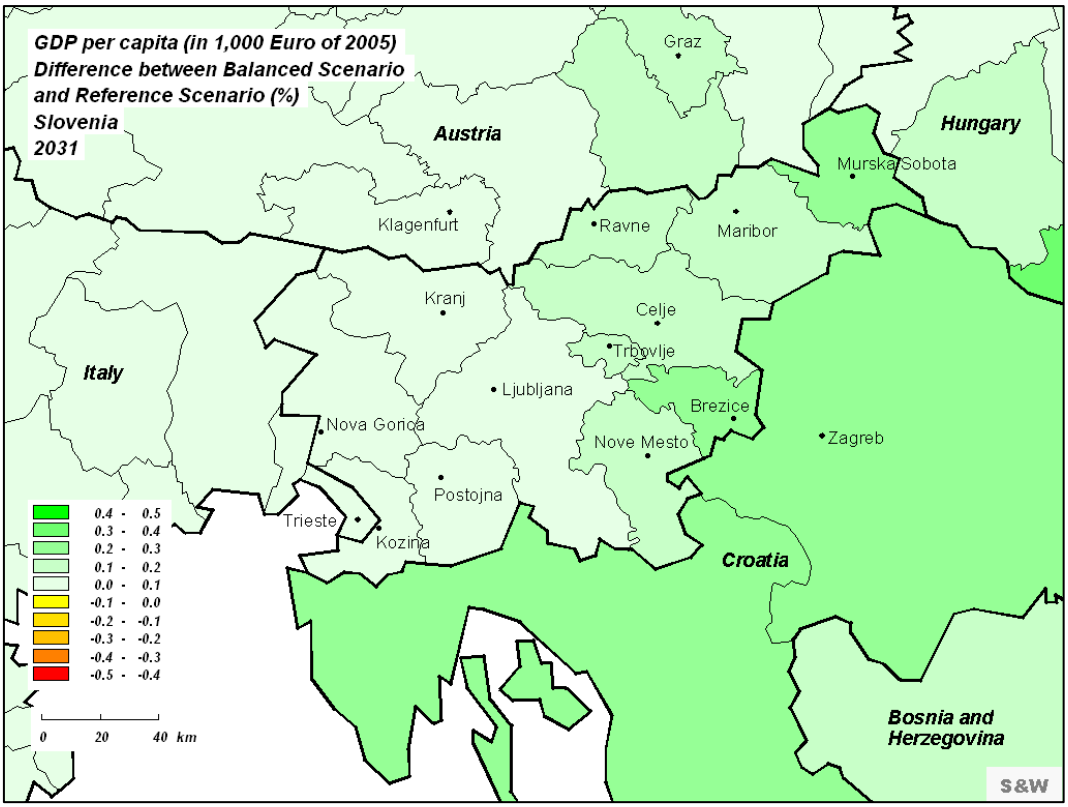


Figure 7.5 Impact on GDP per capita, Balanced Scenario, 2031



Figures 7.6 to 7.8 show the impact of the transport infrastructure improvements on sustainability (as expressed in the share of interregional passenger rail trips).

Figure 7.6 shows the average share of interregional rail trips originating in the NUTS-3 regions of Slovenia (excluding air) in the Reference Scenario in the year 2031. The spatial distribution of rail usage closely resembles that of average rail speed, showing the west-east decline typical for Slovenia. Figure 7.7 shows the effects of the rail projects in the Balanced Scenario on the share of interregional rail trips. As was concluded earlier, the road projects lead to a decrease in the share of rail traffic, with the notable exception of the Murska Sobota region in the North-East, where the significant improvement of rail leads to an increased share of interregional rail traffic. However, it should be noted that this increase starts from a low value.

Finally results are shown as impacts on the composite Accessibility Problem Index (see Chapter 3). It is examined in how far the transport infrastructure improvements contribute to solving the accessibility problems identified in the red-flag analysis. As was noted in Chapter 3, road accessibility in Slovenia is above the European average and rail accessibility below the European average with a decline in accessibility from west to east.

Figures 7.8 and 7.9 show the indices in the year 2031 in the Reference Scenario from a European perspective. It should be noted that in the Reference Scenario no new road/rail projects are started after 2006. A comparison with the present situation in Figures 3.4 and 3.6 shows that despite this, accessibility by both road and rail has improved in most regions due to the ongoing European integration leading to shorter border waiting times and reduced trade barriers. Slovenia in particular benefits from its neighbourhood to the West Balkan countries and the two accession countries Bulgaria and Romania which are assumed to become EU member states in 2007.

Figures 7.10 and 7.11 show the impacts of the Balanced Scenario on the Accessibility Problem Index from a European perspective. Compared to the Reference Scenario (Figures 7.8 and 7.9) accessibility improve further, although only slightly. There are slight improvements in road accessibility in the Ravne and Celje regions and an improvement in rail accessibility in the Murska Sobota region, however rail travel speeds from the eastern parts of the country remain significantly below the European average.

Figure 7.6 Sustainability of transport (share of interregional rail trips), Reference Scenario, 2031

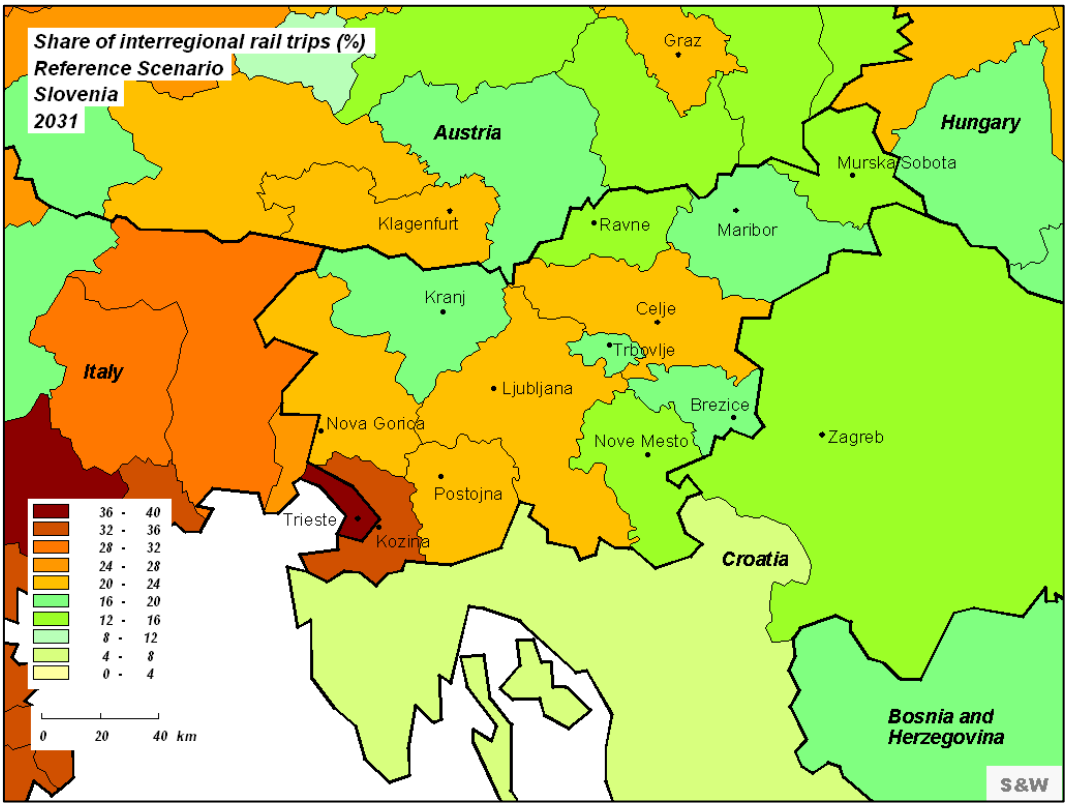


Figure 7.7 Impact on sustainability of transport (share of interregional rail trips), Balanced Scenario, 2031

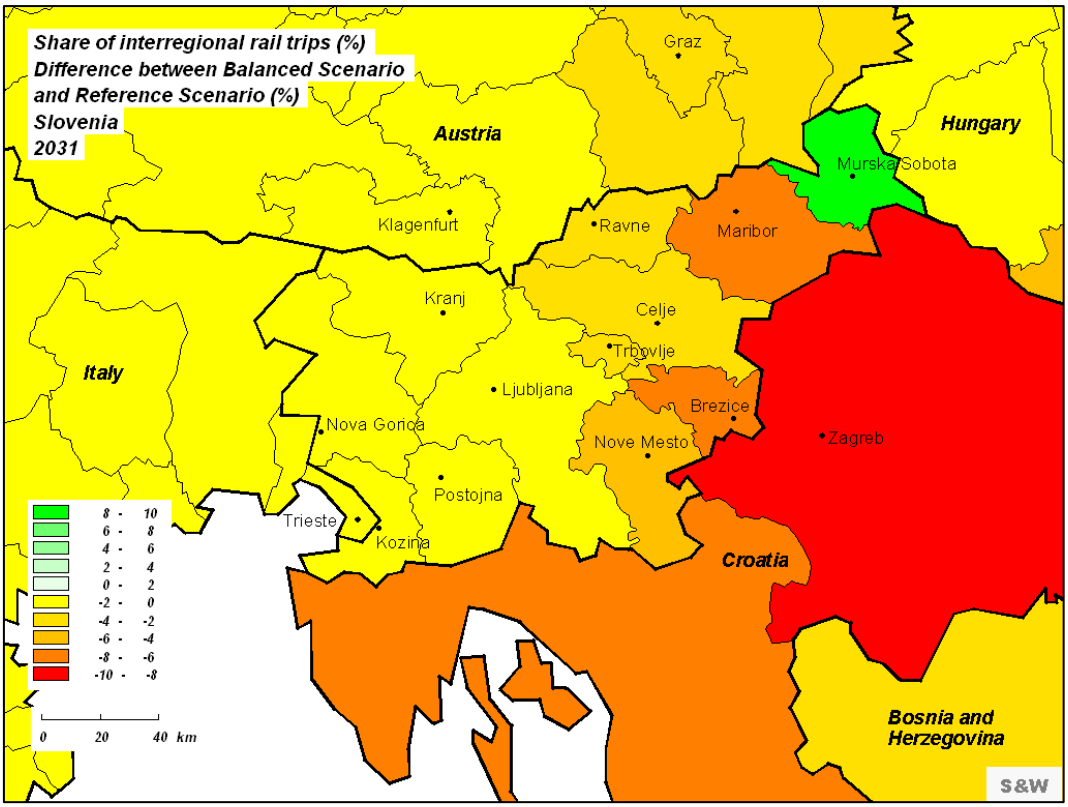


Figure 7.8 Accessibility Problem Index Road (European perspective), Reference Scenario, 2031

