



The Republic of Slovenia The Government Office for Local Self-government and Regional Policy Kotnikova 28 1000 LJUBLJANA

# Environmental report for

Strategic Environmental Assessment of Instrument for Pre-Accession Assistance Cross-border Cooperation Operational Programme Slovenia - Croatia 2007-2013

Domžale, July 2007



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### Environmental report for Strategic Environmental Assessment of Instrument for Pre-Accession Assistance Cross-border Cooperation Operational Programme Slovenia-Croatia 2007-2013

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## **EXECUTIVE SUMMARY**

#### The purpose of assessment

The aim of Strategic environmental assessment (SEA) of the Cross-border Co-operational Programme *Slovenia – Croatia* 2007 – 2013 is to:

- harmonize it with environmental goals, environmental legislation and other strategic documents,
- evaluate impacts of the programme objectives, priorities and proposed measures on human health and well being, environment, nature and cultural heritage and
- to formulate appropriate measures to mitigate impacts of the programme.

The result of the SEA process is:

- finished Environmental Report, which is in line with the Strategic Environmental Assessment Directive (2001/42/EC) and
- accordingly modified Cross-border Co-operational Programme Slovenia Croatia 2007 2013.

Environmental report is a document that incorporates all processes and assessment findings, possible alternatives, the evaluation of impacts and mitigation measures. It contains the information on the priority goals and their specific objectives, which are quantified by a limited number of indicators in order to measure the progress in relation to the current state of the environment.

The area of programme includes NUTS level 3 regions along the Slovenian-Croatian border: Pomurje, Podravje, Savinjska, Spodnjeposavska, Jugovzhodna Slovenija, Notranjsko-kraška, Obalno-kraška and Osrednjeslovenska regions in Slovenia and Međimurska, Varaždinska, Krapinsko-zagorska, Zagrebačka, Karlovačka, Primorsko-goranska, Istarska, and Zagreb counties in Croatia.

#### Legal basis

Legal basis for execution of SEA for the Cross-border Co-operational Programme Slovenia – Croatia 2007 - 2013 is laid down in Directive 2001/42/EC of the European Parliament and of the Council on the Assessment of the effects of certain plans and programmes on the environment (Official Journal L 197 of 21.07.2001) and the Protocol on SEA to the UNECE (Espoo) Convention on EIA in a Transboundary Context.

The Directive 2001/42/EC is transposed in Slovene environmental legislation by the *Decree* laying down the content of environmental report and on detailed procedure for the assessment of the effects on certain plans and programmes on the environment (Official Journal of RS 73/2005).

On the Croatian side the Directive 2001/42/EC will be adequately implemented to the Croatian environmental legal system by transposition of Directive 2001/42/EC into the Environmental Protection Act of Republic of Croatia. On 19 of July 2007 the Government of Republic Croatia adopted the proposal of the Croatian Environmental Protection Act. The Environmental Protection Act of Republic Croatia is still (dated 12 July 2007) in the process of its acceptance. At the moment it is regulated by the Protocol on SEA to the UNECE (Espoo) Convention on EIA in a Transboundary Context.

#### **Course of SEA**

Course of SEA was carried out as follows:

- The **description of the current state of the environment and trends** were based on the selected guiding questions/indicators, mainly by description and summary.
- The **environmental objectives and indicators** were laid down according to the Strategic documents in Croatia and Slovenia. The description is partly different for Croatia and Slovenia because of different source of information, databases and monitoring systems in both countries. Although not for all environmental indicators the same data sources have been available on the both sides the described environmental state should provide comparability.
- The assessment of proposed activity fields has been done by a qualitative description of positive or negative effects which are induced by priorities and each activity field of the programming document (Relevance matrix). Since contents, purpose and implementation of proposed activities of the programme are quite broad and not defined in detail it was sometimes hard to evaluate possible impacts on environment. For each activity field possible effect on the relevant issues and indicators were analysed so that alternative suggestions could be made.
- Alternatives were given in the form of suggestions/recommendations to prevent, reduce and offset adverse effect for the improvement of environmental performance of the programme.
- **Mitigation measures and recommendations** are to be implemented through the programming document with the aim of reducing predicted impacts on the environment.
- The monitoring system for the programming document suggests some indicators for measuring the impacts of implementation of the programme on environment.

In line with the SEA Directive the environmental authorities as well as general public had the opportunity to express their opinion on the environmental report.

#### Final assessment

The environmental impacts of the Operational Programme Slovenia-Croatia 2007-2013 for Pre-Accession Assistance Cross-border Cooperation are acceptable under the condition that the mitigation measures suggested in Environmental Report are respected.

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## **1.** INTRODUCTION

#### **1.1** Purpose of the strategic environmental assessment

The purpose of the strategic environmental assessment (SEA) is to establish the compliance of the programme with the environmental objectives as set forth by the legislation and the strategic goals at relevant levels, assess its impacts on the environment, nature, human health and cultural heritage and to draw up efficient mitigation measures to be included in the programme, thus making its environmental impacts acceptable.

The results of the process of strategic environmental assessment of the programme's impacts on the environment are the environmental report and the adjusted programme. The environmental report is a document describing the entire assessment process and most important conclusions, possible alternatives, impact assessment and mitigation measures. At the same time, the process of the strategic environmental assessment of impacts on the environment encourages the public to take part in the decision making process during programme approval.

The Cross-border Co-operational Programme *Slovenia* – *Croatia* 2007 – 2013 was prepared by the bilateral working group consisting of The Government Office for Local Self-government and Regional Policy, Slovenia and Ministry of the Sea, Tourism, Transport and Development, Croatia.

The decision whether strategic environmental assessment of a programme needs to be carried out depends on characteristics of the programme and the possible impact of a programme on the environment. The Government Office for Local Self-government and Regional Policy applied at the SEA Sector of the Ministry of Environment and Spatial Planning of Republic of Slovenia for decision whether it is necessary to conduct SEA for the Cross Border Operational Programme Slovenia-Croatia 2007-2013 (*application Nr. 400-74/2005-69*, 7<sup>th</sup> August 2006 and 1st September 2006). On the basis of the characteristics of the OP, the SEA Sector confirmed that it is necessary to conduct SEA.

In the same process, the Nature Conservation Service of the Republic Slovenia was requested to give an opinion on the necessity of assessment of impacts on protected areas and Natura 2000. The opinion (*Nr.8-III—577/3-O-06/TK*, 7th September 2006), showed that on this stage of a programme, no assessment of impacts on protected areas and Natura 2000 is necessary. Since the activities are not exactly defined and locations are not given, the Service suggests that the assessment of impacts on protected areas and Natura 2000 should be carried out later on during the programme execution.

# **1.2** Legal environmental framework and environmental premises (strategic programmes, plans, and strategies)

Legal basis for execution of SEA for the Cross Border Operational Programme Slovenia- Croatia 2007-2013 is laid down in Directive 2001/42/EC of the European Parliament and of the Council on the Assessment of the effects of certain plans and programmes on the environment (Official Journal L 197 of 21.07.2001) and in the Protocol on SEA to the UNECE (Espoo) Convention on EIA in a Transboundary Context.

The Directive 2001/42/EC is transposed in Slovene environmental legislation by:

• Environmental Protection Act (Official Gazette of the RS, nos. 41/04, 20/06, 39/06), Article 40 requires that in line with the principles of sustainable development, comprehensiveness and

prevention during preparation of a plan, programme, spatial or other acts, the implementation of which may have an important impact on the environment, a strategic environmental assessment of the impacts must be carried out;

- Decree laying down the content of environmental report and on detailed procedure for the assessment of the effects on certain plans and programmes on the environment (Official Journal of RS No. 73/2005);
- Decree on categories of projects for which an environmental impact assessment is mandatory (Official Gazette of the RS, Nos. 66/96, 12/00, 83/02);
- Decree on Natura 2000 areas (Official Gazette of the RS, Nos. 49/04, 110/04);
- Rules on the assessment of acceptability of impacts caused by the execution of plans and projects affecting nature in protected areas (Official Gazette of the RS, Nos. 130/04, 53/06).

On the Croatian side the Directive 2001/42/EC will be adequately implemented to the Croatian environmental legal system by transposition of Directive 2001/42/EC into the Environmental Protection Act of Republic of Croatia. On 19 of July 2007 the Government of Republic Croatia adopted the proposal of the Croatian Environmental Protection Act. The Environmental Protection Act of Republic Croatia is still (dated 12 July 2007) in the process of its acceptance. At the moment it is regulated by the Protocol on SEA to the UNECE (Espoo) Convention on EIA in a Transboundary Context.

Other plans, programmes and strategies include legal regimes, set limits, conditions and as well other strategic documents for achieving environmental objectives. For SEA of the Cross-border Co-operational Programme *Slovenia* – *Croatia* 2007 – 2013 the following plans, programmes and strategies were taken in consideration:

- Sixth Environment Action Programme of the European Community;
- White Paper European transport policy for 2010: time to decide (Official Journal C 043 E, 19/02/2004),
- European Convention for the Architectural Heritage of Europe, European Treaty Series No. 121.
- Green Paper on Energy Efficiency COM(2005) 265
- Thematic Strategy on the Urban Environment COM(2005) 718
- A European Union strategy for sustainable development (COM(2005) 658

#### for Slovene territory:

- Slovene Environmental Protection Act (Official Gazette of the RS, No. 39/06, 33/07),
- Nature Conservation Act (Official Gazette of the RS, No. 96/04),
- Spatial Planning Act (Official Gazette of the RS, No. 33/07),
- Cultural Heritage Protection Act (Official Gazette of the RS, No.7/99),
- Water Act (Official Gazette of the RS, No.67/02, 2/04),
- Forest Act (Official Gazette of the RS, No.30/93, 13/98, 24/99, 56/99, 67/02, 110/02),
- Agricultural Land Act (Official Gazette of the RS, No.55/03)
- Convention on biological diversity (BGBl. Nr. 213/1995; Official Gazette of the RS, No. 30/95);
- The Convention on the conservation of European wildlife and natural habitats Bern convention (Official Gazette of the RS, No 55/99)
- Convention on access to information, public participation in decision making and access to justice in environmental matters (Aarhus Convention (1998));

- European convention for the Archaeological Heritage in Slovenia transposed by the Act Ratifying of the European Archaeological heritage (Official Gazette of the RS, No. 7/99)
- European convention for the landscape in Slovenia transposed by the Act Ratifying of the European Landscape Convention (Official Gazette of the RS, No. 19/03)
- European convention for the Architectural Heritage of Europe, European Treaty Series No. 121, Council of Europe, 1985) in Slovenia its validity is regulated by the *Act on notifikaciji* nasledstva glede konvencije Sveta Evrope, Ženevskih konvencij in dodatnih protoklov o zaščiti žrtev vojne in mednarodnih sporazumov s področja kontrole oborožitve, za katere so depozitarji tri glavne jedrske sile (Official Gazette of the RS, No.14/92)
- Slovene National Strategic Reference Framework,
- National Development Programme,
- National Operational Programmes for ERDF and Cohesion Fund in Slovenia,
- Regional Development Programmes for Pomurje, Podravje, Savinjska, Spodnjeposavska, Jugovzhodna Slovenia, Notranjsko-kraška, Obalno-kraška
- Programmes to be financed through the European Agricultural Fund for Rural Development (EAFRD),
- Resolution on the 2004-2007 National Programme for Culture (ReNPK0407, Official Gazette of the RS, No. 28/04),
- Resolution on National Environmental Action Programme of Slovenia (NEAP) (Official Gazetteof the RS, No.02/06),
- National environmental strategy (Official Gazette RS, No.46/02),
- Spatial Planning Strategy of Slovenia (Ordinance on Spatial Planning Strategy of Slovenia, OrSPSRS), Official Gazette of the RS, No. 76/04,
- National Energy Programme (Resolution on National Energy Plan (ReNEP), Official Gazette of the RS, No. 57/04),
- National Programme for Culture (Official Gazette of the RS, no. 28/04),
- National Water Management Programme, Operational programme for the protection of water against pollution caused by nitrates from agricultural production for 2004 2008
- Operational programme for the protection of water against pollution caused by nitrates from agricultural production for 2004 2008,
- Operational programme for reaching the national upper emission limits of external air pollutants,
- Operational programme for reduction of greenhouse gas emissions until 2012,
- Operational programme for drainage and treatment of wastewater (2004 2015),
- National Road Transport Safety Programme 2007 2011 (Official Gazette of the RS, no. 63/02),
- Resolution on the Transport Policy of the Republic of Slovenia (RTPRS).

#### for Croatian territory:

- Croatian Environmental Protection Act (Official Gazette of Republic Croatia, No. 82/94, 128/99),
- Air Protection Act (Official Gazette of Republic Croatia, No. 178/04),
- Waste Act (Official Gazette of Republic Croatia, No. 178/04, 111/06)
- Law on Nature Protection (Official Gazette of Republic Croatia, No. 70/5)
- Law on the Protection of Cultural Resources ((Official Gazette of Republic Croatia, No. 69/99,151/03,157/03)
- The water act (Official Gazette of Republic Croatia, No. 107/95)

- Act on Noise Protection (Official Gazette of Republic Croatia, No. 20/03)
- Croatian Strategic Development Framework (Central Office for Development Strategy and Coordination of EU Funds: Government of the Republic of Croatia: Zagreb)
- Strategic coherence framework 2007-2013: Instrument for pre-Accession assistance (Central Office for Development Strategy and Coordination of EU Funds: Government of the Republic of Croatia: Zagreb)
- National Strategy for regional development
- National Development Plan
- Regional development programmes
- Regional development plans
- National Environmental Strategy (Official Gazette of Republic Croatia, No. 46/02)
- National Environmental Action Plan
- The environment protection operational programme
- Strategy and action plan for the implementation of the UN Climate change convention and Kyoto protocol in Republic Croatia
- The energy strategy of Republic Croatia
- Water Management Strategy
- The National Strategy and Action Plan for the Protection of Biological and Landscape Diversity
- Pre accession Maritime Transport Strategy
- National strategy of health
- Agriculture and Fisheries Strategy
- Waste Management Strategy
- Waste Management Plan
- Spatial planning programme (Official Gazette of Republic Croatia No. 30/94, 68/98)
- Cultural Development Strategy of Republic of Croatia-Programme for period 2001-2007

Environmental premises in the preparation of Environmental Report are:

- environmental objectives of the programme,
- the criteria of evaluation and
- the methodology for evaluation the impacts of the programme on environment, nature, human health and cultural heritage,

#### **1.3** Methodology

The screening (phase one of the strategic environmental assessment) determines whether an operational programme requires a strategic environmental assessment. This phase was carried out by SEA Sector of the Ministry of Environment and Spatial Planning of Republic of Slovenia. SEA Sector confirmed that it is necessary to carry out the Strategic Environmental Assessment for the programme.

In the second step we prepared the description of the current state of the environment and trends, including selected indicators.

The environmental objectives were determined on the basis of the state of the environment and objectives of strategic documents in Slovenia and Croatia.

According to the planned activities of the programme, we specified the possible impacts on environment, nature, human health/population and cultural heritage. In this stage we also

determined if the impacts are direct, indirect, cumulative, permanent or temporary. Further on we evaluated the predicted impacts of proposed activities on environmental objectives. Finally we prepared mitigation measures and suggested some recommendations. Alternatives were given in the form of suggestions/recommendations to prevent, reduce and offset adverse effect for the improvement.

#### **1.4.** Consultation of Environmental Authorities

In order to evaluate the impacts correctly, propose useful mitigation measures and adjust the OP in line with the conclusions of the strategic environmental assessment the following organizations need to be consulted with, if appropriate:

In Slovenia:

- persons in charge of preparation of the Operational Programme,
- Ministry of the Environment and Spatial Planning, Sector for strategic environmental assessment (the "SEA Sector"),
- The Environment Agency of the Republic of Slovenia,
- Nature Protection Service of the Republic of Slovenia,
- Cultural Heritage Protection Service of the Republic of Slovenia.

In Croatia:

- Ministry of environmental protection, physical planning and construction
- Ministry of Culture (nature and cultural heritage),
- State Institute for Nature Protection,
- Ministry of Agriculture, Forestry and Water Management
- Ministry of Sea, Tourism, Transport and Development
- Ministry of health and welfare of Republic Croatia
- Croatian Environmental Agency

# 2. Scoping

Scoping is a phase of strategic environmental assessment in which basic information on the programme is examined in order to establish which contents require a strategic environmental assessment, what level of data processing is needed and how the environmental report will be prepared.

Possible environmental impacts on the following elements were evaluated:

- elements which are affected by the location of the measure under assessment (or their projects):
  - o fauna, flora,
  - o soil, water,
  - o air,
  - o cultural heritage and landscape;
- elements which are affected by the type and size of the measure under assessment (or their projects):
  - o local inhabitants,
  - o human health,
  - use of natural resources,
  - energy consumption,
  - o material goods.

We determined that, due to the general description of the priorities and activities, all issues should be covered in the environmental report (environment, nature, human health/population cultural heritage and landscape, energy, waste).

It has been found that some activities implemented under the operational programme will have environmental impacts. However, generally the Operational Programme is very environmentoriented and most of the measures for its implementation are focused on improvement of environment and quality of life in the programming region. Moreover, taking into account certain mitigation measures and recommendations during the adaptation and upgrading of the operational programme the programme's environmental impacts will be decreased considerably.

## **3.** Information about the programme

## **3.1** Name of the programme

The environmental report deals with the Cross-border Co-operational Programme *Slovenia* – *Croatia* 2007 - 2013 (12 July 2007).

## **3.2** Programme goals and description

The strategic objective of the programme is to support and promote sustainable development of the whole cross-border area between Slovenia and Croatia.

The strategy to obtain the programme objective is:

- To enable inhabitants and the economy in the cross-border area to exploit the potential of the EU market;
- To enable local and regional actors to address cross-border challenges jointly with their crossborder counterparts;
- To overcome regional development disadvantages caused by national borders by joint crossborder actions;
- To support development and promotion of the cross-border area and of a common identity;
- To invest in people, combat social exclusion and create favourable living conditions.

The aims will be achieved by increasing the competitiveness of key sectors and supporting the cooperation among different sectors (tourism, SME development) as well as through protection of nature and environment and cultural heritage for long lasting sustainable development. The programming area has a very important geo-strategic position by acting as a bridge between Central-West and South-East Europe. Thanks to this role the programming area has great development potentials and can become competitive at the EU markets as a common, future-oriented economic and living space.

The vision of the programme is to make the cross-border area between Croatia and Slovenia highly competitive, to create sustainable living conditions and wellbeing for its inhabitants by exploiting development opportunities arising from joint cross-border actions.

The programme is related to the other operational programmes for cross-border cooperation 2007 - 2013 both in Slovenia and in Croatia, at least in terms of implementation structures, similar activity fields and joint parts of the programming areas:

- Operational programme for cross-border collaboration Slovenia Austria,
- Operational programme for cross-border collaboration Slovenia Hungary,
- Operational programme for cross-border collaboration Slovenia Italy,
- Operational programme for cross-border collaboration Hungary Croatia,
- Adriatic Operational programme for cross-border collaboration.

Furthermore in Slovenia the programme is related to the implementation of Operational programme for Cohesion Fund (Operativni program razvoja prometne in okoljske infrastructure 2007 - 2013) and Operational programme for European Regional Development Fund (Operativni program za krepitev regionalnih razvojnih potencialov 2007 - 2013).

