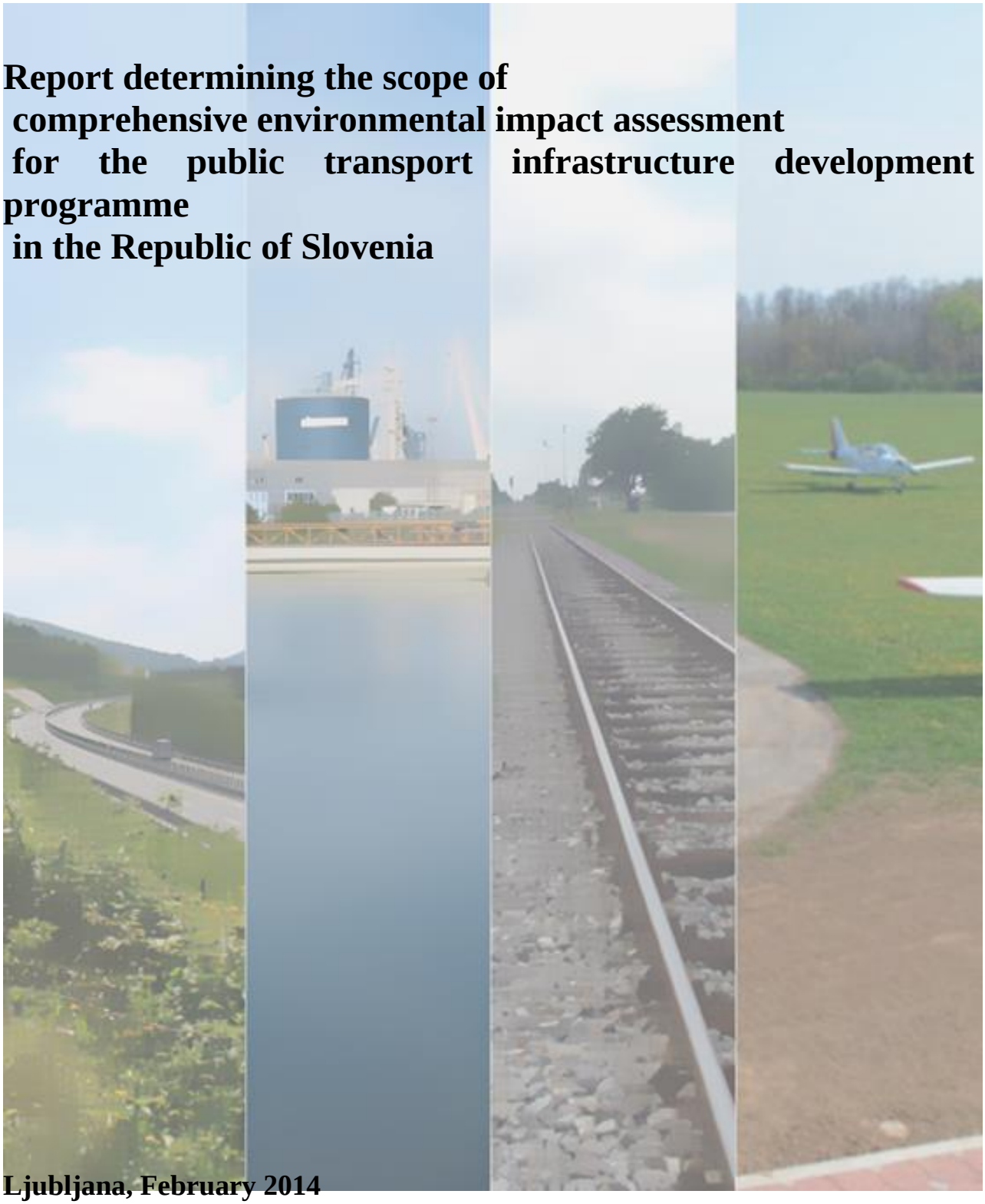
Cesta Andreja Bitenca 68, Ljubljana
telephone 01 5187222, 01 5187223, 041 688928, 041 845639 www.aquarius-lj.si
telefax 01 5187224 info@aquarius-lj.si

Report determining the scope of comprehensive environmental impact assessment for the public transport infrastructure development programme in the Republic of Slovenia



Ljubljana, February 2014

Project title:	**Report determining the scope of comprehensive environmental impact assessment for the public transport infrastructure development programme in the Republic of Slovenia**
Contract No.:	**2430-13-371726**
Production date:	**January 2014, amended in February 2014**
Task No.:	**1307-13 OP**
Client:	**Republic of Slovenia** **Ministry of Infrastructure and Spatial Planning** **Langusova ulica 4** **1535 Ljubljana**
Contractor:	**AQUARIUS d.o.o. Ljubljana** **Cesta Andreja Bitenca 68** **1000 Ljubljana**
Director:	**Martin Žerdin, MSc and BSc in Biology**
Responsible holder:	**Martin Žerdin, MSc and BSc in Biology**
Associates:	**Leonida Šot Pavlovič, BSc in Biology** **Barbara Jerman, BSc in Geography and History** **Katja Vrabič, BSc in Geology** **Natalija Libnik, BSc in Biology** **Lea Pačnik, BSc in Biology** **Mojca Vrbajnščak, BSc in Biology**
Subcontractor:	**SIPPO, svetovanje in projektiranje na področju okolja, d.o.o.** **Vegova ulica 8** **1000 Ljubljana** **Radovan Tavzes, MSc and BSc in Physics**
Subcontractor:	**Epi Spektrum d.o.o.** **Strossmayerjeva 11** **2000 Maribor** **Boštjan Peršak, BSc in Physics**

Responsibilities by fields:

Field:	**Nature** **Water** **Sustainable use of natural resources** **Cultural heritage** **Landscape** **Socio-economic development**
Responsible production manager:	**Martin Žerdin, MSc and BSc in biology**
Associates:	**Leonida Šot Pavlovič, BSc in Biology** **Katja Vrabič, BSc in Geology** **Barbara Jerman, BSc in Geography and History** **Natalija Libnik, BSc in Biology** **Lea Pačnik, BSc in Biology** **Mojca Vrbajnščak, BSc in Biology**
Field:	**Climate factors** **Air (human health, air)** **Efficient use and renewable energy sources**
Responsible production manager:	**Radovan Tavzes, MSc and BSc in Physics**
Field:	**Noise pollution (human health)**
Responsible production manager:	**Boštjan Peršak, BSc in Physics**

CONTENT

1 INTRODUCTION 1

1. 1 ***The purpose of the report determining the scope of the comprehensive environmental impact assessment*** **1**

1. 2 ***Starting points to prepare the NPRJPI*** **1**

1. 3 ***Legislative background*** **2**

1. 4 ***Description of NPRJPI*** **7**

1.4.1 Vision of the development of transport and public transport infrastructure in the Republic of Slovenia 8
1.4.2 The goals of developing transport and transport infrastructure in the Republic of Slovenia 10
1.4.3 Measures in the field of developing transport and transport infrastructure in the Republic of Slovenia 10
1.4.4 The indicators of developing transport and transport infrastructure in the Republic of Slovenia 11
1.4.5 The alternatives of developing transport and transport infrastructure in the Republic of Slovenia 12

2 ASSESSMENT FRAMEWORK AND PRELIMINARY EVALUATION 14

2. 1 ***Framework of environmental policies*** **14**

2.1.1 Harmonisation of the objectives of the NPRJPI with Union guidelines for the development of TEN-T 14
2.1.2 Starting points for the environmental assessment of the NPRJPI 15

2. 2 ***Data on the state of the environment*** **16**

2. 3 ***Slovenia's spatial development analysis from the aspect of transport infrastructure development*** **18**

2. 4 ***Current state analysis by individual environmental areas*** **29**

2.4.1 Air 29
2.4.2 Climate factors 31
2.4.3 Water 31
2.4.4 Sustainable use of natural resources 32
2.4.5 Nature 35
2.4.6 Cultural heritage 37
2.4.7 Landscape 38
2.4.8 Human health 38
2.4.9 Socio-economic development 43

2. 5 ***Review of important impacts of the NPRJPI on the environment*** **44**

Defining environmental objectives, sub-objectives, guidelines (measures) and indicators 47

2.6.1 Explanation of environmental objectives and sub-objectives 48
2.6.2 Determining environmental objectives, sub-objectives, guidelines and indicators for the preparation of the NPRJPI 57

Conclusions of preliminary evaluation **67**

3 APPROACH TO THE ENVIRONMENTAL IMPACT ASSESSMENT 68

3.1 ***Methodological approach*** **68**

3.1.1 Assessment methodology 68
3.1.2 Methods used in comprehensive assessments 68
3.1.3 Key principles for assessment of the NPRJPI 69
3.1.4 Description of the classification of environmental impacts into classes 70
3.1.5 Description of the financial evaluation of environmental impacts 71

3.2 ***Description of further steps of the comprehensive assessment of the environmental impact*** .. **73**

LIST OF TABLES

Table 1: Key facts about the Resolution on the National Programme for the Development of Transport Infrastructure in the Republic of Slovenia *8*
Table 2: Description of steps of the comprehensive assessment of the environmental impact of the NPRJPI *14*
Table 3: Collections of data on the state of the environment and existing environmental burdens *17*
Table 4: Comparison of spatial development models by key topics *25*
Table 5: Explanation of the need for assessing individual segments of the EP *44*
Tabela 6:Table 6: Proposed environmental objectives, sub-objectives, guidelines and indicators for the preparation of the NPRJPI *57*
Table 7: Most important national documents related to the defined environmental objectives *64*
Tabela 8:Table 8: Način dodatnega ocenjevanja vplivov na okolje glede na stopnjo spremembe okolja in glede na prostorski obseg vpliva.Method of additional assessment of environmental impacts as per the level of the change in the environment and as per the spatial scope of the impact *70*

LIST OF FIGURES

Figure 1: Chart presenting the harmonisation of the objectives of the NPRJPI with Union guidelines for the development of TEN-T *15*
Figure 2: Routes of the pan-European Corridors V and X (Source: MzIP) *19*
Figure 3: Population density by municipalities (Source: STAT RS, 2008) *21*
Figure 4: Urban centres of national and international importance with gravitational areas (Source: MzIP, SPRS, Official Gazette of the Republic of Slovenia, no. 76/04) *21*
Figure 5: Presentation of daily migrations – the number of people who reside in one but work in another municipality (Source: MOP, IPoP 2011: How can research of the ESPON programme support development planning in Slovenia, Interstrat) *22*
Figure 6: Road network accessibility areas to centres with public activities of the highest and high levels (Source: Pogačnik s sod. 2010: "Analiza razvojnih virov in scenarijev za modeliranje funkcionalnih regij, CRP 2006-2013, Poročilo 2. Faze", (Analysis of developmental sources and scenarios for functional regions modelling, CRP 2006-2013, 2nd Phase Report, FGG) *23*
Figure 7: Accessibility to motorway or expressway junction (year 2025) – the analysis also comprises the future 3rd transport axis with the most probable location of connecting points. Motorways Ptuj-Gruškovje, Postojna-Jelšane, Divača-Pivka or Koper-Jelšane are not considered in this analysis. (Source: FGG) *24*
Figure 8: Spatial guidelines for the development of inter-modal transport network in connection with settlement (Source: MzIP, SPRS, Official Gazette of the Republic of Slovenia, no. 76/04) *25*
Figure 9: Concentration and efficiency model (source: Institute for Spatial Policies, 2011) *27*
Figure 10: Settlement and self-supply model (source: Institute for Spatial Policies, 2011) *27*
Figure 11: Comprehensive environmental impact assessment procedure scheme *73*

ANNEXES

Annex 1: The most important strategies/programmes/acts and their objectives to be observed in the NPRJPI assessment

1 INTRODUCTION

The Ministry of Infrastructure and Spatial Planning has drafted the Resolution on the National Public Transport Infrastructure Development Programme in the Republic of Slovenia[1](*hereinafter referred to as the NPRJPI).*

In accordance with the Decision of the Ministry of the Environment and Spatial Planning (No. 35409-24/2012/14 as of 4 June 2013) the comprehensive environmental impact assessment procedure must be conducted for the programme (*hereinafter referred to as the CEIA*). The assessment of the acceptability of impacts of the programme implementation on the protected nature areas must be prepared in accordance with the regulations on nature conservation. The purpose of both these assessments, which are laid down by law, is to prevent or, at least, significantly reduce activities that can have significant adverse impacts or consequences on the environment and protected areas, whereby the principles of sustainable development, comprehensiveness and prevention are realised. Within the environmental impact assessment procedure, impacts are determined based on the Environmental Report. The procedure is conducted by the ministry responsible for the environment. Within the scope of the said procedure, the cooperation of all state bodies and organisations responsible for individual sectors, as well notification and public participation, are all provided for.

This report contains the results of the content accumulation phase within the scope of the comprehensive environmental impact assessment procedure.

1.1 *The purpose of the report determining the scope of the comprehensive environmental impact assessment*

The purpose of this report is to:

- determine important impacts of the NPRJPI on the environment;
- determine the areas of the environment that will be considered in the Environmental Report (areas, where it has been established, that may be subject to important impacts of the NPRJPI);
- determine the relevant environmental goals that are relevant for the programme and to determine appropriate indicators based on which the success rate of environmental goals follow-up will be monitored.

1.2 *Starting points to prepare the NPRJPI*

The purpose of the NPRJPI, where this is required for comprehensive implementation, is:

- to present the standpoints, needs and possibilities for the development of the key transport infrastructure in the Republic of Slovenia,
- to prepare a harmonised development programme of key transport infrastructure in the Republic of Slovenia by priorities, sources and time plan,
- to plan a current and harmonised implementation of priority investments in the field of transport in the Republic of Slovenia.

Transport infrastructure in Slovenia is a part of the Trans-European Transport Network (hereinafter referred to as the TEN-T), which is determined in the EU policy in the field of transport as the infrastructural framework for undisturbed operations of the internal market, ensuring economic, social and territorial cohesion as well as improved accessibility in the entire EU.

With the purpose of ensuring the development of a comprehensive and connected TEN-T, the Union has issued for the Member States mandatory guidelines for the development of the Trans-European Transport

[1] The draft of the Resolution on the National Programme for the Development of Transport Infrastructure for the period 2013 to 2020 with a vision to 2020 (ReNPRJPI), version 6.5, 13 November 2013, MZIP

Network[2]. By considering the challenges for the TEN-T policy, also determined in the White Paper "Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system"[3], these guidelines determine the long-term strategy for the TEN-T policy until 2030/2050. The most important goal of these guidelines is to ensure a comprehensive and connected TEN-T that comprises all Member States and regions and provides the basis for a harmonised development of all types of transport in order to stimulate the advantages of Member States, thus ensuring greater added value of the network for the Union.

The goals and measures determined in the NPRJPI are based on standpoints that the proportional part of the construction and development of the entire trans-European transport network, composed of the infrastructure for the railway, land route lanes, roads, maritime and air transport, is or will be included in the Slovenian transport infrastructure, thus contributing to undisturbed operations of the internal market and strengthening economic and social cohesion of the Union.

1.3 *Legislative background*

- **Resolution on the Transport Policy (Official Gazette of the Republic of Slovenia, nos. 35/02 and 60/04).**

The implementation of the Resolution on Transport Policy is effective only in connection with the implementation of the Environmental Development Strategy of Slovenia in the sense of rational and efficient spatial development. The dispersion of population settlement and the economy (production) has the key impact on causing traffic flows, their management and consequently joint transport costs.

The resolution on transport policy firstly analyses the current development of transport infrastructure, where Slovenia has, in the period following its independence, built only the direct railway connection with Hungary in the field of railway infrastructure. This project has proven exceptionally important after both countries entered the EU, since this railway route has become more competitive. Furthermore, 20 years ago we witnessed the redirection of traffic flows to the fifth railway corridor, while traffic on the tenth corridor is slowly coming to life mostly due to non-harmonised railway managements in this area. The current situation and trafficability were preserved on other parts of the railway infrastructure.

The construction and maintenance of railway infrastructure, along with organisational and technological aspects, also presents the key success factor in a more open, marketable and competitive space, where railways that acquire almost 60% of the cargo via the Port of Koper can now be found. The Port of Koper has constantly increased trans-shipment in the past decades, and it also presents the key traffic hub of European importance.

In the field of state roads, Slovenia has in the past twenty years prioritised the construction of roads for long-distance traffic, i.e. motorways in the trans-European road network, and expressways. The remaining network of state roads, including main and regional roads, was mostly maintained and preserved; by primarily eliminating bottlenecks, the goal was to increase traffic capacity and safety. This development of the national road infrastructure enabled the accelerated development of areas along the motorway network, while the connectivity and access of other areas to the motorway system did not improve in this period. The general situation of the existing national road network, main and regional roads categories even worsened in this period. The described situation limits the harmonious regional development of areas in Slovenia which are not situated near the motorway network. Due to poor access and higher transport costs, these areas are becoming non-competitive in terms of location, even if they have other resources needed for development (cheaper land, qualified workforce etc.).

We must not forget about Slovenian airports, which significantly contribute to the development of mostly passenger as well as cargo transport.

[2] REGULATION (EU) No. 1315/2013 on Union guidelines for the development of the trans-European transport network and repealing Decision No 661/2010/EU
[3] COM(2011) 144

By providing appropriate transport infrastructure and incentives in entering new markets we will enable local logistics companies and carriers a more competitive entry on the EU's transport market and also significantly contribute to creating the single European transport area, which is the basic purpose of the European transport policy.

The Resolution on Transport Policy of the Republic of Slovenia determines the following measures that will help attain goals in the field of transport infrastructure:

1. effective spatial planning that ensures long-term efficient infrastructural connection between places;
2. the development of public railway infrastructure that will enable the implementation of quality, reliable and price-effective services;
3. the suburban and intercity transport of passengers as well as international passenger transport, as well as classical and multimodal cargo transport services;
4. the maintenance of motorway system and other state roads as developmental axes, which will enable the connection between Slovenian centres of development and will be connected to the motorway system;
5. the construction and maintenance of airport infrastructure and supporting buildings for the requirements of accompanying activities;
6. the construction and maintenance of appropriate fort infrastructure;
7. appropriate maintenance and renovation of existing transport infrastructure and the development of new traffic connections;
8. stimulation of revitalisation of industrial railway lines where this is justified by the economic and public interest;
9. investments in transport infrastructure, which ensure equal conditions for accessibility of temporarily or permanently physically and sensory disable persons (the disabled, the elderly, mothers with children, pregnant women etc.);
10. the construction and maintenance of transport infrastructure for sustainable transport, where the use of bicycles and walking are promoted;
11. ensuring permanent systemic source for financing the public transport infrastructure, where this is not enabled by the market business effects;
12. ensuring the desired operations and modern development (railway infrastructure, state roads etc.).

One of the key guidelines of the Resolution on Transport Policy of the Republic of Slovenia is also the transition to environmentally friendly forms of transport, especially railways. This transition must be appropriately considered, i.e. it should be stimulated at locations where the road transport has already achieved the limit capacities.

- **Spatial Development Strategy of Slovenia (Official Gazette of the Republic of Slovenia, no. 76/04)**

The Spatial Development Strategy of Slovenia is the fundamental state document for spatial development governance. It stipulates objectives, priorities and the global basis for the state's spatial development including transport infrastructure; it provides developmental guidelines for settlement, infrastructure and landscape as well as the measures for its implementation. From the hierarchical aspect, it is the most important spatial document, with which all other spatial acts must be adjusted on the national and municipal levels, and this is verified in various procedures, in the case of national spatial plan in the phase of considering the initiative for the preparation and in the case of municipal spatial acts in the phase of guidelines and opinions.

Slovenia's spatial development bases on polycentric urban system composed of a two-level structured network of centres that are of national importance (Ljubljana, Maribor, Koper, Celje, Murska Sobota, Velenje, Novo mesto, Kranj, Nova Gorica, Postojna, Ptuj in somestja Jesenice-Radovljica, Sevnica-Brežice-Krško, Dravograd-Ravne na Koroškem-Slovenj Gradec, Trbovlje-Zagorje-Hrastnik) and centres that are of regional importance and to which, with appropriate distributions of functions, the networks of

other centres are connected (centres of intermunicipal and local importance). Ljubljana, Koper and Maribor are centres that are important on the international level, and this requires appropriate infrastructural connection with the international area.

From the developmental aspect of Slovenia, a comprehensive transport system has the key role in economic integration in the international space for connecting urban centres and other settlements as well as region and for ensuring accessibility to workplaces and services for the population and the economy in a sustainable way that is also rational from the spatial aspect. In this way, transport infrastructure supports and establishes the conditions for developing centres in the determined polycentric urban system. Workplaces and services of public importance are mainly concentrated in cities – economic centres, due to which the necessity of the planned infrastructure is founded, by considering the role of a city – urban centre, its rank is determined. Further construction of infrastructure and establishment of appropriate services with the aim to connect various transport subsystems (hubs or terminals for passenger transport, transport terminals for combined traffic or logistics centres) to enable efficient mobility of the population and goods.

The development and further construction of transport infrastructure on the European transport corridors V and X is important for economic integration in the international area, as well as the establishment of appropriate connections of international airports, especially Ljubljana, and the Port of Koper with other transport subsystems and the improvement of cross-border transport connections. The system of internal connections is also important for regional development, since these connections are composed of border and peripheral transport connections, which contribute to improving the accessibility to lower level centres. Target accessibility from gravitational areas to functions in urban centres of higher rank (centres of national importance) is 45 minutes, while the target accessibility of gravitational areas of lower rank centres (centres of regional importance) is 30 minutes. If delays due to traffic congestion are not considered, the target values are already achieved today, however, only in the area of private vehicle traffic. In the future, more attention will have to be dedicated to accessibility by public transport in order to reduce the load on the environment, caused by emissions and dust in urban centres.

❖ Regulation (EU) on Union guidelines for the development of trans-European transport network[4]

The Regulation repeals and substitutes Decision No. 661/2010/EC of the European Parliament and of the Council of 7 July 2010 on Union guidelines for the development of the trans-European transport network.

The proposal contains the following key elements of TEN-T development:

- the trans-European transport network will develop gradually on the basis of the implementation of dual-layer approach, consisting of a comprehensive network and of a core network.
- the comprehensive network is to be in place by 31 December 2050, the core network is to be implemented as a priority task until 31 December 2030,
- the guidelines stipulate the framework for defining projects of common interest. These projects contribute to the development and construction of the trans-European transport network with construction, maintenance, rehabilitation and renovation of infrastructure, stimulation measures with sources for economic use of infrastructure and enabling sustainable and efficient cargo transport services,
- cargo terminals, passenger stations, inland waters ports, sea ports and airports will connect transport methods in order to enable multi-modal transport,
- urban hubs are the key elements in the comprehensive network as the linking points between different parts of transport infrastructure,
- along with the requirements for the comprehensive network, the guidelines for the core network also stipulate special requirements, for instance the availability of alternative fuels,
- the core network corridors will be the instrument for implementing the core network. They are based on modal inclusion and interoperatibility and they lead to harmonised
- development and management.

[4] REGULATION (EU) No. 1315/2013 on Union guidelines for the development of the trans-European transport network and repealing Decision No 661/2010/EU

The legal basis for the issue of the Regulation (EU) on Union guidelines for the development of the trans-European transport network is Article 172 of the Treaty on the Functioning of the European Union. The current guidelines of the TEN-T were proposed and adopted as the decision of the European Parliament and of the Council. This decision especially addresses Member States and stipulates that the guidelines are entirely binding for all member states.

So far, the member states have been the main actors in the development and management of transport infrastructure, however, the development has shown that these conditions are gradually changing. Regional and local authorities, infrastructure managers, transport services providers as well as other public and private entities are becoming important factors in the development of infrastructure. Because several actors are included in the planning, development and operations of the trans-European transport network along with Member States, it is necessary to ensure that these guidelines are binding for everyone. Therefore, the selected regulation is the legal instrument for the issue of the act.

- **Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system (hereinafter referred to as the White Paper on European Transport Policy)**

This is a roadmap for the preparation of the European transport area of the future, which was adopted by the European Commission in March 2011[5]. The Commission issued the White Paper on European Transport Policy to respond to the implementation of set objectives arising from the Europe 2020 Strategy (Strategy for Smart, Sustainable and Inclusive Growth)[6] and in accordance with seven initiatives of these strategies (mostly initiatives about water efficient Europe[7]) the Commission has predicted the implementation of measures for achieving the ten objectives for a competitive and resource efficient transport system.

The White Paper on European Transport Policy is not a binding document for member states, however, it is a time- and content-related overview of the most probable middle- and long-term legislative and budget development of the EU in the field of transport policy.

The White Paper on European Transport Policy has predicted the amending act on the Union guidelines for the development of TEN-T as a measure to achieve the ten goals for a competitive and an efficient transport system, from the point of view of resources, that by 2050 will reduce the greenhouse gas emissions by at least 60% in comparison with the year 1990, or by 2030, to around 20% below the level in 2008[8].

For achieving ten objectives for a competitive and resource efficient transport system, the White Paper on European Transport Policy sets the following milestones:

1. Until 2020:

- to establish a framework for the European multi-modal transport system for notification, management and payment;
- establishment of a modernised infrastructure for air transport management (SESAR) and finishing the European single airspace. The establishment of land and water transport management systems (ERTMS, ITS, SafeSeaNet, LRIT and RIS).
- The establishment of European global navigation satellite system (Galileo).

2. Until 2030:

- To halve the use of "conventional fuel"-driven vehicles in urban transport and introduce logistics without CO_2 emissions;
- to introduce other means of transport for 30% of road cargo transport exceeding 300 km, such as railway or water transport;

[5] COM(2011) 144 final;
[6] COM(2010) 2020 final;
[7] COM(2011) 21;
[8] The Commission's message "Roadmap for moving to a competitive low-carbon economy until 2050", COM(2011)112.

- to comprehensively establish a functional and multi-modal core TEN-T network on the EU level and triple the length of the existing high speed railway network;

3. Until 2050:

- To eliminate "conventional fuel"-driven vehicles in cities;
- To introduce other means of transport for 50% of road cargo transport exceeding 300 km: railway or water transport (achieved with efficient and green corridors for cargo transport). Most of medium-distance passenger transport should be implemented by railway;
- To guarantee 40% share of sustainable low-carbon fuels in air transport;
- To ensure 40% reduction of CO_2 emissions, which occur due to fuels from ship tanks, in the EU in maritime transport;
- To finish the high quality and capacity TEN-T network on the EU level and to finish the European high-speed railway network with an appropriate set of information services. All airports in the core network must be connected with the railway network, i.e. with high-speed network, if possible. All key ports must be sufficiently connected with railway cargo network and, if possible, with the inland waterways system;
- In the field of transport safety – to reduce the number of death accidents to zero;
- The transition to fully use the "user pays" and "pollutant pays" principles and the participation of the private sector in eliminating market distortions including harmful subsidies;
- The planned measures for stimulating investments in transport infrastructure and change of transport patterns in the field of passenger and cargo transport are focused in strengthening economic competitiveness and employment.

In order to achieve a competitive and resource efficient transport system it is appropriate that at least the middle-term goals from the White Paper on European Transport Policy (goals until 2030) are appropriately transferred into the instruments of national programmes of the development of public transport infrastructure of individual Member States.

❖ Regulation on EU funds within a Common Strategic Framework[9]

In its communication on multi-annual financial framework 2014-2020[10], the Commission predicted the preparation of a new instrument on the EU level, i.e. the "Connecting Europe Facility" which will finance the priority infrastructure of EU in the field of transport, energy and broadband digital networks. It will support the infrastructure on the European scale and single market scale as well as direct EU support to priority networks that have to be commenced until 2020, and the areas which are mostly entitled to European measures. The instrument will have one fund in the amount of EUR 50 billion for the 2014-2020 period, whereas EUR 31.7 billion will be dedicated to transport, of which EUR 10 billion will be available for investments in connected transport in Member States which are beneficiaries of the Cohesion Fund.

Slovenia is as a member state, which is entitled to Cohesion Fund means, obliged to prepare and adopt the NPRJPI so that the measures from this national programme will be prepared to draw funds from the funds in Common Strategic Framework for stimulating harmonised, balanced and sustainable development of the Union as is stipulated in the Common Provisions Regulation.

The proposal of Common Provisions Regulation introduces the strengthening of the procedure for strategic planning of programmes for drawing means from the mentioned funds, including the consideration of themed goals that are drafted in accordance with the Europe 2020 Strategy.

[9] Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL laying down common provisions on the European Regional Development Fund, the European Social Fund, the Cohesion Fund, the European Agricultural Fund for Rural Development and the European Maritime and Fisheries Fund covered by the Common Strategic Framework and laying down general provisions on the European Regional Development Fund, the European Social Fund and the Cohesion Fund and repealing Council Regulation (EC) No 1083/2006; COM(2013)0246;

[10] COM(2011) 500 final;

In accordance with the Common Provisions Regulation the achievement of EU transport policy goals has an evident place among the following themed goals of planning programmes for drawing means from EU funds:

- strengthening research, technological development and innovation,
- increasing accessibility to information and communication technologies and their use as well as quality,
- increasing competitiveness of small and medium-sized companies,
- supporting the transition to low-carbon economy in all sectors,
- stimulating the adjustment to climate changes, preventing and managing risks,
- environment protection and encouraging efficient use of resources,
- stimulating sustainable transport and eliminating bottlenecks in key network infrastructures,
- stimulating employment and work force mobility,
- stimulating social inclusion and fight against poverty,
- investing in skills, education and lifelong learning, and
- improving institutional capacities and efficient public administration.

Themed goals of planning the programmes for drawing means from EU funds have been formed for Slovenia in the Operative Programme of European Cohesion Policy (hereinafter referred to as the OP-ECP) as priority tasks – priority axes, whereas the financing of measures for achieving the goals of transport policy under the NPRJPI is determined in the 10th priority axis "Construction of infrastructure for sustainable mobility" including the following priority investments:

- the development of a comprehensive, high quality and interoperable railway system,
- the improvement of regional mobility by connecting secondary and tertiary transport hubs with TEN-T infrastructure,
- supporting the multi-modal common European transport area by investing in trans-European transport network (TEN-T).

1.4 *Description of NPRJPI*

This chapter contains the key information arising from the draft of the ReNPRJPI[11].

[11] The draft of the Resolution on the National Programme for the Development of Transport Infrastructure for the period 2013 to 2020 with a vision to 2020 (ReNPRJPI), version 6.5, 13 November 2013, MZIP

Table 1: Key facts about the Resolution on the National Programme for the Development of Transport Infrastructure in the Republic of Slovenia

Responsibility: Ministry of Infrastructure and Spatial Planning
Programme name: Resolution on the National Programme for the Development of Transport Infrastructure in the Republic of Slovenia (ReNPRJPI)
Decision-making procedure: Proposal is adopted by the government
Purpose of the programme: Determines the vision of the development of transport infrastructure in the Republic of Slovenia
Reason for the preparation: Integrity of implementation of transport policy
Subject: Implementation of European transport policy measures
Planning period: 2014 to 2020 with a vision to 2050
Area: Republic of Slovenia

1.4.1 Vision of the development of transport and public transport infrastructure in the Republic of Slovenia

The starting points for the preparation of national programmes for the development of transport infrastructure of Member States are determined in the Regulation (EU) on Union guidelines for the development of the TEN-T, which answer the five main problems or challenged of EU's transport policy, i.e.:

1. lacking connections, especially on cross-border sections, are the main obstacle for the free flow of goods and passengers in Member States and between them or neighbouring countries,
2. there are major and permanent differences in the quality and availability of infrastructure between member states and within them (bottlenecks). Improvements are necessary especially on east-west connections by ensuring new transport infrastructure and/or maintenance, rehabilitation or restoration of the existing infrastructure,
3. transport infrastructure between types of transport is dispersed. In the field of ensuring multi-modal connections, numerous European cargo terminals, passenger stations, ports on inland waters, sea ports, airports and urban hubs are not up to this task. Since these hubs do not carry a multi-modal function, the potential of multi-modal transport and its qualification for eliminating bottlenecks and surpassing the missing connections is insufficiently exploited,
4. investments in transport infrastructure should contribute to achieving the goals of reducing greenhouse gas emissions in transport by 60 per cent by 2050,
5. Member States still preserve different operative rules and requirements, especially in the field of interoperatibility, thus contributing to obstacles on transport infrastructure and bottlenecks.