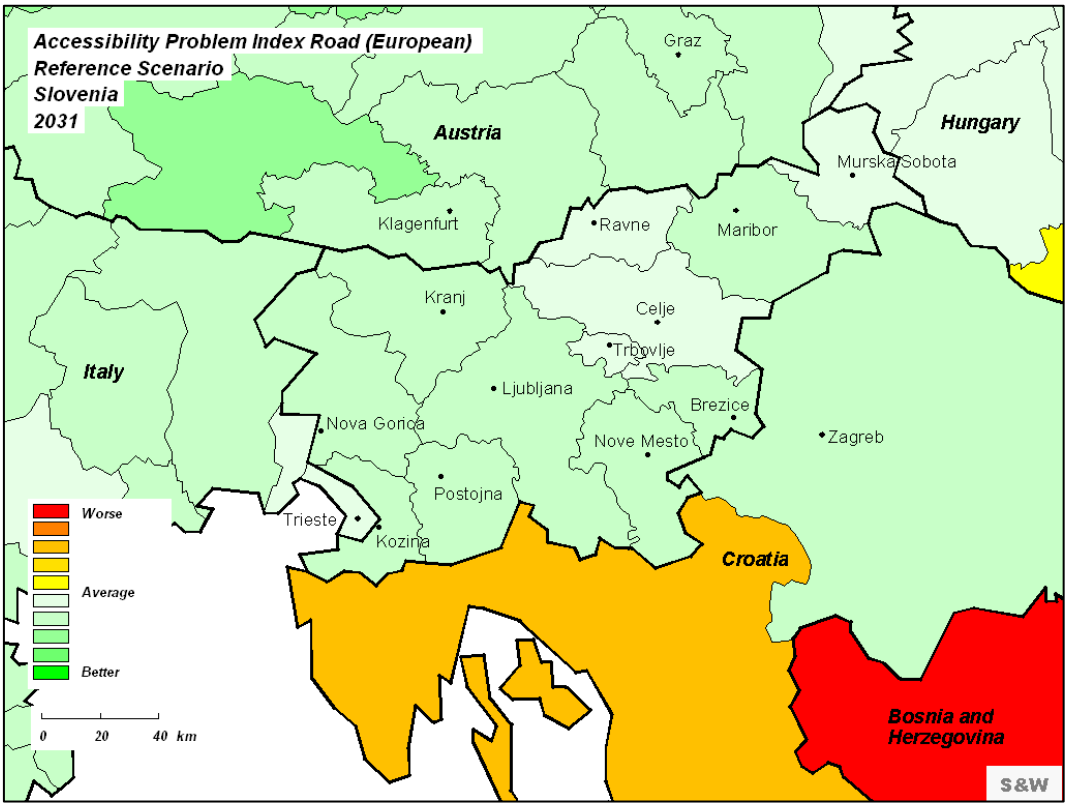


Figure 7.9 Accessibility Problem Index Rail (European perspective), Reference Scenario, 2031

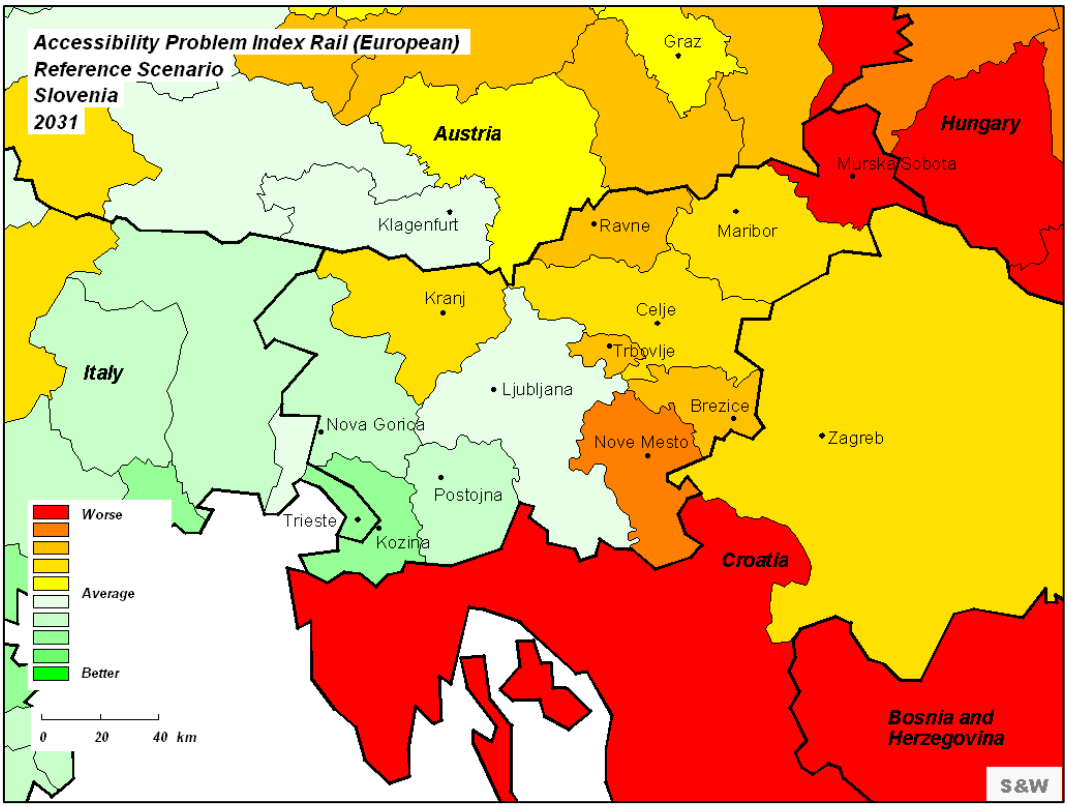


Figure 7.10 Accessibility Problem Index Road (European perspective), Balanced Scenario, 2031

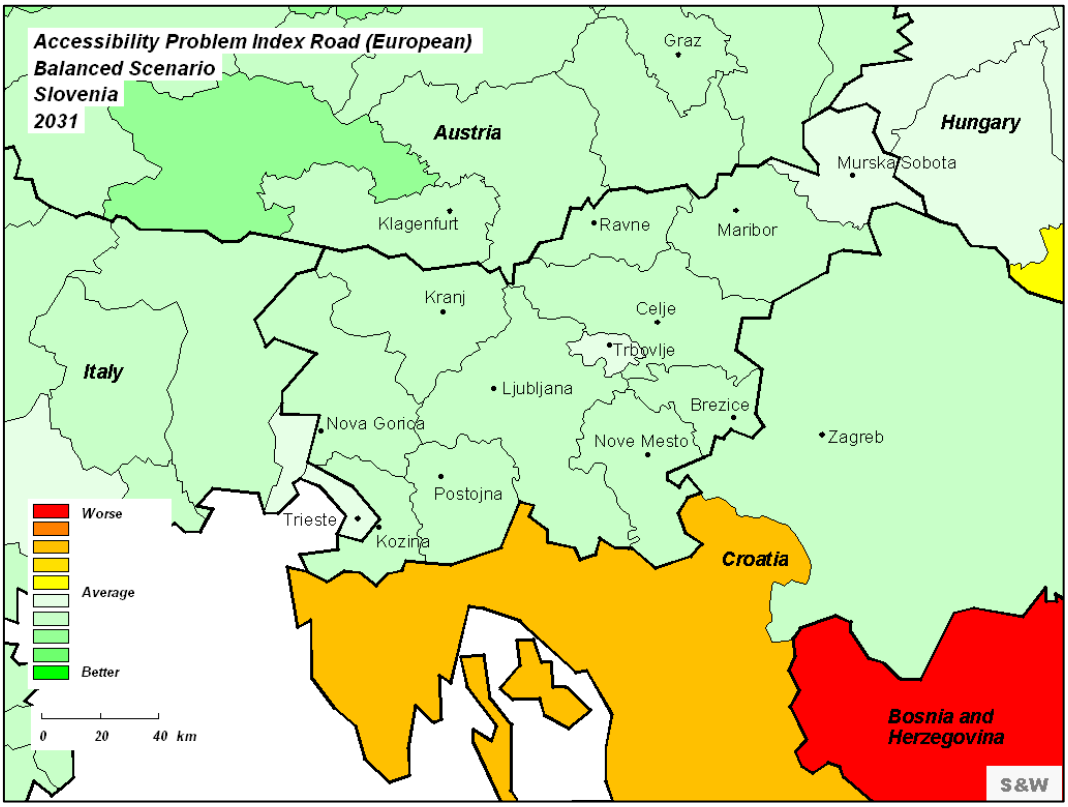


Figure 7.11 Accessibility Problem Index Rail (European perspective), Balanced Scenario, 2031