# **3.3** Basic information on the programme's priorities and activities

Priority axis	Activity Field	Planned Activities		
	11001109 11010	• Development and improvement of integrated products and services		
1. Economic and Social Development	1.1.TOURISM AND RURAL DEVELOPMENT	<ul> <li>within different types of tourism offer (eco-tourism, cultural tourism, agro-tourism, wellness and health tourism, river tourism, etc);</li> <li>Integration of cultural resources into tourism products by revitalization and preservation of cultural resources and stimulation of cultural exchange and events;</li> <li>Establishment and improvement of joint marketing and promotion of tourism and of agriculture products and services;</li> <li>Improvement of recreational and small-scale tourism infrastructure;</li> <li>Creation and integration of nature values and nature protected areas in tourist offer.</li> </ul>		
	1.2.DEVELOPMENT OF ENTREPRENEURSHIP	<ul> <li>Development of SMEs support services for improving business cooperation and joint marketing of SMEs;</li> <li>Development of cooperation between SMEs, education, research &amp; development organisations for improving business innovativeness and technology;</li> <li>Enhancement of entrepreneurial spirit and exchange of experience and information;</li> <li>Establishment of cross-border networks of employment services and their cooperation on career guidance, labour force mobility, monitoring of labour market demands, etc.</li> </ul>		
	1.3.FOSTERING CULTURE AND SOCIAL EXCHANGES	<ul> <li>Stimulation of mobility of artists and of cultural exchanges;</li> <li>Cooperation between civil society associations (fire brigades, health and protection services, educational and training programs etc.);</li> <li>Preservation and revitalization of common cultural resources;</li> <li>Inclusion of cultural heritage preservation into cross border territory identity.</li> </ul>		
2. Sustainable Management of Natural Resources	2.1.ENVIRONMENTAL PROTECTION	<ul> <li>Joint awareness raising among polluters and inhabitants on innovative environment protection actions/measures and sustainable use of natural resources;</li> <li>Preparation of joint feasibility studies to improve and monitor air, water, waste and waste water management systems, and reduce soil, forests and other pollution;</li> <li>Joint management and joint preservation of water sources and improvement of quality of water;</li> <li>Identification and sanitation of uncontrolled waste disposal and development of prevention measures;</li> <li>Preparation of technical documentation and construction of water water treatment plants and of domestic waste, treatment of solid and sewage systems in cross border sensitive areas;</li> <li>Establishment of cooperation between local and regional actors with their cross-border counterparts for joint spatial planning.</li> <li>Actions to improve energy efficiency</li> </ul>		
	2.2.NATURE PROTECTION AND SUSTAINABLE DEVELOPMENT	<ul> <li>Establishment of protected areas and their cross-border networks;</li> <li>Improvement of management of existing protected areas;</li> <li>Actions to preserve high biodiversity and landscape diversity;</li> <li>Preservation of natural landscape features and revitalization of natural resources for their integration in development initiatives;</li> <li>Preparation of technical documentation for nature resource protection and or sustainable development.</li> <li>Awareness rising /promotion actions on protection of natural resources.</li> </ul>		

	Technical assistance will be granted principally for:					
	<ul> <li>Preparation of the Programme and its further development;</li> </ul>					
- Ensuring the effective and responsible implementation of the Programme;						
nical	- Special expertise for the appraisal of project applications;					
nce	- Establishment and support of monitoring, evaluation and control systems including first level					
	control;					
	- Drafting of reports and preparation or monitoring of activities;					
	- Publicity and promotional activities (certain work can be carried out by consultants).					
Horizontal activities	<ul> <li>Human resources development</li> <li>Information society</li> </ul>					

# **3.4** Compliance of the OP with the EU, national and regional strategic frameworks

In accordance with the **Lisbon strategy** and its goal to "to become the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion" within the next ten years, the Slovene-Hungarian cross-border region sees its strengths in its environment highly valued for living and working and for its cultural, health and natural features.

The European Community strategic guidelines on cohesive policy have defined three priorities for Structural Funds in the period 2007 - 2013, focusing on the Lisbon (competitiveness) and Goteborg (sustainability) goals. The ERDF Regulation (Article 6) focuses on individual crossborder activities.

The National Strategic Reference Framework (NSRF) of the Republic of Slovenia is a subcategory of the National Development Programme (NDP). The NDP consists of all developmental-investment programmes and projects in Slovenia between 2007 and 2013 which will be financed or co-financed from the national or municipal budget. Specific goals of the NDP are:

- to increase the economic, social and environmental capital and
- to increase efficiency in terms of competitiveness, quality of life and sustainable consumption of natural resources.

The NSRF includes programmes and projects from the NDP which will be co-financed from the EU budget and will improve the criteria for new EU cohesion policies between 2007 and 2013. Apart from that, the operational programme needs to comply with the NSRF and the European Strategic Guidelines.



Figure 1: Compliance of the OP with the EU, national and regional strategic frameworks

The National Strategic Development Framework of the Republic of Croatia for period 2006-2013 is a programme document. It elaborates models and paths to strengthen Croatia as a more competitive and prosperous country. The Strategic Development Framework defines priorities and actions whose implementation will ensure stable economic growth, employment and a better standard of living. The NSDF was drawn up in line with the Community's Strategic Guidelines and its main goal is the increase of economic growth and employability together with the horizontal principles of sustainability and equal opportunities.

The Pre-accession Instrument (IPA) is a fund for Croatia as candidate country. Article 45 of the Council Regulation proposal on general provisions on the European Regional Development Fund, European Social Fund and Cohesion Fund (for member country) from 14 July 2004 states that Community's Strategic Guidelines, national strategic reference frameworks and operational programmes are being evaluated according to the Community's strategic goals, Article 158 of the Treaty and specific structural difficulties of the member countries and regions, taking into account their needs for sustainable development and appropriate legislation of the Community according to environmental impacts and environmental strategic assessment.

The European Community strategic guidelines on cohesive policy have defined four priorities for Pre-accession Instrument (IPA) in the period 2007 - 2013, focusing on the Lisbon (competitiveness) and Goteborg (sustainability) goals. The second area of IPA focuses on individual cross-border activities.

Several other programmes and strategies are important for the implementation of the Operational Programme which is subordinate to them in importance, content and implementation period. In order to determine their compliance with a broader strategic context of the OP, comparisons against the following programmes and strategies were made:

- Sixth Environment Action Programme of the European Community;
- Resolution on National Environmental Action Programme of Slovenia (NEAP) (Official Gazette RS, No.02/06),
- Croatian National Environmental Action Programme

#### 3.5 Programme area

The programme area of the *Cross border Cooperation Operational Programme Slovenia-Croatia* 2007-2013 includes NUTS level 3 regions along the Slovenian-Croatian border: Pomurje, Podravje, Savinjska, Spodnjeposavska, Jugovzhodna Slovenija, Notranjsko-kraška, Obalno-kraška and Osrednjeslovenska regions in Slovenia and Međimurska, Varaždinska, Krapinsko-zagorska, Zagrebačka, Karlovačka, Primorsko-goranska, Istarska, and Zagreb counties in Croatia. The programme area covers in Slovenia 14.505 km<sup>2</sup> and in Croatia 16.948 km<sup>2</sup>.



Figure 2: Programme area

## **3.6** Designated use of space

The designated use of space is determined by municipal planning acts and due to its scale cannot be presented in the environmental reports.

## **3.7** Planned period of programme implementation

The implementation of the OP is planned for the period between 2007 and 2013. According to the n+2 rule, funds can be used for two years after the programme period, i.e. until 2015.

## **3.8** Needs for natural resources

For all planned new constructions new land will be required for the development. Especially in case of green-field site development this can have impacts on the preservation of natural and water resources as well as energy consumption for enabling accessibility of the area. In case of brown-field site development, there might be some negative impact on groundwater, but on the other hand there might be positive impact of reuse and contamination clean-up of the sites.

The activities will mostly contribute towards an increased consumption of energy and water.

## 3.9 Emissions and waste

Due to development of the transport infrastructure and the economy, atmospheric emissions, waste water emissions and soil and water risk in the event of accidents will increase. Research and development into new environmentally friendly and energy-efficient technologies and the purchase of such technologies will decrease the emissions to a certain extent, but surely not by as much as they will increase. By stimulating innovative technologies and services new types of emissions might occur in the programming area, eg. nano particles from nanotechnology.

During infrastructure construction a quantity of waste will increase, especially building waste. The produced waste needs to be built into the infrastructure or disposed of in an appropriate way.

## 4. CURRENT STATE OF THE ENVIRONMENT IN THE PROGRAMME AREA

## 4.1 Current state of the environment and pressure on the environment

Table 2: Current state of the environment and trends per environmental goal in Slovenian Regions Pomurje, Podravje, Savinjska, Spodnjeposavska, Jugovzhodna Slovenija (South-eastern Slovenia), Notranjsko-kraška, Obalno-kraška, Osrednjeslovenska and in the Croatian Regions Međimurska, Varaždinska, Krapinsko-zagorska, Zagrebačka (without capital Zagreb), City of Zagreb, Karlovačka, Primorsko-goranska, Istarska)

Issue:	Climate change	
Country	Slovenia	Croatia
Current state	<ul> <li>Total GHG emissions without LULUCF (Land Use, Land Use Change and Forestry) in 2005 in Slovenia – 20,283 kt (in CO<sub>2</sub> equivalent);</li> <li>Total GHG emissions with LULUCF (Land Use, Land Use Change and Forestry) in 2005 in Slovenia – 14,853 kt (in CO<sub>2</sub> equivalent);</li> <li>Total emissions from fuel consumption and fugitive emissions from fuels in 2005 in Slovenia – 16,371 kt (in CO<sub>2</sub> equivalent);</li> <li>Total emissions from industrial processes in 2005 in Slovenia – 1,222 kt(in CO<sub>2</sub> equivalent);</li> <li>Total emissions from solvent and other products use in 2005 in Slovenia - 43.32 kt (in CO<sub>2</sub> equivalent);</li> <li>Total emissions from agriculture in 2005 in Slovenia – 1,995 kt (in CO<sub>2</sub> equivalent);</li> <li>Total emissions from waste in 2005 in Slovenia – 1,995 kt (in CO<sub>2</sub> equivalent);</li> <li>Total emissions from waste in 2005 in Slovenia – 1,995 kt (in CO<sub>2</sub> equivalent);</li> <li>Total emissions from Land Use, Land Use Change and Forestry in 2005 in Slovenia – 5,430 kt (in CO<sub>2</sub> equivalent);</li> <li>Total CO<sub>2</sub> intensity of GDP in Slovenia (t/Mio Euro) in 2003: 21,22 t/Mio Euro.</li> <li>Total CO<sub>2</sub> intensity of GDP in Slovenia (t/Mio Euro) in 2005: 23,06 t/Mio Euro.</li> <li>Total CO<sub>2</sub> intensity of GDP in Slovenia (t/Mio Euro) in 2005: 23,06 t/Mio Euro.</li> <li>Decreasing GHG emissions after 1986, min. in 1991-1992, followed by an increase, especially after 2000, in particular in the energy industry – practically at the level from 1986. In the period 1990-2003 CH<sub>4</sub> and PFCs emissions were decreased, N<sub>2</sub>O and SF<sub>6</sub> emissions stagnated, HFCs emissions and stagnation of CH<sub>4</sub>. N<sub>2</sub>O emissions</li> </ul>	<ul> <li>Total GHG emissions without LULUCF (Land Use, Land Use Change and Forestry) in 2004 in Croatia – 29,432 kt (in CO<sub>2</sub> equivalent);</li> <li>Total GHG emissions with LULUCF (Land Use, Land Use Change and Forestry) in 2004 in Croatia – 13,111 kt (in CO<sub>2</sub> equivalent);</li> <li>Total emissions sinks from Land Use, Land Use Change and Forestry in 2004 in Croatia – 16,321 kt (in CO<sub>2</sub> equivalent);</li> <li>Share of GHG emissions contributed by energy sector in 2004 in Croatia – 74.9 %;</li> <li>Share of GHG emissions contributed by agriculture in 2004 in Croatia – 10.8 %;</li> <li>Share of GHG emissions contributed by waste in 2004 in Croatia – 10.8 %;</li> <li>Share of CO<sub>2</sub> emissions in total GHG emissions in Croatia in 2004 – 77 %.</li> <li>In 2004 Croatia produced 6.1 t of GHG emissions (in CO<sub>2</sub> equivalent) per capita – less than any EU member country.</li> </ul>
Trends and State	The trend shows an average annual increase by 2.2%.	In period 2000-2004 yearly increase of GHG emissions was 3,9% and was
without the		increasing faster than in previous years.
implementation of	Taking into account traffic growth and economic productivity, the increase of GHG	
OP	emissions would continue to be faster than GHG sinks.	Because of traffic growth and growth of economic productivity, the increase
		of GHG emissions would continue.

Issue:	Air	
Country	Slovenia	Croatia
Country Country Current state	Air         Slovenia         In 2006 the air in Slovenia was excessively polluted with the ozone particles, especially in Primorska region. SO <sub>2</sub> concentrations excee marginal values only in the area of the thermal power plants Šoštanj and Krško. Total annual concentration values of NOx were under marginal val Pb and CO values were very low. Benzene and heavy metal pollution below the limit values as well.         Slovene legislative divides Slovenia into 4 zones of air quality and agglomerations (Ljubljana and Maribor). The cooperation area is parti situated in all of them. Therefore the categories of state of pollution classes of air pollution by individual pollutants and zones of air quality shown in tables below.         Zones of air quality in Slovenia       Sl1         Sl4       Sl3         Sl4       Sl4         Sl4       Sl4         Sl4 <th><ul> <li>Croatia</li> <li>In 2004 total SO<sub>2</sub> emissions in Croatia were 60,300 t. Main contributors were thermal power plants (43 %) and industry (21%).</li> <li>Emissions of NO<sub>x</sub> are growing since 1992, manly due to traffic increase. Total emissions of NOx in 2004 in Croatia were 68,900 t. Main contributors were traffic (40%) and other machinery (25%).</li> <li>Emissions of non-methane volatile organic substances (NMVOC - benzene, toluene, xylene) are stagnating since 1991, manly due bigger share of car engines with catalyst. Total emissions of NMVOC in 2004 in Croatia were 92,000 t. Main contributors were solvents production sector (50%) and traffic (21%).</li> <li>Total emissions of NH<sub>3</sub> in 2004 in Croatia were 44,200 t. Main contributor was agriculture (91%).</li> <li>Total emissions of PB in 2004 in Croatia were 16 t, which is 92% lower than in 1997 – manly due increased consumption of unleaded gas and lesser share of lead in leaded gas.</li> <li>Total emissions of Cd were in Croatia in 2004 717kg, which is 41% less than in 1991.</li> <li>Total emissions of solid particles were in Croatia in 2004 13.1 t. Main contributors were private heating systems (27,2 %), traffic (19,2%) and industry (16,7 %).</li> <li>Total emissions of different air pollutants in regions of cooperation area in Croatia in 2005:</li> <li>Medimurska – 3,4 t of SO<sub>2</sub>, 22,3 t of NO<sub>2</sub>, 34,7 t of CO, 4,41 t of dust and 16,412.30 t of CO<sub>2</sub>.</li> <li>Vraždinska – 116.51 t of SO<sub>2</sub>, 335.09 t of NO<sub>2</sub>, 943. 31 t of CO, 1,846.71 t of dust and 99.938.65 t of CO<sub>2</sub>.</li> </ul></th>	<ul> <li>Croatia</li> <li>In 2004 total SO<sub>2</sub> emissions in Croatia were 60,300 t. Main contributors were thermal power plants (43 %) and industry (21%).</li> <li>Emissions of NO<sub>x</sub> are growing since 1992, manly due to traffic increase. Total emissions of NOx in 2004 in Croatia were 68,900 t. Main contributors were traffic (40%) and other machinery (25%).</li> <li>Emissions of non-methane volatile organic substances (NMVOC - benzene, toluene, xylene) are stagnating since 1991, manly due bigger share of car engines with catalyst. Total emissions of NMVOC in 2004 in Croatia were 92,000 t. Main contributors were solvents production sector (50%) and traffic (21%).</li> <li>Total emissions of NH<sub>3</sub> in 2004 in Croatia were 44,200 t. Main contributor was agriculture (91%).</li> <li>Total emissions of PB in 2004 in Croatia were 16 t, which is 92% lower than in 1997 – manly due increased consumption of unleaded gas and lesser share of lead in leaded gas.</li> <li>Total emissions of Cd were in Croatia in 2004 717kg, which is 41% less than in 1991.</li> <li>Total emissions of solid particles were in Croatia in 2004 13.1 t. Main contributors were private heating systems (27,2 %), traffic (19,2%) and industry (16,7 %).</li> <li>Total emissions of different air pollutants in regions of cooperation area in Croatia in 2005:</li> <li>Medimurska – 3,4 t of SO<sub>2</sub>, 22,3 t of NO<sub>2</sub>, 34,7 t of CO, 4,41 t of dust and 16,412.30 t of CO<sub>2</sub>.</li> <li>Vraždinska – 116.51 t of SO<sub>2</sub>, 335.09 t of NO<sub>2</sub>, 943. 31 t of CO, 1,846.71 t of dust and 99.938.65 t of CO<sub>2</sub>.</li> </ul>
	pollution pollution	• Zagrebacka – $229.73$ t of SO <sub>2</sub> , 304.45 t of NO <sub>2</sub> , 590.80 t of CO, 0,17 t of Benzene. 69.32 t of dust and 215.027.58 t of CO <sub>2</sub> .
	1         The exceeded limit value (LV) plus margin of tolerance (LV +MOT)         I	<ul> <li>City of Zagreb - 6,019.18 t of SO<sub>2</sub>, 5,192.32 t of NO<sub>2</sub>, 2,308,5 t of CO, 422,47 t of dust and 3,067,511.79 t of CO<sub>2</sub>.</li> </ul>
	2 Between limit value and the limit value (LV) II plus the margin of tolerance (LV+MOT)	<ul> <li>Karlovačka – 9,257.85 t of SO<sub>2</sub>, 522.99 t of NO<sub>2</sub>, 616.99 t of CO, 386,07 t of dust and 122,796.69 t of CO<sub>2</sub>.</li> </ul>
	3 Between upper level of evaluation and limit III value	<ul> <li>Primorsko-goranska – 13,004.92 t of SO<sub>2</sub>, 3,005.33 t of NO<sub>2</sub>, 686,.55 t of CO, 1,213.33 t of dust and 1,383,627.58 t of CO<sub>2</sub>.</li> </ul>
	4Between lower and upper level of evaluationIII5Under lower level of evaluationIII	<ul> <li>Istarska – 323,51 t of SO<sub>2</sub>, 1,023.31 t of NO<sub>2</sub>, 35.92 t of CO, 60.25 t of dust and 8,629.61 t of CO<sub>2</sub>.</li> </ul>

	Classes of	f air pollu SO2	tion by in	<i>dividual p</i> PM10	<i>ollutant.</i> Ph	s and zon	es of air	<i>quality:</i> Benzene	
	SI1	5	5	1	N	N	1	N*	
	SI2	3	4	1	5	5	1	N*	
	SI3	4	5	1	5	5	1	N*	
	SIL	4	4	1	5	5	1	5	
	SIM	4	4	1	5	5	4	4	
	N no meas	urements we	ere made, bed	cause it was, d	according i	o previous	evaluation,	not necessary.	
	The folow monitorin • Mursk year li • Maribe • Celje - hour a	ving mon g network a Sobota mit value or – exceede - exceede	nitoring s c in the co – Rakičan s for partic eded 24-ho d year and mit values	tations we operation a – exceede cles (PM1( our and yea l 24-hour 1	ere inclu area: d year li )). ar limit v imit valu	ided into mit value ralues for ues for pa	o nationa es for ozo particles rticles (F		
	<ul> <li>Ljubljana Bežigrad – exceeded 24-hour limit values for particles (PM10) and 8-hour and year limit values for ozone (O<sub>3</sub>).</li> <li>Iskrba – exceeded 8-hour and year limit values for ozone (O<sub>3</sub>).</li> <li>Iskrba – exceeded 8-hour and year limit values for ozone (O<sub>3</sub>).</li> <li>The folowing monitoring stations were included into additional air quality monitoring network in the cooperation area:</li> <li>EIS Krško – exceeded year, winter, 24-hour and 1-hour limit values for sulphur dioxide (SO<sub>2</sub>).</li> <li>After 1997 there was a decrease of solid fuel use in Slovenia. On the other hand there was increase in natural gas use (13 1% - since 1992 the rise has</li> </ul>								
	been 50%) and use of liquid fuel by 36.5%. In the energy balance of 2001 there is a significant rise in the traffic share (30.8%) and other fields (households, public and service sector, agriculture) and a significant decrease in the industry sector (28.5%).								
Trends and state without the implementation of OP	SO <sub>2</sub> emissions are decreasing; average annual air pollution with NO <sub>2</sub> in 2005 was the same as in 2002 and a bit lower than in 2003 but was below the margin level at all measurement sports (stagnation); average annual concentration of CO has been decreasing since 1998; average annual concentrations of the ozone are stagnating and there is no data for the other parameters. SO <sub>2</sub> concentrations would most likely decrease; especially NO <sub>2</sub> , O <sub>3</sub> and PM10 concentrations would increase due to heavier traffic; current trends would continue. Traffic emission share would still rise, fossil fuel consumption would still fall due to biomass and increased use of natural gas, which is why NO <sub>x</sub>							Since 1990 air pollution was reduced, partially due to war and economic transition (a lot of factories that heavily polluted air were closed). In the period 1997 – 2004 a new trend emerged – emissions of some of pollutants are decreasing (for example SO <sub>2</sub> ), while others are increasing. Air pollution is still a problem in industrial areas (Sisak, Rijeka, Kutina). $NO_x$ , concentrations are decreasing, NH <sub>3</sub> concentrations are in recent years on the increase, CO concentrations are decreasing, emissions of Pb and Cd are decreasing, while emissions of Hg, Zn and Cu are increasing. Emissions of As and Cr are in 2004 lower than in 2003, but were rising from 2000 on. Emissions of PM10 particles have been rising from 2001 till 2003, but are currently stagnating.	