All key answers to resolving five main problems or challenges of EU's transport policy are also relevant for resolving the current problems in Slovenian transport infrastructure.

The implementation of the vision's development was made on the basis of data on the analysis of spatial development of Slovenia from the aspect of developing transport infrastructure of ESPON 2013 programme[12].

1.4.1.1 The concept of developing the railway network

Wider developmental goals of railway network from the NPRJPI follow the joint goal of sustainable development of Slovenia and are as follows:

[12] How can research of the ESPON programme support development planning in Slovenia, ESPON 2013 Programme, MKO 2011 (www.espon.eu)

- The preservation of the achieved level of competitiveness of economy by shortening travel times and reducing transport costs.
- The harmonisation and/or guaranteeing interoperability of public railway network with the EU network.
- Better accessibility to individual regions and better interregional connection, linking parts of Slovenia that have not been connected appropriately yet, to the main European railway corridors, thus enabling a more equal distribution of economic benefits of Slovenia's development.
- The improvement of traffic safety.

Extended developmental goals of the railway network in the NPRJPI are determined by the following basic development concepts:

- the concept of developing public railway infrastructure in the Republic of Slovenia,
- the concept of developing railway infrastructure for the needs of transit and domestic freight transport,
- the concept of developing public railway infrastructure for the needs of suburban passenger transport,
- the concept of developing intercity and international passenger transport,
- the concept of developing fast long-distance transport,
- common (network) strategic starting points for the development of the public railway infrastructure.

The basic concepts of developing railway network include the requirements in connection with railway transport infrastructure from the Regulation (EU) on Union guidelines for the development of the TEN-T, which mostly refer to:

- equipping railway lines with ERTMS,
- mitigating noise caused by the railway transport, and
- maximum fulfilment of requirements arising from technical specifications for interoperability (TSI).

1.4.1.2 The development of maritime transport and transport on inland waterways

Maritime ports for international public transport in Koper, Izola and Piran as well as the river port for international public transport in Brežice (Obrežje) on the Sava River are being renovated and developed. Simultaneously the following is ensured: the development of facilities for the safety of navigation and facilities as well as devices for the supervision of the separate navigation system in the joint navigation chart for the Northern Adriatic in the field of the Gulf of Trieste, and facilities and devices for the supervision of the safety of navigation in the field of river port near Brežice and the section of the Sava River between Krško and Obrežje, where the Sava international inland waterway is located. Within the scope of the Koper port, the space for mooring "ships in distress" is also ensured. In the area of ports (Koper, Izola, Piran) appropriate space for the maintenance of vessels is also ensured.

1.4.1.3 The development of public air transport infrastructure

The public transport infrastructure in air transport will enable the development of civil aviation, more intensive connection with the remaining economy, especially tourism, and the integration in the comprehensive transport network of the Republic of Slovenia, thus achieving the goal and positive consequences of intermodality.

1.4.1.4 Sustainable transport logistics (freight transport)

Transport logistics include planning and managing the supply chain in the widest meaning possible. A more economical management of freight transport with minimum possible harmful effects on the environment as well as people and users of transport services must be attained. The use of existing public infrastructure, railway lines, roads, maritime connections, logistical and multi-modal centres as well as transhipment locations must be exploited to the maximum extent possible.

Logistics centres and terminals for combined transport and transhipment locations are not part of the public transport infrastructure but are a part of the economic activity of goods transport. By developing and renovating public transport infrastructure, appropriate and free access to their services must be enabled.

This includes the renovation of public road and railway infrastructure. Simultaneously, the economy and business that own industrial lines must be stimulated to renovate and start using these lines, where this is justified from the economical and environmental aspect.

1.4.1.5 Public passenger transport and sustainable population mobility

For guaranteeing sustainable mobility from the aspect of population mobility and sustainable development vision, an effective system of public passenger transport must be established (hereinafter referred to as the PPT), physical integration of transport sub-systems for more effective implementation of a public passenger transport within the scope of a public service provider must be ensured and the entire range of mobility management measures for reducing pollution caused by private vehicle transport must be implemented.

The need for reducing greenhouse gas emissions and increasing oil prices on world markets set the mobility development planning in a completely new position. Settlements must be planned in such way that they will less depend on private vehicles, people must be encouraged to change their travel habits, which will in the long-term lead to an increased level of the quality of living and to greater transport safety.

1.4.2 The goals of developing transport and transport infrastructure in the Republic of Slovenia

The goals of the NPRJPI are determined in accordance with the goals of the Union guidelines for the development of the TEN-T. The goals of the NPRJPI are written on a multi-layered basis, i.e. *as the basic objectives* of transport policy that ensure the realisation of the set transport vision, and also as the *specific objectives* of individual transport sectors.

The basic objectives of the NPRJPI are:

1. to improve mobility and accessibility,
2. to improve the supply of businesses,
3. to improve traffic safety and protection,
4. to reduce energy consumption,
5. to reduce users' costs,
6. to reduce environmental burdens.

1.4.3 Measures in the field of developing transport and transport infrastructure in the Republic of Slovenia

Based on the mentioned objectives individual basic measures on the first level, which enable the achievement of individual objectives, are determined. The determined measures guarantee the fulfilment of various objectives, some of which complement each other, others compete, however, at the same time they increase the level of fulfilment of each objective.

The basic measures are:

- the optimisation of the public passenger transport system,
- raising awareness of the public and education,
- the renovation of the existing transport infrastructure,
- new construction of optimum transport infrastructure,
- to ensure appropriate connection of the port with the hinterland,
- to expand and technologically renovate the port,
- to expand and technologically renovate airports,
- to develop logistics centres,
- to introduce modern transport means,
- to ensure technical applicability of transport means.

1.4.4 The indicators of developing transport and transport infrastructure in the Republic of Slovenia

The indicators for each individual objective of the NPRJPI are shown in continuation. The presented indicators were amended in January 2014 and harmonised by the producers of the NPRJPI and the producers of the environmental report.

Objective 1 - to improve mobility and accessibility
Indicators:

1. Length of sections with exceeded throughput [km]
2. The number of locations with limited bearing capacity
3. The number of vehicles/thousand people
4. The number of vehicles driven by alternative fuels/inhabitant
5. The number of travels/inhabitant
6. The number of travels by bus/inhabitant
7. The number of travels by train/inhabitant
8. The number of travels by private vehicle/inhabitant
9. Travel time/travel by bus [min]
10. Travel time/travel by train [min]
11. Travel time/travel by private vehicle [min]
12. The number of travels by bus [pkm]
13. The number of travels by train [pkm]
14. The number of travels by private vehicle [pkm]
15. The number of bus rides [vehicle km]
16. The number of passenger train rides [train km]
17. The number of private vehicle rides [vehicle km]
18. Total travel times of passengers [h]
19. The number of inhabitants with up to 15 minutes accessibility to PPT station
20. The number of inhabitants with up to 15 minutes accessibility to MW junction
21. The number of inhabitants with up to 30 minutes accessibility to regional centre - PPT
22. The number of inhabitants with up to 30 minutes accessibility to regional centre – private vehicle
23. The number of inhabitants with up to 30 minutes accessibility to regional centre
24. Modal split PPT/private transports
25. Share of passenger kilometres in railway transport
26. The increase in share of passenger kilometres in bus transport

Objective 2 – to improve the supply of the economy
Indicators:

1. Gross domestic product in the Republic of Slovenia (GDP)
2. Gross domestic product in transport and storage (GDP)
3. Goods transferred by railway [net tonnes]
4. Goods transferred by road [net tonnes]
5. Goods transferred by railway [ntkm]
6. Goods transferred by road [ntkm]
7. Goods travel times by railway [h]
8. Goods travel times by road [h]
9. The number of freight train rides
10. The number of train kilometres [train km]
11. The number of freight vehicle rides

12. The number of freight vehicle kilometres [vehicle km]

Objective 3 – to improve traffic safety and protection,
Indicators:

1. The number of traffic accidents per year
2. The number of minor injured persons per year
3. The number of major injured persons per year
4. The number of deaths per year
5. The number of protected car parks

Objective 4 – to reduce energy consumption
Indicators:

1. Fuel consumption – gas [litres]
2. Fuel consumption – oil [litres]
3. Fuel consumption – electricity [kWh]
4. Used energy for ntkm [kWh]
5. Used energy for ptkm [kWh]

Objective 5 – to reduce users' costs
Indicators:

1. Time-related costs [EUR]
2. Costs of energy use [EUR]
3. Costs of vehicle maintenance [EUR]
4. Costs of infrastructure maintenance [EUR]
5. Noise costs [EUR]
6. Costs of CO_2 [EUR]
7. Costs of NOx [EUR]
8. Costs of solid particles PM10 and PM2.5 [EUR]
9. Cost of traffic accidents per year [EUR]
10. Costs of measures for individual alternatives in [EUR]

Objective 6 – to reduce environmental burdens
Indicators:

1. Noise load on road [dB/inhabitant]*)
2. Noise load on railway [dB/inhabitant]*)
3. CO2 [t/year]
4. NOx [t/year]
5. Solid particles PM10 [t/year]
6. Solid particles PM2.5 [t/year]

1.4.5 The alternatives of developing transport and transport infrastructure in the Republic of Slovenia

Three alternatives are envisaged in the work phase:

1. "Continuation of the current development", where the processing will consider only:

- investments in progress and
- maintenance.

2. "Balanced development of public and individual transport" (road+railway and other types of transport), where everything under alternative 1 will be considered, and:

- the elimination of priority capacity bottlenecks in all types of traffic,

- the increase of competitiveness of railway and public passenger transport,
- to ensure D4 bearing capacity (railways)
- the implementation of international and interstate projects (Karavanke tunnel, GSM-R, ERTMS/ECTS,
- to ensure transport safety (all types of transport).

3. "The alternative of emphasised role of public transport and emphasised role of personal motor transport" (real by 2050):

- to ensure TEN-T standards on the entire core TEN-T network in the Republic of Slovenia.

The proposal of the resolution will have to contain the presentation of possible projects in the field of infrastructure which affect cross-border cooperation. On the basis of propositions the harmonisation with neighbouring countries will be required, especially in the sense of standards for individual infrastructural projects.

2 ASSESSMENT FRAMEWORK AND PRELIMINARY EVALUATION

The procedure determining the scope of comprehensive assessment of environmental impact is the first phase of comprehensive assessment of environmental impact because of the implementation of measures of the NPRJPI, which is shown in more detail in the table below.

Table 2: Description of steps of the comprehensive assessment of the environmental impact of the NPRJPI

No.	Steps of comprehensive assessment of environmental impact	Description of steps of comprehensive assessment of environmental impact
1	Examining plans and programmes	Examining
2.1	Reviewing environmental goals, standards and external impacts on programme implementation	Determining the scope of comprehensive assessment – scoping report
2.2	Determining environmental goals of assessment and indicators for attainment of these goals	
	Report determining the scope of assessment	
3.1	Review of data on the environment or parts of the environment impacted by the programme	Detection, evaluation and mitigation of possible impact – environmental report
3.2	Analysis of environmental impacts	
3.3	Evaluation of environmental impacts	
3.4	Proposed mitigating measures and concept of monitoring of environmental impact	
3.5	Environmental comparable analysis of alternatives	
	Environmental report	
4	Consultations, amendments and confirmation of the compliance of the NPRJPI with the environmental goals	Adoption

2.1 *Framework of environmental policies*

2.1.1 Harmonisation of the objectives of the NPRJPI with Union guidelines for the development of TEN-T

Regulation on Union guidelines for the development of TEN-T is one of the key starting points for the NPRJPI. This Regulation (EU) is based on the policy envisaged by the Commission in the White Paper on European Transport Policy, in particular in part that refers to the core network of strategic European infrastructure[13].

Union guidelines for the development of TEN-T follow the strategy that is determined in the White Paper on European Transport Policy: to eliminate the main obstacles and bottlenecks on the key areas of transport infrastructure. The purpose of Union guidelines for the development of TEN-T is to create a single European transport area with better transport services and completely interconnected transport network. This will connect various types of transport and provide for a thorough change of transport models for passengers and cargo. This change is necessary to fulfil the objective of reducing greenhouse gas emissions by 60 per cent by 2050.

Without the support of the appropriate network and smarter approach for is use, major changes are not feasible in transport. Planning and developing infrastructure are essential for the development of sustainable transport system.

Regulation on Union guidelines for the development of TEN-T will contribute to the objectives of policy, stated in the Commissions communication "Digital Agenda for Europe"[14], i.e. by supporting the implementation of intelligent transport systems. The regulation is also one of the measures arising from the Single Market Act, proposed by the Commission in 2011[15], since the networks provide the main support to

[13] Chapter 34 in the White Paper on European Transport Policy;
[14] COM(2010) 245 final/2;
[15] COM(2011) 206 final;

the internal market and play the key role in stimulating the flow and effective circulation of goods and services.

Stimulating sustainable transport was determined as one of the means for achieving one of the three key priority tasks arising from the Strategy for smart, sustainable and inclusive growth Europe 2020, which the Commission adopted in 2010, i.e. sustainable growth with the consideration of critical bottlenecks, especially cross-border sections and inter-modal hubs (cities, ports, logistics platforms).

Union guidelines for the development of TEN-T contribute to strengthening territorial cohesion of EU territory, which is one of the objectives of the EU, including economic and social cohesion.

Figure 1: Chart presenting the harmonisation of the objectives of the NPRJPI with Union guidelines for the development of TEN-T

Usklajenost ciljev - Harmonisation of objectives
UČINKOVITOST - EFFICIENCY
KOHEZIJA - COHESION
TRAJNOST - SUSTAINABILITY
UPORABNIKI - USERS
Mobilnost in dostopnost - Mobility and accessibility
Oskrba gospodarstva – Supply of the economy
Okoljske obremenitve - Environmental burden
Poraba energije - Energy consumption
Stroški uporabnikov - Costs of users
Prometna varnost - Traffic safety

2.1.2 Starting points for the environmental assessment of the NPRJPI

In accordance with the Environment Protection Act, in the procedure of comprehensive assessment of environmental impact a position has to be taken on the wider framework of environmental policies and environmental protection goals.

<u>The following EU documents will be considered in the comprehensive assessment of environmental impacts:</u>

- ***VII.*** General Union Environment Action Programme to 2020 "Living well, within the limits of our planet",
- EUROPE 2020 Strategy for smart, sustainable and inclusive growth is the vision of social market economy of Europe for the 21st century,
- Time frame for Resource Efficient Europe,
- Theme strategy for soil protection,

- Directive 2009/28/EC on the promotion of the use of energy from renewable sources, and amending and subsequently repealing of Directives 2001/77/EC and 2003/30/EC,
- Directive 2006/12/EC on waste,
- Directive 2008/50/EC on ambient air quality and cleaner air for Europe,
- Directive 2004/107/EC relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air,
- NEC Directive 2001/81/EC on national emission ceilings for certain atmospheric pollutants and its revision,
- Directive 2002/49/EC relating to the assessment and management of environmental noise
- Water Framework Directive 2000/60/EC,
- Directive 2008/56/EC on establishing a framework for community action in the field of marine environmental policy,
- Directive 2008/105/EC on environmental quality standards in the field of water policy,
- Bathing Water Directive 76/160/EEC,
- Directive 2006/118/EC on the protection of groundwater against pollution and deterioration,
- Directive 2000/59/EC on port reception facilities for ship-generated waste and cargo residues,
- Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora,
- Bern Convention,
- EU Biodiversity Strategy,
- European Landscape Convention,
- European Convention on the Protection of the Archaeological Heritage – Malta Convention,
- European convention for the Architectural Heritage of Europe – Granada Convention.

<u>The following documents of the Republic of Slovenia will be considered after the comprehensive assessment of environmental impacts:</u>

- Water Management Plan,
- Operational programme on national emission ceilings for atmospheric pollutants in ambient air (amendment in preparation),
- Operational Noise Action Programme for the first phase major roads and major railways within the area of the Ljubljana City Municipality 2012–2017,
- Operational ambient air protection programme against PM10 pollution,
- Operational programme aimed at reducing greenhouse gas emissions (amendment in preparation),
- National Forest Development Programme,
- Programme of management of the Natura 2000 areas 2007–2013,
- Resolution on national road transport safety programme for the 2013–2022 period,
- Resolution on National Environmental Protection Programme,
- Resolution on the National Environmental Protection Programme 2014-2017,
- Resolution on strategic guidelines of Slovenian agriculture and food industry development to 2020,
- Strategy for the Preservation of Biodiversity in Slovenia,
- Slovenia's Spatial Development Strategy.

On the basis of these documents and on the basis of the state of the environment all relevant environmental objectives will be determined. Indicators about the state of the environment shall be determined on the basis of environmental objectives. These indicators will be used to monitor the attainment of environmental objectives.

The most important strategies/programmes/acts and their objectives to be observed in the NPRJPI assessment are described in Annex 1.

2.2 *Data on the state of the environment*

The scoping report contains the review of all available information for the determination of the state of the environment (Table 3). Data are mostly acquired from environmental IT system records as well as other databases of state authorities.

In further phases of environmental report preparation, data from the reports of ARSO, data about environmental indicators as shown on ARSO's website and data from relevant operational programmes (stated in Chapter 2.1.2) will be included in the presentation of the current state.

The description of important characteristics of the existing state of the environment focuses on those characteristics of the environment that are important for the strategic level, which encompasses the general characteristics of the treated area of environmental interventions and the characteristics of the environment that are important on the international and national levels.

Table 3 shows the sources of public information which will be used for determining the existing state of the environment within the scope of the comprehensive assessment of the impacts of the NPRJPI on the environment.

Table 3: Collections of data on the state of the environment and existing environmental burdens

Name of database, source of data	Collection manager	Explanations
Environmental atlas (http://gis.arso.gov.si/atlasokolja)	Ministry of Agriculture and the Environment, ARSO	The environmental atlas of Slovenia is a web application that provides insight into spatial information for Slovenia by means of an internet browser. By means of the atlas, the Environment Agency of the Republic of Slovenia (ARSO) provides insight into environmental spatial content to the widest circle of users.
Nature conservation atlas (http://www.naravovarstveni-atlas.si/nvajavni/)	Ministry of Agriculture and the Environment, ARSO	The nature conservation atlas is a web application that displays detailed content from the area of preservation of biodiversity and protection of natural assets in Slovenia.
Web feature service (WFS) for issuing environmental spatial data (http://gis.arso.gov.si)	Ministry of Agriculture and the Environment, ARSO	The Environment Agency of the Republic of Slovenia offers a free web service for issuing environmental spatial data and is dedicated to those who wish to acquire environmental spatial data in digital form (vector form).
State of the environment in Slovenia (http://www.arso.gov.si/)	Ministry of Agriculture and the Environment, ARSO	The report on the environment is drafted by the ministry responsible for the environment, in cooperation with other ministries, every four years. It covers primarily the period from the last similar report. The report considers data and analyses, which are available during the drafting of the report. The report is used for the purposes of assessing environmental policies in the latest period and as the expert basis for the preparation of the next strategic documents.
EIONET-SI (http://nfp-si.eionet.europa.eu/)	Ministry of Agriculture and the Environment, ARSO	EIONET-SI is an information and communication network for reporting on the environment modelled after the European Environment Information and Observation Network - EIONET. It enables the collection of information on the environment at the national level, and the provision of such information in support of political decisions and the Slovenian and European public. EIONET was established by the European Environment Agency (EEA) with the goal of providing comparable environmental data and information to the European Commission and the public. Participating in the network are EEA members and countries cooperating with EEA.
Landscape areas with recognisable features at the national level	Ministry of Agriculture and the Environment	The areas are defined by the Spatial Planning Strategy of Slovenia. These are areas important at the national level, which include identifiable and representative parts of the Slovenian landscape with well-preserved landscape components.
Exceptional landscapes	Ministry of Agriculture and the Environment	Exceptional landscapes are landscape areas of special value on specific territories that are characteristic of these territories. These are usually small areas created as a consequence of the traditional, in most cases agricultural use of space, consistent with the natural landscape structure and natural processes.
Regional breakdown of landscape types in Slovenia	Ministry of Agriculture and the Environment	Basic work in the area of landscape typology. Landscape types are divided into landscape regions, wider landscape units and landscape sub-units. A description of landscape elements,

		landscape patterns, evaluation and guidelines for protection and development has been given for all units.
Registry of Immovable Cultural Heritage (RKD) (http://giskd.situal.org/)	Ministry of Culture, INDOK centre	The official collection of data on immovable cultural heritage in Slovenia. Data from the registry is also available in the form of legal arrangements for the protection of heritage for the needs of spatial planning and interventions.
Actual use (http://rkg.gov.si/GERK/)	Ministry of Agriculture and the Environment	The actual use was established on the basis of interpretation of aerial images (DOF) for the purposes of administrative control and producing a permanent plant register (vineyards, orchards, hop fields and olive groves. This is a typological distribution of the type of use considering the state of actual use at collection of data and separates the categories of use, such as built and similar land, agricultural land, forests, waters etc.
Forest groups (Marinček L., Čarni A., 2003. Vegetacijska karta gozdnih združb Slovenije v merilu 1:50.000. ZRC SAZU, Ljubljana)	Science and Research Centre of the Slovenian AcadResearch Centre of the Slovenian Academy of Sciences and Arts	Vegetation maps of forest groups provide a review of forest groups on a certain area, they have applied value in spatial management and for certain nature scientific research.
Protective forests and forest reserves (http://www.zgs.gov.si/slo/gozdovi-slovenije/o-gozdovih-slovenije/varovalni-gozdovi/index.html)	Slovenia Forest Service	Protective forests are forests that protect the land from landslides and breaking, forests on steep slopes or water banks, forests exposed to wind and which in torrent areas withhold excessive outflow of water and protect against erosion and landslides, fores against landslides, forest areas that protect forests and land against wind, water, snow and landslides, and forests near the upper forest line. Forests with special purpose and exceptionally emphasised research function are forest reserves.
Strategic mapping and noise monitoring data: - BCP DARS d.d. database - BCP DRSC database - MzIP database (railway transport) - Environmental atlas of Slovenia (ARSO)	Ministry of Transport and Infrastructure DRSC, DARS d.d., Ministry of Agriculture and the Environment, ARSO	Strategic noise mapping data, the first assessment and noise monitoring are partially collected at individual noise source managers (MW network – DARS d.d., state roads – DRSC and railway networks – MzIP), partially within the scope of the Environmental Atlas (MKO – ARSO). Joint information system for supervision over noise burden on the environment and population on the territory of the Republic of Slovenia has not been established yet.

2.3 *Slovenia's spatial development analysis from the aspect of transport infrastructure development*

The analysis is summed up on the basis of the materials of the Espon 2013 Programme: How can research of the ESPON programme support development planning in Slovenia (MKO, 2011)?

The geographical location and historical circumstances feature Slovenia as an intensively transport and transit area and the crossroad of the two major pan-European corridors (Figure 1), i.e. Corridors V and X, which were determined at the conference of transport ministers on Crete in 1994 and Helsinki in 1997 (CEMT – Conférence Européenne des Ministres de Transport). The mentioned corridors run as follows:

- Corridor V: Venice – Trieste/Koper – Ljubljana – Maribor – Budapest – Uzhhorod – Lviv – Kiev
- Corridor X: Salzburg – Ljubljana – Zagreb – Belgrade – Niš – Skopje – Veles – Thessaloniki; the corridor Xa also runs across Slovenia, i.e. Graz – Maribor – Zagreb

Each of the mentioned pan-European corridors has its own branches, i.e.:
1. On Corridor V:
- Branch A: Bratislava – Žilina – Košice – Uzhhorod,
- Branch B: Rijeka – Zagreb – Budapest,
- Branch C: Ploče – Sarajevo – Osijek – Budapest.

2. On Corridor X:
- Branch B: Budapest – Novi Sad – Belgrade,
- Branch C: Niš – Sofia – Plovdiv – Dimitrovgrad – Istanbul (via corridor IV),
- Branch D: Veles – Prilep – Bitola – Florina – Igoumenitsa.

Some of the mentioned branches on individual corridors compete, e.g. the basic route of Corridor V and its branches B and C, the basic route of Corridor X and its branches A and B.

In Slovenia, the trans-European network or TEN-T runs on the same routes as the mentioned pan-European corridors. This is currently divided to the comprehensive network and priority projects. The comprehensive network in the Republic of Slovenia presents its transport cross, the priority project runs almost on the identical route as the pan-European Corridor V, only that it is in the west extended to Lyon in France. For the requirements of the implementation of core TEN-T network in the following financial perspective from 2014 to 2020, the European Commission formed and the Council of Transport Ministers (Council of TTE) confirmed the corridors of the core network. In these corridors, Slovenia is included in the so-called Mediterranean and Baltic-Adriatic Corridor. Both run across Slovenia in the SW-NE direction, whereas, on the western side the first continues from Pragersko to Hungary or from Zidani most to Croatia, the second one to Austria. This will be explained in greater detail in continuation.

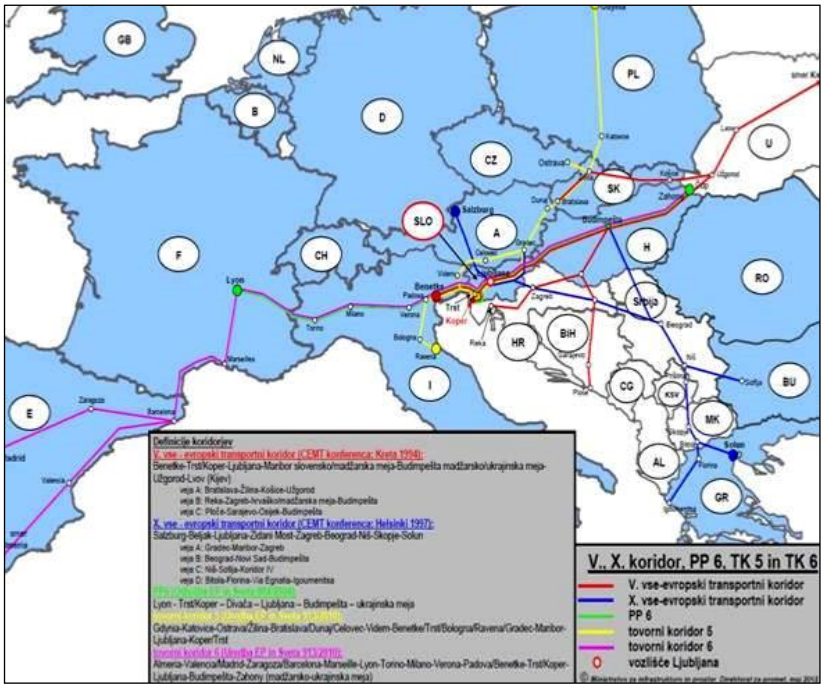


Figure 2: Routes of the pan-European Corridors V and X (Source: MzIP)

The Resolution on Transport Policy of the Republic of Slovenia adopted in 2006 indicates the significant trends in the development of transport industry and modified values in planning transport policy. Along with traditional infrastructural solutions, the so-called co-modal theory of transport planning which in combination with sustainable policy brings new challenges for transport policy planners in Slovenia. The new Slovenia's Development Strategy and its executive act, the National Investment Development Programme, are being prepared, at the same time the key documents for the coming new EU programme period are also in preparation. As a part of large European regions – Alpine, Mediterranean, Danube and Central European – Slovenia takes over an active role and uses its geo-strategic position. Public transport infrastructure thus contributes to forming cross-border regions with neighbouring countries, which is important for the development of hilly and less accessible areas with numerous problems related to economic and demographic stagnation, as well as for developmental cross-border connection of urban areas in the coastal region, Goriška, lower Sava River region and Štajerska region.

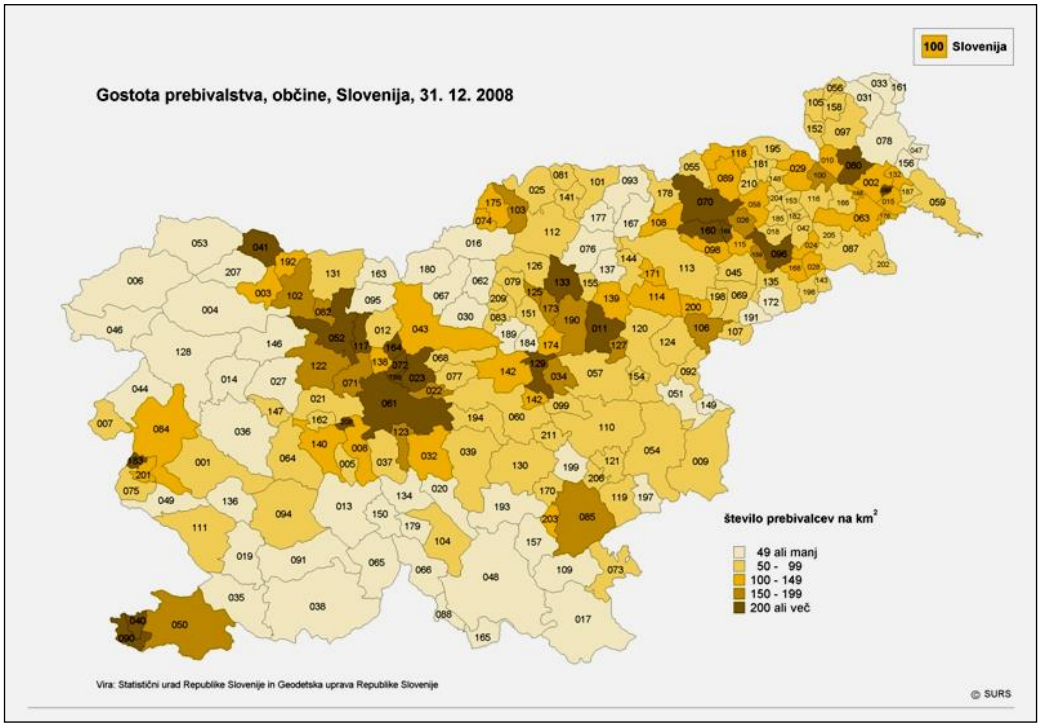
Population

The Slovenian population is condensed in the vicinity of some large centres, which is shown by the migration statistics in Slovenia. Due to these migrations, the significance of municipalities in the functional region of Ljubljana, the coastal conurbation and some Karst municipalities, municipalities in the vicinity of Maribor and Novo mesto. The negative migration balance is reported in municipalities in the Pomurje, Koroška, Kočevsko, Pokolpje, Zasavje and Posočje regions. Since mostly younger and more educated population is migrating, the population in these areas is intensively ageing. When observing interregional and intermunicipal migrations, the suburbanisation trend is intensively shown, since the population and the urban centres such as Ljubljana and Maribor are losing population to neighbouring municipalities.

Cities in Slovenia as well as in many other parts of Europe often cope with negative consequences of internal migrations due to suburbanisation or migrations to the hinterland or neighbouring regions. The largest natural increase is registered in municipalities close to large cities, especially in municipalities in central Slovenia, close to Ljubljana, where the level of younger population is higher than the state's average. The projections of demographic growth indicate that in the future decades, the number of births in Slovenia will decrease, and natural increase will be negative. The consequences will be an ageing and less working population.