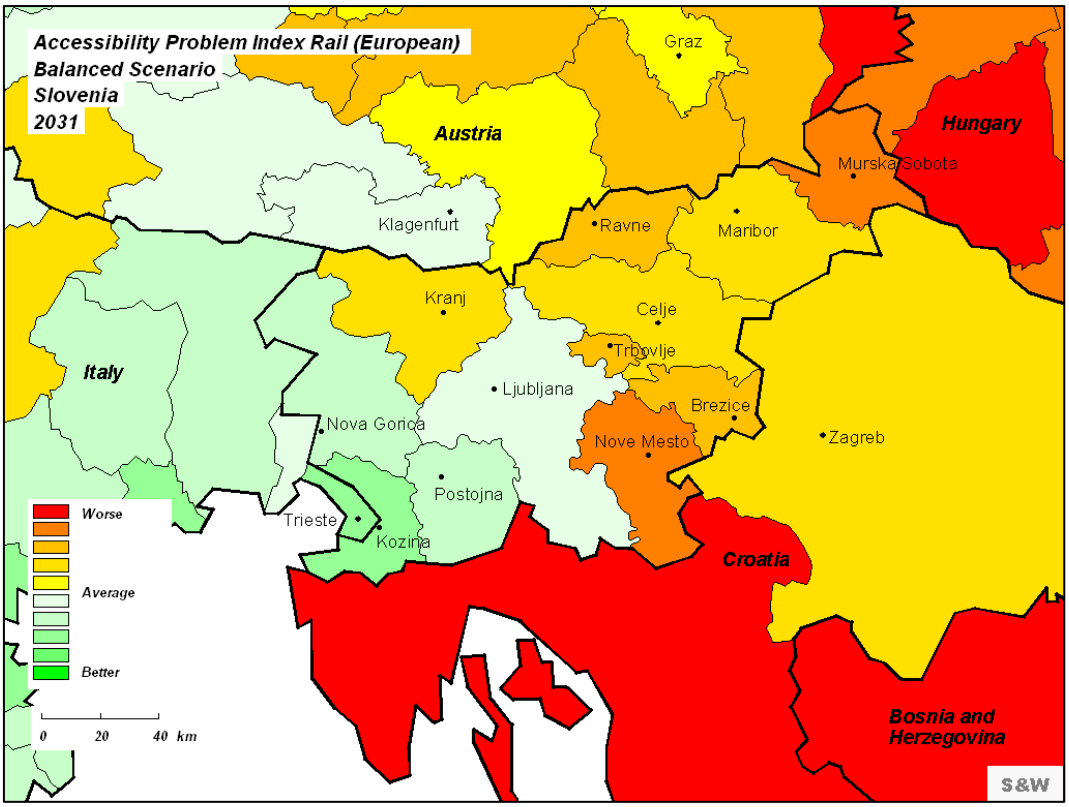


Table 7.5 summarises the effects of the four policy scenarios on the Accessibility Problem Index: index values above one indicate accessibility problems, whereas index values below one indicate above average performance.

Table 7.5 Accessibility Problem Index, Slovenia, 2031

Mode	Level		Scenarios				
			Refer-ence	Maxi-mum Road	Maxi-mum Rail	Maxi-mum	Bal-anced
		2006	2031	2031	2031	2031	2031
Roads	National	1.000	0.916	0.893 *-2.5%*	0.916 *0.0%*	0.893 *-2.5%*	0.898 *-2.0%*
	European	0.944	0.865	0.843 *-2.5%*	0.865 *0.0%*	0.843 *-2.5%*	0.848 *-2.0%*
Rail	National	1.000	0.950	0.948 *-0.2%*	0.949 *-0.1%*	0.946 *-0.4%*	0.947 *-0.3%*
	European	1.117	1.062	1.059 *-0.3%*	1.060 *-0.2%*	1.057 *-0.5%*	1.058 *-0.4%*

The table reflects the results of the evaluation. There are significant improvements to the road network in Slovenia if all envisaged motorway projects are implemented as in the Maximum Scenario – the values below one indicate that the Slovenian road network is already well developed. The Slovenian rail network is substandard seen from a European perspective (index values above one); the small projected improvements cannot change that significantly. As can be observed, the differences between the four policy scenarios are relatively small.

7.5 European effects

The effects of transport infrastructure improvements are not confined to the country in which the construction work actually occurs but reach across borders into neighbouring countries. The SASI model forecasts these effects.

To demonstrate this on the following pages maps and three-dimensional images of the spatial distribution of the impacts of the transport infrastructure investments in Slovenia are shown (Figures 7.12 to 7.15).

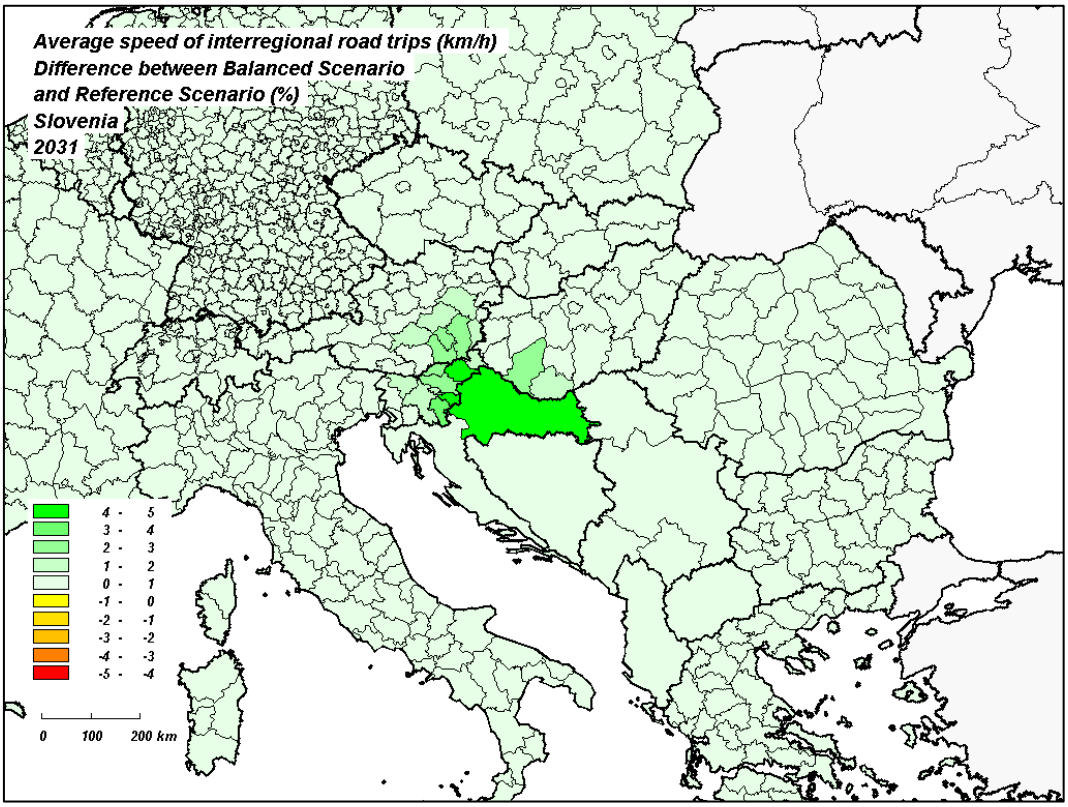
The four maps and 3D indicator surfaces show the difference between the Balanced Scenario and the Reference Scenario in 2031 for four of the evaluation criteria of Table 7.4: average speed of interregional road trips (Figure 7.12), average speed of interregional rail trips (Figure 7.13), GDP per capita (Figure 7.14) and share of interregional rail trips (Figure 7.15). It can be seen that although the main impacts occur in Slovenia itself, significant effects spread beyond national borders.

The speed impacts of the planned road projects (Figure 7.12) spread mainly in two directions: to the north into Austria and to the south into Croatia. As the 3D diagram shows, the speed gains in Croatia appear even larger than those in Slovenia. The speed increases through rail improvements (Figure 7.13) are concentrated on the Murska Sobota region in the north-east and have only little trans-national impact.

The economic impacts in GDP per capita (Figure 7.14), though small, spread into all directions and affect, though only marginally, all of Europe. The strongest effects occur in adjacent Croatia and to a lesser degree the other West Balkan countries. However, as it has been observed before, it has to be considered that the map and the 3D diagrams show relative gains; as GDP per capita in the West Balkan countries is lower than in Slovenia, their absolute per-capita gains are lower than those of the Slovenian regions.

The environmental impacts in terms of share of rail trips (Figure 7.15) reflect the imbalance in road and rail improvements in the Balanced Scenario for Slovenia. The positive impacts are concentrated on the Musrak Sobota region, whereas the negative impacts spread into Croatia and the other West Balkan countries and into large parts of Europe. For regions not directly affected by the small rail improvements, the road improvements in Slovenia are more important resulting in a (slight) shift to from rail to road in long-distance trips to Slovenia. Although these reductions are not counted when calculating the average for Slovenia, the net effect for Slovenia shown in Table 7.4 is negative.