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Issues:	Soil	
Country	Slovenia	Croatia
	Main sources of soil pollution are intensive agriculture, industry, disposal of waste and traffic. Systematic research of soil pollution started a few years ago. In 2005 the Environmental Agency of the Ministry of the Environment and Spatial Planning carried out the measurements of soil pollution on 32	Surface in mainland in Republic of Croatia occupies 56.594 km2. Urbanised land takes 7,67,6 %, agricultural surfaces of 55,6 % and forest surfaces of 37 % of mainland.
	sites. Measurements in Slovenian part of cooperation area showed reached boundary level of pollution with arsenic (As) and aadmium (Cd) on several measuring locations reached warning level of nollution with nickel (Ni)	Main sources of soil pollution are intensive agriculture, industry, disposal of waste and traffic.
	especially in Obalno-kraška region and pollution with heavy metals like zink (Zn) and lead (Pb) around major cities (Celje, Maribor, Ljubljana). Level of	At present, a systematic measurement of soil parameters does not exist for Croatia. No standard forms or norms to ensure compatibility of methods and
	pollution with atrazin is more problematic in Podravska and Spodnjeposavska region.	data exist at the national level. The data that exists was collected for unrelated purposes and in different formats.
	<ul> <li>Surface area of ordinary anti-erosion measures – 3,807.35 km<sup>2</sup>.</li> <li>Surface area of intense anti-erosion measures – 3,098.18 km<sup>2</sup>.</li> <li>Surface area of strict anti-erosion measures – 71,10 km2.</li> </ul>	Establishment of the Soil Monitoring System is one of priorities recognized in National environment Strategy and National Environment Action Plan
	• In 2005, the amount of fertilizers used in agriculture in Slovenia was 149.504 tons and the amount of fertilized surface was 440.245 ha.	(Official Gazette No 46/02).
Current state	• In 2001 there 63.3% of Slovene territory was represented by forests, there was 30.5% of agricultural land, 0.7% of water areas, 2.8% of build-upon areas, 1% of roads and 1% of railways.	The Soil Monitoring Program will be tested by the Pilot project for all recognized soil types (agricultural, forest and contaminated sites). Soil Monitoring Program and results of the pilot project has a purpose to introduce and demonstrate monitoring system as a crucial part of soil protection
	The programme area is known for some areas of very fertile soil and	activities.
	intensive agricultural use (Pomurska, Podravska regija, Krška kotlina,) and extensive agricultural use in the hilly areas where agriculture is also strongly in function of nature and landscape conservation (e.g. dry meadows). Most fertile soil is categorised as the best agricultural land and is protected from	The Pilot project on soil monitoring will cover the territory of Republic of Croatia, taking into account existence of all three categories to be monitored: Agricultural soil, Forestry soil and Contaminated sites.
	change of land use (e.g. from build-up) by the Law on agricultural land (Zakon o kmetijskih zemljiščih (Ur.I. RS, št. 55/03-UPB)) and Law on land use planning (Zakon o prostorskem načrtovanju (Ur.I. RS, št. 33/07)).	The Pilot project has a task to provide information on feasibility of the Soil Monitoring Program with standardized methods of collecting samples and conducting of laboratory analysis, presentation and dissemination of data and flow of data to Soil Information System of Croatia.
		Agricultural production can influence soil in many different ways. Agricultural activities in Croatia so far have not been causes of scrious soil or
		environmental pollution, at least as far as it concerns their mean levels. It is probably due to the fact that plant production in these parts is characterised by
		a fairly low level of pesticide and fertiliser consumption in the private sector (25% of the Western European mean). while their levels on the soils belonging
		to the former public agri-businesses were similar to those encountered in the developed countries.

		<ul> <li>Evaluation of the forest soils quality is carried out by ranking permanent characteristics of their fertility: mechanical composition, structure, permeability for water, depth, and composition of humus and nutrients. According to those factors, Croatian soils can be ranked above average. Approximately 85% of forest land in Croatia possesses high production potential. One very common and important cause of Mediterranean forest soils degradation are forest fires. Research and experience show that a fire diminishes soil fertility (decrease in the content of organic substances, interruption of the biological cycle of elements etc.), while at the same time increasing its tendency for erosion.</li> <li>All soil types are not equally vulnerable to such degradation. A systematic monitoring of changes in the soil quality resulting from fires still needs to be established in Croatia.</li> <li>Erosion is a process of separation of a part of soil particles from its original mass by action of natural forces - wind and water, which are then moved away at various distances. Over 90% of our soil surface is exposed to erosion has already reached the geological base. Central and coastal Istria are faced with the worst consequences, due to increased erodibility of local soils and amalgamated layers, where annual amounts of eroded material per hectare reach 100 to 200 tonnes.</li> </ul>
Trends and state without the implementation of OP	The increase of forests, decrease of agricultural land, increase of built areas and roads (in comparison to 1993). It is very likely that agricultural land would decrease on behalf of built land. The amount of fertilizers used in agriculture is decreasing as well as the amount of fertilized surface area. Soil pollution with heavy metals is stagnating, pollution with pesticides (especially with atrazin) is on the decrease, but an increase of pollution with herbicides was detected. The agricultural land that will still be tended will be managed in a relatively intensive way in the fertile plains, but the input of fertilisers will decrease due to application of Nitrate Directive (renewal of farm infrastructure, sound use of fertilisers). The agricultural land in the hilly areas is likely to undergo shrub encroachment. The situation will follow the trends.	Trend of increasing of soil acidity with sour precipitations is reducing last years, most probably because of reduction of emissions to air in Europe. The situation will follow the trends.

Issue:	Waters	
Country	Slovenia	Croatia
	Surface waters	Surface waters
Current state	There are several main Slovenian rivers that run through the cooperation Croatia belongs among the European countries that are rich in w	
Current state	area, including Mura, Drava, Savinja, Sava, Krka, Kolpa, Rižana and	as 60% of fresh water «originates» from Croatia, while 40% flows in from the
	Dragonja. The morphological character of the water courses can be seen in	neighbouring countries.

the environmental atlas prepared by the Environmental Agency of the	
Republic of Slovenia (http://kremen.arso.gov.si/NVatlas ). All of these	The total length of all natural and artificial watercourses in the area of Croatia
rivers were with several monitoring stations included into national water	is 21,000 km. The rivers belong to the Black Sea (62% of the territory) and the
quality monitoring network. In the following section we present only those	Adriatic catchment area (38%). The watershed runs along the Dinaric Alps
monitoring stations that are closest to the border with Croatia:	barrier close to the Adriatic coast.
• Mota (Mura): evaluation of chemical condition in 2005 – bad, evaluation	
of microbiological condition in $2004 - 2$ (moderately charged).	From main watercourses in Croatia and their border watercourses flows from
• Ormož (Drava): evaluation of chemical condition in 2005 – good,	Slovenia Sava, Drava and Mura. Main Border rivers to Slovenia are Dragonja
evaluation of microbiological condition in 2004 - 2 (moderately	and Kupa.
charged).	
• Veliko Širje (Savinja): evaluation of chemical condition in 2005 – good,	The Croatian territory is divided into 4 river basin area: Sava river basin,
evaluation of microbiological condition in 2004 – 2 (moderately	Drava and Dunav river basin, Primorska-Istra river basin and Dalmacia river
charged).	basin.
• Jesenice na Dolenjskem (Sava): evaluation of chemical condition in	
2005 – bad, evaluation of microbiological condition in $2004$ – 2	There are several main Croatian rivers that run through the cooperation area,
(moderately charged).	including rivers in:
• Krška vas (Krka): evaluation of chemical condition in 2005 – bad,	• Sava river basin (Sava, Sutla, Krapina, Ilova-Pakra, Česma, Orljava,
evaluation of microbiological condition in 2004 - 2 (moderately	Bosut, Kupa, Dobra, Korana, Mrežnica, Glina, Sunja and Una),
charged).	• Drava and Dunav river basin (Dunav, Vuka, Drava, Mura, Karašica
• Radoviči – Metlika (Kolpa): evaluation of chemical condition in 2005 –	Vučica
good, evaluation of microbiological condition in $2004 - 2$ (moderately	• Primorska-Istra river basin (Dragonja, Mirna, Raša, Boljunščica, Kupa,
charged).	Rječina, Lika, Gacka)
• Dekani (Rižana): evaluation of chemical condition in 2005 – good,	
evaluation of microbiological condition in 2004 – 1-2 (slightly charged).	In year 2004 were over 300 water measurements stations for water quality
• Podkaštel (Dragonja): evaluation of chemical condition in 2005 – good,	monitoring and has increase in year 2006 on 344 water measurements stations
evaluation of microbiological condition in 2004 – 1 (not or slightly	for water quality monitoring
charged), 1-2 (slightly charged).	
In 2000 there were 543 sources of pollution in Slovenia – 86 sources were	According to the National programme of water quality monitoring for year
mostly biodegradable waste waters form the food-processing industry, 457	2000, waters in Croatia were monitored for evaluation of microbiological and
sources were from the industry; point sources do not display serious heavy	biological condition, evaluation of oxygen condition and evaluation of
weight emissions (e.g. Hg, Cd, etc.) into the waters - the biggest pollution	nutrients condition.
sources were metal and chemical industries, mostly on the Sava river.	
	Assessment of quality of water were published for 249 measurements stations.
In Slovenia there are over 300,000 ha of flood-risk areas, 2,500 ha of which	In the following section we present the number of inadequate measurement
are urban areas and 94,000 ha of which face a higher risk or large-scale	stations which doesn't suit demanded categorization in the next river basin
floods; 42% of them are in the Drava river basin More than a quarter of the	area:
population of Slovenia lives in the area of possible catastrophic floods.	• river Sava: 18 measurements stations, from this 8 inappropriate,
Majority of water (59%) in Slovenia is indigenous (sources are in Slovenia),	• affluents of river Sava: /6 measurements stations, from this 39
but an important part (41%) of water flowing through the territory of	inappropriate,
Slovenia comes from Austria, including Drava and Mura river. There are no	• Primorska-Goranska river basin area: 22 measurements stations, from
available data about which measures for insuring flood safety are being	tnisi i inappropriate,
currently implemented. Three regions in cooperation area are especially	• Drava and Dunav river basin: 49 measurements stations, from this 40
vulnerable to floods –flood damage in 2005 was in Pomurje estimated on	inappropriate.
463 mio. SIT, in Podravje 23 mio. SIT and in Savinjska region 45 mio. SIT.	
	In the table below we showed measuring stations with demanded classification

There were 8 natural and artificial lakes included into national water quality	of water according	g to State plan for water	protect	ion (NN	8/99) a	nd asses	sment
monitoring network, 6 of which are also situated in cooperation area:	of water quality	against common ind	licators	accordi	ng to	Decree	about
<ul> <li>Cerkniško jezero: evaluation of chemical condition in 2005 – good.</li> </ul>	classification of w	ater (NN 77/98).					
• Šmartinsko iezero: evaluation of chemical condition in 2005 – good.	According to m	entioned Decree abov	ve are	waters	classifi	ed into	) five
<ul> <li>Slivniško iezero: evaluation of chemical condition in 2005 – ασοd</li> </ul>	classifications. fro	m I to V. which they ar	e answe	sting foll	owing c	riteria:	
• Domiging increases evaluation of chamical condition in 2000 [5000]	Classification I: w	vaters that in own natur	ral cond	lition or	after di	sinfectio	n can
	use for drinking of	f in food industry					
• Ledavsko jezero: evaluation of chemical condition in 2005 – bad	Classification II.	weters that in our note	inol on	dition of	n nea fc	" hothi	beo and
(cadmium, metolachlorine).			יויי	1. 1	TI nec Tr	I nau	ığ allu
<ul> <li>Klivnik – Molja: evaluation of chemical condition in 2005 – good.</li> </ul>	recreation of aller	suitable relining for dri	inking a	na maus	sury use.		
	Classification III:	waters that can after su	uitable 1	refining	use in i	ndustry	that it
In 2004 measurements of chemical nollistion in sea organisms and sea	doesn't have speci	al demands for quality :	and for	agriculti	are use.		
an 2001 moustantion of anti-point in our organization and anti-our	Classification IV:	waters that can use a	after sui	itable re	fining e	xclusiv	elv on
seminent, equivirenti and pollution nom rate carried out.	areac where is lar	ae shortage of water			)		•
Measurements showed pollution of sea water with cadmium and mercury on		SUBINITIZED OF WAICH.		•	-	-	-
measuring stations Koper (0.64 mg/kg / 0.13 mg/kg) and Strunian (0.91	Classification V:	waters, that can't use fo	or none	intentio	ns, beca	use they	/ don't
$m\alpha/k\alpha / 0.024-0.00$ $m\alpha/k\alpha$ ) These results are not different than those of	suit to prescribed o	criteria					
mg/ng vior vior though on increase of mountier collision is avident on							
previous years, utougin an increase of intercury pollution is evident on	In the following	section we present cli	assificat	tion of	rivers fo	only	those
measuring station of Koper. Special problem of sea along the coast of	monitoring station	s that are closest to the	horder	with Clo			
Slovenia is relatively low oxygen levels in sea water and low saturation of	INDUITOTING STATION	is man are closest to me	normer		veilla.		
sea water with oxygen, as in the whole gulf of Trieste. This is a result of		-	-			-	
shane (semi closed onlf) and relative shallowness of onlf of Trieste. It results		Measurement	A	В	с U	D	Щ
in concord the homomenon of hymoxia which occurs in denthe helow 18		Waterco	ourse				
	Sutla	Unimica	ш	ш	ш	IV/	Ш
meters. As a result of hypoxia a massive destruction of stationary and slow	Suua		=,			1	II X
moving animals and plants can happen. Index of eutrofication (TRIX)		Zelenjak	Ι	Ш	Ш	IV	Π
between 1997 and 2004 variated from 4.5 to 6 (moderate eutrofication). In		Prišlin	I	Λ	Λ	Λ	IV
monitoring network of nollution of sea water from land 4 rivers (Rižana		Gornie Pokunlie	Π	Ш	Ш	V	Π
Dragonia Radačavica and Drnica) and 2 miklic utilitumunicinalkominalna		Kamanie	Ш	П	Ш	N	Π
Diagolija, Dauasevica aliu Dilica) aliu 2 puolic ullilijilullicipalkolilulialia			= =	<b>T</b>	=	1 4	=
water treatment plants were included. It was calculated that that the total		Bubnjarci	Π	I	Π	III	Π
input of suspended materials in 2004 came to 1,424 tons, total input of		Pribanjci	I	Π	III	III	Π
nitrogen came to 873 tons and total input of phosphor came to 43 tons. The		after influx of	I	Π	II	III	I
main threat for pollution of sea water remains litoralisation of Slovene coast		headwater region	I	Π	Π	Π	Π
and increased pressure on environment as its result. Marine traffic also	Kupica	spring	I	I	Π	Π	
represents significant threat, since two main north Adriatic ports of Koper		Petruševac	III	Π	III	V	Π
and Trieste are located in Slovene part of cooperation area or its near		Jankomir	III	Π	Ш	V	II
vicinity.		Jesenice	Π	Π	III	VI	Π
		Gornie Pokuplie	Π	Π	Π	V	Π
Monitoring of life conditions for freshwater fish species, sea shells and		Lešće	Π	Π	III	III	Π
snails is currently in the phase of implementation. In 2004 areas of surface		Luke	П	Π	Ш	III	Ш
water for protection of economically important water species were	Bragona	Bracono	1	ιL	i II	I	ц
determined and regulations on immission monitoring of surface water	DICZAIIA	DICEAIIA	I II	ш	ш	III //I	п
quality passed. In the same year 20 bathing water areas and 17 natural				Ħ		1 4	T H
bathing sites were determined – 13 of water bathing areas and 13 natural			Π	П	III	III	П
bathing sites are in cooperation area. The results of monitoring of quality of		Ormož	Π	Π	Ш	IV	
bathing water were on all sites good.			Π	III	III	V	II
0			Π	Ι	Π	III	II
Ground waters							

Between 1993 and 2003 aquifers in Slovenia show a trend of decreased	Mura	Goričan	Π	Γ
concentrations for many chemical parameters but the situation in 2003 was	<b>Ríječa</b> na	mouth of a river	Π	
still evaluated as bad at all 13 aquifers. The reason is mostly high contents of		Drastin	II	Γ
nitrates, sulphates and pesticides, values of which vary a lot from case to		Headwater region	Ι	
case. Compared to other countries, the relatively high number of aquifiers	Mirna	Portonski most	II	Г
affected by the nitrates in Slovenia is due to a great share of alluvial		Kamenita vrata	II	Γ
aquifiers in the lowlands with intensive agriculture. Arithmetic mean values		headwater region	Ι	Г
for total pesticides found in ground water in 2004 did not exceed the margin		(Rečica)		l
value of 0.5 $\mu$ g/l at any measurement spots. The highest share of margin	Raša	mouth of a river,	II	Γ
values is represented by atrazine and its metabolite desetilatrazine.		bridge Raša		l
		bridge Potpićan	II	Γ
Today Slovenia is divided into 21 water bodies of ground water that are	Dragonja	mouth of a river,	II	
included into national water quality monitoring network. 16 of them are	2 3	International border		l
situated in cooperation area. In 2005 evaluation of chemical condition of		crossing Kaštel		l
water bodies of ground water was carried out:		Lakes	5	
• Savska kotlina in Ljubljansko barje: evaluation of chemical condition of	Bajer	surface;	II	
ground water – good, evaluation of chemical condition of drinking water	5	bottom	II	
– bad (destil-atrazin).	Tribali	surface:	II	
• Savinjska kotina: evaluation of chemical condition of ground water –	Niivica. Krk	surface:	II	-
good, evaluation of chemical condition of drinking water - good.	5	bottom	II	Γ
• Krska kollina: evaluation of chemical condition of ground water – good,	Acomulation	surface:	П	Γ
evaluation of chemical condition of drinking water – bad (destil-atrazin).	Ponikve, krk	bottom	П	Γ
• Kamnisko Savinjske Alpe: evaluation of chemical condition of ground		surface:	П	Γ
water – good, evaluation of chemical condition of drinking water - good.		bottom	П	Γ
• Posavsko hribovje do osrednje Sotie: evaluation of chemical condition of		surface:	I	Γ
ground water – not evaluated, evaluation of chemical condition of		bottom	I	Γ
uninking water – bau (destin-atrazin).		Underground	d water	r
• Spoulifi del Savinje do Solie. Evaluation of chemical condition of ground water	Sveti Anton		Ι	Ē
water – had (bentazon mecopron)	Mutvica		Ι	
<ul> <li>Kraška Liublianica: evaluation of chemical condition of ground water –</li> </ul>	Balobani		Ι	
good evaluation of chemical condition of drinking water - good	Rakonek		Ι	
<ul> <li>Doleniski kras: evaluation of chemical condition of ground water – good</li> </ul>	Kokoti		Ι	
evaluation of chemical condition of drinking water – had (destil-atrazin)	Blaz		Ι	Γ
<ul> <li>Dravska kotlina: evaluation of chemical condition of ground water – bad</li> </ul>	Tivoli		Ι	Γ
(nitrates, atrazin, desetil-atrazin), evaluation of chemical condition of	Gradole		Ι	Γ
drinking water – bad (nitrates, atrazin, destil-atrazin).	Sveti Ivan		Ι	
• Murska kotlina: evaluation of chemical condition of ground water – bad	Bulaž		Ι	Г
(nitrates, atrazin, destil-atrazin, bentazon, metolaklor, terbutilazin,	Mlini		Ι	
trikloroeten, tetrakloroeten, lahkohlapni ogljikovodiki), evaluation of	Pazinčica,Dubra	vica	Ι	Г
chemical condition of drinking water - bad (nitrates, atrazin, destil-	Pazinčica, Ponor	[	II	Г
atrazin, bentazon, metolaklor, terbutilazin, trikloroeten, tetrakloroeten,	Boljunčica, mou	th of a river	II	Г
lahkohlapni ogljikovodiki).	Legend			-
• Obala in Kras z Brkini: evaluation of chemical condition of ground water	A=demanded clas	sification of water		
<ul> <li>– good, evaluation of chemical condition of drinking water – good.</li> </ul>				