Settlement

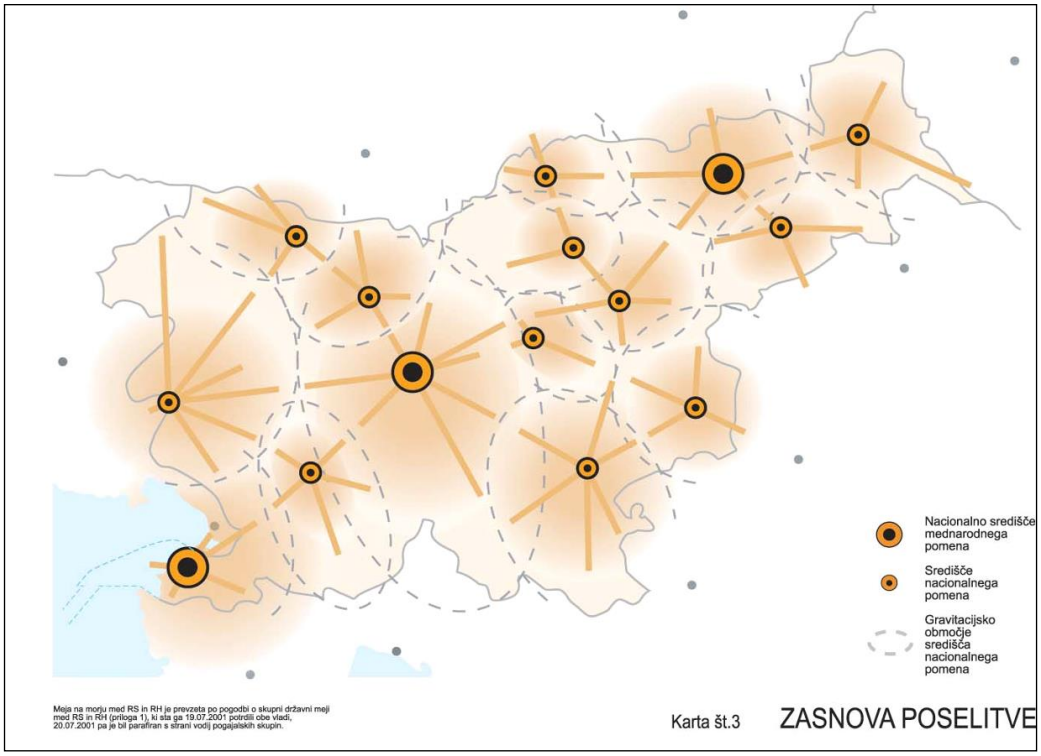
A large number of small settlements is typical for the Slovenia's settlement pattern. Slovenia's population is uneven and scattered. The settlements are denser in the flat and valley regions mostly due to natural and geographical reasons as well as historical ones. Large areas of less densely populated or completely unpopulated areas are typical – the Alpine region, parts of Notranjska and Kočevsko. The most fruitful land is located on flat areas, and this land is appropriate for agricultural production. Agricultural land presents one of the strategic natural resources. Most other activities and infrastructure are also located on the same area, gravel plains in the valley regions are often also water protection areas due to underground aquifers. Numerous interests and needs for space cause arguments between various users of space. Arguments arise between the population and agricultural business due to the expansion of settlements, industrial areas and infrastructure on agricultural land, agricultural use and changes in farming occur due to the protection of water sources.



Population density, municipalities, Slovenia, 31 December 2008
Number of inhabitants per km^2
49 or less
200 or more

Sources: Statistical Office of the Republic of Slovenia and the Surveying and Mapping Authority of the Republic of Slovenia

Figure 3: Population density by municipalities (Source: STAT RS, 2008)

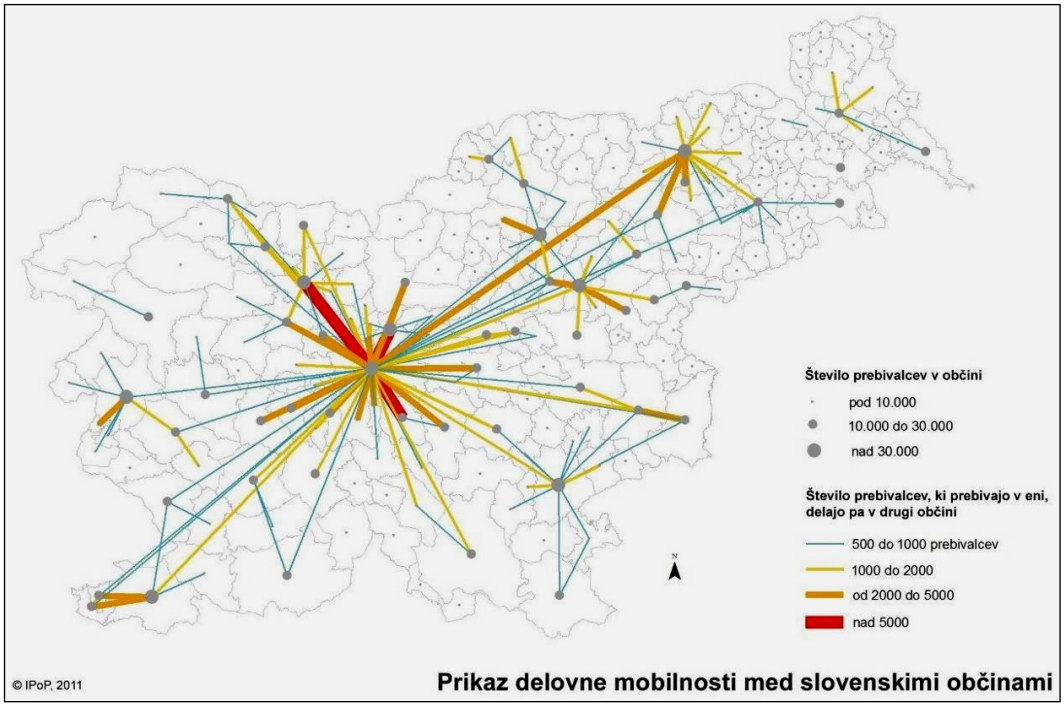


National centre of international importance
Centre of national importance
Gravitational area of the centre of national importance
Map No. 3
SETTLEMENT MODEL

The border running on the sea between the Republic of Slovenia and Croatia is based on the contract on joint national border between the Republic of Slovenia and the Republic of Croatia (Annex 1), confirmed by both governments on 19 July 2002 and initialised on 20 July 2001 by the leaders of negotiations teams.

Figure 4: Urban centres of national and international importance with gravitational areas (Source: MzIP, SPRS, Official Gazette of the Republic of Slovenia, no. 76/04)

Jobs are also concentrated on areas with the highest population density as well as activity and infrastructure density. The phenomenon of suburbanisation, which we have been witnessing since the 1970s, has been enabled by a high level of motorisation of population and its good mobility, which has increased in the past decade. An increase in the number of daily migrations due to work and the increase of areas of functional regions of larger cities has been noted, where the role of Ljubljana as the major employment centre in the state is standing out. Other large employment centres which also attract numerous migrants due to work are Maribor, Celje, Kranj, Novo mesto, Koper, Nova Gorica with Šempeter, Velenje, Šoštanj, Krško and Brežice. Daily migrations are especially common in the motorway cross directions. The strengthening of daily migrations in opposite directions from large centres towards near municipalities has also been observed, since some rural municipalities have managed to ensure more jobs on those areas. Motorway construction in Slovenia has enabled better mobility and also greater daily migration of work force. The construction of apartments was also greater along the motorways, especially near the Primorska and Dolenjska motorway sections.



The number of inhabitants in the municipality
Under 10,000
10,000 to 30,000
Over 30,000

The number of inhabitants living in one and working in another municipality
500 to 1,000 inhabitants
1,000 to 2,000
from 2,000 to 5,000
Over 5,000

Presentation of work mobility among Slovenian municipalities

Figure 5: Presentation of daily migrations – the number of people who reside in one but work in another municipality (Source: MOP, IPoP 2011: How can research of the ESPON programme support development planning in Slovenia, Interstrat)

Accessibility

The physical integration in the wider area and consequential accessibility are key for the development of all types of connections, including business, trade, leisure time, the accessibility of Gorenjska and central Slovenia regions is much better than the accessibility of other regions due to the location of the international airport. Since Slovenia cannot boast of high accessibility by railway, connections via the Brnik airport play an important role for the accessibility of the entire Slovenia.

Regions with better accessibility are often more successful and competitive in the economic aspect. The poor connection of Slovenia by railway is quite concerning, mostly because Slovenia has such a central role. Poor accessibility is the consequence of the lack of investments in the railway infrastructure.

Slovenia is also insufficiently connected via airlines or railways in the south-eastern directions, towards Italy and further on towards west Mediterranean. It is, however, well connected by air lines with the hubs of the Central and Western Europe, transport within the company bases on the use of private vehicles, public means of transport are also insufficiently developed or inefficient.

The development of the Port of Koper is very important in connection with other northern Adriatic ports and the mainland or in connection to the European Corridors V and X. The intercontinental maritime connection (passenger port) and maritime passenger transport are also important for improving the

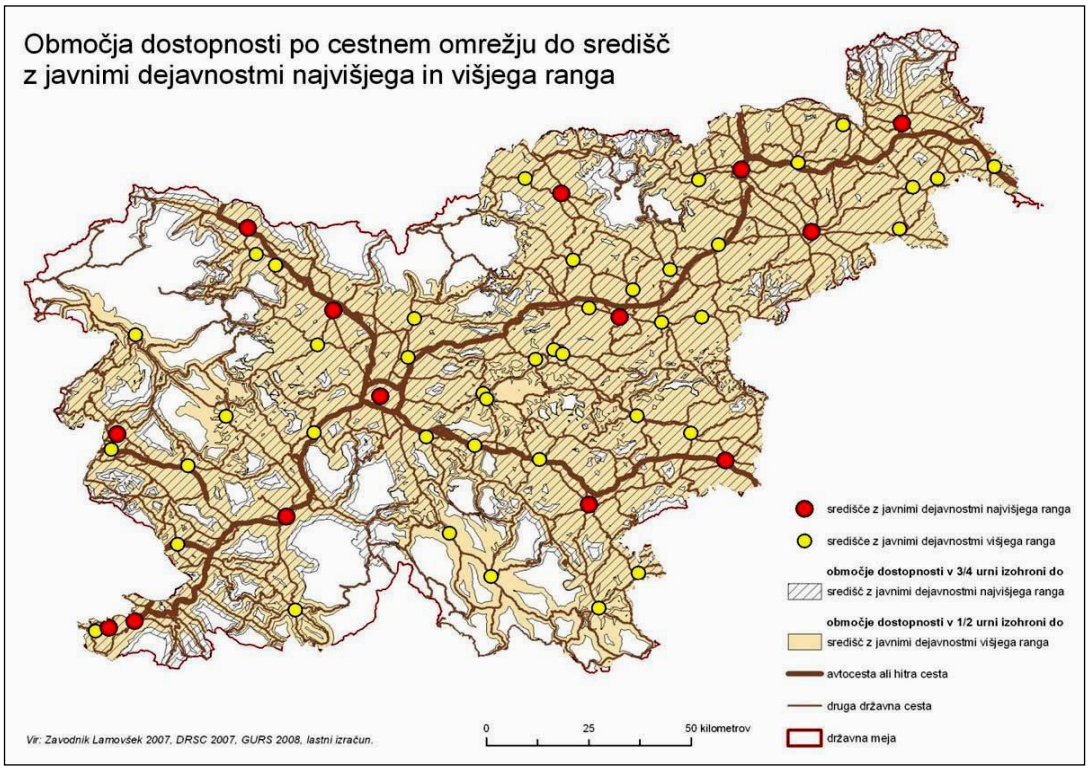
transport connection between the cities in the Slovenian Istria region and other places in the northern Adriatic region.

The inefficiency of public passenger transport arises from a poor level of organisation and also from a settlement structure, which is inappropriate for organising public passenger transport with numerous small and scattered settlements. This means that the improvement of public transport cannot be tackled in the same way on the territory of the entire state, but it would require various measures.

The increasing traffic flow trend continues in road transport. The increase of flows is the consequence of suburbanisation and distribution of jobs. Additional travels and traffic flows are also caused by the movement of service, trade and business activities to the peripheries of cities. General activities (education, health care, administration) are concentrated in major urban centres, which are, considering their functional application, distributed to highest rank centres and high rank centre(Map 13).

These centres are easily accessible to the majority of Slovenians, which is mostly the consequence of good coverage with the mentioned activities, developed motorway networks and a high level of mobility among the population. Weaker accessibility is noted mostly in Posočje, Cerkljansko, Kočevsko and Bela krajina regions.

Alternative means of access should be considered for these areas, especially regarding access to health care services (hospitals), shopping centres and high school education.

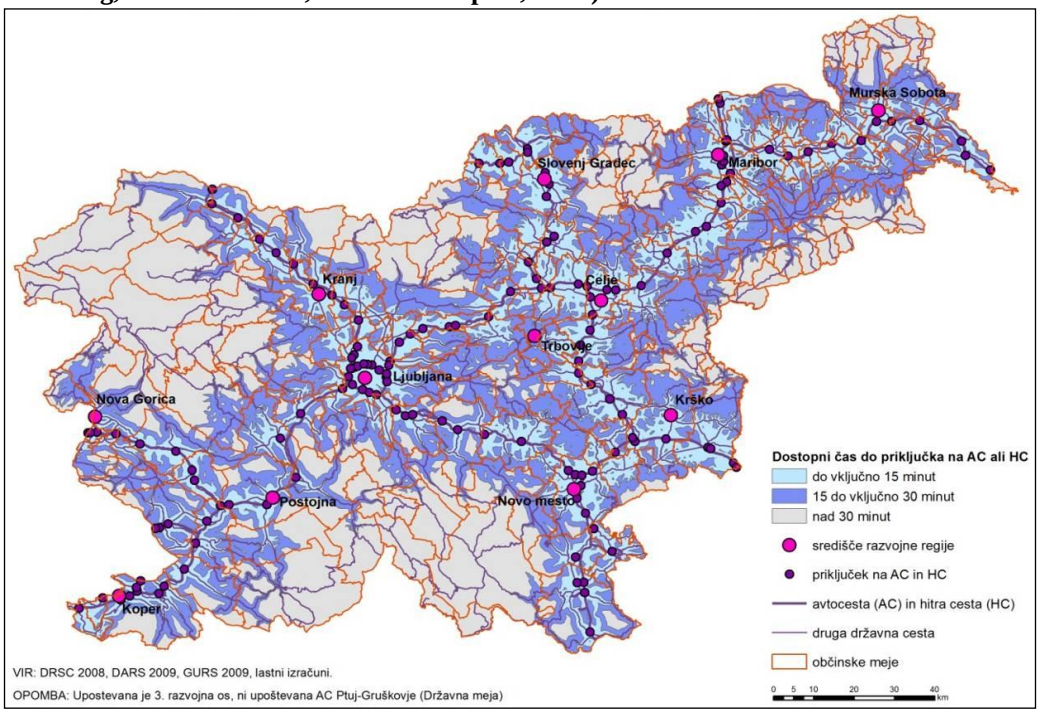


Areas of accessibility by road network to centres with public activities of the highest and high rank

Centre with public activities of the highest rank
Centre with public activities of high rank
Accessibility area in 3/4 hour to centres with public aactivities of the highest rank
Accessibility area in 1/2 hour to centres with public activities of high rank
Motorway or expressway
Other state roads
State border

Figure 6: Road network accessibility areas to centres with public activities of the highest and high levels (Source: Pogačnik s sod. 2010: "Analiza razvojnih virov in scenarijev za modeliranje funkcionalnih regij, CRP

2006-2013, Poročilo 2. Faze", (Analysis of developmental sources and scenarios for functional regions modelling, CRP 2006-2013, 2nd Phase Report, FGG)



Time of accessing MW or EW connection
up until 15 minutes
15 to 30 minutes
more than 30 minutes
centre of development region
MW and EW connection
motorway (MW) and expressway (EW)
other state roads
municipality borders

Figure 7: Accessibility to motorway or expressway junction (year 2025) – the analysis also comprises the future 3rd transport axis with the most probable location of connecting points. Motorways Ptuj-Gruškovje, Postojna-Jelšane, Divača-Pivka or Koper-Jelšane are not considered in this analysis. (Source: FGG)

Despite a strategically appropriate transport position, there are no modern terminals for combined freight transport. The transport supply of the economy and the connection between centres and their hinterlands are also insufficient.

Future spatial development of Slovenia

Spatial Planning Strategy of Slovenia

The Spatial Planning Strategy of Slovenia (Official Gazette of the Republic of Slovenia, no. 76/04) determines the valid spatial development model. Since its adoption in 2004, numerous questions have arisen regarding its actual role in development planning. A new framework strategy is in preparation.

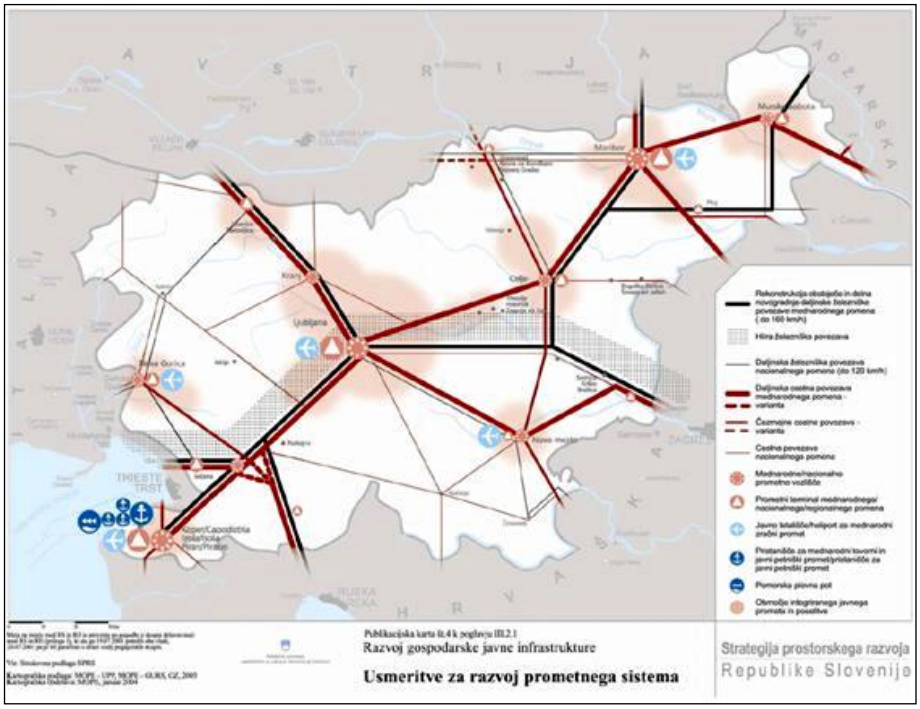


Figure 8: Spatial guidelines for the development of inter-modal transport network in connection with settlement (Source: MzIP, SPRS, Official Gazette of the Republic of Slovenia, no. 76/04)

Espon Interstrat Project

Two models of Slovenia's spatial development were presented within the scope of the ESPON INTERSTRAT project. The first model emphasises the advantages of concentration of human activities, the economy of scale and efficiency (concentration and efficiency model), the other model emphasises the importance of settlement of the entire territory, self-supply and tolerance in unpredictable circumstances (inhabitation and self-supply model) (table below).

Table 4: Comparison of spatial development models by key topics

Ključna tema	Različne mogoče kombinacije javnih politik		
1. prebivalstvo	poudarek na migracijski politiki; selektivna migracijska politika, globalna solidarnost, usmerjanje migracij v večja središča	poudarek na družinski politiki; omogočanje višje rodnosti, povezava s stanovanjsko politiko in dostopnostjo stanovanj, bolj omejevalna migracijska politika	
2. delovna mesta	spodbujanje razvoja delovnih mest, ustvarjenih s pomočjo lokalnih virov	koncentracija delovnih mest v središčih, predvsem v okviru prenove degradiranih območij	
3. struktura poselitve	krepitev višje ravni središč, predvsem nacionalnih središč	gostejša mreža središč, večja teža na nižji ravni središč	poudarek na razvoju v okviru funkcionalnih regij, krepitev srednje ravni središč
4. viri in omejitve	novo ovrednotenje virov in omejitev, omejitve kot vir za ekosistemske storitve	prilagajanje dejavnosti virom in omejitvam, upoštevanje družbenih stroškov pri razvoju dejavnosti	
5. Opremljenost	poudarek na učinkoviti izrabi vseh vrst infrastrukture in ekonomiji obsega ter na uporabi standardov opremljenosti	poudarek na pokrivanju ozemlja in samooskrbnosti, kadar ni dosežena ekonomija obsega	
6. prometna politika	poudarjen razvoj vseh oblik javnega potniškega prometa	kombinacija učinkovitejše uporabe avtomobilov in podpore razvoju javnega potniškega prometa	
7. stanovanjska politika	ponudba stanovanj predvsem ob vozliščih JPP in v središčih, poudarek na prenovi sosesk in obstoječih stanovanj, mešana območja in socialna struktura	ob ponudbi stanovanj v središčih tudi upoštevanje drugih stanovanj na manj dostopnih območjih (»dvoživke«) kot potenciala za ohranjanje poseljenosti	

Key topic	Various combinations of public policies		
1. Population	Emphasis on migration policy; selective migration policy, global solidarity, directing migrations to large centres	Emphasis on family policy; enabling higher birth rate, connection with residential policy and accessibility of apartments, more restrictive migration policy	
2. Jobs	Stimulating employment development based on local resources	Concentration of jobs in centres, especially within restoration of degraded areas	
3. Settlement structure	Strengthening a higher level of centres, especially national centres	Denser network of centres, greater emphasis on lower level of centres	Emphasis on the development within the scope of functional regions, strengthening the middle level of centres
4. Resources and restrictions	New assessment of resources and restrictions, limitations as the source of ecosystems	Adapting activities to resources and restrictions, considering social costs in the development of activities	
5. Infrastructure	Emphasis on efficient use of all types of infrastructure and the economy of scale, use of equipment standards	Emphasis on covering the territory and self-supply, when the economy of scale is not reached	
6. Transport policy	Emphasised development of all forms of public transport policy	Combination of more efficient use of private vehicles and the support to the development of public passenger transport	
7. Residential policy	Offer of apartments, especially near public transport hubs, emphasis on the restoration of residential centres, mixed areas and social policy	The consideration of apartments in less developed areas ("amphibians") as the potential for preserving settlement	

On one hand, the concentration model (Map 18) emphasises the role of functional regions of large centres, especially Ljubljana and Koper, where the major part of international migrations is concentrated, as well as Maribor, Celje, Novo mesto or Velenje, which remain the important centres for jobs and inhabitants, where the economic and social infrastructure can be improved.

On the other hand, the settlement model (Map 19) strengthens the importance of small centres in areas with more difficult access, such as Idrija and Kočevje, where the number of jobs and population is increasing, the scope of infrastructure is improving. The level of investments in the infrastructure of large and major centres is lower, therefore, the probability is that it will not be possible to appropriately upgrade all infrastructure.

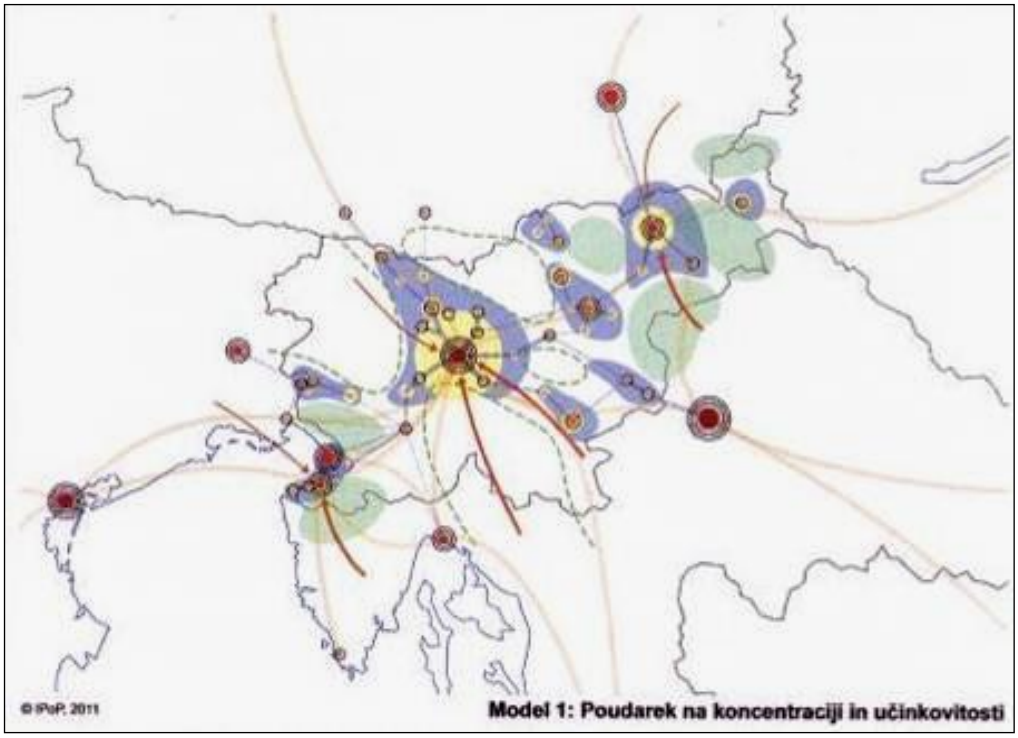


Figure 9: Concentration and efficiency model (source: Institute for Spatial Policies, 2011)

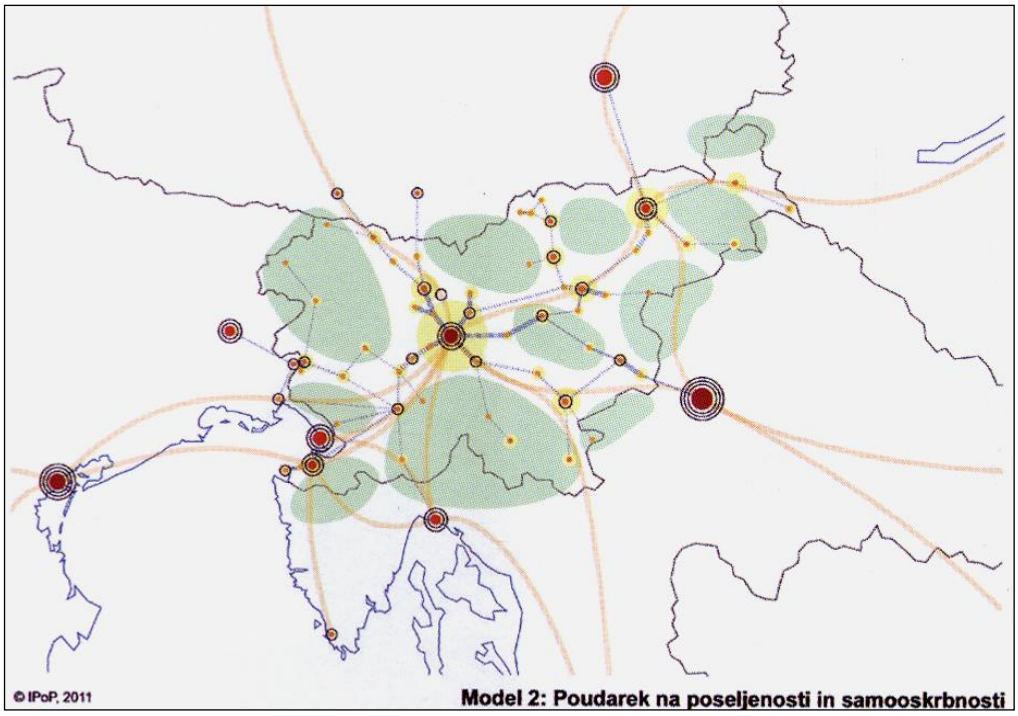


Figure 10: Settlement and self-supply model (source: Institute for Spatial Policies, 2011)

Key:

Population

Arrows display the extent and direction of international migrations

Workplaces

The size of the circle displays the number of workplaces in the centre.

Settlement structure

Colours display the importance of the centre in the hierarchy of settlements.
Centre of international importance/MEGA
Centre of national importance/transnational/national FUA
Centre of regional importance/regional/local FUA
Centre of intermunicipal importance

Resources and limitations

The display of the area presents the relation towards resources and limitations in space in individual area.
Areas where natural limitations prevail
Areas where the use of resourses for development of local workplaces prevails

Endowment

The number of concentric circles presents endowment of centres with social and business infrastructure.
Centre with high endowment; excellent connectivity and all types of infrastructure
Centre with medium endowment; good connectivity and excellent endowment either with social or business infrastructure, or good endowment with all types of infrastructure
Centre with sufficient endowment; access to all types of infrastructure

Transport policy

The width of the line displays the extent of daily mobility and the type of the line the prevailing method of transport.
Public passenger transport prevails
Private vehicle transport prevails

Housing policy

The size of the circle denotes the number of apartments in the centre.
Over 100,000 apartments
50,000 and up to 100,000 apartments
10,000 and up to 50,000 apartments

5,000 and up to 10,000 apartments
Less than 5,000 apartments

Some centres, especially Ljubljana, and some medium sized centres would therefore become less important. Important differences between the models are also shown in the transport policy, where the concentration model enables a more consistent support to public passenger transport, which can assume the major part of daily migrations in large functional regions. Quite in opposite to this, the settlement model preserves a greater importance of personal transport that remains the dominant form of daily migrations on almost all main connections. Less densely populated areas outside the functional regions present an opportunity for the development of jobs based on local sources. The concentration model, however, does not dedicate special attention to the spatial development of these areas.

The settlement and self-supply model, which is directed inwards and at the same time does not emphasise the development of large centres, is well harmonised with ESPON's scenario of emphasised competitiveness, where all of Slovenia is considered as a peripheral area. By emphasising settlement and self-supply, the efficiency of spatial development and the possibility of developing the economies of scale are reduced, and therefore, in such a case, the importance of Slovenia in the wider area would be probably decreased. The concentration model, on the other hand, better adjusts to the scenario of emphasised cohesion on the European level, where Slovenia is better integrated in the core of the continent and preserves Ljubljana as a centre of European importance.

2.4 *Current state analysis by individual environmental areas*

Transport is one of the most important factors of environmental pollution. The most noticeable impact is on air quality, since transport with emissions significantly contributes to polluting the local atmosphere and climate changes. The transport sector also has other negative impacts on the environment, such as the increase of noise load, the loss of natural resources (if the infrastructural corridor runs on cultivated land or through forests), the loss of biodiversity, habitat fragmentation, water eutrophication, soil and water acidification, waste, negative visual effects, etc. Transport can also impact health mostly through noise, emissions, vibrations, and through the drinking water when corridors run through water protection areas and similar. Therefore, the demands for sustainable transport development have risen, since it would enable undisturbed future development and be environmentally-friendly.

Data for the continuation of current state are taken from sources mentioned in the text or from the website of the Ministry of Agriculture and the Environment, which also contains environmental indicators for monitoring needs ((http://kazalci.arso.gov.si/?data=indicator&ind_id=204).

The current state mostly considers pollution is due to transport and not other sources of pollution.

2.4.1 Air

Road vehicles, ship motors, locomotives and airplanes are the sources of air pollution in the form of gases and solid particles that impact air quality:

- **Nitrogen oxides** (NO, NO_2): emerge as side products of incomplete combustion. They catalyze ozone, they are an element of acid rain and smog. They impact the natural cycle of nitrates, especially in water, where they impact algae formation.
- **Carbon monoxide**: is a colourless and odourless gas that emerges from incomplete carbon monoxide combustion. It does not cause direct global effects, but as a catalyst it indirectly contributes to the greenhouse effect.
- **Carbon dioxide:** emerges during the combustion of fossil fuels. It is an important atmosphere heat regulator. The increase of its concentration is connected with the greenhouse effect.
- **Sulphur dioxide:** emerges as a consequence of the combustion of fossil fuels. It is the main ingredient of acid rain and it also impacts the greenhouse effect.
- **Particles:** are various solid particles that can be found in atmosphere: smoke, carbon black, dust and different aerosols). The emissions of primary particles caused by transport emerge mostly due to incomplete combustion of fossil fuels (carbon black) and friction (sweeping dust

particles from the road, and also due to tire and brake discs use). Secondary particles also emerge in large quantities due to transport emissions, and these particles are formed based on chemical reactions from nitrogen oxides as nitrate aerosols or from sulphur dioxide as sulphate aerosols. Other toxic substances are also tied to air particles (e.g. HC and VOC). They mostly impact the health of people (lungs, heart, cardiovascular system), and the deposits on leaves inhibit photosynthesis and the growth of plants.

- **Lead:** is a toxic metal that can be found in leaded fuel, especially in countries in development. Lead impacts the metabolism and accumulates in living tissue.
- **Hydrocarbons (HC) and vaporous organic compounds (VOC):** occur as gases and emerge due to incomplete gasoline combustion, while refilling gasoline or from the evaporation from storage units. They can be found in smog, and they catalyze ozone and are part of acid rain.

Transport is one of the main sources of emissions of substances that cause acidification, the emergence of ground level ozone and particles. In the transport sector, road traffic mostly contributes to these emissions. For the majority of pollutants, this share is higher than 80%. Between 1990 and 2011 the emissions of substances causing acidification were reduced by 36% and ozone predecessors by 55%. The emissions of particles with regard to the year 2000 were reduced by 4%. The reduction of emissions is the consequence of introducing stricter emission standards for motor vehicles, purchasing new vehicles and lower contents of sulphur in fuel. In 2009 and 2010, emissions fell strongly in comparison with 2008, which is mostly the consequence of the economic crisis and a lower consumption of fuel. In 2011, another slight increase in emissions in comparison with 2010 occurred, however, the values of emissions prior to the crisis were not exceeded.