Figure 7.12 Average speed of interregional road trips: European impacts, Balanced Scenario, 2031



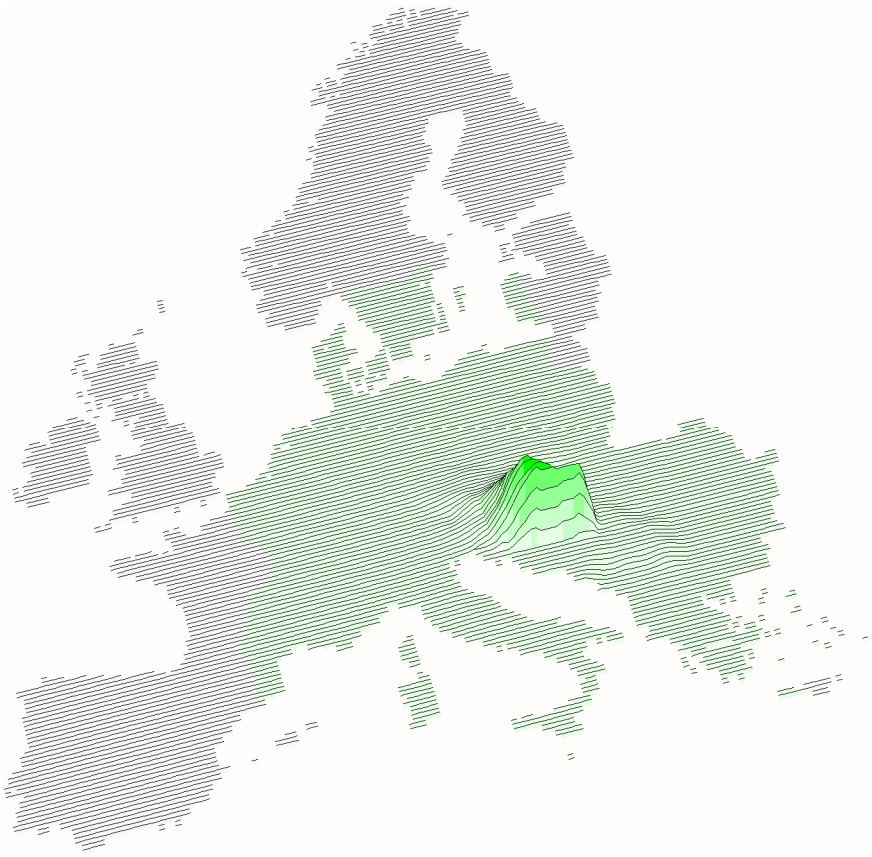
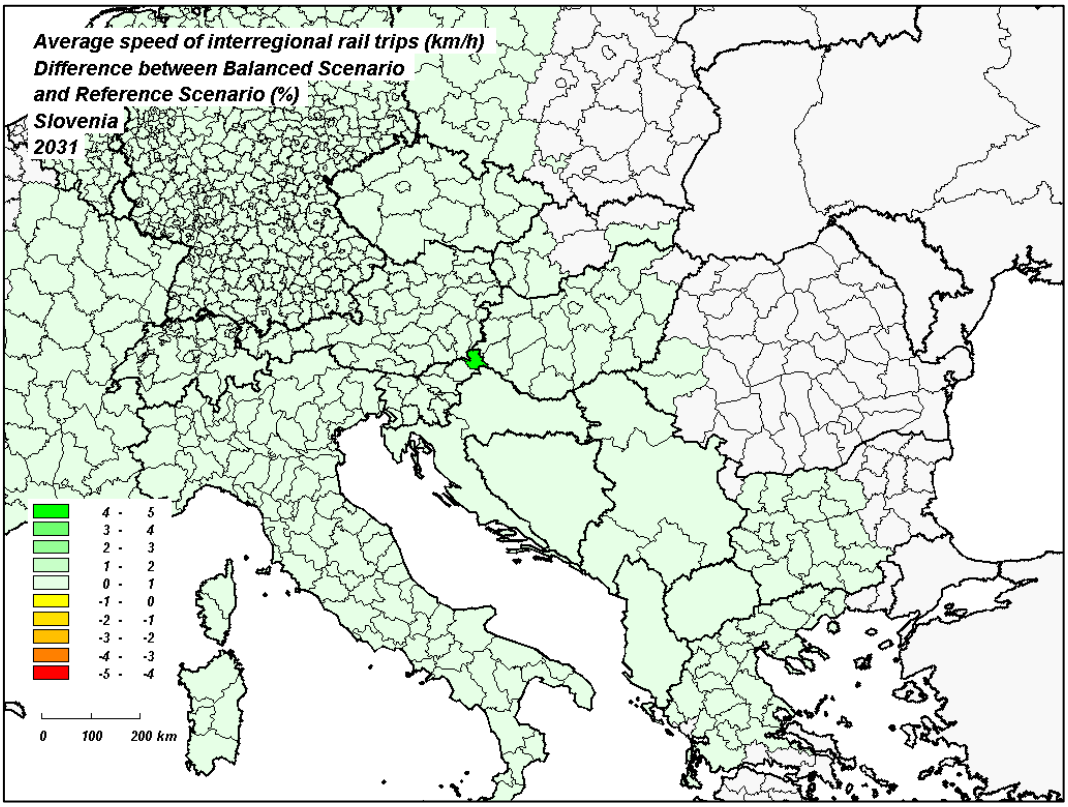


Figure 7.13 Average speed of interregional rail trips: European impacts, Balanced Scenario, 2031



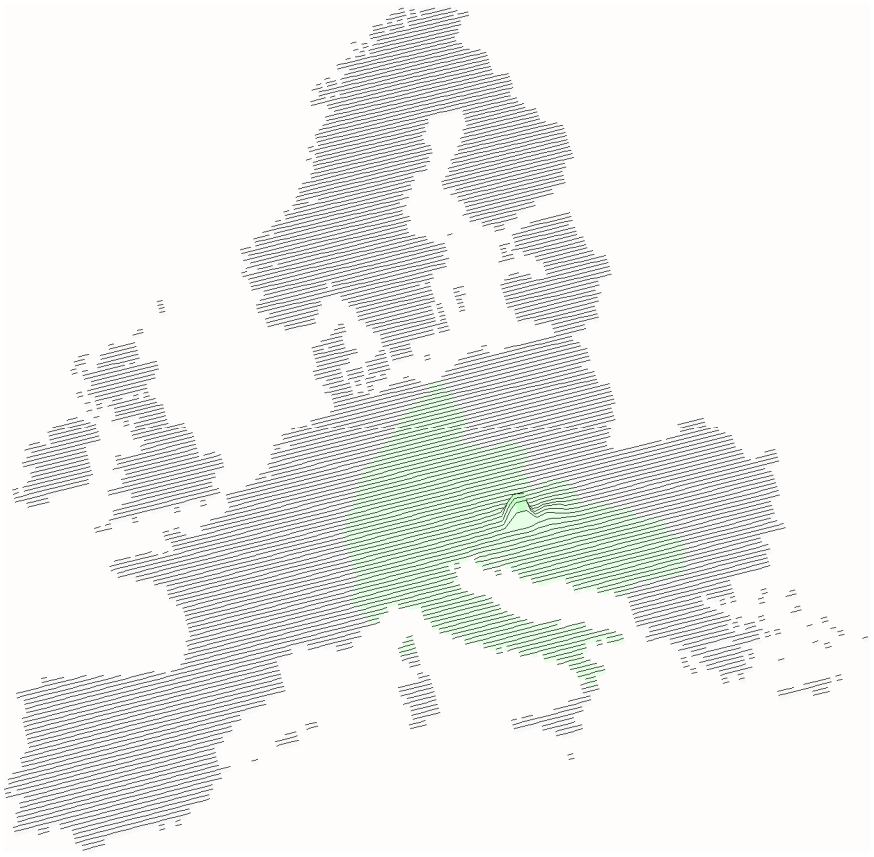
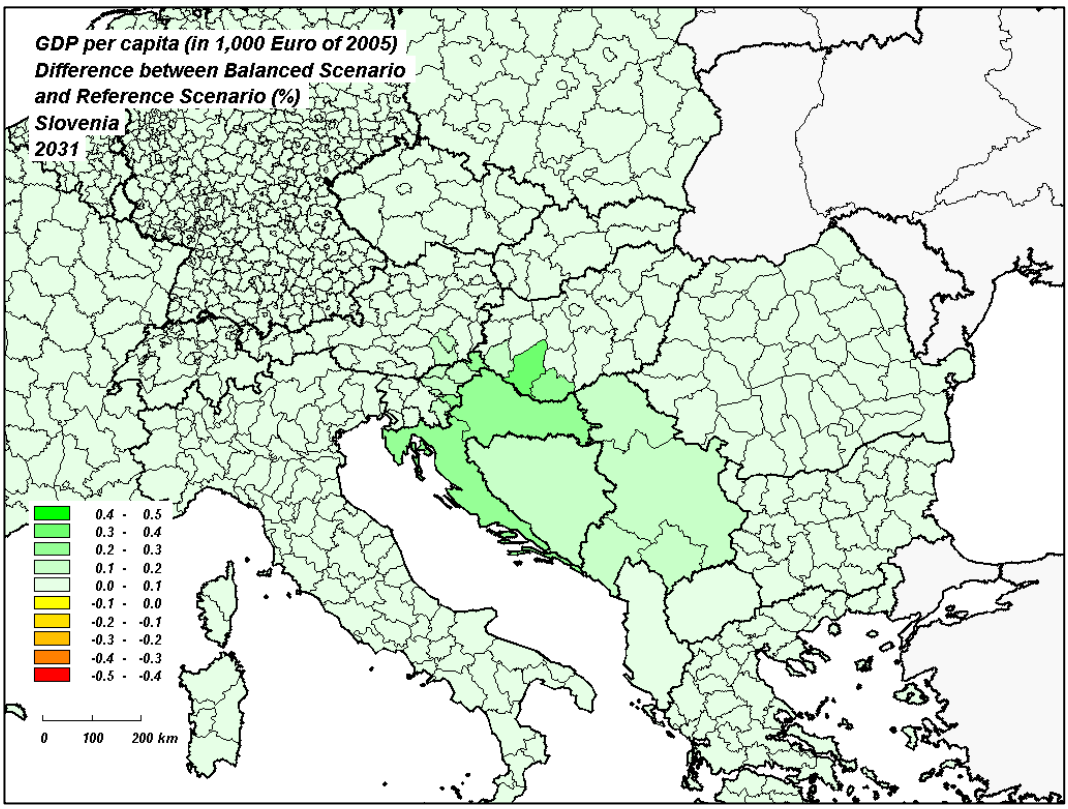