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ronmental Report for Cr	oss border Cooperation Operational Programme Slovenia-Croatia 2007-2	2013
	Gorišla brda in Trnovski gozd – Banjška planota: evaluation of chemical	B= evaluation of oxygen condition
	condition of ground water - good, evaluation of chemical condition of	C= evaluation of nutrients condition
	drinking water – good.	D= evaluation of microbiological condition
		E = evaluation of biological condition
	Sea Water	Sea water
	The sea is moderately eutrophic (1997-2000); the largest source of P and N	Enlargement of concentration of amount of nutrients (in the first place nitrogen
	being untreated wastewaters from Izola and Koper. No data on pollution	and phosphorus) is the results of unpleasant effects calls cutrofication. One of meanater of antrofication is concentration of wheehotes in water The
	II UIII SIIIPS IS AVAILADIE. IKIA IIIUEA IOF 2000 VAILES DELWEEL 2,12 III 7,74,	parameter of their computer is concentration of phosphares III water. The
	me nignest being in rebruary and November (periods of nignest	increasing or ureir amount can occur windour impact or people, but increasing is mostly result of omitting of underned envious woters (mublic utility)
	CONCENTRATIONS OF PHYROPIAIRKOUL CLOUOPHYJ) III UNE ESUARIES OF ALZAHA AND	is mostly result of omneming of uniceance sewage watchs (public utility component induction components) and innea from conjunction to according to the second s
	Diagonja nyers. Aigai piooniis occasionany occurs, ure largest ones were in 1988. 1980. 1991 in 1997.	On the sea, an important potential new threat are ballast waters from large
	On the sea, an important potential new threat are ballast waters from large	ships, bringing pollution and alien species; however, due to the small scale of
	ships, bringing pollution and alien species; however, due to the small scale	the projects the activities to be supported by the programme are not likely to
	of the projects the activities to be supported by the programme are not likely	add to this threat.
	to add to this threat.	
		Datuning water The State of the Addition Son Doceart for Constinuing and of morellon form more
	Bathing Waters	Ine State of the Auriance Sea Report for Croatia is one of regular four-year
	In 2006 there was 3/ natural bathing areas and 1/ natural bathing sites (4 on	reports submitted to the Croatian Farilament within the State of the
	rivers and lakes and 13 on sea) monitored in Slovenia. Quality of bathing	Environment Report.
	water on natural bathing sites is monitored d during bathing season (25, 6, $-1$	The State of the Environment Denort is menored as a hadronound for the
	21.0.110 IIVEIS ally Takes ally $22.0 30.5.101$ scal, results of III0III0IIII	The state of the Litritioning in prepared as a packground for the
	in season 2000 show, that the only problem is microbiological pollution of $1 + 4 + 5 + 5 + 1$	Environmental Protection Strategy, National Environmental Action Flain, Emissionmental Destruction Descention destruction of other dominants advisort for the
	Some bauning areas on rivers and lakes. In 2000 10.5 % of all measurements	EDIVIDUILIEIRAL FLORECUORI FLOBIAIRI ARA OUREL AOCURINERIA FEREVARI IOL URE
	on bathing areas on lakes and rivers were inadequate, but non of them on	environmental protection pursuant to the Environmental Protection Act
	natural bathing sites. Quality of bathing water on bathing areas on sea was in	(Ullicial Gazetie 82/94, 128/99), and the Adrianc Sea IS one of the components
	2006 worse than in previous years $(11.1\%$ of inadequate measurements, only	of the Croatian environment.
	0.8 % in 2005). On the contrary, on natural bathing sites on sea, the quality	
	of bathing water improved and there were no inadequate measurements.	The Report includes data for the period from 1997 to date, and the year 1991 is
	Overall 16.6% of all bathing areas in Slovenia were in 2006 inadequate	taken as the baseline year for indication of trends, when possible. Briefly,
	(38.9% in 2005), but only on three bathing areas (Straža and Zužemberk on	according to the 2003 Draft Report:
	river Krka and Učakovci-Vinica on river Kolpa) slightly exceeded	
	prescribed values for microbiological parameters. Other bathing areas show	The coastal sea state is very good. Degree of eutrophication (process in which
	an improvement in reference to previous years.	the organic production in water increases with increase in any limiting factor)
		is oligourophic (the organic production is low), with an exception of some
	The state of bathing water is improving.	coves where the eutrophication degree has increased due to specific problems.
	Drinking water	Ninety-six percent of beaches meet the criteria stipulated under law.
	Ground water is the main source of drinking water. Water potential is 32.1	
	km3/year, 16,000 m3/year/inhabitant on average – significantly above the Euroneon oversize Cround weter supply veries errolly - 2/3 of the supplies	Sanitary quality of mussels and the sea where they grow is generally esticfactory. Mumber of oil enillance contamination can and can reconness is on
	Lutupean average. Otouth water supply varies greatly $= 2/3$ of the suppres	saustavory, rivernovi of on spinages contannianing sea and sea resources is on increase.
	of the country (Mura river basin) and in the extreme SW of the country	
	(seaside area). In Slovenia the average use of drinking water in 2004 was	One of the sea monitoring programmes is the Monitoring of Sea Water Quality
	146 I/day per inhabitant. There are great differences in the quality of	on Beaches. The assessment is carried out by comparing the identified

drinking water in Slovenia. Microbiological tests, which mostly look for	microbiological parameters to the respec	stive limit values indicated in the
excrement contamination, the differences are clearly linked to water-system	Regulation. Sea water at beaches is deel	med to conform to the prescribed
size. There is a number of small systems (approx. 80%) in which the share	standard if the values of the bacteriological	I parameters do not exceed the limit
of infected microbiological samples is almost 50%; excrement	values laid down in the Regulation, where	eas sea water at beaches is deemed
contamination is present in approx. 30% of these samples. However, these	not to conform to the prescribed standard	if more than 20% of the analysed
systems supply water only for approx. 10% of the population.	samples exceed the limit values listed in Ta	uble below.
• Total amount of water used from public waterworks in 2005 in	4	
cooperation area: 130.282 mio. $m^3$ ;	Limit values of bacteriological parameters	from the Regulation
• Water supply from for households in 2005 in cooperation area: 65.934	<b>Bacteriological parameters</b>	number/100 ml
mio. m <sup>3</sup> ;	total coli forms TC	500 (in 80% of samples)
• Water supply from public waterworks for commercial activities in 2005		1000 (in 20% of samples)
in cooperation area: 26.632 mio. m <sup>2</sup> ;	faecal coli forms FC	100 (in 80% of samples)
• Total amount of water lost in public waterworks in 2005 in cooperation		200 (in 20% of samples)
area: 24.02 / 11110. 111	faecal streptococci FS	100 (in 80% of samples)
Waste water		200 (in 20% of samples)
31. 12. 2015 is the deadline for collection, disposal and cleaning of waste	In 2006 863 campling nointe/heaches were	a monitored in Croatia: 203 heaches
water in computation with uncertives 21/2/11/11/2000/00/1210. 1 wo	in the County of Istria 737 heaches in the	- County of Primorie-Gorski Kotar
$(31 \ 12 \ 2008)$ and $15\ 000$ inhabitants (31 \ 12 \ 2010)	45 heaches in the County of Lika-Seni. 85	beaches in the County of Zadar, 71
In 2006 84 996 000 m3 of waste water were freated and cleaned in Slovenia	beaches in the County of Šibenik-Knin. 1	39 heaches in the County of Solit-
and in 2003 SIT 27.383 million were spent for waste water management.	Dalmatia, and 88 beaches in the County	of Dubrovnik-Neretva. There is a
	constant increase in the number of samp	ling points on the beaches of the
	Croatian Adriatic.	
	In 2006, the samples exceeding the limit	values in the Regulation accounted
	for 1.06%, which is 8 samples or 7.77% le	ess than in the previous year. Of all
	the samples conforming to the Regulation s	standards 72.97% were rated as high
	quality sea, 25.39% good bathing quality :	sea and 1.33% as moderate bathing
	quality sea. Looking at the final ratings or	f beaches it is observed that out of
	863 sampling points, 215 were rated as high	gh quality sea, 630 as good bathing
	quality sea, 16 as moderate bathing qualit	ty sea and 2 as sea not suitable for
	bathing.	
	In the County of Istria out of a total of 20	33 sampling points, 4 were rated as
	high quality sea, 198 as good bathing qua	ality sea and 1 as moderate bathing
	quality sea. Taking into account individua	Il evaluations of the samples during
	the monitoring season, only 0.78% of sam	ples exceeded the limit values laid
	down by the Regulation. Out of the sam	ples conforming to the Regulation
	standards, 68.82% were rated as high qu	ality sea, 30.44% as good bathing
	quality sea and 0.74% as moderate bath	ing quality sea. In the County of
	Primorje-Gorski Kotar testing was carried	out at 232 sampling points, out of
	which 106 points were rated as high quali	ity sea, 118 as good bathing quality
	sea, 7 as moderate bathing quality sea and	d 1 as sea not suitable for bathing.
	Looking at individual evaluations of the	e samples, 0.42% of the samples
	exceeded the limit values laid down by t	he Regulation. Out of the samples
	conforming to the Regulation standards, 83	.75% were rated as high quality sea,

13.79% as good bathing quality sea and 1.64% as moderate bathing quality sea.

Most monitoring stations have recorded a relatively low concentration of orthophosphates, and also its decreasing trend has been observed. A somewhat higher concentration of orthophosphates has been recorded in semi confined area of Vranjic. On the monitoring station in Kaštela, have been observed increasing trend of inorganic nitrogen concentration. Since these salts are naturally present in sea water, an increased concentration need not necessarily be caused by human activities (rather by abrasion, erosion, groundwater loads) but it is most often due to discharge of untreated wastewater (municipal, industrial) and agricultural land runoffs. Concentration of nutritient is generally highest close to river mouths or cities, reflecting the land based inputs of nutrients. Most of monitoring stations are in costal waters. Because of insignificant number of monitoring station in transitional and marine waters those data were not taking in consideration.

Sea water quality measurements near islands cover only the sea in front of urbanised areas or where an impact of wastewater is to be expected. The rest of the island coast has not been monitored and is deemed to be clean.

Bathing water quality for inland water is controlled as needed; no legal framework exists for such control, so the data are not collected systematically. The new Act on Protection of Population from Infectious Diseases (which is in preparation) will provide legal obligations for monitoring of inland bathing water quality.

#### Ground waters

The total renewable amounts of groundwater are 9.13 km3/ year. About 30% are bounded to quaternary coarse-clastic deposits of the Drava and Sava valleys, and the karst areas of southern parts of the Kupa and the Una catchments' areas.

	Area	Alluvial aquifers	Carbonate aquifers	Total
			10 <sup>6</sup> m <sup>3</sup> /year	
Black sea	Sava basin	1198,3	653,8	1.852,1
basin	Drava and Dunav basin	802	7,8	810,4
Adriatic sea basin	Primorska-Istra basin	-	2.639,5	2.639,5
	Dalmatia Basin	-	3.831,3	3.831,3
	Croatia	2.006,9	7.132,4	9.133,3

Renewable amounts of underground water

Assessment of quality of headwater for period from 2000 to 2003 shows that are the largest variations from I. category consequence of increased values of microbiological indicators. Majority of others indicators belongs to I. or II.

classification of water. Larger changes didn't occur considering to former period.

#### Drava and Dunav river basin

Vulnerability of aquifers because of pollution is not problematic in middle and eastern part Drava basin, because of larger thickness of upper layers. However, because of reducing conditions that typically prevail in groundwater, it naturally contains high concentrations of iron and accompanying compounds (manganese, ammonia).

The groundwater from mountain carbonic aquifers is known for its high quality. Since catchments' areas for those aquifers are not inhabited mountains covered with forestry, there is practically no hazard for pollution. Depending of initial rocks, concerning chemical composition, these are mostly calcium and calcium- magnesium waters.

#### Sava river basin

In direct Sava river basin from Slovenian border to Sisak, high concentrations of indicators of anthropogenic pollution in groundwater is a consequence of high aquifer natural vulnerability and a great number of polluters. Till now there were more municipal springs with total capacity -1,5 m3/s disconnected from public drinking water supply in the area of Zagreb pumping spots, because of water pollution with organic wastes and nitrates. Nonetheless, in recent years noticeable improvement of groundwater quality in catchments' area of Zagreb pump spots has been recorded.

The groundwater quality in part of basin from mouth of Kupa to mouth of Orljava is mostly a reflection of changing conditions (from reducing to oxidative) and that is the reason that water somewhere contains increased concentrations of iron, manganese and accompanying compounds.

#### Primorska-Istra river basin

In steady-state conditions all groundwater in Istra area has a good quality. Those waters are of mostly calcium - hydro carbonic type, regarding chemical composition and middle to very hard, regarding hardness. Higher concentrations of nitrogenous and phosphorous compounds in groundwater induce incidence of wastewater discharges from settlements and partly leaching from agricultural areas.

The highest content of nitrates was recorded in waters of Pula springs, some of them were even disconnected from public water supply because of antropogenic pollution. All springs in Istra other than springs Kožljak and Plomin are microbiologically polluted.

Water from all major and appreciable springs in area of Kvarner gulf except

		some springs near the coast which are under influence of the sea are of calcium – hydro-carbonated type with middle level of hardness and low-level content
		of chlorides and sulphates. Water quality of spring Rječina and springs in Bakar gulf is very good except in times and after strong rain and especially
		after long dry periods when microbiological pollution is recorded.
		Concentrations of nitrate in water of all springs are significantly lower than
		allowed for drinking water, groundwater is also not polluted with heavy
		metals.
		<u>Drinking water</u> Annual abstraction of ground and surface waters (2000-2003) were in range
		from $500 - 530$ million m <sup>3</sup> and the water delivered to consumers from $310 -$
		330 million m <sup>3</sup> .
		Tetal annual material structure for multiplicated in destrictions, 1, (1) (1)
		1 otal annual water abstraction, for public and industrial needs (without hydro- energetic- non $-$ consumptive uses) are around 1.04 billions m3 / year (4% of
		total amount of water).
		Monitoring results for the drinking water from distribution systems show that $76\%$ of population (3.35 millions citizens) is connected to public water
		supplies and the rate of population served by the public water distribution
		systems is continuously on increase, but the regional variations are still
		significant: from 99% in Dubrovačko-Neretvanska and Primorsko-Goranska
		Counties, to $39\%$ in Bjelovarsko–Bilogorska County. The rest of population $(24\%)$ is still outward public water supply, and the water they use from some
		(24%) is still outward public water supply, and the water they use non-some other resources is estimated 60 - 70 million m <sup>3</sup> per year. 90% of public water
		supplies came from underground water catchments, and the other 10% are
		surface waters. Industry use 95 millions m <sup>3</sup> /year water from other sources.
		Waste water
		The Croatian average of connection to the public sewerage system is higher
		than 40% (approx. 70% in large cities and under 40% in towns with population
		less than 10,000). Sanitation is provided to 40% of the population through a publication particular and maintained conjugate population through a
		receives services through local or individual sanitation facilities. Only 6% of
		wastewater is given full treatment. In practice there is mostly the first, lowest
		level of cleaning - mechanical cleaning, which excludes the lowest percentage
		of waste (flowing materials, mud and sand); this practise is increased by setting
		Cleaning device for Waste water in Lagred. There are 83 systems of urban waste water treatment. There are 34 devices in
		Republic Croatia which can handle second level of cleaning. Cleaning of waste
		water on third level (nitrogen and phosphorus) is not used, because there are no
		such devices. Sludge is the result of waste water treatment and is being
Trands and state without the	Surface waters	transferred to remediation landfill or is being used in agricultural activities.
implementation of OP	In the period 1992-2000 the improved quality, increased share in the second	Surface waters were in period from year 2000 to year 2003 mostly in II. and
1	I I I I I I I I I I I I I I I I I I I	

Environmental Report for Cr	oss border Cooperation Operational Programme Slovenia-Croatia 2007-	2013
	quality class (good condition) on the account of the decrease of heavily	III. type of classification of water quality, without microbiological indicators,
	polluted water courses, classified in class four, has not changed in the past few years (5 $\%$ of water capture sites). The management of water courses is	which were in III. and IV. type of classification of water quality. In the past period larger changes haven't occurred on quality of water according to period
	becoming more environmentally friendly. According to the fact that	before the year 2000.
	becoming more and more popular, the morphological aspect of water	In watched time period from year 2000 to 2005, concentration of phosphorus
	courses will improve. Sea water is under threat by marine traine and litoralisation, but pollution levels are stagnating. In light of improving	IN II VETS and lakes doesn t show nonceable trend.
	environmental awareness and environmentally friendly water management state of seawater will improve.	On majority of measurement stations in Croatia part of Adriatic sea are reported relatively low concentration of orthophosphates and the trend of
	The state will follow the trends.	reducing is noticeable.
	The increase of large water courses and the decrease of small and medium-	Ground waters To second the teach of According addition of accord vieta with nitrates and
	sized watch courses.	presentiation of the posticity of the posticity and industry) and illegal waste
	lood-risk will remain the same or will increase due to larger water courses, the damage will be increased due to inauroviriate locations of the activities	disposal sites (household waste).
		Amounts of concentrations of phosphorus in underground water shows
	<u>Ground Waters</u> The account the tend of documenties and the interest with mittaness	obviously expressed trend of increasing, but under regai boundary values.
	in general, the using of decreasing polynom of ground waters with funders and pesticides remains a risk due to old problems (industry) and illegal	The state will follow the trends.
	waste disposal sites (household waste).	
	The state will follow the trends, the use of pesticides is decreasing.	Bathing water The quality of bathing sea water has been increasing in the last decade.
	Drinking water	
	Because the amount of drinking water supply is relatively low (see the water belowed) its consummation has little immost on water hodies. Due to the	<u>Drinking water</u> 760° of nonulation (3.35 millione vitizane) neas untar from mublic water
	valance), no consumption has note impact on watch bourds. Due to use vulnerability of ground water aquifers to anthropogenic interventions and	supply. That is better than 1990 when it was 63%. There is no significant trend
	heavy water extraction, charging of aquifers with surface water needs to be	in water use for public water supply. The new economic conditions will led to
	given special attention in order to ensure sustainable use. The decrease of	water supply companies increasing the price of water and installing water
	ure available water in the region of Frinoije – in the lutture (if the revel of water constitution and trends continue) water will have to be provided from	herets in nouses. This would result in people using less water. On the other hand the sumbly network is obsolete and losses in distribution systems require
	other areas. The decrease of water potential in Slovenia – the areas with a	high abstraction volumes to maintain supply.
	water deficit will spread. Most measurement sites (41%) at intragranular	-
	porosity aquiters show a statistically significant decrease of ground water	Total annual water abstraction, for public and industrial needs (without hydro-
	IC VCIS.	total amount of water) Annual average water abstraction for public water
	Sewage water	supply of amount 500 -530 millions m <sup>3</sup> /year had not significant change during
	Construction and upgrade of the major treatment plants, amount and share of	period of last ten years 24% of population do not get water from public water
	the treated waste water is on the rise; investments into waste water	supply. Their water consumption is around 60-/0 millions m <sup>7</sup> /year. Industry $\frac{1}{1000}$ m <sup>2</sup> /year. Industry
	The number of treatment plants, the amount/share of treated waste water and	
	share of the treated waste water is on the rise; investments into waste water	The water abstraction for irrigation in Croatia decreased in period 1998
	management are rising too.	2003. But in recent years agricultural activities have been increasing and water
	The number of treatment plants and the amount/share of treated waste water	using for irrigation slightly increase. Water from rivers, lakes and

will increase the efficiency of treatment plants will increase.	accumulation are used for irrigation. In several cases ground water is used for
	the same purpose. Local irrigation system provided good use so the leaking is
	less than 30%.
	Sewage water
	A construction of sewage system shows a trend of growth (common closed
	sewage system length was in year 2004 5.996 km and length of main collector
	1314 km). The population connection to the wastewater treatment plants
	increases (83 plants in total). The number of treatment plants, the amount of
	treated waste water and share of the treated waste water is on the rise.