The emissions of SO_x, NO_x and NH_3 in the atmosphere as well as their subsequent chemical reactions and accumulation in ecosystems cause soil and water acidification. The accumulation of these substances causes damage on ecosystems, buildings and materials (corrosion). Negative effects of acidification depend on the acidification potential for individual pollutants and of the features of individual ecosystems and materials. The most important pollutant in transport that causes acidification is NO_x. Although nitrogen oxides emissions caused by transport reduced by 25% in the 1990–2011 period, they contributed 95% to acidification in 2011. NO_x and NH_3 cause excessive accumulation of nitrogen in soil and water (eutrophication).

The ground level ozone emerges also due to emissions of NO_x, NMVOC, CO and CH_4 that enter complicated photo-chemical reactions in the lower layers of atmosphere. NO_x, NMVOC, CO and CH_4 are called the precursors of tropospheric ozone. Individual pollutants have different potentials for the creation of ground level ozone. In 2011, nitrogen oxides had the greatest share among substances that contribute to ozone emergence (76%). The major source of ozone precursors in Slovenia is transport. Ozone concentrations depend mostly on the weather in spring and summer months, therefore, they tend oscillate annually. The transfer of ozone concentrations across borders is also important. For Slovenia and mostly for the Primorska region, the Padan Plain is an extensive source, since large quantities of ground level ozone emerge there. Ground level (tropospheric) ozone has harmful impacts on people's health and ecosystems. High concentrations of ground level ozone impact the respiratory system, especially lungs, and in ecosystems, they cause a reduction of produce, cause damage to leaves and reduce disease resistance. Ozone also causes damage to plastics and rubber.

The emissions of primary particles PM_{10} and their secondary precursors (NO_x, SO_x and NH_3) reduced by 4% in the 2000–2011 period, mostly due to the reduction of SO_2 emissions, which is the secondary precursor of PM_{10}. Nitrogen oxides also extensively contributed to emissions in 2011 (92%). Individual pollutants have different potentials for the creation of secondary particles. Particles present a large issue in the urban environment and not only in Slovenia but also in all of Europe. Inhaling particles can cause frequent and serious respiratory diseases, increasing the possibility of premature death. Small particles that enter even deeper in the lungs are especially dangerous.

The objectives for improving air quality are determined in the European legislation (Directive 2001/81/EC on national emission ceilings for certain atmospheric pollutants; the NEC Directive) and the Protocol to Abate Acidification, Eutrophication and Ground-level Ozone along with the 1979 Convention on Long-range Transboundary Air Pollution. Managing and reducing emissions is also the objective of the National

Environment Protection Programme (ReNPVO, 2006) which contains several operational programmes with similar objectives. Its purpose is to ensure a better quality of ambient air by gradually reducing SO_2, NO_x and NH_3 emissions. Due to lower emissions, there would be consequently less ground level ozone, acidification and eutrophication. The most important measures are reducing individual transport in urban areas and simultaneously increasing the use of public transport and improving it, redirection of freight transport to railways and reducing personal passenger transport, mostly over short distances in cities, increasing parking fees in urban centres, consistently fining inappropriate parking, simultaneously reducing the prices and improving public transport, increase road fees for freight vehicles, stimulate the use of private vehicles that pollute the environment less, consistent control of catalyst operations efficiency, preventing transboundary transport pollution by consistently fulfilling the European mechanisms in accordance with international agreements (protocols and conventions) and interstate bilateral cooperation.

2.4.2 Climate factors

In Slovenia, GHG emissions in the base year 1986 were 20.35 million tonnes of CO_2 equivalent; an 8% reduction means that emissions in Slovenia between 2008 and 2012 should not exceed an average of 18.73 million tonnes of CO_2 equivalent per year.

The available data show that Slovenia fulfilled its obligation arising from the Kyoto Protocol, and reduced the GHG emissions in the 2008–2012 period by more than 8 per cent considering the starting emissions, whereas the increase of emission reduction due to forest management and the introduction of EU-ETS was considered. For enforcing reductions Slovenia must consistently implement all necessary activities for monitoring forest management.

The emissions of sources outside the EU-ETS, which are considered under the Decision No 2009/406/EC on the effort of Member States to reduce their greenhouse emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020, were 0.6% lower in 2011, in comparison with 2005. Emissions from EU-ETS sources were lower by 11.9% in the same period.

Among the emissions from sources outside the EU-ETS in 2011, transport had the largest share, 49.5%, followed by the use of fuels in households and services industry with 17.0% and agriculture with 16.5%. From 2005 to 2011 the emissions from transport increased by 28.7%, emissions from the use of fuels in households and services decreased by 24.4%, from agriculture by 5.1%.

In Slovenia in 2011 the emissions, as considered in the Decision No 2009/406/EC on the effort of Member States, amounted to 11,515 kt CO_2 equivalent, which is 3.2% lower than the upper limit for 2013 and 4.6% lower than the objective for 2020. Emissions in 2008 set their record at 12,546 kt CO_2 equivalent, and substantially exceeded both target values, by 5.5% for 2013 and by 4.9% for 2020. The average of emissions in the 2008–2011 period, which amounted to 11,693 kt CO_2 equivalent, was only by 1.7% or 3.2% lower than the limit values for 2013 and 2020.

Most alarming is the increase in emissions from transit traffic passing through Slovenia, which increased noticeably after Slovenia's accession to the EU. On the basis of an estimate of the fuel sold to foreigners, CO_2 emissions in transit amounted to 490,000 tonnes in 2004, which is 12% of total traffic emissions. This share of annual CO_2 emissions fluctuates and strongly depends on the ratios among the prices of fuels on Slovenian roads and the prices of fuels for road vehicles in neighbouring countries.

The reduction of GHG emissions from transport ranks among the priority tasks of the vision of Slovenia's transfer to low-carbon economy. The NPRJPI will define in particular the objectives of reducing GHG emissions and policies and measures to optimise the management of the transition to a society with low GHG emissions in transport.

2.4.3 Water

Although Slovenia is a small country, it abounds in various types of watercourses which are the result of a diverse geological ground composition and diverse terrain. We have a relatively dense hydrographic network, we can say that we live with water and we witness regular or occasional flooding, though some

areas face the lack of water and draught that is mostly the consequence of a large difference in the quantity of precipitation between the western and eastern areas of Slovenia. Slovenia has 1,200 flood areas where around 225 thousand people live. Half of flood areas are located on the Sava River area, 40% on the Drava River area and 4% on the Soča River area. Torrent ravines, valley floor and built alluvial plains are especially endangered. Floods that occur due to sea tide and Karst floods are less extensive. On part of the flood areas meadows and pastures were changed to cultivated land, while on some locations flood areas were also built. 7% of Slovenia's inhabitants resided on the area of usual floods in 1991, one quarter of all inhabitants live on the so-called major flood areas. Settlement and pressures on the water environment are also different. (Source: Report on the status of the environment in Europe 2010 – Slovenia's contributions).

Integration of infrastructural corridors can permanently impact the hydrological situation in a certain area (when the corridor runs across a flood area), bridging structures may impact the eco-morphological situation in the watercourse, discharge of polluted precipitation water can impact the quality of the watercourse and similar.

The main effects of maritime transport on the quality of water arise from oil spillage, ballast waters, waste and deepening of the river bottom. Deepening of the river bottom is implemented by removing sediments from the bottom to enable access for large ships to reach ports. However, the deepening of bottom has a dual negative impact on the marine environment. It modifies hydrology and causes water turbidity that can impact biodiversity. In addition, ballast water is required for supervision, stability and larger draught of ships. Ballast waters are acquired on a certain area and can contain some invasive aquatic species. When these waters are discharged on another area, such aquatic species ruin the balance and disturb the natural marine ecosystem.

The health of people is the key factor for the quality of life, and it is greatly impacted by the state of the environment, especially clean drinking water. Karst waters deserve special attention mostly due to their vulnerability or small self-cleaning ability. Since these waters represent almost one half of the underground water, their protection is particularly important. Caution must be taken on the entire Karst area, since many underground water ways are still unexplored. Along with the responsibility for health and welfare of Slovenia's people, the EU membership and numerous signed international agreements oblige us to care for water. The situation and development of this area is therefore carefully monitored with the purpose of fulfilling the obligations according to European directives and international conventions.

2.4.4 Sustainable use of natural resources

Transport impacts land in two ways: directly with the construction of transport infrastructure and indirectly with the development of other activities due to good transport infrastructure. One of the most obvious negative impacts of transport infrastructure development is city expansion. Urban areas are expanding to rural land, thus leading to the reduction of agricultural land and dispersion of land. City expansion also causes further problems, since private vehicles as the main mean of transport prevail on these areas.

In comparison with fossil fuels, biofuels are mostly considered as a "green alternative". Such detailed explanation of their indirect environmental impacts causes numerous doubts. The entire process of acquiring biofuels causes extensive emissions of greenhouse gases which currently exceed reduced emissions during the combustion of biofuels. The anticipated shares of use of biofuels demand extensive cultivated land with planted corn, soy and other products, thus possibly reducing biodiversity and at the same time increasing the price of food. The impact on rural development, brought by the production of biofuels, is also questionable. Numerous countries are therefore involved in developing improvements to the technology of obtaining biofuels and environmentally friendly use of cultivated land. The European Commission is studying the possibilities for issuing special certificates that would ensure sustainable production of biofuels (EEA; 2005 and 2007).

Use of land

Data from the database Use of Land of the Ministry of Agriculture, Forestry and Food show that between 2002 and 2011 the total scope of fields and gardens decreased by 15.7%, the scope of hop fields decreased by 16.6%, overgrown land by 7.3%, vineyards by 12.1% and land for other use by 17.8%. Total scope of forests increased by 0.9%, olive groves by 40.2%, meadows by 7.3% and all types of orchards by 2%. Area

that was determined as built and similar land in 2002 and 2011 cover 5.3% of Slovenia's territory. A more specific analysis of land use modification, which included all areas that were transferred from other categories to built and similar land category (flows of changes), shows that in the 2002–2007 period 19,712 ha were built up and urbanised, presenting a 22.5% increase of urban areas. In the 2007–2011 period the surface of urban land increased by 372 ha, the most urbanised was agricultural land (65.2%) and forests (24.4%). The changes in usage of large areas are noticeable mostly on the edges of settlements for industrial needs and shops, and along the routes of large infrastructural facilities (motorways). In total very important areas are mostly represented by small but numerous and very scattered individual constructions, restorations, expansions and renovations of buildings and small infrastructure. Only continuous areas of large forests can be determined without major and numerous changes. Uneconomic use and use that is unsustainable from the agricultural and environmental aspect as well as degradation of natural resource: in the direction of intensive construction, with regards to environmental functions of land with high value. Negative trend of building very arable land or the best agricultural land continues. The process evolves mostly on valley floors and along the main transport corridors as well as along the expansion of settlements for the requirements of industry and residential construction.

Use of renewable sources

Use of final energy in transport

The use of energy in transport in 2011 amounted 1,917 ktoe. In comparison with 2010 it was higher by 7%, in comparison with 2000 it was higher by 55% and in comparison with 1992 by 117%. Considering the use in 2008 when the maximum level in the observed period was achieved, the use was lower by 7%. By far, the most energy was used in road traffic, which in 2011 presented 97% of total use. International air transport contributed 1.2%, railway transport 1.3%, domestic air transport 0.05%. Diesel fuel was the highest in 2011 with 65.0%, followed by gasoline with 30.8%. Other fuels were biodiesel with 1.6%, kerosene with 1.2%, electricity with 0.7%, liquid petroleum gas with 0.3%, biomethanol with 0.2% and airplane gasoline with 0.05%.

In the use of final energy, transport in 2011 represented 39% which is the highest share as in 2008. Considering the year 2005, the share was higher by a poor 9 percentage points.

The use of energy in transport is closely connected with its scope and economic growth. The reduction of negative impacts of the use of fossil fuels in transport is included in the objectives of numerous European and Slovenian documents. It can be attained by reducing transport demand, increasing energy efficiency of transport means or increasing the share of alternative or more sustainable energy sources and forms of transport (public transport, cycling etc.).

Introducing alternative fuels in transport

The anticipated shares of use of biofuels did not achieve the referential shares as determined in the Directive 2003/30/EC, because there are no refineries for gasoline production in Slovenia and because there are not enough biofuels produced which would be attractive from the marketable aspect and appropriate for mixing with motor fuel. Biofuels in the Republic of Slovenia were in a trial process mixed in diesel fuel purposed for motor vehicles in road traffic in 2004. The biodiesel that was mixed in diesel fuels was partially imported from third countries or obtained in other EU Member States, and partially produced in Slovenian vegetable oil production plants. From July 2005, the mixed fossil diesel (80%) and biodiesel (20%) was tested on two city buses of the Ljubljanski potniški promet (LPP) company, however, due to the problems of fuel storage, up to 20 buses started using 100% biodiesel in 2006. In March 2009, the LPP company terminated the use of pure biodiesel on all buses because they were not economical. In 2011, the LPP company included 20 new buses in city transport, which are driven by methane gas, thus significantly contributing to the reduction of emissions of some air pollutants, mostly fine particles in exhaust gases. Mostly technological possibilities for biodiesel production or pure (raw) vegetable oil as an alternative engine fuel are available in Slovenia. The basic material is oil obtained by cold pressing of rape or sunflower oilseed. A further procedure of esterification is required for producing biodiesel from vegetable oil. Material produced on domestic agricultural land or imported materials will be used for this process. In the future, the major part of the planned biodiesel production will base on imported materials, since according to the estimates made by the Ministry of Agriculture, Forestry and Food, a maximum 6,000 to 7,000 ha of land would be appropriate for the production of oilseed rape.

Almost three times more land was planted with oilseed rape in 2010 in Slovenia than in 2005. In 2010, it was planted on 6.464 ha, which along with a total production of 15,518 tonnes, enabled the production of 5,000 tonnes of biodiesel. Biodiesel was produced by only one registered producer, which produced 20,561 tonnes of biodiesel from oilseed rape, produced on agricultural land in Slovenia, and they also used imported materials. In the past few years, the production of biodiesel in the Republic of Slovenia has been non-proportionally small with regards to production capacities, which can be attributed by market/price situation in the field of mineral/fossil fuels and biofuels.

Biodiesel, mixed with diesel fuel and purposed for motor vehicles in road transport, was used on a trial basis in 2004, while its share in fossil diesel as well as the share of other biofuels (e.g. bioethanol) was gradually increasing. The share of biofuels in the Slovenian market is increasing, however, the prescribed quotas have still not been achieved. In 2010, most biofuels were sold as the mixture of biodiesel and diesel, whereas the content of biodiesel did not exceed 5%. In 2012 the content of biodiesel in sold diesel fuel was 3.66% m/m, and bioethanol in motor gasoline was 1.39% m/m.

At the end of 2009 in Slovenia, the trial production of biodiesel in the new production plant with an annual capacity around 50,000 tonnes began. This was quite a stimulation for the production of plants appropriate for biodiesel production. The mentioned plan planned a short-term production capacity of 25,000 biodiesel per year. Imported oils, waste edible oils and animal fats, as well as locally grown seeds (mostly oilseed rape) were used as materials. As mentioned, the expectations on the production of biodiesel in Slovenia did not materialise.

The use of biofuels produced from cultivated plants is recognised as non-sustainable use of natural resources due to a relatively high carbon print of such biofuel production and a too high negative impact on agricultural production of food. More sustainable use of natural resources for the production of liquid biofuels is the use of diverse biomass for the production of the so called green diesel according to the second or third generation biofuel production (e.g. Fischer-Tropsch procedure), which are not currently available in the market in such form as forest biomass, etc., that would be economically rational for exploiting.

The use of hydrogen and electricity for driving motor vehicles is also very important as an alternative to biofuels. It is assumed that for sustainable use of hydrogen and electricity in transport, that both energy media are produced in a renewable way, i.e. from renewable energy resources plants (solar, wind or hydro power plants). The use of hydrogen and electricity to drive motor vehicles is quite important in urban areas, since such use of fuels significantly contributes to reducing ambient air pollution.

The introduction of natural gas or liquid petroleum gas for motor vehicle drive is not considered as an alternative to biofuels, although the introduction of these fuels has major importance for transport in urban environment. Vehicles driven with such fuels significantly less pollute ambient air by the emission of particles.

Waste management

Used motor vehicles

The number of newly registered private vehicles in the Republic of Slovenia has been regularly increasing in the past few years, up to 100,000 in the recent years. The growth trend of registered private vehicles is similar, i.e. from around 700,000 in the middle of the 1990s up to almost 1,130,000 in the recent years.

From May 2004 until the end of 2010, the processing centres disassembled slightly more than 41,000 tonnes of used motor vehicles. The calculated shares of reuse and recycling as well as repetitive use and processing for 2008 are: reuse and recycling: 87.64%; and repetitive use and processing: 89.67%. In 2010, slightly fewer than 7,000 vehicles were disassembled in Slovenia.

The target share of vehicle reuse and recycling for 2015 is 85%, which eight EU Member States, including Slovenia achieved in 2008.

Waste tyres

A waste tyre is a tyre that an owner cannot or does not want to use due to damage, use, expiry of life period or other reasons and discards it or plans to discard it. A waste tyre is also a tyre that the user returns to tyre

distributors due to complaints with regard to the quality of the supplied goods. A waste tyre is waste that is categorised under classification number 16 01 03 on the list of waste as determined by the regulation on waste management. In accordance with the Decree on the management of waste tyres (Official Gazette of the Republic of Slovenia, no. 63/09) a tyre is the outer part of a wheel for private vehicles, buses, trucks and trailers, motor bikes, bicycles, agricultural and forest vehicles and machinery.
Waste tyres belong to the most extensive and most problematic waste due to their volume and long-term degradability. The criterion for assessing the success rate of waste tyre management system is the level of production, which on average among EU Member States amounts to 85%. In Slovenia, we strive to follow this (informal) target rate with the introduced measures for achieving this proportion, e.g. expanded producer's liability, improved collection organisation etc.

Green public procurement
With the new umbrella Directive 2008/98/EC on waste, the EU supplemented the policy framework in the field of waste management. The Directive also incorporates the objective in the field of construction waste, for which the preparation for reuse, recycling and material processing should increase to at least 70% of total mass by 2020.

Building industry is the perfect industry for using construction and industrial waste, where the synergy effect is reflected in the following facts:
- Large quantities of waste can be used, especially on road construction,
- Potential toxic substances in waste are permanently mobilised when used appropriately, and
- New composites frequently have better functional features in comparison with conventional composites.

In 2008, the European Commission prepared a communication entitled "Public procurement for a better environment", in which was written that 50% of all public procurement procedures in EU should comprise green criteria by 2010, which is included also in the fundamental criteria of the EU on public procurement. In the last decade, the share of funds purposed for public procurement amounted to approx. 19.9% of EU's GDP, showing that the inclusion and consideration of environmental criteria in public procurement procedures could significantly stimulate production and sale of products (product and service), which present a minor burden for the environment through their life cycle.

The Government of the Republic of Slovenia in 2011 issued the Regulation on green public procurement[16], stipulating:
- Minimum obligatory environmental requirements (so-called fundamental environmental requirements),
- Recommendations for achieving higher environmental standards (so called additional environmental requirements),
- The method of including environmental requirements in public procurement procedures, and
- The method of proving that the bidders or goods, services or construction fulfil environmental requirements.

2.4.5 Nature

In spite of its modest size, Slovenia has abundant diversity of species, with a large number of species in a small territory. On a global scale, it has one of the most diversified biotical underground systems, and with more than 58% of forest cover (with well-preserved species) it is one of the most forested countries in Europe.

There are 3,266 varieties of indigenous taxa of tracheophytes and phanerogams described for Slovenia; their basic character is defined with Alpine and Central European floristic elements and Pannonian, Dinaric and Mediterranean species. There are many endemic plants (66 taxa, 22 of which are unique to the territory of Slovenia) that grow in a very small area and nowhere else in the world. The abundance of species is associated with the diversity of habitat types, which is in turn dependent on various factors ranging from the natural-geographic (range of heights above sea level, solar irradiation, geological makeup) to the florogenetic and, finally, purely anthropological (intensity of impacts on nature, urbanisation, extensive farming, etc.). Parts of western Slovenia (a major part of the Alps and the Slovenian sub-Mediterranean

[16] Official Gazette of the Republic of Slovenia, nos. 102/11, 18/12 and 24/12

with Karst and parts of Istria) show significantly greater diversity than the central and eastern parts. The western parts namely have approximately 140 km^2 of surface area in four quadrants that together form the basic field and are home to 800 or more taxa.

There are between 13,000 and 15,000 species registered in Slovenia; 4000 of these are endemic animal species (mostly underground animals). This is home to species with highly diverse areas of geographical distribution (eastern European, Eurasian, western European, Mediterranean and numerous endemic species of the western Dinarides). The abundance of species is primarily found in invertebrate groups; among vertebrate groups, an important (vital) portion of some European or the world's most endangered charismatic species is present in this area.

The initiation of **protected areas** is one of the most important mechanisms of preserving plant and animal species and their habitats. By entering the EU we have also established **ecologically important areas** and special protection areas called the **Natura 2000 areas**. Today, 13.3% of the territory lies on protected areas and 67.7% of the territory on ecologically relevant areas; 37.2% of the territory is protected within the scope of Natura 2000.

Slovenia now has 354 Natura 2000 areas, of which 323 areas are determined on the basis of the directive on habitats (total area 6,639 km^2 or 32.1% of Slovenia's territory); 31 areas (total area 5,077 km^2 or 24.6% of Slovenia's territory) are determined on the basis of the directive on birds. The areas according to the directives on birds and the habitats area are partially overlapping, i.e. there are 4,033 km^2 such overlapping areas. Therefore, 79% of the area under the directive on birds is also the same area under the directive on habitats. 61% of the surface of areas under the directive on habitats is at the same time the area under the directive on birds. The number of species under the directive of habitats is 114, under the directive on birds there are 118 species, and the number of qualification habitat types is 60.

Currently, in Slovenia we have: 1 national park, 3 regional parks, 44 landscape parks, 1 strict natural reserve, 54 natural reserves, 322 natural monument areas, 840 natural monument sites, 91 monuments of designed nature areas, and 28 monuments of designed nature sites (ARSO, 2013). Protected are a total of 268,662 ha, which is 13.3% of the Slovenia's territory.

There are 46 protected areas on the Slovenian territory, which encompass 541,108.6 ha or 26.7% of Slovenia's territory. Among these areas, 29 are proposed for landscape parks; 10 areas are proposed for natural monument, and 7 areas are proposed for regional parks.

The Rules on the designation and protection of valuable natural features has designated 2743 valuable natural feature areas, 5885 natural feature sites, and 9083 natural feature caves. The total area of all polygons amounts to 266,951.34 ha, which represents 13.2 % of the country's territory. In terms of surface area, the largest geomorphological valuable natural features are the Pokljuka and the Jelovica plateaus, followed by the Nanos thrust-fold mountain and the Karst Rim.

There are 275 ecologically important areas in Slovenia, as well as 32 caves designated as ecologically important areas. The major part of ecologically important areas is covered by the central part of habitat of large carnivores, the Julian Alps and the Kočevsko region. Ecologically important areas have a total area of 1,372,261.53 ha or 67.7% of the Slovenian territory.

There are major forest complexes in Slovenia, which represent an exceptional natural feature due to their rarity, complexity and ecosystemic role. They are important in terms of the further development of life (evolution) in moderate climate environments, and of conservation of ecosystem functions that are linked to many surface events. For ensuring the possibility of a broad movement area for species (large carnivores) and increased probability of their survival, movement is of key importance in these forests. Slovenia has three basic areas where large carnivores live (central, border and passable areas of occurrence)[17]. Such large forest complexes in the southern part of Slovenia are included in the central area of the habitat of large carnivores (an ecologically important area). These belong to the inner part of plateau

[17] Brown Bear Ursus Arctos Management Strategy in Slovenia, Brown Bear (Ursus Arctos L.) Management Action Plan in the Republic of Slovenia

Snežnik and Goteniški Snežnik, of the area Kočevski Rog and the forest Trnovski gozd. These areas must be specially considered in the planning of infrastructural corridors, and the migration ways that were once terminated must be re-established with the initiation of transport corridors.

Migration problems mostly occur on older sections of motorways where there are only few wildlife underpasses, and there are no green bridges. The need for construction of an eco-duct on the Ljubljana-Koper motorway, i.e. on the Vrhnika-Postojna section, was already expressed due to the migration of lynx and bear. On numerous sections of regional and local roads, the passages of amphibians remain unresolved, since their spring migrations to spawning sites cause a high mortality rate[18].

2.4.6 Cultural heritage

The Register of Cultural Heritage at the Ministry of Culture (RKD, September 2013) counts 32,035 units of heritage, and of this:

- - 22,475 units of architectural heritage which can be secular (14,374 units), religious (7,916 units) and religious/secular (185 units). These are individual buildings, other facilities and devices, groups of interconnected buildings, facilities and devices, including installations and equipment, where the physical substance is the bearer of the values mentioned in the definition.
- 1,360 units of urban heritage; these are areas of settlements which constitute their historical core, historical quarters and other historical areas. It is comprised of individual facilities and groups of buildings with associated open spaces that are functionally and visually related to them.
- 3,386 units of archaeological heritage; these are professionally identified and registered archaeological sites, together with all the relics, artefacts and human traces that are a testimony of the history of mankind and the human relationship with the natural environment, irrespective of whether they are on land or under water, and for which the main scientific source are the excavations or discoveries and other scientific methods of research.
- 4,156 units of memorial heritage; these are facilities and regulated land, such as public monuments and public sculptures, other monuments, tombs, cemeteries with graves, tombstones and garden-architecture arrangements, and individual graves and tombstones that have been built or arranged so that they celebrate a historic event, a historical happening and a memory of a historic person, or which have served or still serve a commemorative or pious purpose, with the exception of buildings that have directly served or still serve the purpose of religious rituals.
- 234 units of cultural landscapes; these are special (topographically) delimited parts of the landscape that are created through the interaction of human and natural factors, and illustrate the development of human society in time and space. They obtained socially and culturally recognised values due to the material remains, which are reflected in past land use, activities, skills and traditions, or because of their depiction in literary or artistic works.
- 247 units of garden-architecture heritage; these are parts of the human environment or cultivated nature, including natural and built elements according to landscape architecture principles. As a rule, they are spatially and substantively related to the architectural heritage.
- 39 units of historical landscape; these are areas that gained socially and culturally recognised values through obtained and proved links with important historical events, such as battles and other military operations whose material remains are preserved at the site.
- 129 units of other heritage (for example, technical heritage, areas of abandoned villages, locations of castles).

Integrated conservation of heritage is realized in development planning and measures of state, provinces and municipalities, so that they include heritage, while respecting its special nature and social importance, in sustainable development (Article 1 of the ZVKD-1). Protection of cultural heritage in the processes of drafting and adopting the plan shall be guaranteed with regard to acts of declaration of immovable monuments, registered archaeological sites and acts on the protection of heritage sites (note: the latter are not defined yet), and with the heritage impact assessment (the subject of this material) (Article 73 of the ZVKD-1). The handbook of legal protection regimes that should be taken into account in spatial planning

[18] The analysis of attaining the objectives of the Strategy for Biodiversity Conservation in Slovenia, Symbiosis Institute, 2012

and interventions in space in the areas of cultural heritage (http://giskd2s.situla.org/evrdd/P_09_04_03.htm) contains a concise overview of the consolidated texts of all legal protection regimes that apply in the cultural heritage areas.

The development of transport infrastructure impacts the units and cultural heritage areas directly during the integration of new infrastructural connections and during the operations of:
- Degradation of landscape features of the environment of cultural heritage units and by demolishing archaeological remains,
- Vibrations that cause damage on cultural heritage buildings, and indirectly with:
- Emissions of gases, since nitrogen oxides and sulphur dioxide are the components of acid rain that causes damage on buildings and monuments.

Due to inappropriate developmental programmes and project in the field of transport regulation, lately many cases of permanent loss of individual buildings and cultural heritage areas or their heritage features have occurred, i.e. in different ways prior, during and after the implementation of a programme or project. The integration of new transport connections has the largest impact on archaeological remains, since the interventions in the ground cannot be avoided during construction. Interventions in the environment are considered as destructive acts from the standpoint of preserving archaeological remains (e.g. excavation), since quite a large part of data can be destroyed forever.

2.4.7 Landscape

The recent transformation of the environment has been quite spontaneous and is among other things shown in the trends of irrational dispersed construction outside settlements and in the devaluation of cultural landscape and settlement heritage.

From the landscape standpoint Slovenia is distributed to five basic regions (Alpine, Sub-Alpine, Sub-Pannonian, Karst and coastal region) which are further distributed to smaller units. There are 233 sub-units and 357 landscape patterns on the fourth level, proving large landscape diversity. On the Slovenian territory, the SPRO and PRO determine 93 areas of exceptional landscapes and 60 landscape areas with recognisable features. These are areas that include distinctive and representative parts of the Slovenian landscape, with well-preserved landscape elements; in particular, these are areas of outstanding landscape, with rare or unique patterns of landscape structure and a spatially underlined cultural heritage of high testimonial and memorial value, in combination with exceptional forms of natural elements, and with natural values. Several municipal spatial planning acts also define landscape areas with distinctive features at the local level. Exceptional landscapes in Slovenia (MOP, Acer Novo mesto d.o.o., 1996, mod. 1999) comprise a selection of rare, unique landscapes that are notable for having one or more especially valuable features, such as: a unique pattern of land use, characteristic landscape structure, consistent spatial relationships, an appropriate share of natural elements, a specific settlement pattern, characteristic emphasis reflecting the unique spatial structure.

2.4.8 Human health

Noise

Noise in the environment is an undesired or harmful external sound caused by human activities including noise caused by transport means in road, railway and air transport, as well as devices in the areas with industrial activity. Noise is each sound that causes unrest and disturbance, harms health or wellbeing, at the same time it has harmful effects on the natural environment. Noise burden is an important environmental issue, since there is more and more information available on the harmful consequences on human health of being exposed to increased levels of noise. The recent publication[19] issued by the World Health Organisation (WHO) shows that the loss of more than one million healthy years of life can be attributed every year to noise caused by transport in the EU Member States and other western European countries. In

[19] WHO European Centre for Environment and Health, 2011; Burden of disease from environmental noise, Quantification of healthy life years lost in Europe, http://www.euro.who.int/__data/assets/pdf_file/0008/136466/e94888.pdf

the Guidelines for Community Noise[20] the WHO determined the effects of environmental noise including sleep disorders as a serious health issue. The European Night Noise Guidelines[21] for Europe include the recommended value for night noise at only 40 dB (A).

Long-term exposure to noise causes great environmental risk that endangers human health, yet the exposure to noise in comparison with other causes of stress in Europe is increasing. Urbanisation, greater demand for motorised transport and inefficient urban planning are the main reasons for increased exposure. Noise burden is also often increased on settled areas, where the quality of ambient air is also problematic.

Exposure to noise can cause irritation, disturb sleep, impact cognitive functions of school children, trigger physiological responses to stress and cause cardiovascular diseases in persons that are chronically exposed to noise. Stress can cause the emergence of some hormones that can have numerous indirect effects, including high blood pressure. Due to these effects, the risk for cardiovascular diseases and mental disorders are increased in long-term exposure.

The economic costs of noise burden in the environment include the reduction of value of real property, the decrease of productivity due to health impacts and distribution impacts. Social costs are related with premature deaths or diseases (bad concentration, fatigue, hearing problems). Social costs of noise caused by railway and road transport in the EU were recently estimated at EUR 40 billion per year, of which 90% are connected with road transport. This presented approx. 0.4% of total EU's GDP[22] including health care costs. Approximately 20% of the population in Slovenia suffer due to noise unacceptable[23] for health, and the social costs of noise caused by transport were estimated[24] at approximately EUR 154 million per year (data for 2002).

Noise burden on the environment has been increasing in the recent years due to the increase of transit transport and the expansion of settlement areas. The most important source of noise burden in Slovenia is road transport, followed by railway transport. Strategic noise maps have been prepared on the area of Slovenia in accordance with the requirements of the Directive 2002/49/EC in 2007 as the record of the burden on the environment caused by noise sources. Maps were prepared for the area of Ljubljana as a settlement area with more than 250,000 residents and for areas along the important state roads with the transportation of more than 6 million vehicles, and railway lines with transportation of more than 60,000 trains. In all cases, the situation was considered for 2006.