Figure 7.14 GDP per capita: European impacts, Balanced Scenario, 2031



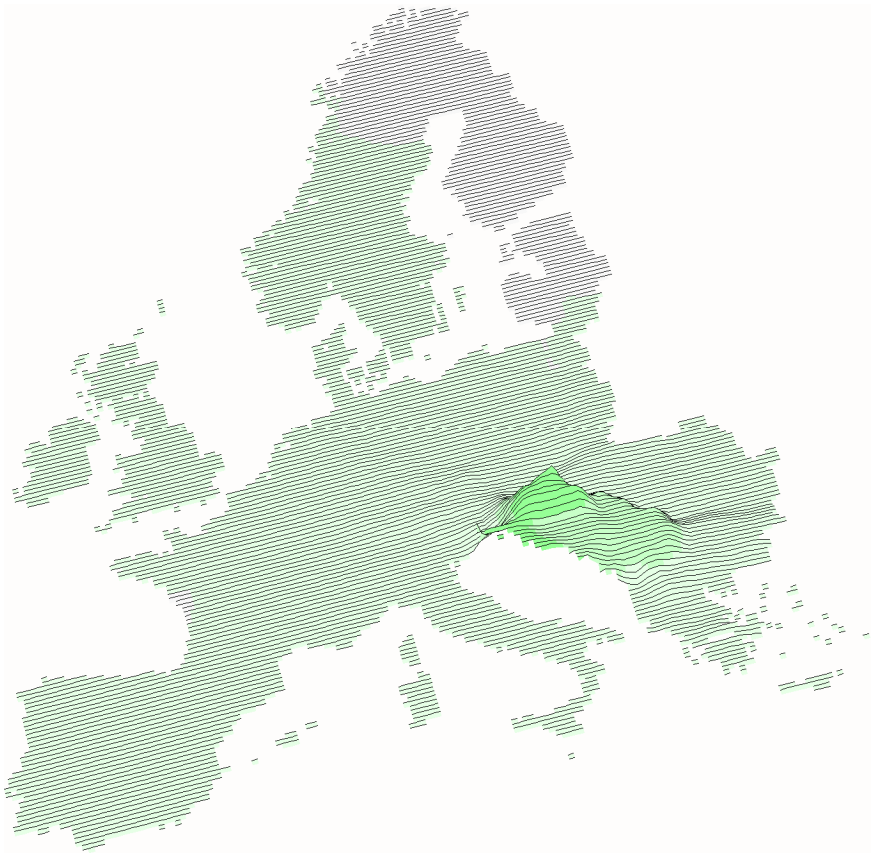
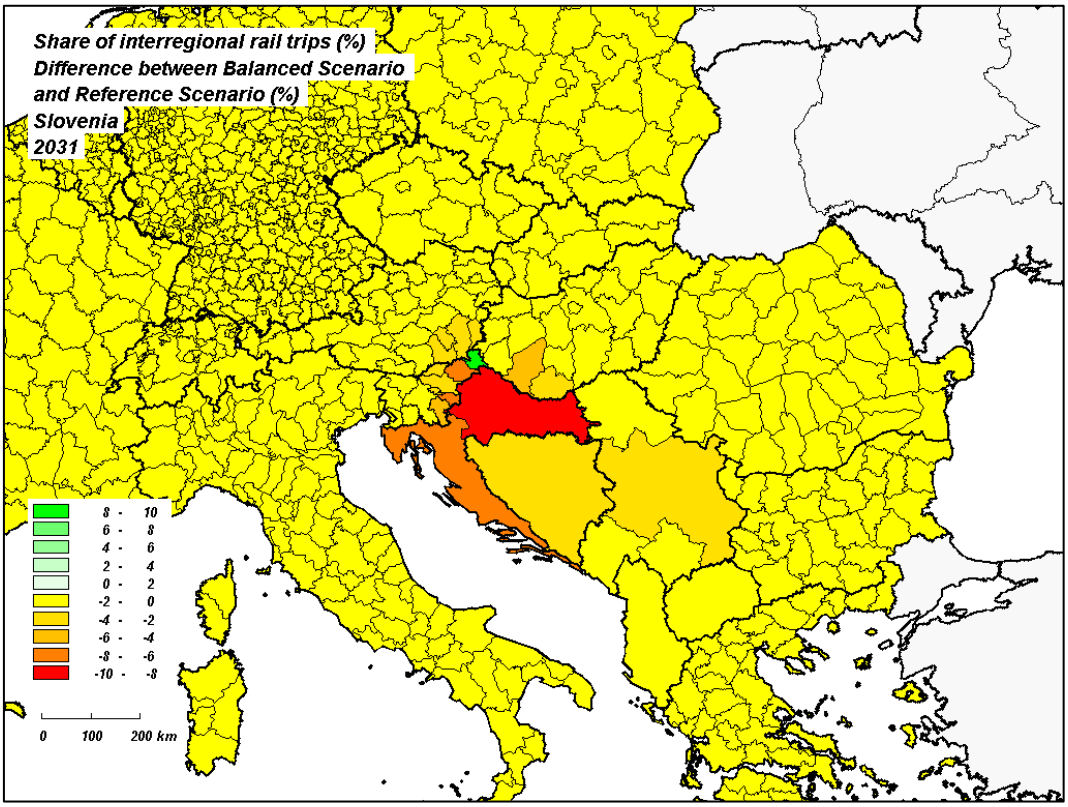
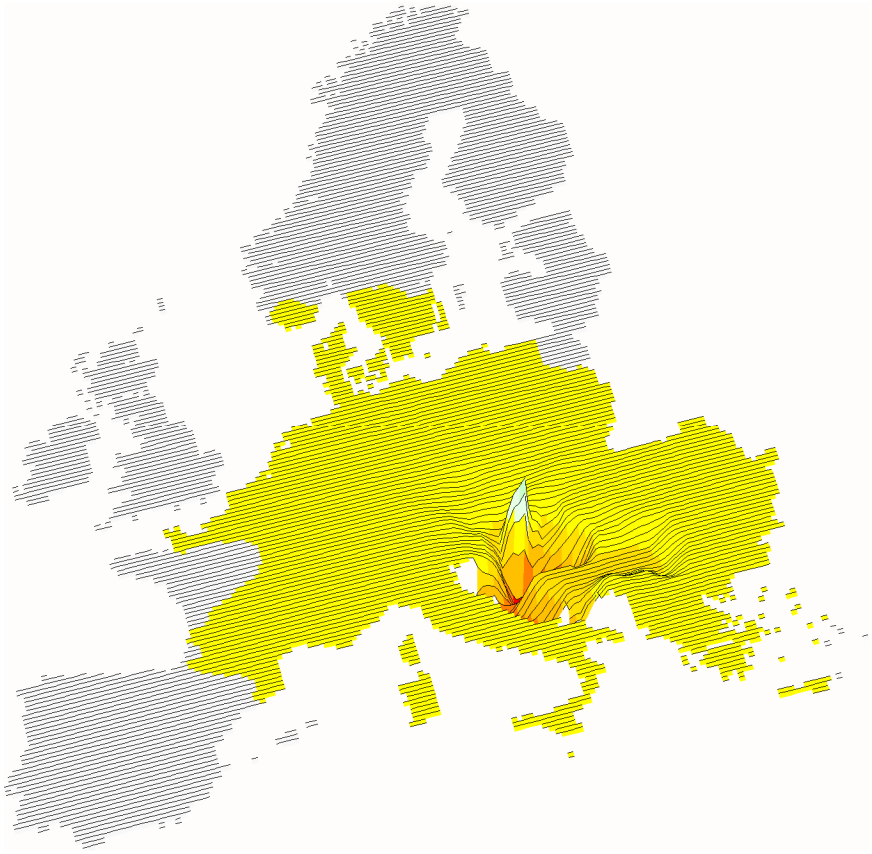


Figure 7.15 Share of interregional rail trips: European impacts, Balanced Scenario, 2031





8 Conclusions on investment priorities

8.1 Introduction

Based on the previous analysis the main areas for transport investments that would merit EU funding in the period 2007-2013 have been identified. It should be emphasized that this is based on an analysis that has been carried out at **strategic level**. Although the areas identified are expected to result in high potential projects they should still be subjected to the regular **cost-benefit analysis at a project level** before being finally selected.