Issue:	Nature				
Country	Slovenia	Croatia			
	<ul> <li>There are no data in how many interventions in the protected areas, compensatory measures were conducted. The largest share of the endangered plants and animals in Slovenia represent amphibians, mammals and birds. Habitat types with a greater number of endangered species due to a loss of their habitat types are mostly dry and humid meadows, marine habitat types and static and running waters.</li> <li>Number of Natura 2000 sites in cooperation area – 203 (182 pSCI, 21 SPA).</li> <li>Number of important ecological areas in cooperation area – 201.</li> <li>Number of protected areas in cooperation area – 351.</li> <li>Number of protected sites in cooperation area – 795.</li> </ul>	Croatia Strong tradition of nature conservation, high biodiversity (37,000 known species 50 000-100 000 estimated) comparing to the EU states. Preserved areas of nature in Croatia are protected by existant legal regimes that base on the currently legitimate legislation. According to the new Nature Conservation Act passed in u 2005 (OG 70/2005), protected areas are arranged under nine categories of protection corresponding internationally determined IUCN protection categories.			
	The level of biodiversity in the programming area in Slovenia is high, also due to high landscape and climate diversity: from submediterranean areas in the west through Dinaric mountains in the centre and Pannonian plain in the east. Important ecosystems/habitat types are forests, caves, marshes, rivers, sea, dry meadows and wetland meadows. Marine habitats are especially under threat due to development pressures on the seashore which is very short. The largest protected areas are: Kozjanski park, Notranjski regijski park Krajinski parki Goričko, Šturmovec, Drava, Boč-Donačka gora, Kum, Jeruzalemsko - Ormoške gorice. Among the largest Natura 2000 sites are Karst and dinaric mountains (Snežnik, Kočevski rog, Gorjanci,) and hilly areas to the east (Goričko, Bohor, Radgonsko - Kapelske Gorice, Haloze – vinorodne, Boč - Haloze - Donačka gora,), wetlands (Ljubljansko barje) and larger rivers (Drava, Mura, Savinja - Letuš, Sava - Medvode – Kresnice, Dravinjska dolina, Planinsko polje, Kolpa, Sotla,). Various nature protection measures intersect - (e.g. in the entire Slovenia 25 % of total Natura 2000 area entails 60 % both pSCI an SPA). None of the protected areas has an approved management plan, but management plan for Landscape park Goričko, Kozjanski park and eastern Pohorje Regional Park are being prenared	Category	Number	%	Land area/ ha
Current state		Strict reserve	2	0.46	2,395.35
		National park	8	18,18	93,181.48
		Special reserve	79	5.62	28,796.50
		Nature park *	10 (11)*	59.68	305,864.38
		Regional park	0	0	0
		Natural monument	103	0.15	761.79
		Important landscape	69	13.95	71,467.08
		Forest park	38	1.77	9,051.95
		Monument of park architecture	135	0.19	961.82
		Total	444 (445)	100	512,480.35
	Areas under various types of nature protection measures in the Slovene part of the programming	Croatian Red List of Threatened Species lists 1131 threatened species, strictly protected species comprise 809 plant taxa			

	(including 37 species listed on Annex II of the Habitats Directive), while protected species include 331 taxa. In 2005 designated areas in Republic of Croatia covered an area of 5,124.80 km <sup>2</sup> , which is 9% of state territory. Each county of the Republic of Croatia has at least one protected area in its respective territory	Croatia is not an EU member yet. Implementation of this project is one of the obligations Croatia has to meet in the accession process to the European Union. Implementation of the first phase for Natura 2000 through the project of National Ecological Network project has been already finished. The results are as follows:	Natura 2000 habitat types and speciesHabitat types69Birds121Mammals22Amphibians and reptiles16Fish46Nonvertebrates31Flora34	Land         %         Sea (km2)         %         Ukupno           (km2)         (km2)         (km2)         (km2)         (km2)           Ecological         26.689,78         47         12.140,48         39         38.830,26           network areas         56.615         100[31.644         100[88.259         100[31.644]         100[88.259]	<ul> <li>charts of distribution of EU important habitats and species with marked localities have been made for the whole territory of Croatia;</li> <li>preliminary evaluation of important natural areas have been done,</li> <li>GIS information base for the National ecological network was made</li> <li>In 2006 Emerald project as second phase of Natura 2000 project has fininished. It was concerning Areas of Special Conservation Interest – ASCI in Croatia. The following results have been established: 227 species of the Bern convention, 123 species from Anex I Birds Directive and 130 species from the Annex II Habitats Directive.</li> <li>52 of 187 Emerald habitat types and 72 habitat types of 218 Natura habitat types are present in Croatia.</li> </ul>
Environmental Report for Cross border Cooperation Operational Programme Slovenia-Croatia 2007-2013	area are listed further on in the report and shown on a map. Sites of natural values are not shown because of legibility of the map, but they can be viewed on on-line Nature Protection Atlas. (http://kremen.arso.gov.si/NVatlas/users/login.asp?refurl=%2FNVatlas%2Fewmap.asp).				

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	Interventions in nature and their impacts will be decreased with the compensatory measures. Interventions in the natural environment are decreasing biodiversity. Impact mitigation measures are becoming more and more appropriate.	No comprehensive inventory of the Croatian biodiversity, particularly of the invertebrate taxa. The freshwater fish is considered to be the most and the vascular plants the least
Trends and state without the implementation of OP	New protected areas are being planned (npr. regijski parki Pohorje), but it is highly unlikely that the total areaa protected due to nature conservation legislation will increase in the programme area. Nature protection regimes are enforced on quite large part of the territory, especially in farming and land use planning. In some areas the development pressures on protected areas are quite high. Due to expansion of urban and industrial areas the levels of biodiversity will slowly decrease in general in such areas. With time, management plans will be prepared for protected areas.	<ul> <li>endangered taxonomic groups.</li> <li>The process of Natura 2000 project is in second phase: the information basis have been upgraded and the list of proposed sites is in formation process. The system of evaluation of impacts is already in use.</li> <li>Project of environmental database management is in progress, setting up the integrated Environmental Information System.</li> <li>In the 1991-2005 period the number of protected natural areas increased from 371 to 444.</li> <li>During 2004 and 2005 the State Institute for Nature Protection prepared expert documents for the protection of a number of sites under various categories.</li> <li>By county physical plans about 880 sites have been recorded and/or proposed for the protection under various protection categories.</li> <li>Interventions in the natural environment are decreasing biodiversity. In the process of environmental impact assessment mitigating measures are proposed.</li> </ul>

Issue:	Cultural and landscape heritage			
Country	Slovenia	Croatia		
Current state	<ul> <li>Slovenia has very diverse and dispersed heritage, moreover, the connection with attractive and diverse landscape is typical for the country. Typical features often occur »in series«, everything being the result of specific mix of geography and history which represents characteristic feature and competitive advantage of Slovenia.</li> <li>The number of units of built cultural heritage in Slovenia is 24,542 (in 2007), the number of integral heritage units is 432 and the number of movable cultural heritage units is 11.</li> <li>Investments in Slovenia by Ministry of Culture: in 2006 1,915,334,000 SIT, Co-investments in Slovenia by Ministry of Culture: in 2006 1,202,870,000 SIT.</li> <li>In 1998 landscape subunits and extraordinary landscapes were evaluated, and a part of Goričko was declared as one of them.</li> <li>Number of registered units of cultural heritage in cooperation area in 2007: 17,726, Number of registered areas of complex protection of cultural heritage in cooperation area: 41.</li> <li>Lately, the number of permanent damage and loss of objects and areas of cultural heritage (or their heritage features) is increasing. Under threat are especially: heritage settlements, castles (numerous are completely abandoned), heritage buildings – especially the ones</li> </ul>	<ul> <li>The central portal for Croatian cultural heritage – the main result of national project of digitalization "Hrvatska kulturna baština" is still in its creation. Registry of cultural heritage is being constantly updated. In 2006 60 units of unmovable cultural heritage, 2 areas of underwater archeological cultural heritage and 24 units of movable cultural heritage units were registered. Detailed information on cultural heritage units and sites are available in publication "Registar kulturnih dobara Republike Hrvatske". There were 644 cultural sites on UNESCO list in Croatia in 2007. Croatia will in 2007 invest 123,028,125 KN in unmovable cultural heritage and 9,426,720 KN in movable cultural heritage.</li> <li>Investments in unmovable cultural heritage in Zagrebačka region: 6.150 mil. KN</li> <li>Investments in unmovable cultural heritage in Karlovačka region: 9.248 mil. KN</li> <li>Investments in unmovable cultural heritage in Varaždinska region: 7.010 mil. KN</li> <li>Investments in unmovable cultural heritage in Varaždinska region: 7.010 mil. KN</li> </ul>		
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	that are not protected as a monument both in the countryside and in the areas where it is under therat from natural and other hazards. The reasons for this are among others improper spatial and urbanistic planning, improper control over implementation of protective measures and guidance as well as lack of mechanisms for financial help for maintenance and renewal in line with the heritage measures and guidance. High costs of proper heritage renewal often deter the owners (e.g. heirs of an object) or potential investors from renewal and indirectly stimulates building up new buildings which often improperly change the appearance of the landscape. The level of awareness concerning preservation of outstanding and heritage landscape is slowly increasing.	<ul> <li>Inv KN</li> <li>Inv mi</li> <li>Inv KN</li> </ul>	westments in unmovable cultural heritage in Istarska region: 6.960 mil. N westments in unmovable cultural heritage in Međimurska region: 3.650 il. KN westments in unmovable cultural heritage in city of Zagreb: 2.940 mil. N westments in movable cultural heritage in Zagrebačka region: 0.810 mil. N westments in movable cultural heritage in Krapinsko-zagorska region: 115 mil. KN westments in movable cultural heritage in Karlovačka region: 0.365 mil. N westments in movable cultural heritage in Varaždinska region: 0.168 mil. N westments in movable cultural heritage in Primorsko-goranska region: 712 mil. KN westments in movable cultural heritage in Istarska region: 0.522 mil. KN westments in movable cultural heritage in Međimurska region: 0.330 mil. N
Trends and state without the implementation of OP	The number of investments in preservation of cultural heritage is decreasing, investments in preservation of cultural heritage are slow. Landscape degradation is being recorded. Conservation of cultural heritage is stagnating, the awareness about conservation of cultural heritage and outstanding and heritage landscape is increasing (too) slowly. The situation will follow the trends.	-	

Issue:	Population and health	
Country	Slovenia	Croatia
Current state	<ul> <li>In Slovenia:</li> <li>The life expectancy for men is 72.2 years and 80.0 for women;</li> <li>The damage caused by natural disasters in 2005 was 18,797 mio. SIT;</li> <li>In 2005 259 people died in car accidents,</li> <li>In 2004, 126,848 tons of dangerous waste was produced,</li> <li>In 2004 the damage caused by ecological accidents was estimated to SIT 93 million,</li> <li>In 2004 there were 442,131 connections to the public water distribution system, 157,729 connections to the sewage system and 35% protected areas.</li> <li>In cooperation area:</li> <li>Due to large cooperation area which extends over 8 statistical regions the life expectancy variates considerably. For men and women it was in 2004</li> </ul>	<ul> <li>In Croatia:</li> <li>The life expectancy for men is 71,8 years and for women 78.8.</li> <li>Investments in protection of environment in 2004 were 1.311 mil. KN</li> <li>In 2005 597 people died in car accidents,</li> <li>In Croatia 42,419 t of technological hazardous waste was produced in 2004 and 36,273 in 2005.</li> <li>In 2004 there were 1,015,144 connections to the public water distribution system, 381,007 connections to the sewage system.</li> <li>In cooperation area:</li> <li>For information on dangerous waste production in cooperation area see chapter Waste.</li> </ul>

	highest in statistical region Osrednjeslovenska (77.8 years / 81.2 years) and lowest in statistical region Pomurska (69.2 years / 78.5 years). The damage caused by natural disasters in 2004 was estimated at 10,705 mio. SIT; In 2004 111,063 tons of dangerous waste was produced.	
Trends and state without the implementation of OP	The number of car accidents is decreasing, the number of casualties in them is stagnating and so are the amount of dangerous waste and the number of ecological accidents. The number of connections on the water distribution system and the sewage system is increasing. The surface of protected areas will probably remain the same but the management thereof will improve. The number of natural disasters is increasing. The situation will follow the trends.	The number of car accidents is decreasing and the number of casualties is also decreasing. Amount of dangerous waste is also decreasing. The number of connections on the water distribution system and the sewage system is increasing. The situation will follow the trends.

Issue:	Transport	
Country	Slovenia	Croatia
Current state	<ul> <li>In 2005 there were 31,095 car accidents in Slovenia.</li> <li>In Slovenia, there are 972 level crossings, only 652 of which are signposted.</li> <li>45% of the accidents that directly reflect traffic safety in railway traffic occur on level crossings of the road and railway tracks and 15% of the accidents occur due to collision or derailment.</li> <li>In 2005, 39,759 (in thousands) passengers in Slovenia used the public road transport system, 97,227 (in thousands) passengers used the city transport system.</li> <li>In 2005 14,917 (in thousands) passengers in Slovenia used the national and 825 (in thousands) the international railway transport system.</li> <li>76% of day trips in Slovenia were made by a private vehicle and 24% by public transport.</li> <li>In 2005, 16,344 (1000 tons) or 16,5% of freight was transported on the railway and 82,750 (1000 t) was transported on the road.</li> <li>In comparison with the rest of EU member states (7,3 years) the average age of registered personal vehicles was in Slovenia in 1999 (6,8 years) relatively favourable. Till year 2001 the situation deteriorated. Then the average age of registered personal vehicles was 7.1 years. In 2001, the share of petrol engines with catalytic converter was 60%.</li> <li>In 2005 poor infrastructure increased the passenger train delays from 2.5 to 4.5 min per 100 rail km and freight train delays from 33.3 to 57.7 min per 100 rail km.</li> <li>In compliance with National highway building programme of Republic of Slovenia and its resolution from year 2004, 660 km of new highways are planned until 2013. In cooperation area three main sections of highways - completion of highways Maribor – Pince, Maribor – Gruškovje and highway between Ljubljana and Zagreb (missing section near Novo Mesto) are planned.</li> </ul>	In 2005 there was 792 km of highways, 2,073 km of E-roads, 6,725 km of stare roads, 10,544 km of regional roads, and 10,375 km of local roads. in 2005 there was 2,726 km of rail in Croatia, 248 of them were double rail and 948 was electrified. In 2005 there was 1,790,971 cars registered in Croatia, 1,384,699 of them were cars. Number on cars in reference to year 1997 increased by 36 %. Number of passengers using railway (39,842 in 2005), sea and air traffic is also on the increase. Road traffic represented 56%, railway traffic 32%, sea traffic 10% and air traffic 2% of all traffic in 2004. 62% of all passengers using public transport system used busses, manly because of ineffective and outdated railway system. Transport of cargo is on intensive increase since 2000 and was in 2004 eleven times of the value in 1997. From 2001 to 2003 the number of vehicles without catalyst in motor decreased for 27%, manly due to renewal of car poll. Because of the reasons listed above consumption of fuel used for transport is on increase. In 2003 consumption of diesel fuel exceeded consumption of petrol. 32 % of all traffic accidents had an unwanted effect on environment.

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Trends and state without the	Traffic safety:	Trend: Air, sea, railway and road traffic is increasing. Road network is getting
implementation of OP	The number of car accidents is decreasing and the number of casualties is	thicker an more modern as number of people using cars for transport is still
	stagnating. The increase of the number of passengers in the public transport	increasing. Number of people using railway is decreasing. Number of
	system is estimated to 2% per year (private and public vehicles). The share	passengers using public transport is decreasing.
	of freight road traffic is increasing more rapidly than the railway freight	
	traffic; the increase is estimated to 4% per year. The number of newly	The situation will follow the trends.
	constructed and reconstructed roads is increasing (the construction of the	
	motorway network, bypasses, etc.). The number of passengers is decreasing;	
	there are innovative initiatives to revive city traffic (Koper).	
	The situation will follow the trends.	

Issue:	Noise	
Country	Slovenia	Croatia
Current state	City centres and areas at main traffic routes are polluted with noise.	Noise pollution is not monitored in Croatia and it is not demanded by the legislation.
Trends and state without the	Noise will increase with the expansion of activities.	Noise will increase with the expansion of activities.
implementation of OP		

Issue:	Energy	
Country	Slovenia	Croatia
Current state	<ul> <li>Energy efficiency:</li> <li>Energy intensiveness in 2004: 215 toe/mio. EUR</li> <li>Energy intensiveness in 2005: 296 toe/mio. EUR high energy intensiveness – according to the level of economic development the consumption is much greater than in the EU.</li> <li>Approximately 40 CHPs to the Slovene industry, public sector and distance-heating sector: gas engines, steam turbines. Annual production of electrical energy (measured at power plants) is 810 GWh (= 310 GWh CHP in the industry, 90 GWh CHP), in distance-heating systems excluding the TE-TOL.</li> <li>Renewable energy resources:</li> <li>% of production of electrical energy from all renewable energy resources per entire production of electrical energy in 2004: 27.7 %, in 2005: 23,7%;</li> <li>% of production of electrical energy from all renewable energy resources per gross consumption of the electrical energy in 2004: 29.1%; in 2005: 24,2%;</li> <li>Share of all renewable energy resources in the available primary energy: 8.8% in 2001 – hydroelectric power stations, biomass,</li> <li>Currently used 3,970 GWh/year (=50%) of the economically available potential of Slovene water streams,</li> <li>28 natural sources of geothermal water,</li> <li>48 drill sites - 10th place in Europe in the power from geothermal system,</li> </ul>	<ul> <li>Energy efficiency:</li> <li>Energy intensiveness in 2003: 270,6 toe/1990 MECU</li> <li>Energy intensiveness in 2004: 2,63 MJ/kn97 which is 20% above the EU average.</li> <li>Annual production of electrical energy amounts to 11.069 GWh in 2004: 7.001 GWh in hydro electric power plants, 4.068 GWh steam power plants.</li> <li>Renewable energy resources:</li> <li>the share of renewable electricity in gross electricity consumption in 2004: 48.66%. It has been fluctuating between 35 and 52% since 1999, depending on hydrological conditions.</li> <li>In 2004, 48.62% of total consumption in Croatia accounted for renewable electricity produced by hydroelectric power plants. Only 0.04% of electricity comes from other renewable energy resources (wind, biomass).</li> <li>21 hydroelectric power plants are in operation in Croatia</li> <li>Other types of renewable electricity are: sun (12.63 MWh), wind (1.96 GWh), biomass (4 GWh) and small-hydro plants (126.3 GWh). The share of these renewable electricity sources (sun, wind, biomass, small hydro) is only 1.84%.</li> <li>Renewable energy consumption ranges between 9 and 11% of total inland energy consumption. The most important sources of renewable energy are hydropower and biomass, and wind power since 2004.</li> <li>Shares of different renewable energy resources in total energy consumption: biomass 4,3%, wind energy 0,0023%, hydro energy 6,9%</li> </ul>

	• Development of solar thermal systems (sanitary water): 6th place in	
	Europe.	
	Energy efficiency:	Energy efficiency:
	Economic growth $\rightarrow$ the increase of electrical energy consumption faster than the increase of GDP energy intensiveness falls slightly (2000, 2005)	a consumption consequently energy intensiveness is decreasing
	Smaller CHP systems are being introduced mostly due to the needs of	• trand of doorpaging apargy intensiveness in 1002 2004 pariod
	individual industrial plants	<ul> <li>slightly increasing trend in energy production in 2000 2004 period.</li> </ul>
	Continued increase of general energy consumption improved energy	Continued increase of general energy consumption improved energy
	efficiency in companies due to adjustments to the environmental legislation.	efficiency in companies due to adjustments to the environmental legislation
	environment management systems, spread of innovations and wide use of	and introducing of new technologies (e.g. Increasing trend in use of gasses in
	BREF documents.	energy production units).
	CHP systems would slowly spread, especially in the industry sector at the	Renewable energy resources:
	level of medium-sized businesses; it is not likely there would be connections	Hydropower has the biggest share in renewable energy consumption. Since it
	between businesses - energy resources - and the inhabitants - potential	is highly dependent on hydrological conditions, an expected decrease in supply
Trends and state without the	consumer of the energy.	and consumption was observed in dry years (e.g. 2002).
implementation of OP	Renewable energy resources:	More than half of electric energy in Croatia is generated at hydroelectric power
	Increased use of biomass, a chain of hydroelectric power plants is planned.	plants.
	% of production of electrical energy from all renewable energy resources	Share of renewable energy in total production of energy is increasing: wind
	was on the decrease until 2003. In 2004 it was on the increase (by $5.4\%$ ) that	parks, production of bio-fuel and building new hydroelectric power plants.
	again turned into 4 % decrease in 2005. % of consumption of electrical	Positive trend in renewable energy consumption in recent years. For the period
	Increase by $7\%$ in 2004 turned into a 4.0% decrease in 2005.	1998 to 2001 the share of renewable energy consumption in total energy
	Continued increase of biomass and solar energy consumption especially	consumption was over 10% followed by a fall under 10% for a very dry period
	due to energy crisis and more accessible technology, new energy resources	in 2002 and 2003 due to poor hydrological conditions in these two years. In
	would appear - new hydroelectric power plants perhaps windmills import	2004, the share of renewable energy raised again over 10%.
	of energy after the electro-distributional network has been completed	energy production from renewable resources
		Energy efficiency fond represents the basis for the financial support of energy
		efficiency programmes.