Strategic noise maps represent the basic review of the existing noise load or the estimate of exposure of areas and residents to noise. They also serve as the basis for informing the public and for preparing operational programmes for noise protection. In the first phase in 2007, the strategic noise maps were prepared in accordance with Directive 2002/49/EC for:

- Important roads managed by the DRSC and DARS d.d. with more than six million vehicle transports in 2006 (total 462 km),
- Important railway lines with more than 60,000 train transports in 2006 (total 67 km),
- Settlement area of Ljubljana; noise caused by road and railway transport and the operations of entities that obliged to apply to the IPPC Directive.

The strategic noise maps were made for a total of 462 km of state road network; of which 312 km are managed by DARS d.d. (motorways and expressways) and 150 km are managed by DRSC (main and regional roads). Roads managed by DARS d.d. due to their transit character run mostly past settlements or on the brinks of large cities. Furthermore, extensive measures for the prevention of noise expansion in the

20 WHO, 1999; Guidelines for Community Noise, http://whqlibdoc.who.int/hq/1999/a68672.pdf
21 WHO, 2009; Night noise guidelines for Europe, http://www.euro.who.int/__data/assets/pdf_file/0017/43316/E92845.pdf
22 ES Delft, 2007, http://www.transportenvironment.org/docs/Publications/2008/2008-02_traffic_noise_ce_delft_report.pdf.
23 ARSO, 2009, Report on the Environment in the Republic of Slovenia 2009, http://www.arso.gov.si/varstvo%20okolja/poro%C4%8Dila/poro%C4%8Dila%20o%20stanju%20okolja%20v%20Sloveniji/POS2009_zdruzeni_dokument0.pdf
24 Mesarec, Lep, 2004, Analiza eksternih stroškov prometa (Analysis of external transport costs); http://www.drc.si/Portals/1/Referati/T4-Mesarec.pdf

environment were also implemented (noise fences and dams), therefore, the noise burden on residents along the motorway network is smaller than along the roads managed by the DRSC, which usually run through settlements and large settlement areas.

It has been established based on strategic noise mapping[25,26] that in 2006, more than 136,000 people in Slovenia were exposed to whole-day noise burden (L_{dvn}) above 55 dB(A), 29,000 people to noise burden over 65 dB(A) and 686 people to noise burden higher than 75 dB(A). During the night ($L_{noč}$) 86,000 residents were exposed to noise higher than 50 dB(A), and 14,830 of them were exposed to noise higher than 60 dB(A).The most burdened motorway section is the A2/0052 Brezovica-Vrhnika section, the most burdened state road sections are G1-1/1400 Miklavž-Hajdina and G1-1/364 between the Cesta proletarskih brigad and Tržaška cesta in Maribor.

On the considered sections of motorways and state roads in 2006, with regard to limit values of noise indicators during the night, 5,367 buildings and 37,222 residents were overburdened and whole-day exposure was noted at 3,670 buildings and 28,988 residents. Areas where critical values of $L_{NOČ}$ and L_{DVN} indicators were exceeded require special attention. These areas are determined as degraded areas in accordance with the legislation in the field of noise protection. During the night period, 2,444 buildings with 17,056 residents were in degraded areas in 2006, during the entire day, there were 1,688 buildings with 13,436 residents in such areas. The number of overburdened buildings and residents along motorways is smaller than along state roads, with regard to limit and critical values.

Operational noise monitoring is being implemented on the state road network, while the first noise assessments are in principle implemented on all new road constructions in the legally determined term (15 months from execution). Data on operational monitoring are not collected in a joint database, therefore, there are no detailed situation analyses along existing roads and new constructions on the Slovenian territory.

Strategic maps for railway lines with transportation of more than 60,000 trains were prepared for the Celje-Maribor railway line in the total length of 67 km[27]. In 2006, the value of L_{dvn} indicator between Celje and Maribor exceeded 55 dB(A) for 2,645 buildings with protected rooms (10,050 residents), the $L_{noč}$ indicator value exceeded 50 dB(A) for 2,365 buildings with 8,690 residents. The critical value of L_{dvn} indicator was exceeded in 262 buildings with 928 residents, the critical value of $L_{noč}$ indicator was exceeded in 531 buildings with 1,963 residents. Considering the limit values of noise indicators, 101 buildings and 387 residents were overburdened during the day, 147 buildings and 593 residents were overburdened in evening time, and 1,143 buildings as well as 4,026 residents during the night. In the whole-day period 504 buildings and 1,864 residents were overburdened.

Noise burden of the environment along main railway lines in the Republic of Slovenia was assessed in the expert groundwork entitled the Strategy of reducing excessive noise of railway transport in the Republic of Slovenia[28], where the status of 1,298 lines in 2008 was considered. Most buildings and residents are overburdened along the main lines during the night, which is mostly the consequence of freight transport and stricter limit values in that period. During the night, 7,474 buildings with 38,603 residents are overburdened, the limit value for whole-day period is exceeded in 4,683 buildings with 24,065 residents. Municipalities with the most overburdened residents are Ljubljana (11,128), Jesenice (4,804) and Litija (2,231), as well as Laško, Borovnica, Ptuj, Brezovica and Krško with more than 1,000 overburdened residents. Regarding the critical values of noise indicators, residents are mostly overburdened during the night along many railway lines. During the night, 4,501 buildings with 23,409 residents are critically overburdened, the critical value for whole-day period is exceeded in 2,726 buildings with 13,367 residents. Municipalities, where more than 1,000 residents are living in critically overburdened buildings, are

[25] Epi Spektrum d.o.o., PNZ d.o.o., 2007, Implementation of strategic noise maps for the network of important roads with more than 6 million transports of vehicles in 2006, managed by DARS d.d.

[26] PNZ d.o.o., Epi Spektrum d.o.o., 2007, Implementation of strategic noise maps for the network of important roads with more than 6 million transports of vehicles in 2006, managed by DRSC

[27] Epi Spektrum d.o.o., PNZ d.o.o., 2007, Implementation of strategic noise maps for the network of impor tant roads with more than 6 million transports of vehicles in 2006, managed by DARS d.d.

Epi Spektrum d.o.o., 2010, Expert documents for the strategy on reducing excessive noise of railway transport in the Republic of Slovenia, Noise burden assessment along the main railway lines in the Republic of Slovenia

Ljubljana (6,843), Jesenice (3,246) and Litija (1,517), and there are between 500 and 1,000 residents in seven municipalities.

In 2007 the strategic noise map for the settlement area was prepared only for the Ljubljana City Municipality area[29,30]. The Ljubljana City Municipality is 275 km^2 large and has 266,251 permanent residents. The results of strategic mapping have shown that 17% of the entire area is exposed to whole-day noise burden caused by road transport, where noise is higher than 60 dB(A), while during the night 20% of the entire area is exposed to noise higher than 50 dB(A). Almost all residents on the area of the Ljubljana City Municipality are exposed to road transport noise, of which almost 40% to a burden that is higher than 60 dB(A) during the entire day. During the night 42% of all residents live on the areas with noise burden higher than 50 dB(A).

Noise caused by railway transport is also substantial on the area of the Ljubljana Municipality. 1.7% of residents are exposed to a railway transport-related noise burden higher than 60 dB(A) during the whole-day period, during the night the share of residents exposed to noise burden, higher than 50 dB(A) is 3.3%. 4.7% of all overburdened residents were also exposed to noise caused by railway transport during the night. Within the scope of the strategic noise map, the rate of burden on the environment, caused by industrial sources of noise and devices was also assessed; 15 entities obliged to abide by the IPPC Directive were considered. IPPC devices that operate on the area of the Ljubljana City Municipality, burden the population to a minimum extent, only 0.4% of all residents live on the area where the limit values are exceeded.

There are no large airports in Slovenia (according to Directive 2002/49/EC these are airports with 50,000 movements of airplanes per year), therefore, strategic noise mapping for air transport was not executed. Regular operational noise monitoring has been implemented in the vicinity of the Ljubljana Airport since 2008, and it includes noise measurements on 4 locations (Šenčur, Lokarje, Lahovče). Noise monitoring results[31] show that noise burden in the vicinity of Ljubljana Airport does not exceed the legally determined noise values, and considering the reduction in transport in the past few years, the noise burden is also reducing.

In 2013 and 2014 the operational noise monitoring is being implemented for the entire road network managed by DARS d.d. and for all important roads managed by the DRSC as well as for all important railway lines. At the same time, strategic noise maps for a total of 637 km managed by DRSC, 607 km of roads managed by DARS d.d., 315 km of main and regional railway lines and for the Ljubljana City Municipality and Maribor are being prepared. The second phase strategic noise mapping data will be entirely ready and assessed in 2014.

Air

Air pollution can have a major negative impact on human health. It is estimated that per year, 2 million people die prematurely due to polluted air. Most of the problems in attaining the appropriate quality of ambient air in Slovenia lie in achieving the determined limit values for particles. In the past few years, exceeding of determined limit values for PM_{10} were registered in almost all city municipalities.

Exposure to particles

Along with solid fuels heating units, transport is the major source of ambient air pollution with particles. Particles can have other numerous negative impacts on health: they cause and aggravate asthma, cause atherosclerosis, worsen the underlying respiratory system, cardiovascular diseases, cause cancer etc. The mortality rate in cities, where particle pollution is high, in comparison with cities with relatively clean air, is greater by 15 to 20%.

Studies show that the average life expectancy in EU is shorter by 8.6 months due to exposure to $PM_{2.5}$ particles, which equals 3.6 million lost years of life per year. The basic mechanism for the impact of PM_{10} and $PM_{2.5}$ particles on human health is oxidative stress (the emergence of cytokines, fat peroxidation)

29 A-projekt d.o.o., 2008, Strateška karta hrupa za Mestno občino Ljubljana; za cestni in železniški promet na območju MOL - za leto 2006

30 A-projekt d.o.o., 2008, Strateška karta hrupa za Mestno občino Ljubljana; IPPC zavezanci na območju MOL - za leto 2006

31 Jože Pučnik Ljubljana Airport, ZVD d.d., Results of continued noise monitoring in the vicinity of Ljubljana Airport (2008–2013)

which causes local and systemic inflammation. Along with oxidative stress, the inflammatory reaction also runs along C-reactive fibres and histamine release.

Based on the reports of the Institute of Public Health of the Republic of Slovenia and regional Health Insurance Institutes as well as on the basis of other researches, it is evident that there are major regional differences in the state of health, occurrence of diseases and mortality due to the exposure of residents to particles and that there are noticeable differences in the quality of the environment (environment degradability state), which have negative impacts on the health of local population. The results of the study, published in 2010 by the European Environment Agency (EEA), show that in 2005, 44.6% of Slovenia's inhabitants were exposed to exceeded daily limit values for particle concentration in ambient air (more than 35 days the average daily concentration of PM_{10} was higher than 50 $\mu g/m^3$). The exposure of the population in the EU is smaller: in 2005, 28% of EU population were exposed to concentrations exceeding the daily limit values for particles.

Exposure of population to ground-level ozone

The harmful ground-level ozone (tropospheric ozone) is caused by the emissions of pollutants, caused by human activities. The occurrence of tropospheric ozone is the consequence of complicated photochemical reactions between the precursors of ozone (NO_x, NMVOC, CO and CH_4) as well as sunlight. The emissions of nitrogen oxides and hydrocarbons from road transport play the dominant role in the emergence of tropospheric ozone.

The concentrations of ground-level ozone in Slovenia are characterised by typical annual and daily procedures. The emissions of precursors do not change much and the conditions for the emergence of ozone are most favourable from May until the end of July. Ozone concentrations strongly depend on the weather, since rain washes the ozone and its precursors away from the atmosphere. In cloudy weather too little light reaches the ground, therefore, the chemical reactions that cause ozone, are not sufficiently intensive.

The highest concentrations emerge in the Primorska region, mostly in situations when the wind blows from the southern or south-western direction. The increase of ozone concentration is not linked only to the narrow area around the source of emissions of pollutants – precursors of ozone. High concentrations only occur on wider areas. This means that the concentration is similarly high on locations several kilometres from the site of ozone precursor emission.

Ozone is a highly reactive gas and a strong irritant with strong oxidative functioning in respiratory system. In the protective layer of mucous membrane, ozone reacts with the present protective antioxidants (e.g. ascorbic acid, tocopherol) and reduces their value. This leads to the change in the relation between oxidants and antioxidants outside and within the cells, causing oxidative stress. Oxidative stress causes oxidation of cell structures leading to cell death. It also directly impacts cell elements. It oxidates SH aminoacids groups (enzymes, proteins, peptides) and oxidises polyunsaturated fatty acids of the cell membrane in acid peroxides, causing the death of a cell.

Asthma patients are sensitive to ozone exposure. This exposure causes cough, degradation of pulmonary functions and asthmatic seizures. The effects are especially common in children.

Patients with weaker immune systems are also sensitive to ozone as well as other people, who are exposed to several irritating factors at the same time. The effects of exposure to ozone are greater in those in a natural environment than in those who are intentionally exposed to ozone. The reason for this most probably lies in the fact that environmental exposure is repetitive, at the same time it involves simultaneous exposure to other pollutants.

The highest measured concentrations of ozone in large cities in Slovenia can impact the health of sensitive people. The risks for respiratory problems are increased during the days when ozone concentrations are highest, when people engage in physical activities.

The reports of the Institute of Public Health of the Republic of Slovenia show that the number of hospital admissions caused by respiratory diseases in adults increases by 0.38%/10 $\mu g/m^3$, the number of

admissions due to respiratory diseases in people older than 65 years increases by 0.62%/10 μg/m^3, the mortality rate of patients with underlying respiratory diseases increases by 0.8%/10 μg/m^3, the mortality rate due to cardiovascular diseases increases by 0.4%/10 μg/m^3.

Quality of drinking water

In 2011, 89% of people in Slovenia were supplied with drinking water from the drinking water supply systems, where quality monitoring was implemented at use site, i.e. at user's tap. The quality of water is unknown for around 11% of Slovenia's population who get water from their own sources of drinking water or systems with less than 50 persons, or who are for other reasons not included in monitoring. In large cities all residents are supplied with drinking water, where monitoring is implemented.

In Slovenia, approximately 1000 water supply systems provide water to over 90% of the population. A large number of small water supply systems which supply water to only a small percentage of the population is characteristic of Slovenia. The quality of drinking water is more stable in larger systems. In smaller systems, physical and microbiological pollution of drinking water is more frequent due to weather and other effects (Annual report on drinking water quality for 2012).

Quality of inland bathing waters and bathing water of coastal sea

So far, 48 bathing waters on rivers (Soča, Idrijca, Nadiža, Krka and Kolpa), lakes (Lake Bohinj, Lake Bled, Šobec Pond) and the sea have been identified in Slovenia so far.

The conformity of bathing waters in the period from 2004 to 2009 was assessed on the basis of sensory evaluations of three physical and chemical parameters (detergents, mineral oils, phenols) and laboratory tests of two microbiological parameters (joint coliform bacteria and fecal coliform bacteria). From 2010, bathing waters quality is has been assessed according to the requirements of the Directive 2006/7/EC that requires the monitoring of only two microbiological parameters.

From 1992 to 2001 the number of reported events producing pollution on the sea increased. By considering the total number of noticed and reported cases we can anticipate that, considering the features of our sea (semi-closed, shallow gulf with relatively small volume, great impact of climate factors and bad exchange of water masses etc.), such pollution has extensive negative impacts on the marine environment, especially in comparison with open seas. Along with ship transport, an important share of pollution is also attributed to boats – small, illegal spillages in the sea, especially during the summer.

2.4.9 Socio-economic development

For the past two decades, Slovenia has focused the majority of its vast investments in road infrastructure, in the construction of the motorway cross, and a smaller part in other state roads. Railways that have a greater sustainability potential, are lagging behind in the developmental aspect, since they were neglected with regard to investments. The existing railway lines, mostly built in the 19th century, do not apply to the transport needs according to their parameters and neither according to their capacity. They also cannot compete with the modern road network in Slovenia and the renovated railways in the majority of EU Member States. Fortunately, after 2007 this trend started changing; in 2011 railways were dedicated the majority of investment funds for the first time. Air and sea transport do not play an important part in the structure of comprehensive infrastructural investments of the state.

People's awareness on environmental problems related to transport does not lead automatically to changing mobility habits. By providing information and raising awareness we can help in changing the patterns of habits with regard to sustainable mobility. In its principles and strategic guidelines, the Resolution on the National Programme for Environment Protection[32] emphasises the meaning of environmental awareness and the dialogue with all interested entities and the cooperation of the public.

The main attention of transport policy in the Republic of Slovenia is dedicated to sustainable mobility that represents the heart of transport policy of the European Union. In its communication entitled "Europe 2020 – Strategy for smart, sustainable and inclusive growth", the Commission emphasised that social cohesion,

[32] (Official Gazette of the Republic of Slovenia, no. 2/06)

green economy, education and innovation are important for the European area[33]. The Resolution on National Road Transport Safety Programme for the period from 2013 to 2022 (Together for Greater Safety)[34] has the goal that the number of casualties on Slovenian roads per year until 2022 will not exceed 70 and by the end of 2022 the number of seriously injured people on Slovenian roads per year will not exceed 460.

2.5 *Review of important impacts of the NPRJPI on the environment*

The content of the environmental report is determined on expert bases, the results are shown in Table 4. The review of possible environmental impacts is performed based on the draft of ReNPRJPI.
The environmental report will consider all environmental areas, which can be subject to direct, indirect, short-term/temporary, long-term/permanent, remote, cumulative and synergy impacts.

On the strategic level, the state's transport policy has a permanent significant impact, especially on air, climate factors, noises (including the impact on health due to air pollution and noise burden) and socio-economic factors. These areas are regulated on the European level by in-advance stipulated goals with regard to achieving emissions in the air and noise burden, which must be considered separately in the preparation of the NPRJPI. Some subjects are not significant for the strategic level of transport policy planning, however, they are very relevant and essential for the spatial planning phase (in the phase of selecting variants for individual interventions). These areas are sustainable use of natural resources, landscape, cultural heritage, nature and water. General guidelines which should be included in the NPRJPI will be presented in the environmental report for the NPRJPI. On some environmental areas (light pollution, EMR, impact on drinking and bathing water, vibrations), the impact of transport policy will be noticeable mostly in the implementation phase (intervention planning phase). These environmental areas are specifically regulated with legislative regulations and/or depend on technical features of the intervention (these data are still unknown in the NPRJPI assessment phase), therefore, we believe that these areas do not have to be assessed within the scope of the comprehensive assessment of NPRJPI impacts.

Table 5: Explanation of the need for assessing individual segments of the EP

Environment area	Definition of potential impacts	Area assessment in the EP YES/NO
Sustainable use of natural resources	- Impact on sustainable use of land (loss of agricultural land, loss of forest land) - Use of renewable energy sources - Waste management (old vehicles etc.) - Use of recycled materials Type of impact: direct, permanent, cumulative Level of impact: strategic level of decision-making (programme)	**YES**
Air	- Emission of pollutants from transport in the air, which have harmful impacts on ecosystems and biodiversity - Emission of pollutants from transport, for which national upper limits of emissions are stipulated Type of impact: indirect, remote, permanent, cumulative Level of impact: strategic level of decision-making (programme)	**YES**
Climate factors	- Emissions of greenhouse gases caused by fuels in transport Type of impact: indirect, remote, permanent, synergy Level of impact: strategic level of decision-making (programme)	**YES**
Water	- Changes of ecological state of a watercourses (regulation of	**YES**

[33] COM(2010) 2020
[34] (Official Gazette of the Republic of Slovenia, no. 39/13)

	watercourses or stabilisation of embankments due to infrastructure construction) - Pollution of continental waters and the sea (outflow of polluted waters from the road, discharge of ballast waters etc.) - Reduction of retention surfaces of floods - Impact on the quality of underground water, especially when the infrastructural corridor runs across the water protection area - Spillages of hazardous substances in events of accidents Type of impact: direct, remote, permanent, cumulative Level of impact: strategic level of decision-making (plan)	
Nature (habitat fragmentation, biodiversity, important nature conservation areas)	- Habitat fragmentation - Termination of migration ways (for existing and new infrastructure) - Impacts on wild animals caused by noise, obstacles, collisions with vehicles - Impact on protective goals of protected areas, Natura 2000 areas and ecologically important areas - Impact on the type and features of natural values Type of impact: direct, remote, permanent, cumulative Level of impact: strategic level of decision-making (plan)	**YES**
Human health	AIR QUALITY - Impact of air emissions (NOx irritate the eyes and respiratory system, CO lung, heart and vascular diseases, SO2 impacts the respiratory, cardiovascular systems, solid particles cause cancer and are harmful for the lungs, heart and the vascular system) Type of impact: direct, temporary, cumulative Level of impact: strategic level of decision-making (programme)	
	NOISE POLLUTION - The impact of noise burden caused by transport on human health - Excessive noise level harms human health (irritation, sleep disorders, physiological response to stress and cardiovascular diseases in persons that are chronically exposed to noise) - The impact of noise burden caused by transport on quiet open areas Type of impact: direct, remote, permanent, cumulative Level of impact: strategic level of decision-making (programme)	**YES**
	ELECTROMAGNETIC RADIATION BURDEN - The impact of railway electrification on EMR burden on people: outside the railway corridor stipulated by the Railway Traffic Safety Act (Official Gazette of the Republic of Slovenia, no. 61/2007) the impact of EMR is insignificant (Report on expected burdening of natural and living environment with electromagnetic radiation, buildings within the DLN limits for the second track for the Divača-Koper line – open line, Milan Vidmar Electric Power Research Institute, 2006). Type of impact: direct, permanent Level of impact: Implementation level (intervention)	**NO**
	LIGHT POLLUTION BURDEN - The impact of light pollution caused by the lighting of transport infrastructure: in the case of considering legal regulations during planning there will be no impact (Decree on limit values due to light pollution of the environment, Official Gazette of the Republic of Slovenia, nos. 81/07, 109/07, 62/10, 46/13). Type of impact: direct, permanent Level of impact: Implementation level (intervention)	**NO**
	IMPACT ON THE QUALITY OF DRINKING WATER AND BATHING WATERS	**NO**

	- Impact on the quality of drinking water (in case of spillage of hazardous substances, washing of remains of oil fuels and heavy metals from soil to underground water) - Impact on the quality of bathing water (transport, water pollution caused by vessels). This area is determined by the Directive 98/83/EC on drinking water, Directive 2006/7/EC on bathing water quality management, Directive 2000/59/EC on port reception facilities for ship-generated waste and cargo residues and all regulations implemented in the Slovenian legislation. The mentioned impacts can be avoided by considering the valid regulations and inspections of the quality of bathing and drinking water and by implementing the determined regimes in this area. Therefore, we estimate that transport policy has no substantial impact on the quality of drinking and bathing water. Type of impact: direct, temporary, cumulative Level of impact: Implementation level (intervention)	
	VIBRATIONS - Transfer of vibrations from infrastructural buildings (especially railway) on buildings in close vicinity - Burdening buildings and population with vibrations due to the operations of the railway and road network The impact on burdening the environment with vibrations is limited to areas directly next to railway and road networks. Importantly, the transport policy does not impact the increase of environmental burdens with vibrations; the anticipated renovation of transport infrastructure will reduce the transfer of vibrations on the construction along the railway and road networks. Type of impact: direct, permanent Level of impact: Implementation level (intervention)	**NO**
Socio-economic development	- Impact on material assets - Impact on tourist important locations (accessibility) - Stimulating healthy lifestyle (e.g. cycling routes) - Impact on the number of road accidents - Awareness of national authorities, local communities and the population with regard to planning sustainable development (planning sustainable policy, changing mobility habits etc.) Type of impact: indirect, temporary, permanent Level of impact: strategic level of decision-making (programme)	**YES**
Cultural heritage	- Damages of archaeological remains at construction of infrastructure - Loss or damage on cultural heritage units - The impact on protection regime of cultural heritage units Type of impact: direct, remote, permanent, cumulative Level of impact: strategic level of decision-making (plan)	**YES**
Landscape	- Changes of landscape - Impact on landscape areas with recognisable features - Impact on exceptional landscapes Type of impact: direct, remote, permanent, cumulative Level of impact: strategic level of decision-making (plan)	**YES**

Transboundary effects

Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment requires Member States to define, and consult on, the transboundary effects of making plans and drafting programmes (i.e. those which may affect other Member States).

It is expected that the implementation of measures of the NPRJPI will not have additional transboundary effects; meanwhile, in relation to transboundary effects due to pollutant emissions from traffic into ambient air, these effects will be considerably reduced in the medium term.

In further comprehensive environmental impact assessment procedure, it is important to continue establishing and assessing potential transboundary effects in order to prompt official consultations with neighbouring European countries if necessary.

Defining environmental objectives, sub-objectives, guidelines (measures) and indicators

Environmental objectives and sub-objectives referred to in the 7th Environment Action Programme to 2020 'Living well, within the limits of our planet[35]are used for environmental impact assessment of the NPRJPI. The objectives regarding cultural heritage and landscape are an exception, as these two fields are not dealt with in the programme.

From the wide range of objectives and sub-objectives of the aforementioned programme, only those are used which are important for the environmental impact assessment by the implementation of the NPRJPI in terms of the principle of subsidiary implementation of EU plans and programmes in Slovenia. The environmental objectives refer to all fields required by Directive 2001/42/EC for the comprehensive assessment of plans and programmes.

Guidelines are defined for each sub-objective, which must be taken into account when planning the preparation of the NPRJPI. Guidelines are derived from the related strategic programmes and documents which deal with individual fields, and are related to environmental protection they are presented in Table 7 in Chapter 2.6.2.

The 7th Environment Action Programme to 2020 provides a general framework for environment policy by 2020 and defines nine priority objectives which must be attained by Member States, i.e.:
1. to protect, conserve and enhance the Union's natural capital;
2. to turn the Union into a resource-efficient, green and competitive low-carbon economy;
3. to safeguard the Union's citizens from environment-related pressures and risks to health and well-being;
4. to maximise the benefits of Union environment legislation;
5. to improve the knowledge and evidence base for Union environment policy;
6. **to secure investment for environment and climate policy, and address environmental externalities;**
7. to improve environmental integration and policy coherence;
8. **to enhance the sustainability of the Union's cities;**
9. to increase the Union's effectiveness in addressing international environmental and climate-related challenges.

From the wide range of objectives and sub-objectives of the aforementioned EU Environment Action Programme to 2020, only those are used that are important for the environmental impact assessment in the implementation of the NPRJPI in terms of the principle of subsidiary implementation of EU plans and programmes in Slovenia.

Sub-objectives referred to in priority environmental objectives 1, 2, 3, 6 and 8 are adopted from the 7th Environment Action Programme to 2020 for environmental impact assessment of the NPRJPI. The adopted

[35] General Union Environment Action Programme to 2020 "Living well, within the limits of our planet", decision of the Council of 15 November 2013

environmental sub-objectives referred to in the aforementioned priority environmental objectives refer to all aspects of environmental impacts required by Directive 2001/42/EC for the comprehensive assessment of plans and programmes.

The analysis of the NPRJPI established that the environmental sub-objectives referred to in priority environmental objectives 4, 5, 7 and 9 from the 7th Environment Action Programme to 2020 do not refer to the contents of the NPRJPI.

The 7th Environment Action Programme to 2020 was not used for the environmental impact assessment of the NPRJPI in the field of cultural heritage and landscape, since it does not deal with this field. The basis for determining the objectives regarding cultural heritage is the Resolution on the 2014–2017 National Programme for Culture (ReNPK14–17) (Official Gazette of the Republic of Slovenia, no. 99/13), while the basis for determining the objectives regarding landscape is the Spatial Planning Strategy of Slovenia (Ordinance on Spatial Planning Strategy of Slovenia (Official Gazette of the Republic of Slovenia, no. 76/2004).

We defined **environment state indicators** on the basis of the selected environmental objectives and sub-objectives, as well as of draft NPRJPI. Priority was given to seeking measurable indicators and whose state monitoring has already been established in Slovenia. These are indicators whose results are systematically collected, processed and reported at the state level. In selecting environment indicators, we relied on already monitored indicators in Slovenia within the EIONET-SI network[36] which was established due to Slovenia's obligation to report to the European Environment Agency[37]. The website Environmental Indicators in Slovenia[38] provides access to over 180 indicators that show the direction of environmental development in Slovenia through graphs and comments. We also sought indicators among information collected and process by the Statistical Office of the Republic of Slovenia[39] and EUROSTAT[40]. Cultural heritage indicators were taken from the Strategy for the protection of cultural heritage and valuable natural features in the Republic of Slovenia (Government of the Republic of Slovenia, 2007), while landscape indicators were taken from the European Landscape Convention (Official Gazette of the Republic of Slovenia, no. 74/03).

Table 7 also shows **key guidelines (measures) for amending draft NPRJPI** from the aspect of environmental protection, which have been prepared by taking into account European and Slovenian environmental policies (see Chapter 2.1 Framework of environmental policies).

2.6.1 Explanation of environmental objectives and sub-objectives

2.6.1.1 7th Environment Action Programme to 2020

1st environmental objective: To protect, conserve and enhance Slovenia's natural capital

Slovenia's economic prosperity and well-being is underpinned by its natural capital, including ecosystems that provide essential goods and services, from fertile soil and multi-functional forests to productive land and seas, from freshwater and clean air, to flood prevention, climate regulation and protection against natural disasters. A substantial body of Union legislation seeks to protect, conserve and enhance natural capital, including the Water Framework Directive[41], Marine Strategy Framework Directive[42], the Air Quality Directive and related directives[43] and the Habitats and Birds Directives[44]. Legislation on climate change, chemicals, industrial emissions and waste also contributes to easing the pressures on biodiversity, including ecosystems, species and habitats.

[36] http://nfp-si.eionet.europa.eu/
[37] (http://www.eea.europa.eu/data-and-maps/indicators/#c5=&c7=all&c0=10&b_start=0)
[38] http://kazalci.arso.gov.si/?data=indicator&ind_id=204
[39] http://www.stat.si/
[40] http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/
[41] Directive 2000/60/EC, OJ L 327, 22 December 2000;
[42] Directive 2008/56/EC, OJ L 164, 25 June 2008;
[43] Directive 2008/50/EC, OJ L 152, 11 June 2008 and Directive 2004/107/EC, OJ L 23, 26 January 2005;
[44] Directive 2009/147/EC, OJ L 20, 26 January 2010 and Directive 92/43/EC, OJ L 206, 22 July 1992;

1.1. Sustainable use of natural resources: environmental sub-objective 'Ensure sustainable land management, adequate soil protection and remediation of contaminated sites by 2020.'; the degradation, fragmentation and unsustainable use of land in Slovenia is jeopardising the provision of several key ecosystem services, threatening biodiversity and increasing Slovenia's vulnerability to climate change and natural disasters. It is also exacerbating soil degradation. More than 10% of Slovenia's territory is affected by soil erosion by water, which compromises soil functions and affects the quality of freshwater. Soil contamination and sealing are also persistent problems. Every year more than 50 km^2 of land in Slovenia are taken for housing, industry, transport or recreational purposes. Such long-term changes are difficult or costly to reverse, and nearly always involve trade-offs between various social, economic and environmental needs. Slovenia's decisions regarding land planning should be more sustainable.

It should also be taken into account that measures will be taken by 2020 to reduce the most man-made pressures on land, soil and other ecosystems in Europe, which will ensure that decisions relating to land use at all relevant levels give proper consideration of environmental as well as social and economic impacts. The Rio + 20 outcome called for a 'land degradation neutral world'. Slovenia should reflect on how best to make such a commitment operational within their respective competencies and on how soil quality issues could be addressed within a binding EU legal framework.[45]. Objectives for sustainable use of land and soil are also expected to be defined at the EU level.

1.2. Air: environmental sub-objective 'Air pollution and its impacts on ecosystems and biodiversity are further reduced by 2020 with the long-term aim of not exceeding critical loads and levels'; while Union air and industrial emissions policies have helped to reduce many forms of pollution, ecosystems continue to suffer from excess nitrogen and sulphur deposition, and ozone pollution associated with emissions from transport, intensive farming and power generation. Ecosystem-based approaches to climate change mitigation and adaptation which also benefit biodiversity and the provision of other ecosystem services, should be used more extensively as part of Slovenia's climate change policy by expanding measures to address transport-related air pollution and CO_2[46], while other environmental objectives such as biodiversity conservation and the protection of water should be fully taken into account in decisions relating to renewable energy.