8.2 Transport investment priorities 2007-2013

The identified priority areas are described per sub-sector. These sub-sectors are assessed on a number of criteria:

Table 8.1 Assessment of priority areas

Sub sector	Cost-effectiveness	Accessibility	Sustainability	Territorial Cohesion	Safety	Other sources of finance
Railway:						
- TEN-T priority project Koper-Hodoš	0	+	+	0	+	0
- double track section to Austrian border	0	+	+	0	+	0
Roads:						
- Implement missing links corridor V & X	+	+	-	0	0	+
- Rehabilitation state road network	+	+	-	+	+	0
Ports:						
- Invest in capacity expansion	+	+	+	0	+	0
Multimodal transport:						
- logistics terminals	+	0	+	0	0	+
Urban transport:	0	+	+	0	+	0
- dedicated bus lanes						

Legend: + positive score; 0 neutral score; - negative score on criterion

Roads

Road accessibility in Slovenia is already high. Priority is recommended with respect to completing the missing links in the motorway network. These can most likely be financed in majority from EIB loans. This also includes the completion of missing border sections

(including the connection to Croatia). The impact of these investments on Slovenia itself is relatively limited, but is of direct importance from a European perspective (an impact can be noticed on neighbouring countries).

More impact on the Slovenian economy can be expected from new and/or upgraded road connections to more relatively poor, badly accessible regions in the country. Although the highest impact is derived from their implementation under motorway standard, it is not expected that traffic volumes justify these investments in the coming programming period. This should be revealed by cost-benefit analyses.

To the extent that these latter projects are implemented by the National Road Administration careful attention should be paid to the administrative capacity as experience with large scale projects is lacking.

An important aspect with respect to the state road network is the low maintenance of the network. Further studies to a structurally viable system of maintenance financing (e.g. by setting up a road fund) is judged to be necessary.

Rail

The focus on road transport in the country clearly endangers the position of rail transport in the country and hence the sustainability of the transport system. To maintain the strong position of rail in freight transport, completion of the hinterland connections through the TEN-T projects is judged to positively. It is also advised to initiate further studies on the rail connection between the ports of Koper and Trieste[26], in conjunction with a further exploration of possibilities for co-operation between the two ports.

With respect to more national oriented rail projects the distance travelled is relatively small (small size of the country) and the population pattern is dispersed, which does not favour domestic passenger rail transport. Careful attention should be paid to the cost-benefit analysis of rail projects in this respect.

The institutional/administrative project management capacity of the Rail Agency in managing a large complex project in the Koper-Hodoš corridor is expected to be insufficient at this moment. In this respect it is advised to further strengthen the Rail Agency, establish a separate project organisation or outsource the management of the project to a separate organisation.

Ports

Expanding the capacity of the port of Koper is seen as essential to maintain the strong position of sea and rail in freight transport. It is expected that also private parties can be involved through PPP-type of constructions. Already private parties have expressed their interest to get involved in the expansion of the port with a third pier.

Airports

Further upgrading of Ljubljana airport may become necessary if traffic increases rapidly in the coming decade. With respect to investments in this sector private sector

[26] The Corridor V secretariat is expected to commission a new study on this connection at the end of 2006.

involvement (PPPs) appear to be the most logical approach. Investments in ATM can be primarily financed by (EIB) loans, as costs can be recovered through changes in the charging system. Grant financing is not required in this respect.

Multimodal transport

The establishment of multimodal logistics centres are an important element to stimulate multimodal transport. In addition they can serve as nodes on where, in a transit country such as Slovenia, Value Added Services can be established. Terminals are foreseen in Ljubljana and Maribor. In terminal development private sector involvement is judged to be feasible. Concrete initiatives for the establishment of these terminals are advised for the next programming period.

Urban transport

Current bus transport is hampered by congestion on the road network near and in Ljubljana at peak hours. To strengthen the position of public transport the option of construction priority or dedicated bus lanes (also accessible to taxis) is proposed to be investigated, possibly also functioning as an alternative to a new rail connection to Brnik (Ljubljana Airport). In connection to urban transport development another field of attention are ITS related activities such as traffic management and passenger information services to create a better utilisation of the infrastructure and to enhance the attractivity of public urban transport. As such this is expected to contribute to the alleviation of congestion problems.

Annex A: TEN-T priorities

Table A.1. TEN priority projects and major Swiss projects

No.	TEN project	Completion
1	Railway axis Berlin-Verona/Milan-Bologna-Naples-Messina-Palermo	2015
	- Halle/Leipzig-Nurnberg (2015)	
	- Nurnberg-Munich (2006)	
	- Munich-Kufstein (2015)	
	- Kufstein-Innsbruck (2009/2012)	
	- Brenner tunnel (2015)	
	- Verona-Naples (2007)	
	- Milan-Bologna (2008)	
	- Rail/road bridge over the Strait of Messina-Palermo (2015)	
2	High-speed railway axis Paris-Brussels/Brussels-Cologne-Amsterdam-London	2007
	- Channel tunnel-London (2007)	
	- Brussels/Brussels-Liege-Cologne (2007)	
	- Brussels/Brussels-Rotterdam-Amsterdam (2007)	
3	High-speed railway axis of south-west Europe	2015
	- Lisbon/Porto-Madrid (2015), including:	
	- Lisbon-Porto (2013)	
	- Lisbon-Madrid (2010)	
	- Aveiro-Salamanca (2015)	
	- Madrid-Barcelona-Figueras-Perpignan (2009)	
	- Perpignan-Montpellier (2009)	
	- Montpellier-Nimes (2015)	
	- Madrid-Vitoria-Irún/Hendaye (2010)	
	- Irún/Hendaye-Dax (2015)	
	- Dax-Bordeaux (2020)	
	- Bordeaux-Tours (2015)	

No.	TEN project	Completion
4	High-speed railway axis east	2007
	- Paris-Baudrecourt (2007)	
	- Metz-Luxembourg (2007)	
	- Saarbrücken-Mannheim (2007)	
5	Betuwe line	2006
6	Railway axis Lyon-Trieste-Divača/Koper-Divača-Ljubljana-Budapest-Ukrainian border	2018
	- Lyon-St Jean de Maurienne (2015)	
	- Mont-Cenis tunnel (2018)	
	- Bussoleno-Turin (2011)	
	- Turin-Venice (2011)	
	- Venice-Ronchi Sud-Trieste-Divača (2015)	
	- Koper-Divača-Ljubljana (2012)	
	- Ljubljana-Budapest (2015)	
7	Motorway axis Igoumenitsa/Patra-Athens-Sofia-Budapest	2010
	- Via Egnatia (2006)	
	- Pathe (2008)	
	- Sofia-Kulata-Greek/Bulgarian border (2010)	
	- Nadlac-Sibiu motorway (branch to Bucharest and Constanza) (2007)	
8	Multimodal axis Portugal/Spain-rest of Europe	2015
	- Railway La Coruña-Lisbon-Sines (2009)	
	- Railway Lisbon-Valladolid (2015)	
	- Railway Lisbon-Faro (2006)	
	- Lisbon-Valladolid motorway (2010)	
	- La Coruña-Lisbon motorway (2005)	
	- Seville-Lisbon motorway (completed 2001)	
	- New Lisbon airport (2015)	
9	Railway axis Cork-Dublin-Belfast-Stranraer	completed 2001
10	Malpensa Airport	completed 2001
11	Öresund fixed link	completed 2001

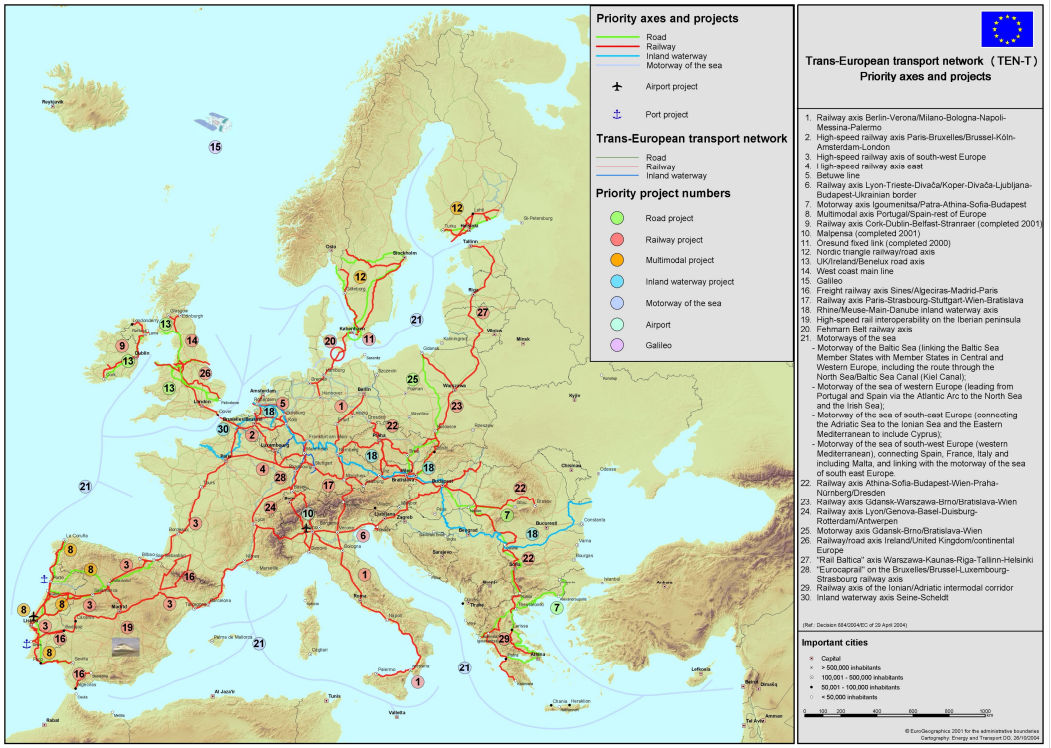
No.	TEN project	Completion
12	Nordic triangle railway/road axis	2015
	- Road and railway projects in Sweden (2015)	
	- Helsinki-Turku motorway (2009)	
	- Railway Kerava-Lahti (2006)	
	- Helsinki-Vaalimaa motorway (2015)	
	- Railway Helsinki-Vainikkala (Russian border) (2015)	
13	UK/Ireland/Benelux road axis	2013
14	West coast main line	2008
15	Galileo (not included in reference scenario, only mentioned here for consistency)	2010
16	Freight railway axis Sines/Algeciras-Madrid-Paris	2020
	- New high-capacity rail axis across the Pyrenees (2020)	
	- Railway Sines-Badajoz (2010)	
	- Railway line Algeciras-Bobadilla (2010)	
17	Railway axis Paris-Strasbourg-Stuttgart-Vienna-Bratislava	2015
	- Baudrecourt-Strasbourg-Stuttgart (2015)	
	- Stuttgart-Ulm (2012)	
	- Munich-Salzburg (2015)	
	- Salzburg-Vienna (2012)	
	- Vienna-Bratislava (2012)	
18	Rhine/Meuse-Main-Danube inland waterway axis	2019
	- Rhine-Meuse (2019)	
	- Lanaken lock (2011)	
	- Vilshofen-Straubing (2013)	
	- Wien-Bratislava (2015)	
	- Palkovicovo-Mohács (2014)	
	- Bottlenecks in Romania and Bulgaria (2011)	
19	High-speed rail interoperability on the Iberian peninsula	2020
	- Madrid-Andalusia (2020)	
	- North-east (2020)	
	- Madrid-Levante and Mediterranean (2020)	
	- North/North-west corridor, including Vigo-Porto (2020)	
	- Extremadura (2020)	