Issue:	Waste	
Country	Slovenia	Croatia
	While most of waste produced by companies in Slovenia is internally	In 2004 there were 73 sorting and recycling centres in Croatia, 3 centres for
	recycled (60 % in 2002), most of municipal waste is disposed on municipal	bio-degradable waste, 30 thermal treatment facilities for waste disposal, 2
	waste disposal sites (90% in 2002). Some of waste is also incinerated or	chemical and physical treatment facilities for waste disposal, 283 active
	exported out of Slovenia. In the last two methods of disposal share of	municipal waste disposal sites of which 187 have legal permits for operation.
	dangerous waste is very high, as there is only one operational disposal site	Only a small number of municipal waste disposal sites currently in use meet
	for dangerous waste in Slovenia. On the other hand around 60,000 t of waste	the required standards. Municipal waste disposal sites are in general badly
Current state	is imported and recycled on yearly basis. In the last few years more of	equipped and only minimal safety measures are carried out. Monitoring of
	municipal waste is recycled, and the network of gathering stations for paper,	such facilities is rare. Only a small number of municipal waste disposal sites
	glass, packing materials and biodegradable waste is getting denser -	have been sanitised so far. Number of so called "illegal waste dumping sites"
	especially in big cities. A serious problem of finding new municipal waste	is not known. 363,889 t of non-hazardous waste was exported from Croatia in
	disposal sites and updating the old ones is being tackled. Slovenia intends to	2004 (metals represented 84%), manly to Slovenia and Italy. In the same year
	build a network of regional municipal disposal sites, but most of their	265,265.39 t of non-hazardous materials was imported, manly paper, cardboard
	locations are still not known.	and materials used in production of cement.

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ако пяще. % от пипаоналия писниси пи рионе waste сонесние ани чизрозние	I THE SITUATION WOULD TO LIOW LIFE LIFERAS.	×
trend of increased waste production in recent years. Number of disposed cars is		Trends and state without the implementation of OP
Industry, 2,3/1 t of waste was recovered.	ابت محتمد مليت منبع المتصمية مليمين المستعد لمحتمد مليم سنال المصمين	
• Istarska – 96,400 t of municipal waste, 1,270.29 t of dangerous waste from		
dangerous waste from industry, 9,699 t of waste was recovered.		
• Primorsko-goranska - 114,984 t of municipal waste, 9,075.86 t of		
from industry, 2,720 t of waste was recovered.		
• Karlovačka - 37,174 t of municipal waste 1,557.50 t of dangerous waste		
waste from industry, 47,693 t of waste was recovered.		
• City of Zagreb – 311,749 t of municipal waste, 4,465.43 t of dangerous		
from industry, 29,883 t of waste was recovered.		
• Zagrebačka – 81,181 t of municipal waste 1,628.64 t of dangerous waste		
waste from industry, 1,254 t of waste was recovered.		
• Krapinsko-zagorska – 30,640 t of municipal waste, 1,410.61 t of dangerous		
from industry, 4,539 t of waste was recovered.		
• Vraždinska - 40,206 t of municipal waste, 413.08 t of dangerous waste		
from industry, 841 t of waste was recovered.		
Production of waste in regions in cooperation area in 2005:		
in 2004.		
• It was estimated, that in Croatia 44,362 t of waste was produced by tourism		
waste disposal sites in cooperation area.		
waste. In 2004 609,400 tons of municipal waste was disposed at municipal	danoerons waste from industry 4.647 t of waste waste volled	
residents are included in public system of collecting and disposing of	<ul> <li>Ocredinically waste - 212 211 t of municipal waste 32 047 t of</li> </ul>	
• In regions of cooperation area in Croatia between 70% and 100% of	<ul> <li>Obalno-kraska – 51,80/ t of municipal waste, 0,4/5 t of dangerous waste from industry 1716 t of waste was recycled</li> </ul>	
$-1$ 100000000 01 10000000 waste pet magnante pet jean 100 Cloana 10 2007 was $-305  \mathrm{kg}$	waste, 239 t of waste was recycled.	
<ul> <li>Siles all over Croatia.</li> <li>Droduction of municipal works per hobitont per veer in Croatia in 2004 was</li> </ul>	• Notranjsko-kraška – 21,583 t of municipal waste, 1,143 t of dangerous	
• In 2004, 1.04 mio. tons of waste was disposed at municipal waste disposal	dangerous waste from industry, 352 t of waste was recycled.	
included in the public system of waste gathering and disposal.	• Jugovzhodna Slovenija – 42,363 t of municipal waste, 4,022 t of	
• In 2004 around 231,209 t (18%) of municipal waste in Croatia was not	waste from industry, 2,094 t waste was recycled.	
increased to 1.412 mio. tons.	• Snodnienosavska – 26 203 t of municipal waste 4 202 t of danoerous	
27,000 t of waste were recycled. In 2005 production of municipal waste	from industry. 450 t of waste was recycled.	
• In 2004 1.31 min. tons of municipal waste was produced in Croatia and	from industry, 11,612 t of waste was recycled.	
36,2/3 in 2003. 12,803 t of hazardous waste was exported in 2004 from	• Podravska – 131,688 t of municipal waste, 50,303 t of dangerous waste	
Croatia 42,419 t of technological hazardous waste was produced in 2004 and	from industry, 83 t of waste was recycled.	
locations of their production are the only ways of treating hazardous waste. In	• Pomurska – 31,814 t of municipal waste, 12,459 t of dangerous waste	
facilities; there fore export of such materials abroad and permanent storage at	Production of waste in regions in cooperation area in 2005:	
Croatia currently doesn't have any hazardous waste treatment and disposal	sites all over Slovenia.	
only city of Zagreb has a system for collecting biodegradable waste.	• In 2005, 633,239 tons of waste was disposed at municipal waste disposal	
2004. While paper, glass and plastic are separately collected all over Croatia,	35,096 t of waste were recycled.	
System of gathering waste for recycling was well developed in Croatia in	• In 2005 797,721 tons of municipal waste was produced in Slovenia and	

system is increasing. Treatment of hazardous waste does currently not exist.
System of collecting and recycling of waste is developed and is still growing.
Waste disposal sites are badly equipped and many of them still operate without
proper legal permits.
The situation would follow the trends.

# 4.2 State of the environment with environmental indicators

#### **Table 3: State of the Environment in Indicators**

Indicator	State of indicator in	State of indicator in Croatia
Total GHG emissions on national level	<ul> <li>without LULUCF (Land Use, Land Use Change and Forestry) in 2005 - 20.283,613 (in CO<sub>2</sub> equivalent (Gg));</li> <li>with LULUCF (Land Use, Land Use Change and Forestry) in 2005 - 14.853,243 (in CO<sub>2</sub> equivalent (Gg));</li> </ul>	<ul> <li>without LULUCF (Land Use, Land Use Change and Forestry) in 2004 in Croatia – 29,432 kt (in CO<sub>2</sub> equivalent);</li> <li>with LULUCF (Land Use, Land Use Change and Forestry) in 2004 in Croatia – 13,111 kt (in CO<sub>2</sub> equivalent);</li> </ul>
Emissions of $SO_2$ , $NO_x$ , PM10, Pb, CO, $O_3$ , NMVOC and benzene.	<ul> <li>Emission of air pollutans in Slovenia (2004) {for the planning region no data available}:</li> <li>SO2: 54,121 t. tons</li> <li>NOX: 57,502 t. tons</li> <li>PM10: 9,1 t. tons</li> <li>CO: 82,166 t. tons</li> <li>NMVOC: 46,207 t. tons</li> </ul>	$\label{eq:scalar} \begin{array}{l} \text{Medimurska region (in 2005)} - \text{total emissions:} \\ \bullet & SO_2 - 3.4 \text{ t} \\ \bullet & NO_2 - 22.3 \text{ t} \\ \bullet & PM10 - / \\ \bullet & Pb \text{ in PM10} - / \\ \bullet & CO - 34.7 \text{ t} \\ \bullet & O_3 - / \\ \hline & Benzene - / \\ \hline & Varaždinska region (in 2005) - \text{total emissions:} \\ \bullet & SO_2 - 116.51 \text{ t} \end{array}$
	• Pb: 14,44 t. tons	• $NO_2 - 335.09 t$ • $PM10 - /$ • $Pb \text{ in } PM10 - /$ • $CO - 1,846.71 t$ • $O_3 - /$ • Benzene - 0,012 t
		Krapisnko-zagorska region (in 2005) – total emissions: • $SO_2 - 115.41 t$ • $NO_2 - 222.72 t$ • $PM10 - /$ • Pb in PM10 - 3,66 t • $CO - 80,437.80 t$ • $O_3 - /$ • Benzene - 6,2 t
		Zagrebačka region (in 2005) – total emissions: • $SO_2 - 229.73 t$ • $NO_2 - 304.45 t$ • $PM10 - /$ • $Pb$ in $PM10 - /$ • $CO - 590.80 t$ • $O_3 - /$ • Benzene - 0.18 t
		City of Zagreb (in 2005) – total emissions: SO <sub>2</sub> – 6,019.18 t NO <sub>2</sub> – 5,192.32 t PM10 – / Pb in PM10 – / CO – 2,308.5 t O <sub>3</sub> – / Benzene – /

Indicator	State of Slovenia	indicator	in	State of indicator in Croatia	
	Slovenia			Karlovačka region (in 2005) – total emissions: SO <sub>2</sub> – 9,257.85 t NO <sub>2</sub> – 522.99 t PM10 – / Pb in PM10 – / CO – 616.99 t O <sub>3</sub> – / Benzene – / Primorsko-goranska region (in 2005) – total emissions: SO <sub>2</sub> – 13,004.92 t NO <sub>2</sub> – 3,005.33 t PM10 – / Pb in PM10 – / OCO – 686,.55 t O <sub>2</sub> = /	
				<ul> <li>O<sub>3</sub> - / Benzene - / Istarska (in 2005) - total emisions:</li> <li>SO<sub>2</sub> - 323,51 t</li> <li>NO<sub>2</sub> - 1,023.31 t</li> <li>PM10 - /</li> <li>Pb in PM10 - /</li> <li>CO - 35.92 t</li> <li>O<sub>3</sub> - /</li> <li>Benzene - /</li> </ul>	
	Surface groundwater to the Wa Directive	water status rela ter Framew	and ated ork	The total renewable amounts of groundwater are km <sup>3</sup> / year           Renewable amounts of underground water           Area         Alluvial aquifers         Carbonate aquifers         Tot	9.13 al
Quantity of water in aquifer				Image: Black         Sava basin         1198,3         653,8         1.85           sea         Drava and basin         802         7,8         810           dasin         Dunav basin         2.639,5         2.63           Adriatic         Primorska- sea         -         2.639,5         2.63           basin         Dalmatia         -         3.831,3         3.83           Basin         -         2.066.0         7.132.4         0.13	2,1 ),4 9,5 1,3

Water         Consumption         per per per per per per per per per per	Indicator	State of Slovenia	indicator	in	in State of indicator in Croatia						
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Water     Consumption     per (analysis)     No data available       Water     consumption     per (analysis)     per (analysis)     no data available       Water     consumption     per (analysis)     per (analysis)     no data available       Water     consumption     per (analysis)     no data available       Water     no data available     no data available       Number     of nature     No data available       Number of     nature     No data available       Number of     nature     No data available       Number of     nature     No data available       Podravska region: In     2004     70.6 years for men and 79.2 for women       Podravska region: In     2004     70.6 years for men and 79.2 for women       Swinjka region: In     2004 73.6 years for men and 79.2 for women       Noth 74.0 years for men and 79.2 for women     Nortanjikak-raška region: In       Nodata 79.7 for women     Nortanjikak-raška region: In       Noth 74.0 years for men and 80.8					Sveti Anton	I	III	Ш	Ш		
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Indicator	State of indicator in Slovenia	State of indicator in Croatia
	Podravska region: In 2005 3 639 mio SIT	
	Savinjska region: In 2005	
	Spodnje-posavska region: In 2005 7 696 mio_SIT	
	Jugovzhodna Slovenija	
	region: In 2005 884 mio. SIT.	
	Osrednje-slovenska region: In 2005 299 mio. SIT	
	Notranjska-kraška region: In 2005 43 mio. SIT	
	Obalno-kraška region: In 2005 259 mio. SIT	
Share of population exposed to noise	No data available	No data available
Number of passengers in public transport	No data available	No data available
Number of new public transport routes	No data available	No data available
% of production of electrical from all renewable energy		
resources per entire production of electrical	In 2005 23,7%	In 2004 48,66%
energy	Pomurska region: In 2005	Međimurska region: In 2005 24,533 t
	31,814 t	V
	Podravska region: In 2005 131,688 t	v razainska region: in 2005 40,206 t
	Savinjska region: In 2005 100,846 t	Krapisnko-zagorska region: In 2005 30,640 t
Total amount of municipal	Spodnje-posavska region: In 2005 26,203 t	Zagrebačka region: In 2005 81,181 t
waste produced	Jugovzhodna Slovenija region: In 2005 42,363 t	City of Zagreb region: In 2005 311,749 t
	Osrednje-slovenska region: In 2005 212,211 t	Karlovačka region: In 2005 37,174 t
	Notranjska-kraška region: In 2005 21,583 t	Primorsko-goranska region: In 2005 114,984 t
	Obalno-kraška region: In 2005 51,807 t	Istarska region: In 2005 96,400 t
Total amount of hazardous waste produced by industry	Pomurska region: In 2005 12,459 t	Međimurska region: In 2005 300.52 t
	Podravska region: In 2005 50,303 t	Vraždinska region: In 2005 413.08 t
	Savinjska region: In 2005 4,202 t	Krapisnko-zagorska region: In 2005 1,410.61 t
	Spodnje-posavska region: In 2005 412 t	Zagrebačka region: In 2005 1,628.64 t
	Jugovzhodna Slovenija region: In 2005 4,022 t	City of Zagreb region: In 2005 4,465.43
	Osrednje-slovenska region: In 2005 32,047 t	Karlovačka region: In 2005 1,557.50 t
	Notranjska-kraška region: In 2005 1,143 t	Primorsko-goranska region: In 2005 9,075.86 t

Indicator	State of indicator in Slovenia	State of indicator in Croatia		
	Obalno-kraška region: In 2005 6,475 t	Istarska region: In 2005 1,270.29 t		
	Pomurska region: In 2005 83 tons	Međimurska region: In 2005 841 t		
	Podravska region: In 2005 11,612 tons	Vraždinska region: In 2005 4,539 t		
	Savinjska region: In 2005 450 t	Krapisnko-zagorska region: In 2005 1,254 t		
Total amount of municipal waste recycled (Slovenia) / recovered (Croatia)	Spodnje-posavska region: In 2005 2,094 t	Zagrebačka region: In 2005 29,883 t		
	Jugovzhodna Slovenija region: In 2005 352 t	City of Zagreb region: In 2005 47,693 t		
	Osrednje-slovenska region: In 2005 4,647 t	Karlovačka region: In 2005 2,720 t		
	Notranjska-kraška region: In 2005 239 t	Primorsko-goranska region: In 2005 9,699 t		
	Obalno-kraška region: In 2005 1,716 t	Istarska region: In 2005 2,371 t		
	Pomurska region: In 2005 29,970 t	Međimurska region: In 2004 48,652 t		
	Podravska region: In 2005 55,712 t	Vraždinska region: In 2004 748,162 t		
	Savinjska region: In 2005 79,834 t	Krapisnko-zagorska region: In 2004 15,101 t		
Total amount of municipal	Spodnje-posavska region: In 2005 22,464 t	Zagrebačka region: In 2004 63,069 t		
waste disposal sites	Jugovzhodna Slovenija region: In 2005 40,021 t	City of Zagreb region: In 2004 354,146 t		
	Osrednje-slovenska region: In 2005 189,551 t	Karlovačka region: In 2004 66,589 t		
	Notranjska-kraška region: In 2005 20,596 t	Primorsko-goranska region: In 2004 130,570 t		
	Obalno-kraška region: In 2005 46,786 t	Istarska region: In 2004 146,077 t		

# 4.2 Protected and degraded areas

In Slovenia protection areas are determined by the laws and there corresponding regulations:

- Nature Conservation Act (Official Gazette of the RS, No. 96/04),
- Spatial Planning Act (Official Gazette of the RS, No. 33/2007),
- Cultural Heritage Protection Act (Official Gazette of the RS, No.7/99),
- Water Act (Official Gazette of the RS, No.67/02, 2/04),
- Forest Act (Official Gazette of the RS, No.30/93, 13/98, 24/99, 56/99, 67/02, 110/02),
- Agricultural Land Act (Official Gazette of the RS, No 55/03).

In Slovenia there is a great number of protected areas (nature, water sources, forests with a special purpose, cultural heritage, etc.). In the Figure 3 just the areas of nature protection in Slovenia are presented, since it does not make sense to present all of them, due to the great quantity of different protected areas in the country.

## Figure 3: The areas of nature protection in Slovenia



Protection of areas in Croatia is determined by the laws and there corresponding regulations:

- Law on Nature protection (Official Gazette of Republic Croatia, No. 70/05),
- Law on forestry (Official Gazette of Republic Croatia, No. 140/05),
- Law on Genetically modified organism (Official Gazette of Republic Croatia, No. 70/205),

- Law on Game hunting (Official Gazette of Republic Croatia, No. 140/05),
- Law on forestry seed and reproductive materials (Official Gazette of Republic Croatia, No. 140/05),
- and other international legislative which Republic of Croatia is a part.

The representation of nature protected areas in Croatia can be seen on the Figure 4 and proposed areas for Natura 2000 on the Figure 5.

#### Figure 4: The areas of nature protection in Croatia





#### Figure 5: Areas proposed for Natura 2000 in Croatia

In the programming area there are the following protected and conservation areas: There are 351 protected areas and 795 protected sites in cooperation area.

In Slovenia the situation is as follows:

- **Regional park:** Kozjanski park, Regijski park Škocjanske jame, Notranjski regijski park
- Landscape parks: Mašun, Krajinski park Šturmovec, Krajinski park Jareninski dol, Krajinski park Drava, Krajinski park Rački ribniki Požeg, Planina-območje, Planinsko polje, Planinska jama, Markova jama v Nartu, Škratovka, Izviri v Malnih, Unška koliševka, Krajinski park Kum, Krajinski park Kamenščak Hrastovec, Krajinski park Jeruzalemsko Ormoške gorice, Krajinski park Lahinja, Krajinski park Ponikovski kras, Rakova kotlina pri Rakeku (Rakov

Škocjan), Robanov kot, Logarska dolina, Južni in zahodni obronki Nanosa, Krajinski park Goričko, Beka - soteska Glinščice z dolino Griža, ponornimi jamami in arheološkimi lokalitetami Lorencom in grad nad Botačem, Sečoveljske soline, Tivoli, Rožnik in Šišenski hrib, Krajinski park Strunjan, Zajčja dobrava, Krajinski park Žabljek, Sečoveljske soline, Krajinski park Boč-Donačka gora, Krajinski park Štatenberg, Krajinski park Negova in Negovsko jezero, Krajinski park Mariborsko jezero, Štanjel, Nanos - južna in zahodna pobočja z vrhovi Pleše, Grmade in Ture, Krajinski park ljutomerski ribniki in jeruzalemske gorice, Okolja spomenikov NOV, Logarska dolina, Krajinski park Kolpa, Spominski park revolucionarnih tradicij občine Domžale, Krajinski park Mrzlica, Boč, Plešivec, Golte, Polhograjski Dolomiti.