1.3. Waters: environmental sub-objective 'The impact of pressures on transitional, coastal and fresh waters (including surface and ground waters) is significantly reduced by 2020 to achieve, maintain or enhance good status of waters, as defined by the Water Framework Directive'; despite considerable efforts to date, the requirement in the Water Framework Directive to achieve 'good ecological status' by 2015 is likely to be met only for 53% of surface water bodies in the Union[47]. In Slovenia, the share of waters with 'good ecological status' by 2015 is assessed to be 65%[48].

1.4. Waters: environmental sub-objective 'The impact of pressures on marine waters is reduced by 2020 to achieve or maintain good environmental status, as required by the Marine Strategy Framework Directive, and coastal zones are managed sustainably'; there is a risk that the objective referred to in the Marine Strategy Framework Directive on achieving 'good environmental status' will not be met by 2020 due to, *inter alia*, continued overfishing and the presence of marine litter in Europe's seas. In the case of the marine environment, while the maritime sector offers economic opportunities, from fishing, shipping and aquaculture to raw materials and offshore energy and marine biotechnology, care needs to be taken to ensure their exploitation is compatible with the conservation and sustainable management of marine and coastal ecosystems.

1.5. Nature: environmental sub-objective 'The loss of biodiversity and the degradation of ecosystem services, including pollination, are halted by 2020, ecosystems and their services are maintained and at least 15% of degraded ecosystems have been restored'; recent assessments show that biodiversity in the

[45] COM(2006) 232 (OJ C 332, 30 December 2006), Proposal for a directive establishing a framework for the protection of soil and amending Directive 2004/35/EC

[46] COM(2011) 144, OJ C 140, 11 May 2011;
[47] COM(2012) 673;
[48] Water Management Plan (WMP) 2012

Union and in Slovenia is still being lost and that most ecosystems are seriously degraded[49]. The EU Biodiversity Strategy to 2020[50] sets out objectives and measures needed to reverse those negative trends and improve ecosystem services. The Strategy must be implemented fully if the Union is to meet its biodiversity headline target by 2020. Whereas the Strategy includes measures to improve the implementation of the Birds and Habitats Directives, including the Natura 2000 network, reaching the headline target will require the full implementation of all existing legislation aimed at protecting natural capital.

Measures under the EU Biodiversity Strategy to 2020[51] to restore at least 15% of degraded ecosystems in the Union and to expand the use of Green Infrastructure will help to overcome land fragmentation. Such measures will further enhance natural capital and increase ecosystem resilience, and can offer cost-effective options for climate change mitigation and adaptation, and natural disaster risk management. Meanwhile, Member States' efforts to map and assess ecosystems and their services, and the 'no net loss' initiative planned in 2015 will contribute to maintaining the stock of natural capital at various levels. The integration of the economic value of ecosystem services into accounting and reporting systems at the Union and national level by 2020 will result in better management of the Union's natural capital.

2nd environmental objective: to turn Slovenia into a resource-efficient, green and competitive low-carbon economy

Its 'Resource-efficient Europe' flagship initiative aims to support the shift towards an economy that is efficient in the way it uses all resources, fully separates the economic growth from resource and energy use and its environmental impacts, reduces greenhouse gas emissions, enhances competitiveness through efficiency and innovation, and promotes greater energy supply security. The Roadmap to a Resource Efficient Europe [52] and the Roadmap for moving to a competitive low-carbon economy [53] are key elements of the initiative, setting out the framework for future measures to deliver on those objectives, and should be supported by the exchange of best practice between Member States.

2.1 Climate factors: environmental sub-objective 'Slovenia has met its 2020 climate and energy objectives, and is working towards reducing greenhouse gas emissions by 80–95% by 2050 compared to 1990 levels, as part of a global effort to limit the average temperature increase below 2°C compared to pre-industrial levels, with the agreement of a climate and energy framework for 2030 as a key step in this process'; fully implementing the Union Climate and Energy Package is essential to reaching the milestones identified for 2020 and for building a competitive low-carbon economy by 2050. While the Union is currently on track to reduce domestic greenhouse gas emissions 20% below 1990 levels by 2020, meeting the 20% energy efficiency target will require far more rapid efficiency improvements. The Energy Efficiency Directive [54] is expected to make a significant contribution in this regard. All sectors of the economy will have to contribute to reducing greenhouse gas emissions if Slovenia is to deliver its fair share of the Union's efforts.

The Union plans to consider policy options to ensure the reductions referred to in the Low-Carbon Economy Roadmap beyond 2020. The 2050 Energy Roadmap and the White Paper on transport need to be underpinned by strong policy frameworks. Moreover, Member States need to develop and put in place long-term, cost-effective low-carbon development strategies aimed at achieving the Union objective of reducing greenhouse gas emissions by 80% to 95% by mid-century, compared to 1990 levels, as part of a global effort to limit the average temperature increase to below 2°C. The Union Emissions Trading System will continue to be a central pillar of Union climate policy beyond 2020.

2.2 Sustainable use of natural resources: environmental sub-objective 'Use structural changes in production, technology and innovation, as well as consumption patterns and lifestyles to reduce the overall

[49] European Environment Agency Technical report 12/2010;
[50] COM(2011) 244, OJ C 264, 8 September 2011;
[51] COM(2011) 244, OJ C 264, 8 September 2011;
[52] COM(2011) 571, OJ C 37, 10 February 2012;
[53] COM(2011) 112, OJ C 140, 11 May 2011;
[54] COM(2011) 144, OJ C 140, 11 May 2011;

environmental impact of production and consumption, in particular in the food, housing and mobility sectors, by 2020'; to set a framework for measures to improve resource efficiency aspects beyond greenhouse gas emissions and energy, objectives for reducing the overall environmental impact of consumption will be set, in particular in the food, housing and mobility sectors[55].The aforementioned sectors are responsible for almost 80% of the environmental impacts of consumption. The Rio + 20 outcome recognised the need to significantly reduce post-harvest and other food losses and waste throughout the food supply chain.

2.3 Sustainable use of natural resources: 'Ensure by 2020 that waste is safely managed as a resource, absolute waste generated per capita is in decline, landfilling is limited to residual waste and energy recovery is limited to non-recyclable materials (having regard to the Waste Framework Directive)'; turning waste into a resource, as called for in the Roadmap to a Resource Efficient Europe, requires the full and coordinated implementation of Union waste legislation throughout the Union, which is in compliance with the waste hierarchy and covers different types of waste. Additional efforts are required to reduce waste generation per capita and waste generation in absolute terms. Limiting energy recovery to non-recyclable materials, phasing out landfilling of recyclable or recoverable waste, ensuring high quality recycling where the use of recycled material does not lead to overall adverse environmental or human health impacts, and developing markets for secondary raw materials are also necessary to achieve resource efficiency objectives.

3rd environmental objective: to safeguard Slovenia's citizens from environment-related pressures and risks to health and well-being

Union environment legislation has delivered significant benefits for the health and well-being of the public. However, water pollution, air pollution and chemicals remain among the public's top environmental concerns in the Union[56]. The World Health Organisation estimates that environmental stressors are responsible for between 15% and 20% of all deaths in 53 European countries[57]. According to the OECD, urban air pollution is set to become the primary environmental cause of mortality worldwide by 2050.

3.1. Human health: environmental sub-objective 'By 2020, outdoor air quality in the Union has significantly improved, moving closer to the levels recommended by the World Health Organisation, while indoor air quality has improved, informed by the relevant guidelines by the World Health Organisation'; a substantial share of the population of the Union and Slovenia remains exposed to levels of air pollution exceeding standards recommended by the World Health Organisation[58]. Measures are especially needed in areas, such as cities and buildings, where people, particularly sensitive or vulnerable groups of society, and ecosystems are exposed to high levels of pollutants.

3.2. Human health: environmental sub-objective 'By 2020, noise pollution has significantly decreased, moving closer to the levels recommended by the World Health organisation'; based on assessments, 40% of Slovenia's residents live in populated (urban) areas where night time noise levels are higher than the levels recommended by the World Health organisation.

Tackling pollution at source remains a priority and the implementation of the Industrial Emissions Directive will further reduce emissions from major industrial sectors. In addition, attaining the objectives set out in the Roadmap to a Single European Transport Area will lead to more sustainable mobility in the Union, thereby addressing a major source of noise and local air pollution (the 1st environmental sub-objective regarding effects on health.

4th environmental objective: to maximise the benefits of Union environment legislation

[55] Annual food waste generation in the Union is approximately 89 million tonnes, representing 179 kg per capita (BIO Intelligence Service 2010).
The aggregated impacts of housing and infrastructure account for around 15–30% of all consumption-related environmental pressures in Europe, and contribute approximately 2.5 tonnes of CO_2 equivalent per capita annually (SEC(2011)1067).
[56] Special Eurobarometer survey 365 (2011);
[57] European Environment Agency, The European environment – state and outlook 2010 (SOER 2010);
[58] SOER 2010;

The benefits of ensuring that Union environment legislation is actually implemented are threefold: the creation of equal competitive conditions for economic actors operating in the Single Market, the stimulation of innovation, and the promotion of first-mover advantages for European companies in many sectors. The costs associated with failure to implement legislation, by contrast, are high, broadly estimated at around EUR 50 billion a year, including costs related to infringement cases[59]. The Commission also receives numerous complaints submitted directly by Union citizens, many of which could be better addressed at the Member State or local level.

Therefore, improving the implementation of the Union environment acquis at the Member State level will be given top priority in the coming years. There are significant differences in implementation between and within Member States. Those involved in implementing environment legislation at the Union, national, regional and local level must be equipped with the knowledge and capacity to improve the delivery of benefits from that legislation.

The high number of infringements, complaints and petitions in the area of the environment in Member States and Slovenia shows the need for an effective and functional system of checks and balances at the national level to help to identify and resolve implementation problems, along with measures to prevent them from arising. In this respect, efforts in the period up to 2020 will focus on delivering improvements in four key areas:

- The way knowledge about implementation is collected and disseminated will be improved to help the general public and environment professionals fully understand the purpose of how national and local administrations give effect to Union commitments[60]. Implementation challenges specific to an individual Member State will be targeted for assistance, similar to the tailored approach followed in the European Semester process. Partnership implementation agreements involving the Commission and individual Member States will be drawn up to address issues such as where to find financial support for the implementation and better information systems to track progress;
- The Union will extend requirements relating to inspections and surveillance to the wider body of Union environment legislation, and further develop capacity at the Union level that facilitates addressing situations where there is justified reason for concern;
- The way in which complaints about the implementation of Union environment legislation are handled and remedied at the national level will be improved;
- Union citizens will have better access to justice in environmental matters and effective legal protection in line with treaties and developments brought about by the entry into force of the Lisbon Treaty and recent case law of the Court of Justice of the European Union. Non-judicial dispute resolution will also be promoted as an alternative to litigation.

The general standard of environmental governance throughout the Union will be further improved by enhancing cooperation at the Union level between professionals working on environmental protection (such as state attorneys, prosecutors, ombudsmen and judges) and encouraging such professionals to share good practices.

The 4th environmental objective is not relevant for the programme in question.

5th environmental objective: to improve the knowledge and evidence base for Union environment policy

Union environment policy is based on environmental monitoring, data, indicators and assessments linked to the implementation of Union legislation, as well as formal scientific research and 'citizen science' initiatives. Considerable progress in strengthening this rationale raised awareness and improves the confidence of policy-makers and the public in the evidence that underpins policy, which facilitated better understanding of complex environmental and societal challenges.

Measures should be taken at the Union and international level to further strengthen and improve the science-policy interface and environment policy, such as through the appointment of Chief Scientific Advisors, as already done by the Commission and some Member States.

[59] The costs of not implementing the environment acquis (COWI 2011);
[60] COM(2012) 95, OJ C 171, 16 June 2012;

Over the past decades, there have been improvements in the way environmental information and statistics are collected and used at the Union, Member State and global level. However, data collection and quality remain variable and the multiplicity of sources can make access to data difficult. Continuous investment is therefore needed to ensure that credible, comparable and quality-assured data and indicators are available and accessible to those involved in defining and implementing policy. Environmental information systems must be set up in order to enable new information on emerging themes to be easily incorporated. Union-wide electronic data-exchange should be further developed, with enough flexibility to encompass new areas. Progress should also be made to improve the availability and harmonisation of statistical data, including on waste. Member States should make information gathered to assess environmental impacts of plans, programmes and projects (e.g. through Environmental or Strategic Impact Assessments) more accessible to the public.

The 5th environmental objective is not relevant for the programme in question.

6th environmental objective: to secure investment for environment and climate policy, and address environmental externalities

The efforts required to attain environmental objectives will require adequate investment from public and private sources. At the same time, while Slovenia is struggling to cope with the economic and financial crisis, the need for economic reforms and the reduction of public debts offer new opportunities to move rapidly towards a more resource-efficient and low-carbon economy. Attracting investment in some areas is currently difficult due to the absence of, or distortion to, price signals arising from a failure to account properly for environmental costs or from public subsidies for environmentally harmful activities.

6.1 Socio-economic development: environmental sub-objective 'Environment and climate policy objectives, and addressing environmental externalities must be attained by 2020 in a cost-effective way and must be supported by adequate finance'; in its proposals for the 2014–2020 Union Multiannual Financial Framework, the Commission has improved the mainstreaming of environment and climate objectives in all Union funding instruments in order to provide opportunities for Member States to attain related objectives. It has also proposed raising climate-related expenditure to at least 20% of the whole budget. In key policy areas such as agriculture, incentives should be enhanced for farmers to provide environmentally beneficial public goods and services harmonised with the environment-related conditions. If these proposals are adopted, Union policies will be matched with coherent financial resources for implementation, and additional funds for the environment and climate change, so as to effectively deliver tangible and coherent benefits at the local and regional level, will be available.

Experience gained in the 2007–2013 programming period shows that although significant funds are available for the environment, the uptake at the national and regional level in the early years has been very uneven, potentially jeopardising the achievement of agreed objectives. To avoid repeating these problems, Slovenia must integrate environment and climate objectives in its funding strategies and programmes for economic, social and territorial cohesion, rural development and maritime policy, prioritise the early use of funds for the environment and climate change, and reinforce the capacity of implementing bodies to deliver cost-effective and sustainable investments in order to secure adequate and required financial support for investments in these areas.

Investments in the infrastructure of individual transport subsystems are an important indicator of transport policies of states, regions or cities. Despite the general support for sustainable transport modes in strategic documents, the majority of funds at the implementation level are often invested in road infrastructure. Member States generally determine the extent of investments in transport infrastructure and priorities of individual transport subsystems in their transport policies, while strategic decisions are broken down in implementation programmes. The Resolution on Transport Policy does not define the ratio of investments in the infrastructure of individual subsystems, but merely emphasises the need for investing in all fields. However, this does not provide a clear vision, which would be the basis for medium-term planning of investments in transport infrastructure. Strategic ratios of transport subsystem development are also defined in the Spatial Planning Strategy of Slovenia which emphasises the significance of even development of balanced and equally burdened subsystems.

7th environmental objective: to improve environmental integration and policy coherence

The achievement of many of the priority objectives of this programme will require even more effective integration of environmental and climate-related considerations into other policies, as well as more coherent and joined-up policy approaches that deliver multiple benefits. This should help to ensure that difficult trade-offs are managed early on, rather than in the implementation phase, and that unavoidable impacts can be mitigated more effectively. The Strategic Environmental Assessment Directive and Environmental Impact Assessment Directive, when correctly applied, are effective tools for ensuring that environmental protection requirements are integrated in plans and programmes as well as in projects.

The comprehensive environmental impact assessment for the NPRJPI is in progress; therefore, the 7th environmental objective is not relevant for the programme assessed.

8th environmental objective: to enhance the sustainability of Slovenia's cities

In the context of ongoing Union initiatives and networks, developing and promoting a common understanding of how to contribute to improved urban environments by focusing on the integration of urban planning with objectives related to resource efficiency, an innovative, safe and sustainable low-carbon economy, sustainable urban land-use, sustainable urban mobility, urban biodiversity management and conservation, ecosystem resilience, water management, human health, public participation in decision-making and environmental education and awareness.

The Union is densely populated, and by 2020, over 80% of its population is likely to live in urban and peri-urban areas. Quality of life will be directly influenced by the state of the urban environment. Regardless of the fact that the population pattern in Slovenia is more favourable than the European average, problems in some populated areas in Slovenia (areas of some municipalities), arising from meeting the needs for food, energy, space and resources, and waste management, are similar to problems in larger European urban and peri-urban areas. Most cities face common environmental problems, including air quality concerns, high levels of noise, traffic congestion, greenhouse gas emissions, water scarcity, floods and storms, contaminated sites, brownfields and waste. At the same time, cities are standard-setters in urban sustainability and often pioneer innovative solutions to environmental challenges[61]. An ever-growing number of European cities are putting environmental sustainability at the core of their urban development strategies.

8.1 Socio-economic development: environmental sub-objective 'Achieve by 2020 that cities in Slovenia are implementing policies for sustainable urban planning and design, including innovative approaches for urban public transport and mobility, sustainable buildings, energy efficiency and urban biodiversity conservation'; Union citizens, whether urban or rural dwellers, benefit from a range of Union policies and initiatives that support sustainable development of urban areas. However, this requires effective and efficient coordination between different levels of administration reaching beyond administrative boundaries, and the systematic involvement of regional and local authorities in the planning, formulation and development of policies which have an impact on the quality of the urban environment. The enhanced coordination mechanisms at the national and regional level, proposed under the Common Strategic Framework for the next funding period and the creation of an 'Urban Development Network'[62] would help to ensure this, as well as involve more stakeholder groups and the general public in decisions that affect them. Local and regional authorities would also benefit from the further development of tools to streamline environmental data collection and management, and to facilitate the exchange of information and best practice, as well as efforts to improve the implementation of environment legislation at the Union, national, regional and local level[63]. This is in line with the commitment made at Rio + 20 to promote an integrated approach to planning, building and managing sustainable cities and urban settlements. Integrated

[61] See, for example, the 'Cities of tomorrow' report (European Commission, 2011) and SWD(2012)0101;
[62] COM(2011) 615, OJ C 37, 10 February 2012;
[63] For example the Water Information System for Europe (WISE), the Biodiversity Information System for Europe (BISE) and the European Climate Adaptation Platform (CLIMATE-ADAPT);

approaches to urban spatial planning, in which long-term environmental considerations are fully taken into account alongside economic and social challenges, are essential to ensuring that urban communities are sustainable, efficient and healthy places to live and work. Sustainable urban planning must include innovative approaches for urban public transport and mobility, sustainable buildings, energy efficiency and urban biodiversity conservation.

Existing initiatives that support innovation and best practice in cities, networking and exchanges should be further promoted and, where appropriate, expanded, and cities should be encouraged to showcase their leadership with regard to sustainable urban development[64]. The Union's and Slovenia's institutions should facilitate and encourage the uptake of Cohesion policy funding and of other funds to support cities in their efforts to enhance sustainable urban development, raise awareness and encourage the involvement of local actors[65]. The development of, and agreement on, a set of sustainability criteria for cities will provide a reference base for such initiatives and promote a coherent, integrated approach to sustainable urban development.

In Slovenia, solving problems of urban transport is left to the local level, which does not suffice to define the vision and long-term management of the transport system, since their treatment is much too narrow in comparison with the modern concepts of urban transport planning. Spatial strategies only address the infrastructure of transport subsystems and not the transport system as a whole.

9th environmental objective: to increase the Union's effectiveness in addressing international environmental and climate-related challenges

Ensuring the sustainable use of resources is one of the most pressing global challenges today, and is central to ending poverty and securing a sustainable future for the world. The Union and its Member States should proactively engage in international negotiations on new and emerging issues, in particular on new conventions, agreements and assessments, and, accordingly, reaffirm their strong determination to continue efforts to launch as soon as possible negotiations in the framework of the UN General Assembly for an UNCLOS (United Nations Convention on the Law of the Sea) implementing agreement on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction and supporting the completion of the first 'World Ocean Assessment'. The Union should also further intensify its contribution to initiatives that facilitate the transition towards an inclusive and green economy at the international level, such as the promotion of appropriate enabling conditions, the development of market-based instruments and indicators beyond GDP, consistent with its internal policies.

The 9th environmental objective is not relevant for the programme in question.

2.6.1.2 Resolution on the 2014–2017 National Programme for Culture

Environmental objective 1: comprehensive conservation of cultural heritage and prevention of harmful effects on heritage

Cultural heritage: environmental sub-objective 1.1: 'Conserving the scope and features of cultural heritage units and areas': The Resolution on the 2014–2017 National Programme for Culture states that the public interest regarding the protection of cultural heritage comprises *inter alia* comprehensive conservation of heritage and prevention of harmful effects on heritage, and its integration in contemporary life. The first objective of cultural heritage protection in the Resolution 'High-quality conservation and modern presentation of cultural heritage for more visitors and its better recognisability' originates in the public interest. The indicators for the aforementioned objective of cultural heritage protection, which are

[64] Examples include the European Innovation Partnership on Smart Cities and Communities COM(2012)4701, the European Green Capital Award and the research Joint Programming Initiative Urban Europe.

[65] The Commission has proposed to allocate a minimum 5% of the European Regional Development Fund (ERDF) in each Member State to fund integrated sustainable urban development;

the main indicator of the conservation of the scope and features of cultural heritage units and areas, are as follows: number of registered and evaluated units of immovable cultural heritage, number of new entries and changes to units' entries in the register, number of new and renewed declarations of cultural monuments, and the determination of cultural heritage protection areas.

2.6.1.3 Spatial Planning Strategy of Slovenia

Environmental objective 1: to protect landscape qualities

Landscape: environmental sub-objective 1.1: 'Conservation of extraordinary landscapes and landscape areas with distinctive features at the national level': The Strategy states that landscape development must also be based on preserving spatial ratios in the landscape when placing new or modernising existing activities by taking into account the current natural and cultural features of the landscape. The conservation and development of landscape areas with distinctive features that are important at the national level are primarily ensured by suitable planning and programming.

2.6.2 Determining environmental objectives, sub-objectives, guidelines and indicators for the preparation of the NPRJPI

The environmental objectives and sub-objectives in table 5 are summarised from the 7th Environment Action Programme to 2020 'Living well, within the limits of our planet'. The objectives regarding cultural heritage and landscape are an exception, as these two fields are not dealt with in the programme. The basis for determining the objectives and sub-objectives regarding cultural heritage is the Resolution on the 2014–2017 National Programme for Culture, while the basis for determining the objectives and sub-objectives regarding landscape is the Spatial Planning Strategy of Slovenia.

Tabela 6:Table 7: Proposed environmental objectives, sub-objectives, guidelines and indicators for the preparation of the NPRJPI

Environment area	Environmental objective	Environmental sub-objective	Guidelines (measures) for amending the NPRJPI	Proposed indicators
1. Sustainable use of natural resources	1st environmental objective: to protect, conserve and enhance Slovenia's natural capital (7th Environment Action Programme)	1.1 Ensure sustainable land management, adequate soil protection and remediation of contaminated sites by 2020	In accordance with the National Environment Protection Action Programme, National Forest Development Programme in Slovenia and the Resolution on the strategic guidelines for the development of the Slovenian agriculture and food industry by 2020 – 'Securing food for tomorrow', the measures of the NPRJPI must promote placing new transport connections with rational environmental planning and sustainable natural resource management (soil, water, forest, mineral raw materials).	Change in land use and agriculture [KM10]
	2nd environmental objective: to turn the Union into a resource-efficient, green and competitive low-carbon economy (7th Environment Action Programme)	2.2 Use structural changes in production, technology and innovation, as well as consumption patterns and lifestyles to reduce the overall environmental impact of production and consumption, in particular in the food, housing and mobility sectors, by 2020.	In accordance with the 7th Environment Action Programme, the measures and guidelines of the NPRJPI must refer to the changes in consumption patterns and lifestyles in terms of the use of means of transport and their services.	Use of final energy in transport [PR04] Introduction of alternative types of fuel in transport [PR13] External transport costs [PR05]
		2.3. Ensure that by 2020 waste is	In accordance with the NPVO, the	End-of-life vehicles [OD16]

		safely managed as a resource, absolute waste generated per capita is in decline, landfilling is limited to residual waste and energy recovery is limited to non-recyclable materials (having regard to the Waste Framework Directive).	NPRJPI must encourage the establishment of a uniform system for the collection of end-of-life vehicles in the entire area of the Republic of Slovenia and 100% capture of end-of-life vehicles, and the establishment of a uniform system for the collection of waste tires in the entire area of the Republic of Slovenia. Promote in the NPRJPI the reduction of environmental burdens by using recycled materials in the construction and reconstruction of roads.	Quantity of recycled materials used in the construction and reconstruction of roads
2. Air	1st environmental objective: to protect, conserve and enhance Slovenia's natural capital (7th Environment Action Programme)	1.2 Air pollution and its impacts on ecosystems and biodiversity are further reduced by 2020 with the long-term aim of not exceeding critical loads and levels.	Enhance efforts to achieve perfect compliance with new legislation on determining upper limits for emissions (COM(2013) 920 final) which will repeal the NEC Directive 2001/81/EC at the end of 2019, and in view of the annual emissions in 2005, sets the level for reducing annual emissions of pollutants from all sources separately for each Member State in the period 2020–2030 and beyond 2030. The levels of annual emission reduction refer to pollutants responsible for acidification and eutrophication, ozone precursors, primary particulate matter and secondary particulate mater precursors. Regarding pollutant emissions from transport to 2020, target values determined for the transport sector in the Revision on Operational programme for complying with national emission ceilings for atmospheric pollutants from	Atmospheric pollutant emissions from transport [PR08]

			2005 apply. Transport policy measures from the NPRJPI must be coordinated with objectives determined for Slovenia in new EU legislation on determining upper limits for emissions or measures from the new national programme of reducing annual pollutant emissions for Slovenia which will be adopted by 2019 when new EU legislation is to be introduced.	
3. Water	1st environmental objective: to protect, conserve and enhance Slovenia's natural capital (7th Environment Action Programme)	1.3 The impact of pressures on transitional, coastal and fresh waters (including surface and ground waters) is significantly reduced by 2020 to achieve, maintain or enhance good status of waters, as defined by the Water Framework Directive.	In accordance with the Water Management Plan, the NPRJPI must promote placing new transport connections by ensuring the implementation of the fundamental and supplementary measures.	Chemical and ecological state of surface waters [VD12] Groundwater quality [VD11]
		1.4 The impact of pressures on marine waters is reduced by 2020 to achieve or maintain good environmental status, as required by the Marine Strategy Framework Directive, and coastal zones are managed sustainably.	In accordance with the objectives of the Water Management Plan, the NPRJPI must promote efforts to protect and conserve marine environment, including the reduction of marine transport impact, intake of waste and emissions of hazardous substances.	Ship pollution [MR01] Chemical and ecological state of the sea [MR06]
4. Nature (habitat fragmentation, biodiversity, important nature conservation areas)	1st environmental objective of the 7th Environment Action Programme: to protect, conserve and enhance Slovenia's natural capital (7th Environment Action Programme)	1.5 The loss of biodiversity and the degradation of ecosystem services, including pollination, are halted by 2020, ecosystems and their services are maintained and at least 15% of degraded ecosystems have been restored.	In accordance with the EU Biodiversity Strategy, the use of green infrastructure must be improved by 2020 (reducing habitat fragmentation by establishing wildlife crossings in existing infrastructure corridors). In accordance with the Strategy for Biodiversity Conservation and the National Environment Protection Action Programme, the NPRJPI must	Types of European importance [NB11] Habitat types of European importance [NB12] Nature protection areas [NV02] Natura areas [NV03] Valuable natural features [NV04]

			promote: - Reestablishment of ecological links (wildlife migration paths) which facilitate gene transfer exchange between populations (e.g. construction of overpasses, underpasses and green bridges over existing traffic routes) - Conservation of wildlife migration paths in newly planned infrastructure corridors - Conservation of ecosystems by conserving a favourable state of species and habitat types (activities in important nature conservation areas must be avoided when planning infrastructure corridors).	
5. Climate factors	2nd environmental objective: to turn the Union into a resource-efficient, green and competitive low-carbon economy (7th Environment Action Programme)	2.1 Slovenia has met its 2020 climate and energy objectives, and is working towards reducing greenhouse gas emissions by 80–95% by 2050 compared to 1990 levels, as part of a global effort to limit the average temperature increase below 2°C compared to pre-industrial levels, with the agreement of a climate and energy framework for 2030 as a key step in this process.	Full implementation of the Union Climate and Energy Package, and an agreement regarding framework climate and energy policy for the period beyond 2020. Target values of annual emissions determined for Slovenia by Decision No 2009/406/EC on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020 are important for measures regarding reducing greenhouse gas emissions from transport. By 2020, Slovenia may increase greenhouse gas emission from sources not included in greenhouse gas emission allowance trading scheme in	Izpusti toplogrednih plinov Greenhouse gas emissions from transport [PR09]

			the Community by 4% in comparison with 2005. The measures from the NPRJPI transport policy must be coordinated with the measures from the National Programme for Limiting Greenhouse Gas Emissions for Slovenia. Greenhouse gas emission in transport must be reduced by 10% by 2030 in comparison with 2008 with a vision to reduce emissions by 90% by 2050.	
6. Human health	3rd environmental objective: to safeguard Slovenia's citizens from environment-related pressures and risks to health and well-being (7th Environment Action Programme)	3.1 By 2020, outdoor air quality in the Union has significantly improved, moving closer to the levels recommended by the World Health Organisation, while indoor air quality has improved, informed by the relevant guidelines by the World Health Organisation.	The implementation of the updated air quality policy, which is coordinated with the latest scientific findings, and measures to combat air pollution at source must be ensured. To implement measures for reducing primary particulate matter emissions, secondary particulate mater precursor emissions and tropospheric ozone precursor emissions, the measures from the NPRJPI must be coordinated with national programmes and legislative acts issued on the basis of Directive 2008/50/EC on ambient air quality to achieve the limit values of pollutants acceptable for the health of exposed residents. The annual number of exceeded limit average daily concentrations of particulate matter in ambient air must be reduced in most municipalities in Slovenia to a permissible number (35 per year) primarily though transport measures and the use of solid fuels in combustion installations.	Air pollution with ozone [ZR07] Transport impacts on air quality in cities [PR07]

		3.2 By 2020, noise pollution has significantly decreased, moving closer to the levels recommended by the World Health organisation.	In accordance with the Operational Noise Action Programme and the National Environment Protection Action Programme, the NPRJPI must include and observe the following: The recoding of the reference state of noise pollution on residents and surfaces produced by transport on the basis of strategic noise mapping in 2013 (2002/49/EC). The preparation (amendment), adoption, implementation and monitoring of the efficiency of operational noise action programmes for all types of transport (2002/49/EC). The observation of the provisions of the Operational Noise Action Programme in the remediation of the existing state and in the spatial planning procedures of new transport corridors (OP HRUP 2012–2017). The panned transport corridors must avoid densely populated residential areas (OP HRUP 2012–2017), quiet areas in agglomerations (Environmental Protection Act) and quiet areas in open country (Nature Conservation Act). The rerouting of transit traffic from roads to railways. To attain this objective, which will also reduce noise emission produced by road transport, suitable infrastructure must be developed (COM(2011) 144).	Exposure to noise from traffic [PR18] Burdening of surfaces and residents with noise from existing and planned corridors of road and railway infrastructure (expert groundwork for the NPRJPI) Assessment of external costs due to noise from road and railway transport (expert groundwork for the NPRJPI)