No.	TEN project	Completion
20	Fehmarn Belt railway axis	2015
	- Fehmarn Belt fixed rail/road link (2015)	
	- Railway for access in Denmark from Öresund (2015)	
	- Railway for access in Germany from Hamburg (2014	
	- Railway Hannover-Hamburg/Bremen (2015)	
21	Motorways of the sea	2010
	- motorway of the Baltic Sea (2010)	
	- motorway of the sea of western Europe (2010)	
	- motorway of the sea of south-east Europe (2010)	
	- motorway of the sea of south-west Europe (2010)	
22	Railway axis Athens-Sofia-Budapest-Vienna-Prague-Nürnberg/Dresden	2017
	- Railway Greek/Bulgarian border-Kulata-Sofia-Vidin/Calafat (2015)	
	- Railway Curtici-Brasov (towards Bucharest and Constanta) (2013)	
	- Railway Budapest-Vienna (2010)	
	- Railway Břeclav-Prague-Nürnberg (2016)	
	- Railway axis Prague-Linz (2017)	
23	Railway axis Gdansk-Warsaw-Brno/Bratislava-Vienna	2015
	- Railway Gdansk-Warsaw-Katowice (2013)	
	- Railway Katowice-Břeclav (2010)	
	- Railway Katowice-Zilina-Nove Mesto n.V. (2015)	
24	Railway axis Lyons/Genoa-Basel-Duisburg-Rotterdam/Antwerp	2018
	- Lyon-Mulhouse-Mülheim (2018)	
	- Genoa-Milan/Novara-Swiss border (2013)	
	- Basel-Karlsruhe (2015)	
	- Frankfurt-Mannheim (2015)	
	- Duisburg-Emmerich (2015)	
	- 'Iron Rhine' Rheidt-Antwerp (2010)	
25	Motorway axis Gdansk-Brno/Bratislava-Vienna	2013
	- Gdansk-Katowice motorway (2011)	
	- Katowice-Brno/Zilina motorway (2010)	
	- Brno-Vienna motorway (2013)	

No.	TEN project	Completion
26	Railway/road axis Ireland/United Kingdom/continental Europe	2020
	- Ireland road/rail modernisation (2010)	
	- Road/railway axis Hull-Liverpool (2020)	
	- Railway Felixstowe-Nuneaton (2014)	
	- Railway Crewe-Holyhead (2012)	
27	Rail Baltica axis Warsaw-Kaunas-Riga-Tallinn-Helsinki	2018
	- Warsaw-Kaunas (2010)	
	- Kaunas-Riga (2014)	
	- Riga-Tallinn (2018)	
28	Eurocaprail on the Brussels-Luxembourg-Strasbourg railway axis	2013
	- Brussels-Luxembourg border (2012)	
	- Luxembourg- French border (2013)	
29	Railway axis of the Ionian/Adriatic intermodal corridor	2014
	- Kozani-Kalambaka-Igoumenitsa (2012)	
	- Ioannina-Antirrio-Rio-Kalamata (2014)	
30	Inland waterway Seine-Scheldt	2016
	- Navigability improvements Deulemont-Gent (2016)	
	- Compiègne-Cambrai (2016)	
CH1	Gotthard axis	2015
	- Zimmerberg tunnel (2011)	
	- Gotthard tunnel (2015)	
	- Ceneri tunnel (2015)	
CH2	Lötschberg tunnel	2015

Source: EC (2005) Trans-European transport network: TEN-T priority axes and projects 2005; Spiekermann & Wegener (Siwss projects)

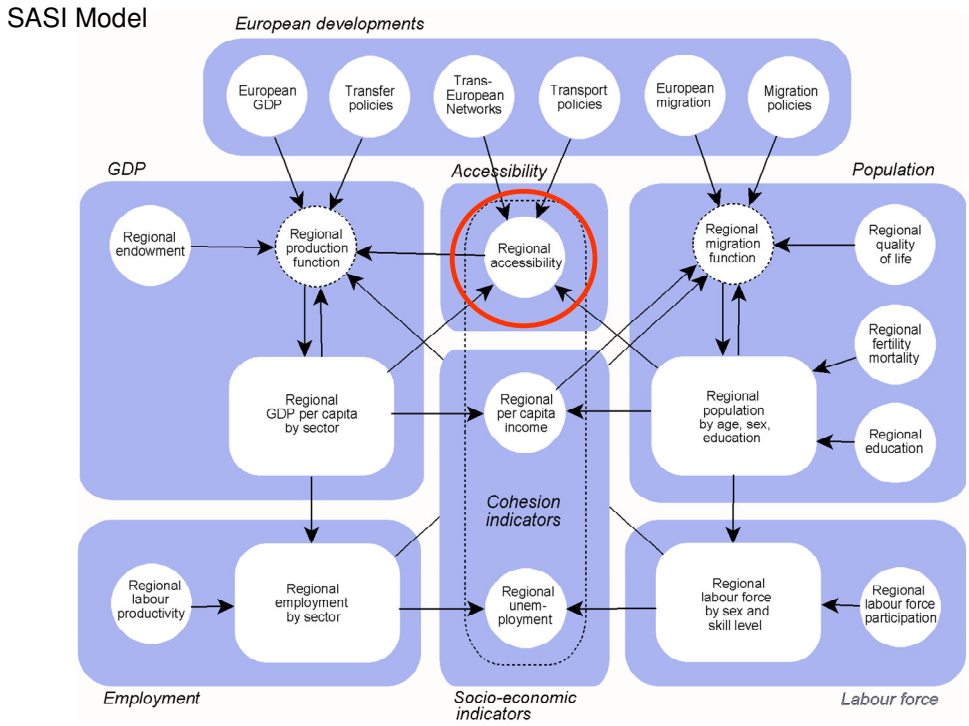
Figure A.1. The TEN priority projects



Annex B: Accessibility "red flag" analysis

To determine the need for transport investments, the SASI model was used to assess the present and future situation of the road and rail systems in each country without the national transport projects to be examined later. For this the accessibility provided by the road and rail systems in each country was evaluated from both a national and a European perspective in order to identify regions with serious accessibility deficits that should be addressed by European transport policy taking account of the stated EU goals competitiveness and territorial cohesion. In the SASI model accessibility, which is directly influenced by transport policy and investments, is judged to play a crucial role in promoting the realisation of the cohesion objectives.

Figure B.1 Main structure of the SASI model



To determine the appropriate assessment of transport investment need from the cohesion policy perspective an agreement on the indicator of accessibility to be used is required. Traditional accessibility indicators are not useful for this. They measure the total effect of both geographical location (periphery v. core) and quality of transport provided by the transport system and so always show a steep gradation in accessibility from the core to

the periphery. However, public policy cannot change the fact that some regions are central and some are peripheral, i.e. provide the same level of accessibility to all regions. Public policy can only alleviate disadvantages through unequal transport provision.

This distinction is relevant for European transport policy. To invest only in transport in the most peripheral regions with the lowest accessibility according to such an indicator would benefit only the relatively few people living there and would ignore the needs of the densely populated central regions to combat traffic congestion and so endanger the competitiveness goal of the Lisbon Strategy of the European Union. On the other hand, to invest only in transport in the most densely populated central regions with the greatest congestion problems would not only lead to ever more traffic but also widen the existing gap in accessibility between the central and peripheral regions and would so run counter to the territorial cohesion goal of the European Union.

To avoid this dilemma, a new accessibility indicator was defined which distinguishes between geographical location and quality of transport. This indicator assumes that people in the peripheral regions cannot expect to enjoy the same level of accessibility (measured in traditional terms) as the central regions but that they can demand to be able to reach relevant destinations with the same travel speed ("as the crow flies") as the people in the central regions. In addition the indicator recognises the utilitarian principle of the happiness of the greatest number, i.e. that the transport needs of densely populated regions should be given more weight than those of regions with only few inhabitants. And finally, the indicator recognises that economically lagging regions with severe deficits in accessibility may offer greater potential for stimulating economic effects by transport investments than regions which enjoy already high accessibility.