- Nature reserves: Naravni rezervat Lahinjske luge, Rastišče rumenega sleča, Pragozd Gorjanci, Melišče pod Planjavo, Notranjski Snežnik, Gozdni, delno pragozdni rezervat Boč Plešivec, Gozdni rezervat Boč, Pragozdni rezervat Šumik, Mali Rožnik, Naravni in gozdni rezervat Zlatoličje, Koračica, Mali plac, Naravni rezervat Strunjan Stjuža, Naravni rezervat Strunjan, Mostec, Šodergraben, soteska s slapom in jamami geomorfološki rezervat, Gozdni rezervat Gradišče, Orlek Orleška draga, Naravni rezervat Nerajske luge, Meljski hrib, Naravni rezervat Struga, Hrastov gozd v Krakovem pri Kostanjevici, Barski gozd na Ljubljanskem barju, Gozdni rezervat greben Rogle (gozdovi in travišča), Gozdni rezervat Škrabarca, Leneš, območje osamelega krasa geomorfološki rezervat, visoko barje Jezerc pri Ostrem vrhu, Škocjanski zatok, Štatenberško borovje, gozd in Šotno barje, gozdni rezervat Črno jezero na Pohorju, Gozdni rezervat Cigonca, Potok Bičje in močvirski biotope, Notranjski Snežnik, Rezervat Ormoško jezero, Škocjanski zatok, Pragozd Ravna gora, Pragozd Pečke, Naravni rezervat Ribniki Podvinci, Pragozdni rezervat na Donački gori (Rogaški) in Reseniku, Greben Smrekovec-Komen, ribnik Vrbje z zaledjem.
- Natura 2000 areas: There are 203 Natura 2000 sites in cooperation area 182 of them are pSCI and 21 SPA areas.
- **Important ecological areas:** There are 201 important ecological areas in cooperation area.
- **Flood areas**: 223 flood areas along rivers Mura, Drava, Dravinja, Pesnica, Ščavnica, Ledava and their tributaries;
- Drinking water protection areas: 16 bodies of underground waters (Savska kotlina in Ljubljansko barje, Savinjska kotlina, Krška kotlina, Kamniško Savinjske Alpe, Posavsko hribovje do osrednje Sotle, Spodnji del Savinje do Sotle, Kraška Ljubljanica, Dolenjski kras, Dravska kotlina, Murska kotlina, Obala in Kras z Brkini, Gorišla brda in Trnovski gozd Banjška planota), on which most of drinking water protection areas are situated.
- Areas of anti-erosion measures: 3 types of areas of anti-erosion measures areas of ordinary anti-erosion measures with total area of 3,807.35 km<sup>2</sup>, areas of intense anti-erosion measures with total area of 3,098.18 km<sup>2</sup> and areas of strict anti-erosion measures with total area of 71,10 km<sup>2</sup>;
- Cultural heritage objects and areas: In 2005 the number of cultural heritage objects in cooperation area was 14,497, there were 11,594 cultural heritage areas and 42 areas of complex protection of cultural heritage.
- Forests with a special purpose: such a land is protected against the changes of land use according to the Agricultural Land Act (Official Gazette of the RS, No 55/03) and the Spatial Planning Act (Official Gazette of the RS, No. 33/07),
- **Best agricultural land:** land falling within such category is protected from change of designated land use with the Law on agricultural land (Zakon o kmetijskih zemljiščih (Ur.l. RS, št. 55/03-UPB)) and Law on spatial planning (Zakon o prostorskem načrtovanju (Ur.l. RS, št. 33/07)).

# 4.3 Legal regimes in the protected areas

Legal regimes in the programming area are determined by the following legislation: *Slovenia:* 

- Decree on Natura 2000 areas (Official Gazette of the RS, No. 49/04, 110/04),
- Decree on the categories of valuable natural features (Official Gazette of the RS, No. 52/02, 67/03),
- Decree on ecologically important areas (Official Gazette of the RS, No. 48/04),
- Rules on the designation and protection of valuable natural features (Official Gazette of the RS, No.111/04, 70/06),
- o Decree on the Goričko Landscape Park (Official Gazette of the RS, No. 101/03),
- Other Landscape parks and natural reserves- protected with municipal decrees,
- Drinking water protection areas protected with municipal decrees and decrees on the state level (only in Maribor),
  - Decree on determining the drinking water protection area for the Apaško polje body of water (Official Gazette of the RS, No. 59/07),
  - Decree on the water protection zone for the aquifer of Selniška Dobrava (Official Gazette of the RS, No. 72/06),
  - Decree on determining the drinking water protection area for the Dravsko Ptujsko polje body of water (Official Gazette of the RS, No.59/07),
  - Decree on the water protection zone for the aquifers of Ruše, Vrbanski plato, Limbuška dobrava in Dravsko polje (Official Gazette of the RS, No. 24/07),
- Cultural heritage objects and areas protected with municipal decree

#### Croatia:

- Strategy and Action plan on biodiversity and landscape protection (Official Gazette of Republic Croatia, No. 81/99)
- Convention on wetlands Ramsar (www.ramsar.org)
- Convention on biological diversity (www.biodiv.org)
- The Agreement on the Conservation of African-Eurasian Migratory Water birds (also known as AEWA or African-Eurasian Water bird Agreement)
- o Convention on the Conservation of European Wildlife and Natural Habitats
- Convention on International Trade in Endangered Species of Wild Flora and Fauna (www.cites.org)
- World Heritage Convention (whc.unesco.org)
- European Landscape Convention
- Council Directive 79/409/EEC on the conservation of wild birds
- Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora

## 5. THE PROGRAMME ENVIRONMENTAL OBJECTIVES, CRITERIA AND ASSESSMENT METHODS

## **5.1** Environmental objectives of the programme

Environmental objectives of the Cross border Cooperation Operational Programme Slovenia- Croatia 2007-2103 are not specified. The Operational Programme only generally mentions the reduction of the effects on the environment and actions to improve the state of the environment. Therefore, we defined the environmental objectives on the basis of the state of the environment and strategic national documents in Slovenia and Croatia.

Environmental objectives are shown in Table 4 (Environmental objectives of the programme in the cooperation area).

		Slovenia			Croatia	
Issues	Environmental objective	Reference point/Source for the given objectives	Explanation of environmental objective	Environmental objective	Reference point/Source for the given objectives	Explanation of environmental objective
Climate change	Decrease of	Slovene National	The objective is transposed	Decrease of	National Strategy for	The objective is
	greenhouse	Environmental	from NEAP because of its	Decrease of	implementation of	transported from
	emissions by 8% in	Action Plan (NEAP)	importance.	greenhouse emissions	UNFCCC and Kyoto	National Strategy
	the period 2008-	2005 – 2013 taken	The objective was also	by 5% in the period	protocol with	because of its
	2012 according to	after Kyoto protocol	defined because of the	2008-2012 according	operational	importance.
	the 1986		activities in the programme.	to the basic year(not	programme	The objective was also
				defined jet)		defined because of the
						activities in the
						programme.
Air	Attaining	Slovene National	The main problem, in the	Reducing emission of	The Energy Strategy	The objective is
	margin/target	Environmental	programme area, is with	NO <sub>x</sub> , SO <sub>2</sub> , PM <sub>10</sub> , CO <sub>2</sub>	of Croatia	transported from
	values for $NO_x$ ,	Action Plan (NEAP)	attaining margin/target values			Energy Strategy of
	SO <sub>2</sub> , PM <sub>10</sub> , NO <sub>2</sub>	2005 - 2013	for $PM_{10}$ and $O_3$ . Because of	Decrease of emissions		Croatia because of the
	and Pb, CO and for		the activities in the	from traffic, thermal	Croatian National	activities in the
	benzene and ozone		programme we also included	power plant, district	Environmental Plan	programme.
			other air pollutants (listed in	heating plant,	(NEAP)	
			the objective).	household, decrease of		
				green gas emission,		
				decrease of sources		

#### Table 4: Environmental objectives of the programme in the cooperation area.

		Slovenia			Croatia	
Issues	Environmental objective	Reference point/Source for the given objectives	Explanation of environmental objective	Environmental objective	Reference point/Source for the given objectives	Explanation of environmental objective
				from photochemical smog and ozon, banding the use of components that harm ozon layer		
Water	Good surface and ground water quality according to the Water Framework Directive 2015 Good sea water	Slovene National Environmental Action Plan (NEAP) 2005 – 2013 2000/60/EC Water framework	The objective is transposed from NEAP because of its importance. We want to improve the state of surface and ground waters, especially the quality of water. The objective was formed because of its importance. We want to improve the state of sea water quality.	To obtain good state of the water (protection of water and water ecosystem) Rational management of the biological resources, decrease pollution form wastewaters, sea transport	Water management Strategy of Croatia Water management Strategy of Croatia	The objective is transported from Strategy of water management Goal is to improve the state of waters. The objective is transported from Strategy of water management. We want to stress the importance of sustainable handling of see water as one of the most important
	Good bathing water (sea and surface)	-	The objective was formed because of its importance. We want to improve the state of good bathing water.	Preservation good quality of sea water for bathing, recreation and sea food production	Croatian National Environmental Plan (NEAP)	natural resource. The objective was formed because of its importance. We want to improve the state of bathing water -

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		Slovenia			Croatia	
	Fnvironmental	Reference	Fvnlanation of	Fuvironmental	Reference	Explanation of
Issues	objective	point/Source for the given objectives	environmental objective	objective	point/Source for the piven ohiectives	environmental ohiective
	Safety of the water	Slovene National	The objective is transposed	To assure sufficient	Water management	The objective is
	body quantity (e.g.	Environmental	from NEAP because of its	quantities of good	Strategy of Croatia	transported from
	abstraction, public	Action Plan (NEAP)	importance.	drinking water for	;	Strategy of water
	water supply or	2005 - 2013	There is a great pressure on	water supply demands		management Goal is to
	beverage		quantity of water in the			improve the state of
	production)		aquifer in the programme area We want to stress the			water and the state of
			importance of sustainable			
			handling of ground water sources			
	Improvement of		The objective Good surface	Examination of	Spatial Planning	The first objective is
	hydro		and ground water quality	morphological	Programme	transported from
	morphological		according to the Water	characteristics	•	Spatial Planning
	characteristics		Framework Directive 2015 is		Water management	Programme. The
			aiming at good quality of	Preserve existing	Strategy of Croatia	objective is important
			water, but we also wanted to	biological biodiversity	2	for further activities as
			stress the importance of	and characteristics of		improvement.
			hydro morphological	sea shores and island.		The second objective
			characteristics of rivers and			is taken from Water
			streams.			management Strategy
						of republic of Croatia.
						The objective is very
						important for
						preserving natural
						resources and natural heritage.
Noise	Reduce the share of	Slovene National	The objective is transposed	Creation of noise maps	Croatian National	þ
	population exposed	Environmental	from NEAP because of its	and establish the no. of	Environmental Plan	The objective is
	to noise	Action Plan (NEAP)	importance.	people exposed to noise	(NEAP)	formed according to
		2005 - 2013	The objective was also			the NEAP,
			defined because of the activities in the mooramme			
Resources	Rational use of	Agricultural Land	We wanted to stress the	Conservation and	Croatian National	The objective is
	natural resources	Act,	importance of rational use of	sustainable use of	Environmental Plan	transported from
	(tana, minerat	INAUUIIAI	natural resources.	naturat resources	(INEAL)	INEAF DECAUSE OF ILS

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		Slovenia			Croatia	
Issues	Environmental objective	Reference point/Source for the given objectives	Explanation of environmental objective	Environmental objective	Reference point/Source for the given objectives	Explanation of environmental objective
	goods, fossil fuel)	Spatial Planning Act, Programme draft for mineral resources	As natural resources we understand land, mineral goods and fossil fuel which needs to be used in sustainable manner and according to the needs. Agricultural land should be protected as much as possible for future agricultural use.			importance. With this objective we want to stress the importance of rational use of natural resources.
Soil	Soil protection against pollution and erosion	6 <sup>th</sup> Environmental Acton Programme	The objective is transposed from 6 <sup>th</sup> EAP because of its importance. In the programme area there are also areas of anti-erosion measures.	<ul> <li>Establishment of soil monitoring system</li> <li>Prevention of forest soil degradation</li> <li>Prevention of chemical and physical degradation of soil on agricultural land</li> <li>Conservation of forest ecosystem</li> </ul>	Croatian National Environmental Plan (NEAP)	The objective is transposed from NEAP because of its importance.
Nature	Protect and restore habitats and natural systems and preserve biodiversity	Slovene National Environmental Action Plan (NEAP) 2005 – 2013	The objective is transposed from NEAP because of its importance. In the programme area there are areas of great biodiversity (Natura 2000 areas, special ecological areas).	To restore lost habitats and natural systems where it is possible and reasonable Conservation of marine biodiversity	The National Strategy and Action Plan for the Protection of Biological and Landscape Diversity Croatian National Environmental Plan (NEAP)	
Donuloting of a	Effective and integrated nature conservation in protected areas	Slovene National Environmental Action Plan (NEAP) 2005 – 2013	The objective is transposed from NEAP because of its importance. In the programme area there are protected areas (Goričko).	To preserve and to improve existing biological and landscape biodiversity	The National Strategy and Action Plan for the Protection of Biological and Landscape Diversity	With a bir time and
Population and	Accessibility	-	we wanted to stress the	To protect and improve	Strategic coherence	with objective we

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		Slovenia			Croatia	
Issues	Environmental objective	Reference point/Source for the given objectives	Explanation of environmental objective	Environmental objective	Reference point/Source for the given objectives	Explanation of environmental objective
health	(services, public		importance of accessibility in	Croatia's living	framework 2007-2013:	wanted to stress the
	transport)		all areas (health,	environment	Instrument for pre-	importance of healthy
			transportation, public		accession assistance	living environment.
		~	services,).			
	Decreased flood	Slovene National	The objective is transposed	Decreased flood risk	Spatial Planning	The objective is
	risk	Environmental	from NEAP because of its		Programme	transposed from
		Action Plan (NEAP)	importance.	Protection of	Watan mana an anti-	Spatial Planning
		2005 - 2015	flood risks in the programme	population and material ecoda from	Strate and of Creation	Programme because of
			nood risks in the programme	harmful water effects	Strategy of Croatia	There are also areas
			aica.	narmjui water effects		with flood risks.
Energy	Increase of energy	Slovene National	The objective is transposed	Increase energy	Croatian National	The objective is
	efficiency in all	Energy Programme	from National Energy	efficiency.	Environmental Action	transported from
	areas of energy		Programme because of its		Plan (NEAP)	NEAP because of its
	consumption		importance.	Change in technology		importance.
				due to energy and		
				product production in		
				sustainable manner.		
				Regeneration of old		
				installed in anargy		
				facilities		
	Increased use of	Slovene National	The objective is transposed	Increase percentage of	Strategic Development	The objective is
	the renewable	Energy Programme	from National Energy	renewable energy	Framework for 2006-	transported from
	energy sources	2	Programme because of its	sources in all business	2013	Strategic Development
			importance.	sectors, construction		Framework and the
			1.	and district heating		Energy Strategy of
				plant.		Republic Croatia
						because of its
				Promote the use of		importance.
				renewable energy		
				sources and	The Energy Strategy	
				ecologically	of Republic Croatia	
				sustainable		
<b>XX</b> 7 /		cth r		energy sources	XX7	
Waste	Decreasing	6 <sup>th</sup> Environmental	The objective is transposed	Decreasing quantities	Waste management	

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		Slovenia			Croatia	
Issues	Environmental objective	Reference point/Source for the given objectives	Explanation of environmental objective	Environmental objective	Reference point/Source for the given objectives	Explanation of environmental objective
	quantities of waste by approximately 20 % by 2010 and by 50 % by 2050 compared to 2000	Acton Programme	from 6 <sup>th</sup> EAP because of its importance.	of waste by approximately 20 % by 2010, comparing to 2000 Decreasing produced dangerous waste by approximately 20 % by 2010, comparing to 2000	Startegy	
Cultural	Revitalisation and	We wanted to stress	We wanted to stress the	Revitalisation of	Cultural Development	We wanted to stress
heritage and	restoration of	the importance of	importance of restoration and	cultural heritage	Strategy of Republic	the importance of
Landscape	cultural heritage	restoration and	revitalisation (to put objects		of Croatia –	restoration and
		revitalisation (to put	of cultural heritage in use) of		Programme for period	revitalisation (to put
		objects of cultural	cultural heritage.		2001-2007	objects of cultural
		heritage in use) of	The objective is formed			heritage in use) of
		cultural heritage.	according to the objective of			cultural heritage.
		The programme area	Resolution on National			The programme area is
		is fich with objects	2007 and objectives of the			rich with objects and
		and areas of cultural -	Spatial Planning Strategy of			heritage
			Slovenia and the Resolution			neritage.
			on National Environmental			
			Action Programme			
			The programme area is rich			
			with objects and areas of			
			cultural heritage.			

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	Slovenia				Croatia	
Issues	Environmental objective	Reference point/Source for the given objectives	Explanation of environmental objective	Environmental objective	Reference point/Source for the given objectives	Explanation of environmental objective
	Accessibility of cultural heritage and identification of educational potential	Resolution on National Programme for Culture 2004- 2007 (Official Gazette of RS, No. 28/04)	We wanted to increase accessibility (not only reconstruction of cultural heritage), strengthen the identification of cultural heritage and to support the use cultural heritage in educational purposes. In accordance to this the cultural heritage will be revived and the use and maintenance will be enabled.	Accessibility of culture heritage and identification of educational potential	_	We wanted to stress the importance of accessibility of cultural heritage .
	Preservation of elements that contribute to recognition of cultural landscape	_	We wanted to stress the importance of preservation of landscape heritage. The objective was formed in accordance to the Resolution on National Environmental Action Programme of Slovenia (NEAP) (Official Gazette of the RS, No.02/06), Spatial Planning Strategy of Slovenia (Official Gazette of the RS, No. 76/04; The programme area includes area of extraordinary landscape of Goričko.	Preservation of rural landscape	Spatial Planning Programme	We wanted to stress the importance of preservation of rural landscape and cultural heritage on rural areas.

Issues	Environmental objective
Climata shanga	Decrease of greenhouse emissions by 8% in the period 2008-2012
	according to the 1986
Air	Attaining margin/target values for $NO_x$ , $SO_2$ , $PM_{10}$ , $NO_2$ and $Pb$ , $CO$
	and for benzene and ozone
	Good surface and ground water quality according to the Water
	Framework Directive 2015
	Good sea water
Water	Good bathing water (marine and freshwater)
Watch	Safety and assurance of the water body quantity for water supply
	demands
	Improvement of hydro morphological characteristics (fresh waters,
	sea shores)
Noise	Reduce the share of population exposed to noise
Resources	Rational use and conservation of natural resources (land, mineral
	goods, fossil fuel)
Soil	Soil protection against erosion and pollution
	Protect and restore habitats and natural systems and preserve
Nature	biodiversity
	Effective and integrated nature conservation in protected areas
	Accessibility (services, public transport)
Population and health	Protection of population and material goods from harmful water
	effects (e.g.decreased flood risk)
	Increase of energy efficiency in all areas of energy consumption and
Energy	supply
	Increased use and promotion of the renewable energy sources
Waste	Decreasing quantities of waste by approximately 20 % by 2010 and
	by 50 % by 2050 compared to 2000
	Revitalisation and restoration of cultural heritage
	Accessibility of culture heritage and identification of educational
Cultural heritage and Landscape	potential
	Preservation of elements that contribute to recognition of cultural
	landscape

Table 5: Joint environmental objectives of the programme in the cooperation area

## 5.2 Criteria and methods for assessment of impacts

We assessed the impact of the programme on the environment in two steps.