			The provision of clean urban transport to improve air quality and reduce noise pollution in agglomerations (COM (2011) 321). The reduction of noise emission produced by motor vehicles and infrastructure to the lowest possible level (COM (2011) 321). The limitation of emissions produced by rolling stock (Directive 2008/57/EC, TSI guideline C(2011) 658). The restructuring of the charges for the use of transport infrastructure by observing all infrastructure and external costs which will limit transit traffic on roads and personal transport in agglomerations (COM(2011) 144). The assessment of external transport costs due to noise (COM(2012) 710).	
7. Socio-economic development	6th environmental objective: to secure investment for environment and climate policy, and address environmental externalities (7th Environment Action Programme)	6.1. *Environment and climate policy objectives must be attained by 2020 in a cost-effective way and must be supported by adequate finance.*	In accordance with the Resolution on Transport Policy of the Republic of Slovenia (Official Gazette of the Republic of Slovenia, no. 58/06), the NPRJPI must follow the principles of sustainable and balanced regional development, and strive to reduce external transport costs. Investments in the infrastructure of individual transport subsystems are an important indicator of transport policy, state, region or cities; therefore, the NPRJPI should define the ratios of investments in the infrastructure of	Investment in transport infrastructure [PR03] <u>Charging transport costs [PR15]</u>

			individual subsystems, and ensure a balanced extent of investments in transport infrastructure.	
	8th environmental objective: to enhance the sustainability of Slovenia's cities (7th Environment Action Programme)	8.1. Achieve by 2020 that towns in Slovenia are implementing policies for sustainable urban planning and design, including innovative approaches for urban public transport and mobility, sustainable buildings, energy efficiency and urban biodiversity conservation.	In accordance with the Resolution on Transport Policy of the Republic of Slovenia (Official Gazette of the Republic of Slovenia, no. 58/06), the NPRJPI must promote the awareness of, and providing information to, residents on sustainable mobility.	Public awareness of environmental impacts of transport [PR06]
8. Cultural heritage	1st environmental objective: Comprehensive conservation of heritage and prevention of harmful effects on heritage (Resolution on the 2014–2017 National Programme for Culture (ReNPK14–17))	1.1 Preservation of the scope and features of cultural heritage structures and areas.	In accordance with the Resolution on the 2014–2017 National Programme for Culture, the NPRJPI must place new transport connections by preserving the integrity and features of cultural heritage units. Special attention must be paid to avoiding activities in registered archaeological areas.	Number of cultural heritage units
9. Landscape	1st environmental objective: To protect landscape qualities (Spatial Planning Strategy of Slovenia)	1.1 Conservation of extraordinary landscapes and landscape areas with distinctive features at the national level.	In accordance with the Spatial Planning Strategy of Slovenia, the NPRJPI must promote the placement of new transport connections by preserving the quality of the landscape image and exceptional landscape, and landscape areas with distinctive features at the national level.	Number of extraordinary landscapes and landscape areas with distinctive features at the national level

Table 8: Most important national documents related to the defined environmental objectives

Environment area	Environmental objective	Most important national documents
1. Sustainable use of natural resources	1st environmental objective: to protect, conserve and enhance Slovenia's natural capital (7th Environment Action Programme)	1. Resolution on National Environmental Action Plan 2005–2012 (ReNPVO) (Official Gazette of the Republic of Slovenia, no. 2/06) 2. National Forest Development Programme (NPRG) (Official Gazette of the Republic of Slovenia, no. 14/1996)

		3. Resolution on the strategic guidelines for the development of the Slovenian agriculture and food industry by 2020 – 'Securing food for tomorrow' (ReSURSKŽ) (Official Gazette of the Republic of Slovenia, no. 25/2011)
	2nd environmental objective: to turn the Union into a resource-efficient, green and competitive low-carbon economy (7th Environment Action Programme)	1. Resolution on National Environmental Action Plan 2005–2012 (ReNPVO) (Official Gazette of the Republic of Slovenia, no. 2/06)
2. Air	1st environmental objective: to protect, conserve and enhance Slovenia's natural capital (7th Environment Action Programme)	1. Operational programme for the reduction of emissions of the pollutants from the NEC directive – draft (NEC Directive 2001/81/EC)
3. Water	1st environmental objective: to protect, conserve and enhance Slovenia's natural capital (7th Environment Action Programme)	1. Decree on the river basin management plan for the Danube Basin and the Adriatic Sea Basin (Official Gazette of the Republic of Slovenia, no. 61/11)
4. Nature (habitat fragmentation, biodiversity, important nature conservation areas)	1st environmental objective of the 7th Environment Action Programme: to protect, conserve and enhance Slovenia's natural capital (7th Environment Action Programme)	1. Strategy for Biodiversity Conservation in Slovenia (2002-2012) (Ministry of the Environment and Spatial Planning, 2001) 2. Resolution on National Environmental Action Plan 2005–2012 (ReNPVO) (Official Gazette of the Republic of Slovenia, no. 2/06) 3. Revision of biodiversity strategy from Appendix 1
5. Climate factors	2nd environmental objective: to turn the Union into a resource-efficient, green and competitive low-carbon economy (7th Environment Action Programme)	1. Operational programme for the reduction of greenhouse gas emissions by 2012 (OP TGP-1, no. 35405-2/2009/9, July 2009)
6. Human health	3rd environmental objective: to safeguard Slovenia's citizens from environment-related pressures and risks to health and well-being (7th Environment Action Programme)	1. Operational programme for the protection of ambient air against pollution caused by PM_{10}, (OP PM_{10}, no. 35405-4/2009/9, November 2009) 2. Operational Noise Action Programme for the first phase major roads and major railways outside the Municipality of Ljubljana 2012–2017 (OP HRUP 2012–2017, no. 35400-13/2011/2 December 2012) 3. Resolution on National Environmental Action Plan 2005–2012 (ReNPVO) (Official Gazette of the Republic of Slovenia, no. 2/06)
7. Socio-economic development	6th environmental objective: to secure investment for environment and climate policy, and address environmental externalities (7th Environment Action Programme)	1. Resolution on Transport Policy of the Republic of Slovenia (Official Gazette of the Republic of Slovenia, no. 58/06)
	8th environmental objective: to enhance the sustainability of Slovenia's cities (7th Environment Action Programme)	1. Resolution on Transport Policy of the Republic of Slovenia (Official Gazette of the Republic of Slovenia, no. 58/06)

8. Cultural heritage	1st environmental objective: Comprehensive conservation of heritage and prevention of harmful effects on heritage (Resolution on the 2014–2017 National Programme for Culture (ReNPK14–17))	1. Resolution on the 2014-2017 National Programme for Culture (ReNPK14–17) (Official Gazette of the Republic of Slovenia, no. 99/2013)
9. Landscape	1st environmental objective: to protect landscape qualities (Spatial Planning Strategy of Slovenia)	1. Spatial Planning Strategy of Slovenia (Official Gazette of the Republic of Slovenia, no. 76/2004)

Conclusions of preliminary evaluation

The initial review of the available information on environmental premises indicated a wide array of information which has to be taken into account in the comprehensive environmental impact assessment procedure. It is important that this comprehensive environmental impact assessment procedure, bearing in mind all available information, contributes to better understanding of development plans regarding transport infrastructure, so that their implementation does not have unacceptable harmful environmental impacts.

Although the aforementioned environmental protection objectives reflect international and national obligations to conserve and improve the environment, it should be ensured that their implementation primarily presents benefits for a wider group of users of natural assets.

The comprehensive environmental impact assessment procedure has an important role in ensuring that the planned transport vision supports these environmental protection objectives, and is implemented in a way that will not affect especially sensitive areas, and assets of cultural heritage and landscape.

3 APPROACH TO THE ENVIRONMENTAL IMPACT ASSESSMENT

3.1 *Methodological approach*

3.1.1 Assessment methodology

The impacts of individual measures constituting the programme are assessed on the basis of consequences affecting environmental objectives by using evaluation criteria prescribed in the Decree laying down the content of the environmental report and on the detailed procedure for the assessment of the effects on certain plans and programmes on the environment (Official Gazette of the Republic of Slovenia, no. 73/05) in the following grades:

A – measure has no impact or its impact is positive,
B – impact of the measure is insignificant,
C – impact of the measure is insignificant due to the implementation of mitigation measures,
D – impact of the measure is significant,
E – impact of the measure is destructive, and
X – it is not possible to establish the impact caused by the measure.

The assessments of the consequences of individual measures constituting the programme awarded grades A, B and C, imply that the impacts of measure implementation on the realisation of the environmental objectives are acceptable, whereas insignificant impacts are graded B, and grade C is attributed to impacts that are insignificant provided that additional (special or specific, which are not determined by legislation) mitigation measures are implemented. Grades D and E imply that the impacts of implementation of individual measures constituting the programme are unacceptable for the realisation of environmental objectives.

As part of determining the scope of the comprehensive assessment of environmental impacts, the operators have to determine the methods of assessment which could be used to determine and assess the environmental impacts. In this way, they will be able to ensure that in the procedure of comprehensively assessing environmental impacts, important environmental starting points (environmental protection objectives, existing impact and prescribed levels of conservation or protection of the environment and its parts) of an individual measure are detected, assessed and evaluated already during its drafting and before the decision on its adoption.

This does not mean, however, that assessment methods have to be entirely determined in this phase of the procedure of the comprehensive assessment of environmental impacts. The basis of the assessment methodology should be defined and methods, which will probably be used for assessing the impact of the NPRJPI on the environment, should be described before beginning the procedure of comprehensive assessment of environmental impact.

3.1.2 Methods used in comprehensive assessments

There are several different approaches to assessing the environmental impact of strategies, plans and programmes. Certain approaches to the comprehensive assessment of the environmental impact are based on attaining environmental protection objectives, whereby a series of environmental indicators for each field of action are used in order to examine the planned measures. Other approaches to the comprehensive assessment of the environmental impact are based on the initial state of the environment and its parts, in which the definition of the initial state of the environment and its parts have a significant weight in conclusions related to the environmental impact of an individual measure. The third group of approaches to the comprehensive assessment of the environmental impact focuses on cartography, establishing and assessing spatially defined possibilities for the physical siting of measures in the environment.

The approaches of spatial optimisation of location and the manner of implementation typical of siting linear facilities in space have usually been used in the current procedures of the comprehensive assessment of the impact of Slovenian transport projects on the environment. On the basis of such manner of comprehensive assessment, the siting of the linear facilities is selected that least affects protected areas in compliance with regulations governing the protection of nature, cultural heritage and landscape and those spatial characteristics which are not formally protected but are important for the preservation of quality and identity of space.

The current procedures of comprehensive assessment of impacts of transport facilities rely less on achieving the objectives of environmental protection or on the improvement of the state of the initial burdening of the environment or parts of it. This is understandable because the current comprehensive assessments mostly rely on assessments of individual sections of road or rail infrastructure which, as measures of transport policy, do not impact the shift in modal shares of individual types of transport and thus do not indirectly and significantly change the share of transport in burdening the environment due to pollution.

3.1.3 Key principles for assessment of the NPRJPI

Each NPRJPI alternative is composed of measures. The assessment of the environmental impact of each measure is based on high-quality estimates of the importance of the impact on the environment relating to individual aspects of environmental impacts, i.e. natural resources, air, water, nature, cultural heritage, climatic factors, landscape, health and material means.

Mutual comparison of environmental impacts of an individual NPRJPI alternative is based on a comparison of qualitative assessments on the importance of the environmental impact of all measures comprising the NPRJPI alternative.

If the assessments of the impact of measures composing the NPRJPI alternative differ only in one or two aspects of their environmental impacts, the mutual comparison of alternatives based on qualitative assessments of the impacts of all measures is feasible.

If the assessments of the impact of measures composing the NPRJPI alternative differ in more than two aspects of their environmental impact, mutual comparison of alternatives on the basis of qualitative assessments of impacts of all measures is not feasible. The assessments of the environmental impacts per their individual aspects are not mutually comparable as the consequences of environmental impacts relating to the individual aspects of the impact are themselves not mutually comparable. The assessments of environmental impacts must be weighted in relation to the importance of each individual impact and then these weighted assessment values must be mutually compared.

It can be expected that the qualitative manner of assessing the impact of the measures on the environment composing individual NPRJPI alternatives is not suitable for mutual comparison of assessments of their environmental acceptability. Each NPRJPI alternative namely consists of several measures for which assessments of environmental impacts are made for each aspect separately according to this method of assessment. The mutual comparison of the entire impact of NPRJPI alternatives on the environment is not possible since this method of assessment does not include mutual evaluation of aspects according to which environmental acceptability is assessed.

The assessment of the environmental impacts of individual NPRJPI alternatives thus anticipates a multi-parameter method for the assessment of environmental impacts caused by an individual NPRJPI alternative, whereby:

- the classification of the impact into one of 16 classes ranked by importance, is used for the assessment of six parameters, which are used to describe the impact on natural resources (forest and soil degradation), water, nature, cultural heritage, landscape and socio-economic development,

- the financial evaluation of these impacts, made on the basis of average external environmental costs created by transport, is used for four parameters describing the impacts on the environment due to the emission of pollutants in ambient air, GHG emission, impacts on health and impacts on socio-economic development.

The selected assessment of environmental impacts of individual NPRJPI alternatives is upgrading the assessment of environmental impacts used for the evaluation of environmental acceptability of individual measures and will be described in more detail in the environmental report.

3.1.4 Description of the classification of environmental impacts into classes

The classification of environmental impacts, as per their significance in 16 classes, from the viewpoint of their impact on sustainable use natural resources, water, nature, cultural heritage, landscape and socio-economic development outside urban areas, is the assessment of environmental impacts for the purpose of mutual comparison of NPRJPI alternatives and is considered an additional assessment of acceptable impacts on the environment relating to the assessment of their measures.

The additional assessment of environmental impacts evaluates those that make up an individual NPRJPI alternative in terms of the change of quality in the environment (character and level of change) and in terms of the scope of changes in the environment that result from these impacts. The additional assessment of environmental impacts that was proposed is:

Tabela 9:Table 10: Način dodatnega ocenjevanja vplivov na okolje glede na stopnjo spremembe okolja in glede na prostorski obseg vpliva.Method of additional assessment of environmental impacts as per the level of the change in the environment and as per the spatial scope of the impact

Impact on the environment (the greater the sum of assessments, the greater the negative (positive) impact)			**Scope of the negative (positive) change**		
			small, spatially limited, point source and local impact	moderate, reflected in the wider environment, in the corridor, at the regional level	extensive, reflected in the entire environment, frequently at the national level
			1	2	3
Character and level of change in the state of the environment	Distinctly positive change	+2	**2**	**4**	**6**
	Positive change	+1	**1**	**2**	**3**
	No change in the environment or the change is negligible	0	**0**	**0**	**0**
	Negative change – small	-1	**-1**	**-2**	**-3**
	Negative change – moderate	-2	**-2**	**-4**	**-6**
	Negative change – grave	-3	**-3**	**-6**	**-9**

An environmental impact of an individual sub-programme or measure is classified from '-9' to '+6' with respect to the sum of the assessment according to the 'character and level of change in the state of the environment' and the assessment according to the 'scope of negative (positive) change'.

The NPRJPI alternatives are compared with one another in terms of individual aspects of environmental impacts with respect to the sum of assessments from the classification of environmental impacts into classes, both by all of the assessed sub-programmes and by measures based on the following equation:

$$C_{scenarij} = \sum_{i=1}^{i=I} c_{zn,i,j} * c_{ob,i,j}$$

where:

$C_{scenarij}$ is the assessment of the environmental impacts of an individual alternative,
$c_{zn,i,j}$ is the assessment according to the character and level of change in the state of the environment,
$c_{ob,i,j}$ is the assessment according to the scope of negative (positive) change,
i, I is the number of assessed sub-programmes or measures within an individual alternative,
j is the consecutive number of an aspect of environmental impacts, to which the impact assessment applies.

3.1.5 Description of the financial evaluation of environmental impacts

The methods for assessing external environmental costs in transport are used for financial evaluation of environmental impacts, which were developed within the HEATCO[66]project and the assumed EMEP values[67]are used as emission factors. The calculated specific external environmental costs will be compared to the average external (environmental) damage caused in 2008 by transport in 27 European countries (excluding Malta and Cyprus but including transport in Switzerland and Norway)[68]. These average external (environmental) costs do not include the environmental damage due to traffic congestion, which is usually evaluated and expressed as a limit (marginal) external (environmental) cost of transport (the external cost due to traffic congestion depends on the state of traffic or the existing state of burdening of the environment to which burden caused by traffic congestion is added).

The parameters for assessing environmental damage caused by transport are external (environmental) costs due to:

- exposure of the population to polluted air,
- impacts on the climate,
- exposure of the population to noise,
- preliminary external (environmental) costs arising from fuel production and distribution,
- impact on nature and landscape (is applied only as a parameter of average long-distance impact),
- loss of biodiversity (is applied only as a parameter of average long-distance impact),
- soil and water pollution (only in cases of spillage of hazardous substances) and
- damage to material goods in urban environment.

The discounted value of environmental costs as a result of environmental impacts from the viewpoint of impact on air, water, climatic factors, nature including biodiversity, landscape, health of the inhabitants and material goods in urban environment equals:

$$C_{ext,j} = \sum_{i=1}^{i=N} \frac{c_{ext,i}}{(1+r)^j} . M_{i,j}$$

where:

$C_{ext,j}$ is the discounted value of environmental costs in year ***j***, expressed in euros,
r is the discount rate (usually, the value used is 3.5%),
$c_{ext,i}$ is the average external (environmental) cost due to results of impact on air, water, climatic factors, nature including biodiversity, landscape, health of the inhabitants and material goods in urban environment expressed in (EUR/p.km.a) or in (EUR/t.km.a),
i ***i***-impact on the environment is the impact on air, water, climatic factors, nature including biodiversity, landscape, health of the inhabitants and material goods in urban environment,

[66] HEATCO - Developing Harmonised European Approaches for Transport Costing and Project Assessment, 6th Framework Programme;
[67] EMEP/EEA air pollutant emission inventory guidebook 2013;
[68] CE Delft, Infras, Fraunhofer ISI; External Costs of Transport in Europe; Update Study for 2008; Delft, CE Delft, September 2011;

$M_{i,j}$ is the quantity of ***i***-impact on the environment in year ***j*** expressed in units of transport work: (p.km) for passenger transport and (t.km) for cargo transport, and
j is the year for which the discounted value of environmental costs is calculated.

The amount of total external environmental costs, due to results of environmental impacts on air, water, climatic factors, nature including biodiversity, landscape, health of the inhabitants and material goods in urban environment, is calculated for individual NPRJPI alternative on the basis of the following equation:

$$C_{ext} = \sum_{2010}^{2030} c_{ext,j}$$

where:
$\boldsymbol{C_{ext}}$ is the net current value of total external environmental costs as the result of environmental impacts on air and climatic factors due to the implementation of the NPRJPI alternative in the 2012-2030 period.

The application of the discount rate in the calculation of total external environmental costs has a certain significance provided that the implementation of sub-programmes in individual NPRJPI alternatives is distributed variably over time within the period of measure implementation up to 2030. Because the temporal distribution of measures, in the case of the NPRJPI alternatives considered, is not of key importance for the evaluation of alternatives, current values of external environmental costs are used for mutual comparison of NPRJPI alternatives, rather than discounted values.

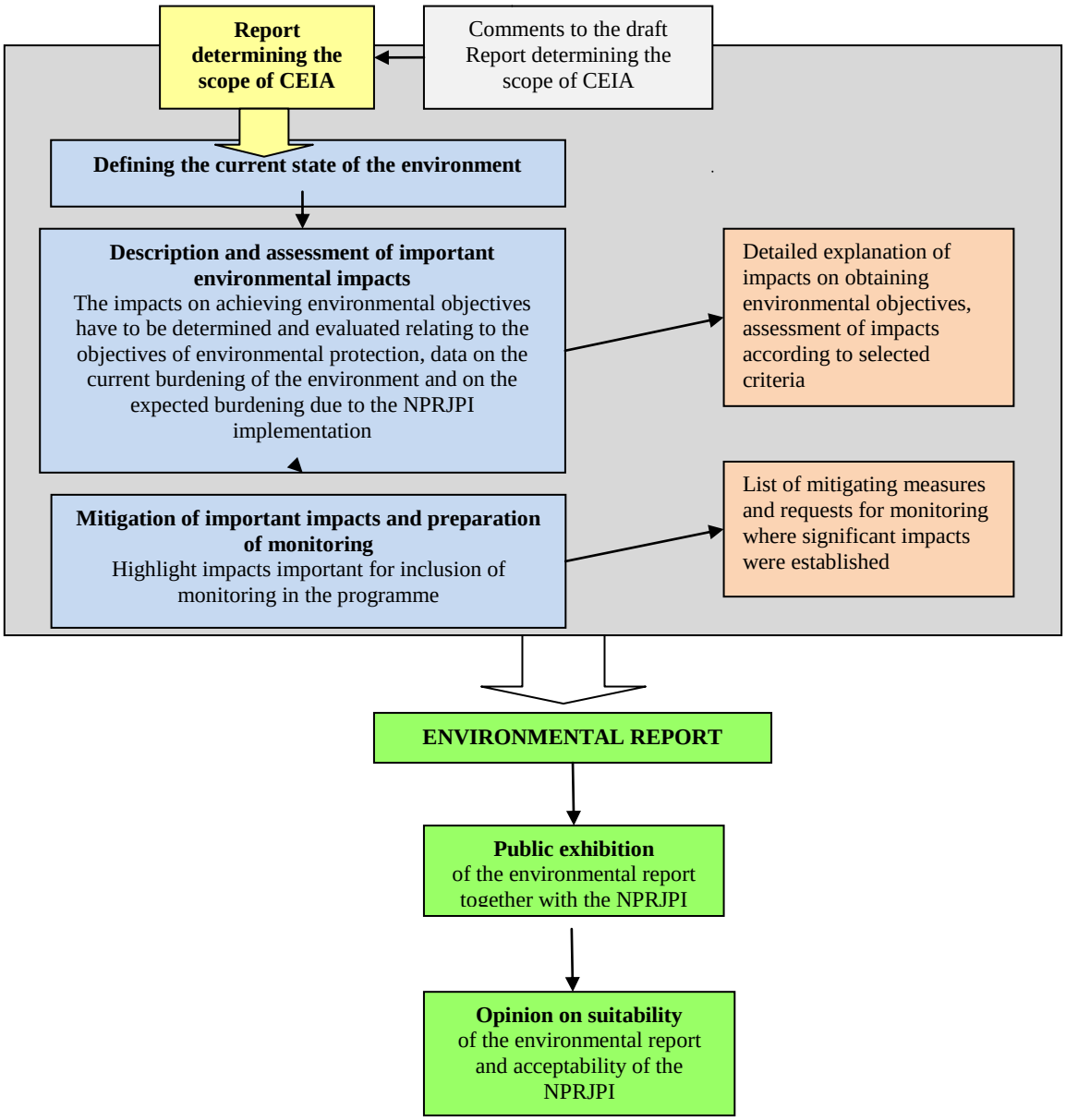
The environmental benefits of implementing an individual NPRJPI alternative have to be used in the evaluation of the economic efficiencies of NPRJPI alternatives. When ascertaining the economic efficiency of investments in the implementation of measures of an individual NPRJPI alternative, the net current value of environmental benefits of the alternative must be added to the net current value of economic benefits of the NPRJPI alternative in question; however, it should be taken into account that certain environmental costs have already been internalised (the costs of impacts on climatic factors due to direct GHG emissions and costs of waste generation).

The assessment of transport impact on the environment anticipates the range expressed in the assessed values of maximum and minimum scenarios for the development of environmental damage due to climate changes, for average values of external costs due to the impact of transport on the environment, and for average values of preliminary external costs in transport which are the result of fuel production and distribution.

3.2 *Description of further steps of the comprehensive assessment of the environmental impact*

The draft report on determining the extent of the assessment will be submitted to the client and then to the Ministry of Agriculture and the Environment, the Environment Impact Assessment Division. After the approval of the report on determining the extent of the environmental report, the preparation of the environmental report is anticipated in accordance with the Decree laying down the content of environmental report and on the detailed procedure for the assessment of the effects on certain plans and programmes on the environment (Official Gazette of the Republic of Slovenia, no. 73/05), which will describe and assess all relevant NPRJPI impacts on the environment, preservation of nature and safety of human health. The environmental report will be presented to the public together with the NPRJPI draft at a public debate. At the time of public exhibition, comments and opinions of the public will be collected, which will be included in the NPRJPI and the environmental report accordingly. The procedure will be concluded when obtaining a positive opinion on the suitability of the environmental report, the NPRJPI acceptability and its adoption by the Government.

Figure 11: Comprehensive environmental impact assessment procedure scheme



ANNEXES

Annex 1: The most important strategies/programmes/acts and their objectives to be observed in the NPRJPI assessment

Table 1: The most important strategies/programmes/acts and their objectives to be observed in the NPRJPI assessment

Environmental strategy / programme / normative act with defined objectives of environmental protection	**Environmental protection objective**	**Notes and explanations**
Environment – general		
The 7th Environment Action Programme to 2020 'Living well, within the limits of our planet', decision of the Council of 15 November 2013	The 7th Environment Action Programme to 2020 provides a general framework for environment policy by 2020 and defines nine priority objectives that must be attained by Member States, i.e.: 1. to protect, conserve and enhance the Union's natural capital; 2. to turn the Union into a resource-efficient, green and competitive low-carbon economy; 3. to safeguard the Union's citizens from environment-related pressures and risks to health and well-being; 4. to maximise the benefits of Union environment legislation; 5. to improve the knowledge and evidence base for Union environment policy; 6. to secure investment for environment and climate policy, and address environmental externalities; 7. to improve environmental integration and policy coherence; 8. to enhance the sustainability of the Union's cities; 9. to increase the Union's effectiveness in addressing international environmental and climate-related challenges.	The 7th Environment Action Programme complies with and includes EU legislation.
Resolution on National Environmental Action Plan 2005-2012 (ReNPVO) (Official Gazette of the Republic of Slovenia, no. 2/06)	The NPVO defines key environmental objectives and priority tasks based on the assessment of the state of the environment and prevailing trends. The tasks and objectives must be met before the expiry of the plan, unless determined otherwise. The NPVO is the starting point for the environmental dimension of Slovenia's Development Strategy, which defines the vision of Slovenia's future and guidelines and measures for the realisation of this vision until 2013. The objectives and measures are defined for four fields, i.e.: environmental change, nature and biodiversity, quality of life and waste and industrial pollution. The basic objectives as per individual fields are: - emphasising climate change as an important challenge in the following years and reducing greenhouse gas emissions and thus contributing to the long-term objective of stabilising concentrations of greenhouse gas emissions in the atmosphere, including the reduction of emission of substances that cause ozone depletion; - protecting and preserving natural systems, habitats and wild fauna and flora with the	The National Environmental Action Plan is the fundamental strategic document in the field of environmental protection, whose objective is general improvement of the environment and the quality of life and the protection of natural resources.

	objective of stopping the loss of biodiversity, genetic diversity and further degradation of soil; - contributing to a high-level of quality of life and social well-being of citizens by providing the environment in which the level of pollution is not detrimental to people's health and surroundings, and by promoting sustainable development in cities, ensuring measures for the implementation of a good condition of surface and groundwater and for sustainable use and management of water, which includes care for water balances and reasonable use of water as a natural resource; - waste management and use of renewable and non-renewable natural resources, which enable sustainable production and consumption, contribute to reducing environmental pollution and the use of energy by not exceeding the carrying capacity of the environment.	
Environment Protection Act (Official Gazette of the Republic of Slovenia, nos. 41/04 - ZVO-1, 20/06-ZVO-1A, 39/06-ZVO-1-UPB1, 70/08-ZVO-1B, 108/09 - ZVO - 1C, 48/12 – ZVO-1D, 57/12 - ZVO-1E, 92/13 - ZVO - 1F)	The Act regulates protection against environmental burdens as the fundamental objective for sustainable development, and within this framework, determines the fundamental principles of environmental protection, measures of environmental protection, monitoring of the state of the environment and information about the environment, economic and financial instruments of environmental protection, public services of environmental protection and other issues related to environmental protection. The objectives of the environmental protection include in particular: 1. prevention and reduction of environmental burdening, 2. preservation and improvement of quality of the environment, 3. sustainable use of natural resources, 4. reduction in the use of energy and increased use of renewable energy sources, 5. elimination of consequences of environmental burdening, improvement of the disrupted natural balance and reinstitution of its regenerating abilities, 6. increase in substantive effectiveness of production and consumption, and 7. omission and substitution of the use of hazardous substances.	Due to the promotion of sustainable development, the requirements of the environmental protection must be included in the preparation and implementation of policies and activities in all fields of economic and social development.

Environmental strategy / programme / normative act with defined objectives of environmental protection	**Environmental protection objective**	**Notes and explanations**
Natural resources		
COM(2010)2020 final - EUROPE 2020 Strategy for smart, sustainable and inclusive growth is the vision of social market economy of Europe for the 21st century;	The strategic objective is to reduce the negative environmental impact caused by the use of natural resources in the growing economy – the concept of 'decoupling'. In practice, this means reducing the environmental impact of the use of resources with the simultaneous	The Strategy on the Sustainable Use of Natural Resources is an integral part of the EUROPE 2020 Strategy, which in compliance with the EU Treaty and Constitution meets one of

COM(2011) 571 - Time frame for Resource Efficient Europe	improvement of efficiency of the use of sources in the entire economy of the EU. In this way, renewable energy sources will not be overexploited. In order to reach these objectives, the strategy includes measures for: - improving our understanding and knowledge of the use of sources in Europe, its negative environmental impact and its importance in the EU and the world, - developing tools for monitoring and reporting on progress in the EU, member states and economy sectors, - promoting the use of strategic approaches and procedures in economic sectors and member states, and promoting plans and programmes suitable for development, and - increasing the awareness of interest groups and citizens about the important negative environmental impact of the use of resources.	the fundamental objectives: meeting the needs of the present generation while not reducing the ability of future generations of meeting their needs.
Thematic Strategy for Soil Protection – COM(2006)231	The strategy takes into account various functions of soil, diversity and complexity of soil, and numerous degradation processes to which soil can be subjected. The strategic objective is the protection and sustainable use of soil, which is based on the following guiding principles: - Preventing further degradation of soil, and maintaining functions of soil when soil is being used and when functions of soil are being exploited and when soil serves as a receptor of the effects of human activity or environmental phenomena - Recovery of degraded soil to the point of functionality, which complies, with at least the existing or envisaged use of soil.	Guidelines used for the drafting of Directive determining the framework for the protection of soil and changes to Directive 2004/35/EC should be taken into account
Directive 2009/28/EC on the promotion of the use of energy from renewable sources, and amending and subsequently repealing of Directives 2001/77/EC and 2003/30/EC	Directive 2009/28/EC on the promotion of the use of energy from renewable sources, and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC, stipulates in relation to biofuel and other liquid biofuel sustainable criteria and a review of compliance regarding the fulfilment of sustainable criteria for biofuel and liquid biofuel and review of fulfilment of the programme.	Fulfilment of the requirements from Directive 2009/28/EC in Slovenia is explained in detail in the Action plan for renewable sources of energy in the 2010-2020 period
Agricultural Land Act – ZKZ (Official Gazette of the Republic of Slovenia, nos. 71/11, 58/12)	The objectives of this act are *inter alia* to conserve and improve the production potential, sustainably treat fertile soil, conserve landscape, and conserve and develop rural areas. The act defines sustainably protected agricultural land and other agricultural land, and their protection and activities permitted on it.	The act regulates the protection of agricultural land and its management by stipulating their classification, use and cultivation, their transactions and lease, agricultural operations and joint pastures.
Act on Forests (Official Gazette of the Republic of Slovenia, nos. 30/93, 13/98, 24/99, 67/02, 112/06 115/06, 110/07, 61/2010, 106/2010, 63/13)	The bases for forest management are the National Forest Development Programme and forest management plans. The act defines protective forests and special purpose forests.	This act regulates the protection, cultivation, exploitation, use and the disposal of forests as a natural asset in order to ensure sustainable and multipurpose

		management in accordance with the principles of protecting the environment and valuable natural features, and sustainable and optimum functioning of forests as a ecosystem, and realise their functions. This act also regulates the conditions for managing forestland, as well as individual forest trees and groups of forest trees outside planning zones for their role in the environment to be conserved and strengthened.
National Forest Development Programme (NPRG) (Official Gazette of the Republic of Slovenia, no. 14/1996)	1. Conservation and sustainable development of forests in terms of their biodiversity, and all ecological, social and production functions. The objective also includes the conservation and strengthening of bioecological stability of forest ecosystems, and their sustainable management.	The attractiveness of the conserved forest landscape is one of Slovenia's essential comparative advantages. The conservation and protection of forests, along with their ecological exploitation and improvement of the quality of all forest (not only wood) functions, is becoming the overall European and global orientation.
Resolution on the strategic guidelines for the development of the Slovenian agriculture and food industry by 2020 – 'Securing food for tomorrow' (ReSURSKŽ) (Official Gazette of the Republic of Slovenia, no. 25/2011)	The strategic objectives of the development of Slovenian agriculture and food production include sustainable use of production potentials and ensuring agriculture-related public assets. The concept of sustainability will ensure that the scope of agricultural production and the area of agricultural land in Slovenia will not significantly decline. One of the operational objectives is also the conservation of soil fertility and production potential of agricultural land by protecting the best agricultural land against permanent change in land use.	The Resolution on the strategic guidelines for the development of the Slovenian agriculture and food industry by 2020 – 'Securing food for tomorrow' defines the vision and objectives of agricultural development in Slovenia in the next medium-term period by 2020. It is the response to challenges agriculture has been facing in the 21st century. The resolution also includes those measures which will contribute to the realisation of the objectives of the Communication form the Commission – Europe 2020 – A strategy for smart, sustainable and inclusive growth (European Commission; Brussels, 3 March 2010, COM(2010) 2020 final). The objectives are presented through the presentation of the situation in agriculture, global and European framework, and development priorities and opportunities. Priority guidelines and mechanisms for their realisation are defined on the basis of the objectives.
Directive 2006/12/EC on waste	Waste Framework Directive (2008/98/EC) introduces a new approach to waste management. Waste is a source of raw material (and not just something that must be disposed of as cheaply as possible); therefore, Member	The essential objective of all regulations on waste management should be the protection of human health and environment against harmful

	States must take measures to reuse as much waste as possible.	effects caused by gathering, transporting, processing, storing and disposing of waste.