These three principles avoid the pitfalls of both an extreme egalitarian view, which postulates that all regions in Europe enjoy the same level of accessibility and a purely efficiency-oriented view which postulates that accessibility in the already highly accessibly central metropolitan areas should be further strengthened because they bring the largest economic benefits. In other words, the three principles aim at a rational trade-off between the stated EU goals of competitiveness and territorial cohesion.

The Accessibility Problem Index

The indicator to be developed should have a number of properties to make it easy to understand and communicate to policy makers and stakeholders:

- It should be a "problem indicator", i.e. high values should indicate large deficiencies in regional accessibility, whereas low values of the indicator indicate above-average levels of accessibility.
- It should be standardised in order to be comparable between regions and countries, i.e. should not reflect the size or affluence of regions or countries.
- It should be independent of the arbitrary or historically subdivision of the territory into regions, i.e. its magnitude should not change if a region is subdivided into two or more regions or if two or more regions are consolidated to one region.
- It should be scalable, i.e. it should be possible to vary the impact of the weighting by population and inverse GDP to reflect different political priorities.

- It should allow to measure the development of accessibility over time.

Based on these requirements, an indicator called Accessibility Problem Index was developed. The calculation of the Accessibility Problem Indicator proceeds in three steps:

Average regional airline speed

The first step in the development of the Accessibility Problem Index is the calculation of average regional airline speed. Average airline speed v_{rm} of all trips f_{rsm} from a region r to all other regions s in Europe by mode m in year t is defined as

$$v_{rm}(t) = \frac{\sum_s P_s(t) \exp\left[-\beta f_{rsm}(t)\right] d_{rs}}{\sum_s P_s(t) \exp\left[-\beta f_{rsm}(t)\right] c_{rsm}(t)/60} \quad (1)$$

where $P_s(t)$ is regional population in year t, $c_{rsm}(t)$ is travel time in minutes between regions r and s by mode m in year t, β is the impedance parameter and d_{rs} is airline distance in km between the central cities in regions r and s calculated from their geographical coordinates x_r, y_r and x_s, y_s by

$$d_{rs} = \sqrt{(x_s - x_r)^2 + (y_s - y_r)^2} \quad (2)$$

Standardisation

Next average regional airline speed, regional population and regional GDP are standardised as fractions of the average of all regions in the country (national perspective) or the average of all regions in Europe (European perspective). To neutralise the effect of region size, population is replaced by population density and GDP is replaced by GDP per capita. The benchmark for the standardisation of average regional airline speed is always the average of the base year t_0 = 2006 to show changes in accessibility:

$$v'_{rm}(t) = \frac{v_{rm}(t) \sum_r P_r(t_0)}{\sum_r v_{rm}(t_0)\, P_r(t_0)} \quad (3)$$

$$p'_r(t) = \frac{P_r(t) \sum_r A_r}{A_r \sum_r P_r(t)} \quad (4)$$

$$g'_r(t) = \frac{G_r(t) \sum_r P_r(t)}{P_r(t) \sum_r G_r(t)} \quad (5)$$

where A_r is the area of region r and $G_r(t)$ is the GDP of region r. The $v'_{rm}(t)$, $p'_r(t)$ and $g'_r(t)$ then are the relative airline speed, relative population density and relative GDP per capita of region r in year t, respectively. Values below one indicate below-average airline

speed, population density and GDP per capita and values above one indicate above-average airline speed, population density and GDP per capita of the region.

Index

With these relative indicators, the Accessibility Problem Index $q_{rm}(t)$ of region r by mode m in year t can be formulated:

$$q_{rm}(t) = \left[v'_{rm}(t)\right]^{-1} \left[p'_r(t)\right]^{\alpha} \left[g'_r(t)\right]^{-\gamma} \quad (6)$$

where α and γ are weights indicating the relative importance of population density and GDP per capita, respectively. Note that average regional airline speed and GDP per capita have negative weights, i.e. the Accessibility Problem Index expresses deficits in average regional airline speed relative to the national or European average weighted by population and economic weakness. The index has the following properties:

- The higher the index the more severe is the deficiency in accessibility.
- The influence of weights of population density and GDP per capita can be changed by changing α and β: values below one imply less influence, zero no weighting.
- Regions with average airline speed, population density and GDP per capita have an index value of one.
- Index values are independent of region size and are therefore comparable between regions and countries.
- The index shows improvements in airline speed over time (and not only relative shifts between regions).

Sensitivity tests with different values of α and γ showed that $\alpha = \gamma = 0.05$ gave the most plausible results and a reasonable level of responsiveness of the Accessibility Problem Index to changes of accessibility due to European integration and European transport projects over time.

The application of the Accessibility Problem Index for the evaluation of accessibility deficits in the country policy briefs use these values of α and γ throughout. The regions analysed were the NUTS-3 regions or equivalent regions in the 25 countries of the European Union plus the accession countries Bulgaria and Romania. The overseas regions of France and the island regions of the Azores and Madeira of Portugal and the Canary Islands of Spain were excluded from the analysis.

The spatial distribution of the resulting values of the Accessibility Problem Index are presented in maps using a colour scale resembling that of a traffic light: green shades indicate average regional travel speeds above the national or European average, yellow values indicate speeds slightly above the national or European average and red shades indicate speeds significantly lower than the national or European average. Regions shaded in red are the targets of the "red-flag" analysis.

For each country first for road and then for rail the national and the European perspective are presented for the current situation (2006) and for 2016. The situation in 2016 is based

on a base scenario of the SASI model without the national projects, i.e. only with the TEN priority road and rail projects and selected transport projects in Switzerland. The assumed opening times of the individual projects are those of the 2004 TEN guidelines (European Union, 2004)[27] which in a few cases differ from the dates notified by the individual countries (European Commission, 2005)[28].

[27] European Union (2004): Decision No 884/2004/EC of the European Parliament and of the Council of 29 April 2004 amending Decision No 1692/EC on Community guidelines for the development of the trans-European transport network. *Official Journal of the European Union* L 201 (Corrigendum to L 167), 1-55.

[28] European Commission (2005): *Trans-European Transport Networks. TEN-T Priority Axes and Projects 2005.* Luxembourg: Office for Official Publications of the European Communities.

Annex C: Selection of priority projects (not for publication!)

This Annex presents the projects that are included in the “Balanced” scenario and an overview of the arguments (criteria) to exclude certain projects and include others. It should be stressed that this list is only an indicative list. It cannot be expected that the strategic evaluation gives a full priority listing of specific projects within having access to in-depth project information. It should therefore be interpreted as guidance in the eventual selection of projects.

Assessment of priority areas

Sub sector	Cost-effectiveness	Accessibility	Sustainability	Territorial Cohesion	Safety	Other sources of finance	Remarks
Railway:							
- TEN-T priority project Koper-Hodoš	0	+	+	0	+	0	Many subprojects: including rehabilitation existing Koper-Divača track plus new second track (pay attention to sensitive Carst area); Ljubljana-Hodoš: track modernisation, electrification, signalling & safety devices, elimination level crossings (for more details on sub-projects see e.g. VTT (nov 2005), PAN-EUROSTAR report)[29].
- double track section to Austrian border	0	+	+	0	+	0	
Roads:							
- Implement missing links corridor V & X:	+	+	-	0	0	EIB	Different (sub-)sections. Many Mainly EIB finance. Accelerate completion Slivnica-Ptuj-Gruskovje. Possibly use grant funding (CF/ERDF or TEN-T) to stimulate this process. Motorway on Croatian side ready in 2007.
- Rehabilitation state road network	+	+	-	+	+	0	Fund main axes linking backward regions to motorway network. Where possible implementation by upgrading existing road (possibly partly new alignment/new construction). Motorway standard is not judged necessary at this stage. Road development along third corridor (Dravograd-Celje-Novo Mesto- Melnika) seems to fit in this philosophy. Remaining upgrading of state road through major rehabilitation programme (possibly through EBRD loan?). Pay sufficient attention to financing structure for O&M state road network (Road Fund?).

[29] http://www.vtt.fi/vtt_show_record.jsp?target=julk&form=sdefe&search=54979

Sub sector	Cost-effectiveness	Accessibility	Sustainability	Territorial Cohesion	Safety	Other sources of finance	Remarks
- traffic surveillance system	?	+	0	0	+	?	More information needed to assess real need and cost effectiveness
Ports: - Invest in capacity expansion, third pier	+	+	+	0	+	partially private	Attract private sector participation connected to development 3rd pier and related infrastructure.
Multimodal transport: - logistics terminals	+	0	+	0	0	+	Ljubljana & Maribor (along corridor V rail axis). Attract sufficient private participation.
Urban transport: - dedicated bus lanes	0	+	+	0	+	0	In Ljubljana. As alternative to Brnik rail connection, also serving better city access to suburban bus transport.
- rail connection to Brnik (Ljubljana airport)	-	+	+	0	+	0	Doubt on cost-effectiveness in elation to other solutions (dedicated or priority bus lanes).
- integrated ticketing system	0	0	+	0	0	0	Doubt whether there is a clear need. Limited (intermodal) connections (bus-rail, bus-bus) in public transport, as most connections are expected to be direct.
Airport: - modernisation Maribor airport	0	0	0	+	0	0	Not necessary from transport need at this stage of development (no major line connections) and current size (and distance) of Ljubljana airport. Main reasons to get involved (if any) is regional development perspective of Maribor region.