Environmental strategy / programme / normative act with defined objectives of environmental protection	**Environmental protection objective**	**Notes and explanations**
Ambient air		
Directive 2008/50/EC on ambient air quality and cleaner air for Europe Directive 2004/107/EC relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air Operational programme for the protection of ambient air against pollution caused by PM_{10}, (Government of the Republic of Slovenia, no. 35405-4/2009/9, 2009)	Directive 2008/50/EC determines objectives related to the quality of ambient air in order to avoid, prevent or reduce harmful effects on human health and the environment as a whole.	Emissions of pollutants must not exceed limit or target values for SO_2, NO_x, PM_{10}, $PM_{2.5}$ and other pollutants (NO_2, Pb, CO, benzene, ozone, HOS and NH_3).
NEC Directive 2001/81/EC on national emission ceilings for certain air pollutants and its revision Gothenburg Protocol to the Convention of the United Nations Economic Commission for Europe (UNECE) on long-range transboundary air pollution to abate acidification, eutrophication and ground-level ozone Revision on Operational programme for complying with national emission ceilings for atmospheric pollutants from 2005 (Government of the Republic of Slovenia, no. 35405-4/2006, 2007)	The objective of Directive 2001/81/EC is to reduce emissions of pollutants causing acidification and eutrophication, and ozone precursors in order to improve the protection of the environment and human health in the Community against the harmful effects of acidification, eutrophication of soil and ground-level ozone, and in order to attain the long-term objectives of not exceeding the critical level and burden, and to effectively protect all people against known health risks due to air pollution by determining the national emission ceilings for 2010 and 2020 as limit years.	Envisaged environmental objectives of revised NEC Directive 2001/81/EC for SO_2 (10 kt), NO_x (33 kt) and $PM_{2.5}$ (6kt) by 2020

Environmental strategy / programme / normative act with defined objectives of environmental protection	**Environmental protection objective**	**Notes and explanations**
Water		
Water Framework Directive 2000/60/EC	Directive 2000/60/EC determines measures for the attainment of the strategic objective of good ecological status of waters in 2015. The Water Management Plan (Decree on the river basin management plan for the Danube	The Water Management Plan is transferred in Slovenian legislation through Water Framework Directive 2000/60/EC. Good ecological

	Basin and the Adriatic Sea Basin (Official Gazette of the Republic of Slovenia, no. 61/11)) includes a programme of basic and supplementary measures of water management 2011–2015 for the Danube Basin and the Adriatic Sea Basin.	status of waters requires the implementation of measures in accordance with the adopted water management plans. The planning and implementation of transport policy is not directly linked to the implementation of the objectives. Indirect impacts on the quality of surface water and groundwater are possible if the provisions from the Decree on the emission of substances in the discharge of meteoric water from public roads (Official Gazette of the Republic of Slovenia, no. 47/05) are not observed.
Water Management Plan (Decree on the river basin management plan for the Danube Basin and the Adriatic Sea Basin (Official Gazette of the Republic of Slovenia, no. 61/11))	The Water Management Plan includes a programme of basic and supplementary measures of water management 2011–2015 for the Danube Basin and the Adriatic Sea Basin.	The Water Management Plan is transferred in Slovenian legislation through Water Framework Directive 2000/60/EC.
Waters Act (Official Gazette of the Republic of Slovenia, no. 67/02, 110/02 – ZGO-1, 2/04 – ZZdrl-A, 41/04 – ZVO-1, 57/08, 57/12 – ZV-1B, 100/13-ZV-1C)	The purpose of the Waters Act is to achieve good status of waters and other water-related ecosystems, ensure protection against harmful effects of water, conserve and balance water quantities, and promote sustainable use of waters which facilitates various types of water use by taking into account the long-term conservation of available water sources and their quality.	
Directive 2008/56/EC on establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive)	Directive 2008/56/EC determines the framework within which Member States must take the necessary measures to achieve or maintain good environmental status in the marine environment by 2020 at the latest. In accordance with this directive, marine strategies are formed and implemented in order to: (a) ensure the protect and maintain the marine environment, prevent its degradation or, if possible, restore marine ecosystems in areas affected by harmful effects; (b) prevent and reduce input in the marine environment for gradual elimination of pollution and thus ensure that there are no major consequences for marine biodiversity, marine ecosystems, human health or lawful use of sea, and that they are not significantly threatened.	A Member State develops a marine strategy for its marine waters. Member States sharing a marine region or sub-region cooperate in ensuring the coordination of measures in each marine region or sub-region required to attain the objectives from this Directive.
Directive 2008/105/EC on environmental quality standards in the field of water policy	This directive determines the environmental quality standards for priority substances and other pollutants, as determined in Directive 2000/60/EC, with the goal of attaining a good chemical condition of surface waters and in accordance with the provisions and goals of	The implementation of the regulation transposing Directive 2008/105/EC in Slovenian legislation regulates the following in relation to the objectives of good ecological

	Directive 2000/60/EC on the prevention of emission of substances into waters with separation of wastewater.	status of waters by 2015: - Criteria for the evaluation of the chemical status of surface waters, and - Environmental objectives on the abandonment or termination of discharge of certain substances in the aquatic environment
Bathing Water Directive 76/160/EEC	The directive determines the quality standards for bathing water and imposes the obligation of implementing the monitoring of bathing water. The directive also requires that EU Member States determine the areas of bathing water in surface waters where bathing is actively promoted or where people traditionally bathe and bathing is not prohibited. For all these areas, a bathing season must be determined, during which regular monitoring must be carried out in accordance with the requirements from this directive. If bathing water is unsuitable, a programme of measures to improve bathing water quality must be prepared.	The directive is implemented in Slovenian legislation through the Rules on detailed criteria for identification of bathing water (Official Gazette of the Republic of Slovenia, no. 39/08) and the Decree concerning the management of bathing water quality (Official Gazette of the Republic of Slovenia, no. 25/08).
Council Directive 98/83/EC on the quality of water intended for human consumption	Council Directive 98/83/EC regulates on the quality of water intended for human consumption. The objective of this directive is to protect human health from harmful effects of any contamination of water intended for human consumption by ensuring it is wholesome and clean. Water is wholesome and clean if it is free from any microorganisms, parasites and from any substances which, in numbers or concentrations, constitute a potential danger to human health.	The directive is implemented in Slovenian legislation by the Action plan for water supply. It refers to supplying residents with drinking water and water supply for other, mostly public needs. The action plan is adopted for the period between 2006 and 2013.
Directive 2006/118/EC on the protection of groundwater against pollution and deterioration	Directive 2006/118/EC on the protection of groundwater against pollution and deterioration determines special measures for the prevention and control of pollution of groundwater in accordance with Directive 2000/60/EC. These measures primarily include: - Criteria for the assessment of good chemical status of groundwater, and - Criteria for determining and reversing important and increasing trends, and for defining starting points for reversing trends.	Good chemical status of groundwater must be attained by 2015.
Directive 2000/59/EC on port reception facilities for ship-generated waste and cargo residues	The purpose of this directive is to reduce the discharges of ship-generated waste and cargo residues into the sea, especially illegal discharges, from ships using ports in the Community, by improving the availability and use of port reception facilities for ship-generated waste and cargo residues, thereby enhancing the protection of the marine environment.	The implementation of the regulation transposing Directive 2000/59/EC to Slovenian legislation contributes to the achievement of good ecological status of marine waters.

Environmental strategy / programme / normative act with defined objectives of environmental protection	**Environmental protection objective**	**Notes and explanations**
Biodiversity		

Nature Conservation Act (Official Gazette of the Republic of Slovenia, no. 96/04 –ZON-UPB2)	The regulation establishes a comprehensive system for nature preservation whose purpose is to protect valuable natural features and preserve biodiversity. It defines the subjects of protection, ways and measures of protection, organisation in the area of nature protection, funding of nature protection, programming and planning of nature protection and other content necessary for effective nature protection. Listed among the protected subjects in the area of preservation of biodiversity which are determined or determinable as priorities, are habitat types which are preserved as a priority in favourable condition, habitats of protected and internationally protected species, areas of ecological importance and special protected areas (hereinafter referred to as: Natura 2000 areas), which create the European ecological network. The protected subject is also endangered, protected and internationally protected wild fauna and flora.	All protected subjects are determined with a corresponding implementing regulation, an act by the minister responsible for nature protection, or a decree by the Government.
Natura 2000 management programme for the period from 2007 to 2013 (Ministry of the Environment and Spatial Planning, 2007)	The main purpose of the operational programme is to define for the 2007–2013 period the implementation of obligations of protection of special protected areas - the Natura 2000 areas - to which Slovenia is committed under the Directive on birds and the Directive on habitats, which means to preserve and increase biodiversity in the EU by enabling sustainable development. A part of this objective is to promote the traditional coexistence of humans and nature. The main tasks of the programme are: • To define in detail the protection objectives and measures in the Natura areas • To define relevant sectors and responsible holders for the implementation of protection measures • To enable horizontal connections with strategic plans and development programmes of the Government • To take advantage of the opportunities of the Natura 2000 areas for local and regional development, jobs and economic growth, taking into account the economic, social and demographic features and principles of sustainable development • To prepare a review of the missing research, studies and data to be included in research programmes	The operational programme points out new opportunities for local and regional development, primarily in the areas of agriculture, tourism, recreation and related activities. The operational programme defines protection objectives and measures in the Natura areas, relevant sectors and responsible holders for the implementation of protection measures.
The Bern Convention (Bern, 1979) – ratified in 1999 (Official Gazette of the Republic of Slovenia – MP, no. 17/99 – Official Gazette of the Republic of Slovenia, no. 55/99)	The convention on the conservation of European wildlife and natural habitats.	
Council Directive 92/43/EEC	The Directive on habitats in the second	

on the conservation of natural habitats and of wild fauna and flora	paragraph of Article 6 requires that Member States from the day of their accession to the European Union prevent the deterioration of natural habitats and the habitats of species, as well as the disturbance of species for which the Natura 2000 areas have been designated, in so far as such disturbance could be significant in relation to the objectives of this directive. This provision applies to proposed special protection areas (SCI), as determined in accordance with the criteria and procedures of the Directive on habitats (fifth paragraph of Article 4).	
UN Convention on Biological Diversity (1992)	The Convention on Biological Diversity was signed in 1992 by 150 heads of state. The objectives of this convention, which are being attained in accordance with its relevant provisions, are preserving biodiversity, the sustainable use of its components, and fair and just division of benefits from the use of genetic resources, together with adequate access to them and an appropriate transfer of adequate technologies, while taking into account all rights to these sources and technologies, and with adequate financing.	
EU Biodiversity Strategy to 2020 (COM(2011) 244	This strategy realises two important commitments, i.e. to halt the loss of biodiversity in the EU by 2020, and to protect, evaluate and restore biodiversity and ecosystem services in the EU by 2050. The objective of this strategy is to halt the loss of biodiversity and the deterioration of ecosystems in the European Union by 2020 by defining six priority objectives: Objective 1: Conserving and restoring nature Objective 2: Maintaining and improving ecosystems and their services (restoration of at least 15% of damaged areas) Objective 3: Ensuring sustainable agriculture, forestry and fishery Objective 4: Ensuring sustainable use of fisheries resources Objective 5: Combating invasive alien species which threaten 22% of native EU species Objective 6: Measures to prevent biodiversity loss	
Strategy for Biodiversity Conservation in Slovenia (2002–2012) (Ministry of the Environment and Spatial Planning, 2001) The analysis of attaining the objectives of the Strategy for Biodiversity Conservation in Slovenia, Symbiosis Institute, 2012	This is a strategic document adopted by the Government on 20 December 2001 which determined for 2002–2012 a set of specific objectives and guidelines for the coordinated implementation of measures contributing to the attainment of three main goals of the Convention on Biological Diversity. These objectives are: • Conservation of biodiversity, • Sustainable use of its components, • Fair and just division of benefits of genetic resources.	The report will verify the impacts of transport on habitat fragmentation in light of the conclusions of the analysis of attaining the objectives of the Strategy for Biodiversity Conservation in Slovenia.

Environmental strategy /	**Environmental protection objective**	**Notes and explanations**

programme / normative act with defined objectives of environmental protection		
Landscape		
Spatial Planning Strategy of Slovenia (Official Gazette of the Republic of Slovenia, no. 76/2004)	The strategy determines the following as part of the objective of 'Cultural diversity as the basis for national spatial identity': - Promotion of preservation and development of cultural diversity as a basis for quality national spatial identity, a quality living environment and social inclusion. The concept of spatial development in relation to boosting recognisability of quality natural and cultural features of the landscape determines: - That landscape is developed, considering the features and development potential, as natural and cultural landscape, as urban landscape and as agriculturally intensive landscape; - Preservation and quality management in areas with recognisable natural and cultural qualities, in relation to the economic opportunities enabled by these qualities, is promoted; - Individual qualities are determined in procedures of spatial planning at the regional and local level and are included in spatial development. Within the development of landscape, the strategy determines landscape areas with recognisable features which are important at the national level, and determines ways of preserving and developing these areas.	Special attention should be given to the assessment of the proposed transport infrastructure facilities, which (can) intrude upon landscape areas with distinctive features which are important at the national level, and to exceptional landscapes.
European Landscape Convention, European Treaty series No. 176, Council of Europe, 2000; Act Ratifying the European Landscape Convention (MEKK), (Official Gazette of the Republic of Slovenia, no. 74/03)	The convention refers to landscapes considered as exceptional, as well as usual or degraded landscapes. The objectives of the convention are: - Promoting the protection, management and planning of landscapes; - Establishing European cooperation in solving issues related to landscape. Under the convention, every signatory is obliged to: - Legally recognise landscapes as an important component of the human environment, as an expression of diversity of the common cultural and natural heritage of humans and the foundation of their identity; - Create and implement a landscape policy whose objectives are to protect, manage and plan landscapes on the basis of the adoption of special measures; - Determine procedures for the participation of public, local and regional communities and other interested parties in defining and implementing landscape policy; - Include landscape in its policy of regional and urban planning, and in its cultural, environmental, agricultural, social and economic policies, and in all other policies which directly or indirectly influence landscape.	In planning and assessing energy facilities which intrude upon landscape, the features and qualities of landscape must be taken into account. Optimisation and remedial measures, which will be taken into account in further phases of planning of energy infrastructure facilities, must be defined.
Environmental strategy /	**Environmental protection objective**	**Notes and explanations**

programme / normative act with defined objectives of environmental protection		
Cultural heritage		
Cultural Heritage Protection Act (Official Gazette of the Republic of Slovenia, nos. 16/08, 123/08, 8/11, 30/11, 90/12, 111/13)	The act defines heritage protection as the conservation of material and substantial features of items, groups of items and structures or areas, care for their integrity, and emphasises their importance as an essential component of modern life. The basic content and objectives of heritage protection are: - Maintaining and restoring heritage and prevent its endangerment; - Providing material and other conditions for realising the cultural function of heritage, regardless of its intended function; - Ensuring public accessibility of heritage, and facilitating the study and research of heritage; - Preventing activities which could change the features, content, shape and, consequently, the value of heritage; - Securing the implementation and development of the heritage protection system.	
Resolution on the 2014–2017 National Programme for Culture (ReNPK14-17) (Official Gazette of the Republic of Slovenia, no. 99/13)	The resolution stipulates that the conservation of cultural heritage and its sustainable use are an irreplaceable contribution to human development and the quality of life. By taking into account the role of cultural heritage in constructing inclusive democratic society, and by emphasising cultural diversity and sustainable development, the concept of protection is being significantly expanded, which evolved from protecting individual cultural monuments organised within professional institutions for physical protection against deterioration and changes to the conservation of wider areas that are holders of cultural and spatial identity to finally introduce cultural heritage as a source of the economic, social and local development which requires the surpassing of sectoral policies and inclusion in sectoral strategies, active creation of opportunities for financial investments from various sources, and partnership with local communities.	
European Landscape Convention, European Treaty series No. 176, Council of Europe, 2000; Act Ratifying the European Landscape Convention (MEKK), (Official Gazette of the Republic of Slovenia, no. 74/03)	The convention also refers to heritage landscapes. The objectives of the convention are described in the Landscape chapter.	Facilities must avoid interventions in heritage landscapes.
European Convention on the Protection of the Archaeological Heritage – Malta Convention (European convention on the Protection of the	The convention refers to comprehensive protection of archaeological heritage. It defines the connection between conservation of archaeological heritage and spatial planning. The convention imposes on every signatory to: - Make efforts to coordinate and connect the	The scope of preliminary archaeological research and potential protection excavations in the construction phase must be noted.

Archaeological Heritage (revised), European Treaty Series No. 143, Council of Europe, 1992; Act Ratifying the European Convention on the Protection of the Archaeological Heritage (amended) (MEKVAD), Official Gazette of the Republic of Slovenia, no. 24/1999)	requirements of archaeology and spatial planning, and to secure participation of archaeologists in spatial planning policies and different phases of spatial planning; - Ensure systematic consultations between archaeologists and urban planners, or between those responsible for spatial planning, in order to enable changes to implementation plans which could harm archaeological heritage, and enough time and resources for the implementation of an adequate scientific study on the spot and for the publication of results; - Ensure that archaeological sites and their locations will be fully taken into account in environmental impact assessments and decisions adopted on that basis; - Ensure that parts of archaeological heritage found during spatial interventions will be preserved on the spot (in situ) if possible; - Ensure that archaeological sites are accessible to the public and that the access path for larger numbers of visitors does not harm the archaeological and scientific features of these sites and their surrounding.	
European Convention for the Protection of the Architectural Heritage of Europe – Granada Convention (European convention for the Architectural Heritage of Europe, European Treaty Series No. 121, Council of Europe, 1985; Official Gazette of the SFRY – Treaties, no. 4-11/1991; Act notifying succession to conventions of the Council of Europe, Geneva conventions and additional protocols on the protection of war victims and treaties from the area of armaments control, whose depositories are the three major nuclear powers, Official Gazette of the Republic of Slovenia, no. 14/1992	The convention strengthens the concept of comprehensive protection of architectural heritage (monuments, architectural units, memorial sites). The convention imposes on every signatory to: - Perform adequate control and exercise powers as requested by legal protection of such structures; - Prevent damage, decay or demolition of protected real estate. The policy of comprehensive protection of architectural heritage the signatories are obliged to adopt: - Includes the protection of architectural heritage as an important objective of spatial planning and urban planning; - Promotes programmes for the reconstruction and maintenance of architectural heritage; - Makes sure that the protection, revitalisation and improvement of architectural heritage become an important feature of policies in the field of culture, environmental protection and spatial planning; - Promotes in the procedures of spatial planning and urban planning, where possible, the protection and use of structures whose purpose alone does not justify the protection, but which are important as part of the urban or rural environment, and as an element of the quality of life; - Promotes the use and development of traditional skills and materials, which are important for the future of architectural heritage.	

Environmental strategy / programme / normative act	**Environmental protection objective**	**Notes and explanations**

with defined objectives of environmental protection		
Climate factors		
Directive 2003/87/EC establishing a scheme for greenhouse gas allowance trading within the Community Directive 2009/29/EC amending Directive 2003/87/EC so as to improve and extend the greenhouse gas allowance trading scheme of the Community	Directive 2003/87/EC establishes a system for greenhouse gas allowance trading with the purpose of promoting a reduction in greenhouse gas emissions in a financially and economically effective way.	Envisaged average reduction of CO_2 emissions in the trade sector in the EU by 21%
Decision 406/2009/EC on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020 Operational programme for limiting greenhouse gas emissions (material in public discussion)	Decision 406/2009/EC lays down the minimum contribution of Member States to meeting the greenhouse gas emission reduction commitment of the Community for the period from 2013 to 2020 for greenhouse gas emissions covered by this decision, and the rules on making these contributions and for the evaluation thereof.	Greatest increase in CO_2 emissions up to 2020 in non-trade sectors - +4%
COM(2010) 2020 final - EUROPE 2020 Strategy for smart, sustainable and inclusive growth is a vision of Europe's social market economy for the 21st century; COM(2011) 112 – A roadmap for moving to a competitive low-carbon economy	The Communication from the Commission COM(2011) 112 includes a roadmap of potential measures by 2050 which would enable the EU to reduce greenhouse gas emissions in accordance with the agreed target of 80% to 95%. The communication defines the milestones on the basis of which the EU could monitor whether it is on the right track to attain the objectives, and addresses the challenges for politicians, investment needs and opportunities in various sectors considering the fact that the target of 80% to 95% reduction will have to be attained through domestic reductions.	Greater efficiency of fuels should remain by 2025 the most important factor in reversing the trends of increasing greenhouse gas emissions produced by transport.
Directive 2009/33/EC on the promotion of clean and energy efficient road transport vehicles	Directive 2009/33/EC requires contracting authorities and certain operators when purchasing road transport vehicles to take into account energy and environmental impacts during the lifetime of vehicles, including energy consumption, and emissions CO_2 and certain pollutants, to stimulate the market for clean and energy-efficient vehicles thus improving the contribution of the transport sector to the environment, climate and energy policies of the Community.	The purchase of clean and energy-efficient road transport vehicles is an opportunity for cities which wish to market their environmental awareness.
Directive 2009/30/EC amending Directive 98/70/EC as regards the specification of petrol, diesel and gas-oil and introducing a mechanism to monitor and reduce greenhouse gas emissions and amending Council Directive 1999/32/EC as regards the specification of fuel used by	Directive 2009/30/EC amends Directive 98/70/EC by setting, in respect of road vehicles and non-road mobile machinery (including inland waterway vessels when not at sea), agricultural and forestry tractors, and recreational craft when not at sea: (a) technical specifications on health and environmental ground for fuels to be used with positive ignition and compression-ignition engines, taking into account of the technical	The combustion of road transport fuel is responsible for around 20% of Community greenhouse gas emissions. One approach to reducing these emissions is through promoting the use of biofuels.

inland waterway vessels and repealing Directive 93/12/EEC	requirements on those engines, and (b) a target for the reduction of life-cycle greenhouse gas emissions.	
Regulation (EC) No 1222/2009 on the labelling of tyres with respect to fuel efficiency and other essential parameters	The purpose of Regulation (EC) No 1222/2009 is to increase the safety, and the economic and environmental efficiency of road transport by promoting fuel-efficient and safe tyres with low noise levels. This regulation establishes a framework for the provision of harmonised information on tyre parameters through labelling, allowing end-users to make an informed choice when purchasing tyres.	Tyres, mainly because of their rolling resistance, account for 20% to 30% of the fuel consumption of vehicles. A reduction of the rolling resistance of tyres may therefore contribute significantly to the energy efficiency of road transport and thus to the reduction of emissions.
Regulation (EC) No 443/2009 setting emission performance standards for new passenger cars as part of the Community's integrated approach to reduce CO_2 emissions form light-duty vehicles	The objective of Regulation (EC) No 443/2009 is to set emission performance standards for new passenger cars registered in the Community, which forms part of the Community's integrated approach to reducing CO_2 emissions from light-duty vehicles while ensuring the proper functioning of the internal market.	The average CO_2 emissions of the new car fleet are reduced to 120 g CO_2/km. This regulation sets the average CO_2 emissions for new passenger cars at 130 g CO_2/km. From 2020, this regulation sets a target of 95 g CO_2/km as average emissions for the new car fleet. This regulation will be amended with additional measures corresponding to a reduction of 10 g CO2/km as part of the Community's integrated approach.
Regulation (EU) No 510/2011 setting emission performance standards for new light commercial vehicles as part of the Union's integrated approach to reduce CO_2 emissions form light-duty vehicles	Regulation (EC) No 510/2011 establishes CO_2 emissions performance requirements for new light commercial vehicles.	This regulation sets the average CO_2 emissions for new light commercial vehicles at 175 g CO_2/km. From 2020, this regulation sets a target of 147 g CO_2/km for the average emissions of new light commercial vehicles registered in the Union.

Environmental strategy / programme / normative act with defined objectives of environmental protection	**Environmental protection objective**	**Notes and explanations**
Noise		
Directive 2002/49/EC relating to the assessment and management of environmental noise	The basic objective of this directive is to define a common approach intended to prevent and reduce harmful effects of noise pollution, and ensure bases for introducing measures for reducing noise emitted by major sources, in particular road and rail vehicles and infrastructure, aircraft, outdoor and industrial equipment, and mobile machinery.	The basis for the attainment of the objectives of the directive are: - The preparation of information regarding the burdening of residents and surfaces with noise produced by traffic and industrial activities with uniform methods, - Informing the public on noise pollution and its health consequences, - The preparation, adoption and implementation of operational programmes for protection against noise,

		- The monitoring of the implementation and efficiency of operational programmes.
COM (2011) 321 Report on the implementation of Environmental Noise Directive	Report from the Commission COM (2011) 321 summarises the implementation of Directive 2002/49/EC at the institutional, legal and operational level, information on the burdening of residents and the environment with noise on the basis of information from the strategic mapping in 2007, and guidelines for further measures in the field of environmental noise which comprise: - The final formation of a harmonised noise assessment method at the EU level (CNOSSOS-EU). The implementation of a harmonised method is anticipated for the third reporting cycle in 2017, - The formation of uniform positions to prepare operational programmes of protection against noise, and to determine and protect quiet areas in agglomerations and in open country, - Increasing the synergy between measures to improve ambient air quality and measures to reduce noise by comprehensively planning measures in the areas of large transport hubs and settlements, - The harmonisation and modernisation of legislation regulating emissions from noise sources. The objective is to reduce noise emitted by motor vehicles and use roads with low level of noise, limit emissions of rail vehicles and infrastructure, limit the operations at airports, and limit the emission from outdoor machinery and equipment.	Social noise-related costs due to rail and road transport across the EU were assessed at EUR 40 billion a year (0.4% of total EU GDP). Social noise-related costs due to transport in Slovenia are estimated to reach around EUR 154 million a year. According to the White Paper on Transport, the noise-related external costs of transport would increase to around EUR 20 billion by 2050 unless further action was taken.
Operational Noise Action Programme for the first phase major roads and major railways outside the Municipality of Ljubljana 2012–2017	The objective of the Operational Noise Action Programme is to improve the quality of life from the aspect of noise pollution for people who live in areas near the busiest railway lines and road connections. The programme addresses areas near railway lines with over 60,000 transports of trains and areas near road with over 6 million transports of vehicles in 2006, but only areas outside the Municipality of Ljubljana. The programme determines measures to reduce noise pollution between 2012 and 2017. The programme includes additional measures to reduce and prevent increased burdening of the environment, such as addressing noise in spatial planning procedures and basic positions for the planning of anti-noise measures to reduce noise produced by road and rail transport.	The provisions of the operational programme are used for the restoration of the current burdening of the environment, and the prevention of further increase of the burdening.
Directive 2002/30/EC on the	The objective of Directive 2002/30/EC is to	In accordance with Report

establishment of rules and procedures with regard to the introduction of noise-related operating restriction at Community airports	lay down rules from the Community to facilitate the introduction of operating restrictions in a consistent manner at airport level so as to limit or reduce the number of people significantly affected by the harmful effects of noise. Operating restrictions mean noise related action that limits or reduces access of civil subsonic jet aeroplanes to an airport. It includes operating restrictions aimed at the withdrawal from operations of marginally compliant aircraft at specific airports as well as operating restrictions of a partial nature, affecting the operation of civil subsonic aeroplanes according to time period.	COM(2011) 321, a revision of the directive is anticipated, which will lead to the adoption of cost-effective measure from noise reduction taking into account the internationally agreed standards for improving the ration between the directive on airport noise and the directive on environmental noise.
Regulation (EC) No 661/2009 concerning type-approval requirements for the general safety of motor vehicles, their trailers and systems, components and separate technical units intended therefore Regulation (EC) No 1222/2009 on the labelling of tyres with respect to fuel efficiency and other essential parameters	Regulation (EC) No 661/2009 establishes requirements: 1. for the type-approval of motor vehicles, their trailers and systems, components and separate technical units intended therefore with regard to their safety, 2. for the type-approval of motor vehicles, in respect of tyre pressure monitoring systems, with regard to their safety, fuel efficiency and CO_2 emissions, and in respect of gear shift indicators, with regard to their fuel efficiency and CO_2 emissions, and 3. for the type-approval of newly-manufactured tyres with regard to their safety, rolling resistance performance and rolling noise emissions. The purpose of Regulation (EC) No 1222/2009 is to increase the safety, and the economic and environmental efficiency of road transport by promoting fuel-efficient and safe tyres with low noise levels.	The implementation of the aforementioned regulations regulates the rolling noise of new tyres.
Commission Decision 2011/229/EU concerning the technical specifications of interoperability relating to the subsystem ‘rolling stock – noise’ of the trans-European conventional rail system	The decision is a revised version of the Technical Specification for Interoperability (hereinafter referred to as ‘the TSI’) relating to subsystem ‘rolling stock – noise’ of the trans-European conventional rail system referred to in Article 6(1) of Directive 2008/57/EC, as set out in the Annex. The TSI applies to the rolling stock of the trans-European conventional rail system as defined in Annex I to Directive 2008/57/EC. The TSI applies to new and existing rolling stock as set out in Section 7 of the Annex.	The TSI technical specification regulates rolling stock emissions (traction and hauled vehicles).

Environmental strategy / programme / normative act with defined objectives of environmental protection	**Environmental protection objective**	**Notes and explanations**
Socio-economic		

development		
Europe 2020 – Strategy for smart, sustainable and inclusive growth COM(2010) 2020	In its communication entitled "Europe 2020 – Strategy for smart, sustainable and inclusive growth", the Commission emphasised that social cohesion, green economy, education and innovation are important for the European area. The aforementioned objectives must be reflected in various aspects of European transport policy which strives for sustainable mobility for all citizens, 'decarbonisation' of transport and full use of technological progress.	
Resolution of National Programme on Road Traffic Safety for the period from 2013 to 2022 (Together for greater safety) (ReNPVCP13-22) (Official Gazette of the Republic of Slovenia, no. 39/13)	The main attention of transport policy in the Republic of Slovenia is dedicated to sustainable mobility that represents the heart of transport policy of the European Union. The objective of transport policy is to separate the mobility from its negative side effects, which is of key importance to attaining safety, environmental and energy objectives by 2020. To attain the objective of transport policy, the EU promotes the development of environmentally friendly transport sector and of efficient transport management systems, and an increase in road traffic safety. The programme pursues the common objective of EU Member States to preserve as many life as possible in road transport by 2020, and halve the number of casualties and severely injured. ReNPVCP13-22 stipulates that the following must be secured: - That, by the end of 2020, the annual number of casualties on Slovenian roads will not exceed 70, - That, by the end of 2020, the annual number of severely injured on Slovenian roads will not exceed 460.	The programme takes into account the Resolution on Transport Policy of Slovenia (Intermodality – Time for synergy) (Official gazette of the Republic of Slovenia, no. 58/06) whose objective to increase traffic safety is entered as priority no. 3.