In the <u>first step</u> we specified <u>impacts of the programme on the environment</u> on the basis of proposed activities for all three priority axis and two horizontal activities. On the basis of known characteristics of the proposed eligible activities we predicted what types of impacts could result from projects with such activities – e.g. whether the activities financed under a certain priority axis will increase water pollution, help conserve endangered habitats and species etc. Specification of the impacts is based on certain assumptions (on types of impacts of certain activity, the intensity of the impact of an activities (similar to those that are eligible within each axis) on the environment.

For each impact we assessed whether the impact will be direct, indirect, cumulative, permanent or temporary according to the following definitions. According to the *Decree laying down the content of environmental report and on detailed procedure for the assessment of the impacts on* 

certain plans and programmes on the environment (Official Gazette of the RS, no. 73/05) the following impacts needs to be assessed:

- <u>Direct impact</u>: occurs when the plan foresees an intervention into the environment which directly affects the relevant environmental indicators within the plan's area of effect. The established area of direct effect is determined on the basis of field measurements, details on the intervention into the environment and other material circumstances.
- <u>Indirect impact:</u> occurs when the plan foresees an intervention into the environment with impacts which are not a direct consequence of the plan's implementation but instead occur at a remote location from the site of the initial impact, or they occur as a consequence of complex interrelated events, for example an intervention into the environment which changes the water level and consequently affects nearby wetlands.
- <u>Cumulative impact:</u> occurs when the plan foresees an intervention into the environment which, in itself, has a negligible effect on the state of the environment indicators, yet, in combination with existing interventions into the environment or in combination with other interventions planned and implemented on the basis of other plans, has a significant effect on the relevant environmental indicators; or when several negligible effects of a single intervention, or a series of interventions in the context of the same plan have a significant combined effect on the relevant environmental indicators.
- <u>Synergistic impact</u>: occurs when the plan foresees an intervention into the environment with impacts which, when combined, are greater than the sum of their parts. Synergistic impacts are typically involved in cases where the amount of impacts on habitats, natural resources or populated areas approaches the compensation limit of these impacts.
- <u>Short-term impact:</u> is an impact which ceases to affect the relevant environmental indicators within five (5) years after its onset.
- <u>Medium-term impact:</u> is an impact which ceases to affect the relevant environmental indicators between five (5) and ten (10) years after its onset.
- <u>Long-term impact</u>: is an impact which does not cease to affect the relevant environmental indicators within ten (10) years after its onset.
- <u>Permanent impact:</u> is an impact which leaves lasting consequences.
- <u>Temporary impact:</u> is an impact of a temporary nature.

We didn't state if the synergistic impacts will occur, due to the difficulties in assessing the carrying capacity of the environment. We also didn't predict short-term impacts, medium-term impacts and long-term impacts, but only permanent and temporary impacts. The impacts will be present and more or less the same during the whole programming period.

The same rating (A to E, X – see the matrix below) was used for assessment of impacts on the environmental parameters as for the assessment of impacts on environmental goals. The rationale for the assessment was that the stronger, longer the impact, the more direct the impact, the more infrastructure the activities/priority axes support, the more the activities will increase the density/frequency of use of an area/object, the higher the rating (i.e. towards E). The assessment of types of impacts was therefore based on:

- types of eligible activities that determine potential impacts,
- characteristics of impacts (whether they are direct, indirect, permanent,...)

Assessment is shown in table 7.

In step two we assessed the influence of the predicted impacts on environmental objectives. We used method prescribed in *Decree laying down the content of environmental report and on* 

detailed procedure for the assessment of the impacts on certain plans and programmes on the environment (Official Gazette of the RS, no. 73/05).

Rate	Explanation of rate
А	No impact /impact can be positive
В	Insignificant impact
С	Insignificant impact (due to implementation of mitigation measures)
D	Significant impact
Е	Devastating impact
Х	Determination of impact is not possible

Table 6: The relevance matrix for assessment of impacts on environmental goals

The more intensive the impact on meeting the environmental objectives, the higher the rate (i.e. towards E).

The intensity of the impact on an environmental objective was assessed on the basis of the assessment made in the first step – i.e. how many eligible activities could have an impact on an environmental objective and what type this impact will be. Here also the amount of eligible funding for the eligible activities was taken into account. For example, since the funding system does not enable to fund large infrastructure projects, most infrastructure projects will be small to medium-size (e.g. cyclepaths, small WWTPs in the countryside, restoration of a relatively small cultural heritage site).

The implementation of the programme could influence achievement of environmental objectives by:

- causing delay at achievement of environmental objective, i.e. postponing when it will be reached,
- prevention of conservation or improvement of the environment as defined by environmental objectives.

For example, if air emissions will increase because the priority axis stimulates projects that increase transport, industrial production and similar, the objective will less likely be met on time (if ever). The rate of impact on environmental objectives was determined on the estimated scale of delay of achievement of the objective. The larger the delay, the larger the impact. Because the Operational Programme is on such a strategic level and because the eligible activities for each priority axes are quite widely defined, the assessment of impact on environmental objective is quite qualitative and based on expert judgement. The results are shown in table 8.

# 6. ESTABLISHED IMPACTS OF THE PROGRAMME AND THEIR ASSESSMENT

## 6.1 Specification of the impacts of the programme on environment

The specification of impacts was made on the basis of estimations regarding the type of potential activities in its context. Specification of the impacts is shown in Table 7.

## 6.2 Assessment of impacts

The assessment of impacts on environmental objectives was based on the possibility that a certain activity would be supported and carried out in the context of this priority, with a certain impact on the environment. Assessment of the impacts on environmental objectives is shown in Table 8.

Most prominent <u>negative impacts</u> potential negative impacts of the programme are:

- Increased land use
- Increased noise pollution
- Increased air pollution
- Increased water consumption
- Increased waste generation (also form waste waters)
- Increased quantity of waste water
- Consumption of natural resources
- Pressure on nature protected areas

Most prominent positive impacts potential negative impacts of the programme are:

- Preservation and revitalisation of cultural heritage
- Accessibility
- Awareness and use for educational purposes
- Increased environmental awareness
- Sustainable use of natural resources
- Deceased air pollution
- Deceased waste generation
- Deceased water pollution
- Deceased soil pollution
- Improved quality and quantity drinking water
- Improved management of protected areas
- Preservation of biodiversity

					Im	pact		
Priority axis		Significant impact	Direct	Indirect	Cumulat ive	Perman ent	Tempo rary	Rate
		Increased land use	$\checkmark$	-	$\checkmark$	$\checkmark$	$\checkmark$	В
		Increased noise pollution	$\checkmark$	-	$\checkmark$	-	$\checkmark$	В
		Increased air pollution	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	С
		Soil pollution	$\checkmark$	-	$\checkmark$	-	$\checkmark$	В
		Increased water consumption	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	-	С
		Waste generation	$\checkmark$	-	$\checkmark$	$\checkmark$	$\checkmark$	С
	1.1.TOURISM AND	Preservation and revitalisation of cultural heritage (positive effect)	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	A (positive)
	DEVELOPMENT	Accessibility, awareness and use for educational purposes (positive impact)	$\checkmark$	$\checkmark$	$\checkmark$	-	$\checkmark$	A (positive)
1. Economic and Social Development		Consumption of natural resources (construction material)		$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	В
		Increased pressure on nature protected areas	$\checkmark$	-	$\checkmark$	$\checkmark$	$\checkmark$	С
		Increased awareness about nature conservation and improved visitor management in protected areas (positive impact)	$\checkmark$	-	-	-	$\checkmark$	A (positive)
		Increased quantity of produced waste water	$\checkmark$	$\checkmark$	$\checkmark$	-	$\checkmark$	С
		Increased land use	$\checkmark$	-	$\checkmark$	$\checkmark$	$\checkmark$	В
	1.2.DEVELOPMENT OF	Increased noise pollution	$\checkmark$	-	$\checkmark$	-	$\checkmark$	С
	OF	Increased air pollution	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	С
	ENTREPRENEURSH	Increased water consumption	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	-	С
	IP	Waste generation	$\checkmark$	-	$\checkmark$	$\checkmark$	$\checkmark$	C
		Consumption of natural resources (construction material)		$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	В
	1.3.FOSTERING CULTURE AND	Preservation and revitalisation of cultural heritage (positive effect)	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	A (positive)
	SOCIAL EXCHANGES	Accessibility, awareness and use for educational purposes (positive impact)	$\checkmark$	$\checkmark$	$\checkmark$	-	$\checkmark$	A (positive)
2. Sustainable	2.1.ENVIRONMENT	Increased environmental awareness (positive effect)	$\checkmark$	$\checkmark$	-	-	$\checkmark$	A (positive)
Management of	AL PROTECTION	Sustainable use of natural resources (positive effect)	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	A (positive)
Natural		Decreased air pollution (positive effect)	$\checkmark$	$\checkmark$	-	$\checkmark$	$\checkmark$	A (positive)
Resources		Decreased waste generation (positive effect)	$\checkmark$	$\checkmark$	-	$\checkmark$	$\checkmark$	A (positive)
		Increased waste generation from waste water treatment plants	$\checkmark$	$\checkmark$	-	-	$\checkmark$	С

## Table 7: Specification of the impacts of the programme on environment

					Im	pact			
Pri	iority axis	Significant impact	Direct	Indirect	Cumulat ive	Perman ent	Tempo rary	Rate	
		Decreased water pollution (positive effect)	$\checkmark$	$\checkmark$	-	$\checkmark$	$\checkmark$	A (positive)	
		Improved quality and quantity of drinking water (positive effect)	$\checkmark$	$\checkmark$	-	$\checkmark$	$\checkmark$	A (positive)	
		Decreased soil pollution (positive effect)	$\checkmark$	$\checkmark$	-	$\checkmark$	$\checkmark$	A (positive)	
	2.2.NATURE PROTECTION	Improved management of protected areas (positive effect) $\checkmark$ - $\checkmark$ $\checkmark$ A (positive)							
	AND SUSTAINABLE DDEVELOPMENT	Preservation of biodiversity (positive effect)	$\checkmark$	~	~	~	$\checkmark$	A (positive)	
3. Technical assistance		Because of the nature of this priority axis, it was not possible to determine significant effects and corresponding impacts.							
Horizontal activities	<ul> <li>Human resources development</li> <li>Information society</li> </ul>	Since the activities are not specified, it is not possible t	to determin	e significant	environmen	tal effects.			

## Table 8: Assessment of impacts

	Issues	Environmental objective	Assessment of impacts	Explanation
	Climate change	Decrease of greenhouse emissions by 8% in the period 2008-2012 according to the 1986	С	Both negative and positive impacts of the activities in the programme on the environmental objective are expected; negative because of increased air pollution due to enlarged traffic (development of tourism) and positive because of the reduction of air emissions due to improvement and monitoring of air, waste. We asses that programme will have significant impact on environmental objective. Greenhouse gas emissions will not decrease, on the contrary we predict a increase of greenhouse emissions from tourism sector and transport.
Environment	Air	Attaining margin/target values for NO <sub>x</sub> , SO <sub>2</sub> , PM <sub>10</sub> , NO <sub>2</sub> and Pb, CO and for benzene and ozone	С	Both negative and maybe positive impacts of the activities in the programme on the environmental objective are expected; negative because of increased air pollution due to enlarged traffic (development of tourism) and positive because of actions to improve energy efficiency, the joint awareness raising among polluters and inhabitants on innovative environment protection measures and preparation of joint feasibility studies to improve and monitor air can result into possible reduction of air emissions in the long term. We asses that programme will have significant impact on environmental objective. We predict a increase of emissions. Limiting values for $PM_{10}$ and ozone are already exceeded.

1	1 1	U	
	Good surface and ground water quality according to the Water Framework Directive 2015	С	Both negative and positive impacts of the activities in the programme on the environmental objective are expected; The programme does contain activities that could have positive impact due to preservation of water sources (decreased ground water pollution in protected areas of water sources) and improved quality of water. Positive impact can be as well expected due to construction of waste water treatment plants. Negative impact can be expected due to the fact that it is not possible to predict that all produced waste water (quantity likely to increased- mainly tourism sector) will be treated. We asses that programme will have significant impact on environmental objective.
	Good sea water	С	Negative impact due to the increased tourism (increased waste water production, increased sea transport). We asses that programme will have significant impact on environmental objective.
	Good bathing water (sea and freshwater))	С	Negative impacts are expected due to greater pressure (especially due to development of tourism) on the use of water from the aquifers in the programme area. We asses that programme will have significant impact on environmental objective.
Water	Safety and assurance of the water body quantity for water supply demands	В	Both negative and positive impacts of the activities in the programme on the environmental objective are expected; The programme does contain activities that could have positive impact as eco tourism, monitor preparation of joint feasibility studies to improve and monitor water , improvement of management of existing protected areas, actions to preserve high biodiversity and landscape diversity. Negative impact can be expected due to the greater quantity of waste water for which it is impossible to predict that all will be treated and because of increased river tourism (if larger sport infrastructure will be built- more prople, traffic) in a long term. We asses that programme will have insignificant impact on environmental objective.
	Improvement of hydro morphological characteristics (fresh waters, sea shores)	В	The programme does contain activities that could have impact on this environmental objective (river tourism). At this stage it is not possible to determine what kind of river tourism is expected to be supported y the programme, but we assume that it will be various kinds of "soft" measures and various water sports (kayaking, rafting, bathing) based on outdoor activities in natural environment therefore we expect that they will not alter the morphology of surface waters. As a result we assess that the program will have insignificant impact on environmental objective.
Noise	Reduce the share of population exposed to noise	В	Negative impacts of the activities in the programme on the environmental objective are expected due to development of tourism, SMEs. The share of population exposed to noise will increase, but the share will be negligible. We asses that predicted activities will have insignificant impact on the environmental objective.
Resources	Rational use and conservation of natural resources (land, mineral goods, fossil fuel)	В	Negative impacts of the activities in the programme on the environmental objective are expected. There will be some use of natural resources, especially land use due to development of tourism and construction. We asses that programme will have insignificant impact on environmental objective.
Soil	Soil protection against erosion and pollution	В	A possibility of soil erosion may be expected if larger sport infrastructure will be built. A possibility of soil pollution, may be expected in long term, due to the development of tourism and SMEs. Due to the construction the degradation of soil will result. We asses that the programme will have insignificant impact on environmental objectives. Impacts will be temporary.

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Nature	Protect and restore habitats and natural systems and preserve biodiversity Effective and integrated nature conservation in protected areas	A (positive impact) A (positive impact)	<ul> <li>Programme supports nature protection and management (e.g. establishment of protected areas, preservation of natural landscape features and biodiversity). We asses that the programme will have positive impact on environmental objective.</li> <li>Programme supports nature protection and management (e.g. establishment of protected areas, preservation of natural landscape features and biodiversity). We asses that the programme will have positive impact on environmental objective.</li> </ul>
Population and	Accessibility (services, public transport)	A (positive impact)	Positive impact on environmental objective. Positive impacts of the activities in the programme on the environmental objective are expected due to recreational and small-scale tourism infrastructure, labour force mobility, stimulation of mobility of artists and of cultural exchanges, cooperation between civil society associations. This is as well one of the objectives of cultural heritage and landscape. We asses that the programme will have positive impact on environmental objective.
itatii	Protection of population and material goods from harmful water effects (e.g.decreased flood risk)	A (no impact)	Programme contains no activities, that could have impact on environmental objective.
Energy	Increase of energy efficiency in all areas of energy consumption and supply	A (positive impact)	The programme supports the actions to improve energy efficiency. We asses that the programme will have positive impact on environmental objective.
	Increased use and promotion of the renewable energy sources	A (no impact)	Programme contains no activities, that could have impact on environmental objective.
Waste	Decreasing quantities of waste by approximately 20 % by 2010 and by 50 % by 2050 compared to 2000	В	Because of the activities in the programme, especially development of tourism, we expect an increase of waste generation. We asses that programme will have insignificant impact on environmental objective.
	Revitalisation and restoration of cultural heritage	A (positive impact)	Programme supports cultural heritage preservation and development. We asses that the programme will have positive impact on environmental objective.
Cultural heritage and Landscape	Accessibility of culture heritage and identification of educational potential	A (positive impact)	Programme supports activities as: recreational and small-scale tourism infrastructure, labour force mobility, stimulation of mobility of artists and of cultural exchanges, cooperation between civil society associations. That is why, we asses that the programme will have positive impact on environmental objective.
	Preservation of elements that contribute to recognition of cultural landscape	A (no impact)	Programme contains no activities, that could have impact on environmental objective.

In the case that an impact of the programme is assessed as C (insignificant with mitigation measures), implementation of mitigation measures is obligatory for the programme to be acceptable from the environmental point of view. In this way, the assessment grade will be lowered to B.

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## 6.3 Mitigation measures and their timeline

The **timeline** for all the mitigation measures is twofold:

- the first step of mitigation measure implementation is the project selection process, i.e. each tendering procedure (once or twice a year, depending on the decisions of Managing Authority and Joint Technical Secretariat),
- the second step is the implementation of the projects; this step depends on the duration of the projects, so it could range from several months to a year or two.

In any case, the final deadline for the mitigation measures to be implemented is 2015 when the implementation of the Operational programme finishes.

**Monitoring** of the implementation of the mitigation measures will be carried out by the Managing Authority through monitoring of the project implementation.

#### Table 9: Mitigating measures and recommendations

	Issues	Environmental objective	I	Mitigation measures (MM) & Recommendations (R)	Rationale and feasibility of the mitigation measures	Body responsible and mechanism for implementation
	Climate change	Decrease of greenhouse emissions by 8% in the period 2008-2012 according to the	MM	Implementation and promotion of public transport systems	The programme area is very poorly interconnected by public transport, limiting mobility to car-owners and increasing transport-related pollution in the area. In this way cross-border mobility will be increased. The measure is feasible in adjacent project areas with strong links in employment, schooling and tourism.	MA through grading system of the projects
t	Air	1986 Attaining margin/target values for NO <sub>x</sub> ,		Implementation and promotion of public transport systems in tourist areas	Most of tourist areas lack public transport, so most visitors come by car; those without their own vehicle are limited to basic sightseeing. The measure is feasible in areas with strong tourism sector.	MA through grading system of the projects
Environment		SO <sub>2</sub> , PM <sub>10</sub> , NO <sub>2</sub> and Pb, CO and for benzene and ozone		Support for concepts of innovative mobility solutions	On the local scale, mobility can be supported in a number of innovative ways, e.g. from promotion of cycling to work to minivan public transport or carpooling. The measure is feasible in the entire programme area.	MA through selection criteria of the projects – it should be one of the eligible activities

\*MA = Managing Authority

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-	ssues	Environmental objective	F.	Aitigation measures (MM) & Recommendations (R)	Rationale and feasibility of the mitigation measures	Body responsible and mechanism for implementation
			2	All the activities with large gatherings of people, e.g. cultural events, promotion of nature protection, should have provision of public transport and intermodality for visitors as one of the key activities.	Any well promoted large event attracts numerous visitors. In order to decrease impact on air pollution and GHG emissions as well as parking, public transport should be provided for visitors of such events and/or options for intermodality (e.g. daily P+R, safe cycleparking). The recommendation is feasible in the entire programme area and for all the projects.	MA through grading system of the projects
	Water	Good surface and ground water quality according to the Water Framework Directive 2015	MM	All new buildings should have proper waste water treatment – i.e. be connected to sewage system with waste water treatment. Innovative solutions for waste water treatment in remote areas with no sewage system Promotion of eco agriculture	In case new infrastructure will be established in a project, it must have a suitable wastewater treatment. In case there is no sewage infrastructure in the project area, it should have a micro WWTP. The measure is feasible in the entire programme area and for all the projects. Many projects will be located in the areas with no sewage and WWTP infrastructure. Promotion of innovative solutions for such areas (e.g. micro WWTP, public-private partnerships for WWTP and waste water collection) will largely support sustainable development of the programme area. Most of the project area is rural, agriculture being one of the larges sources of groundwater pollution. By promoting eco agriculture, pollution would decrease and additional income would be brought to the farms, especially through links to tourism sector (e.g. promotion of local food, selling of eco products to the intervent.)	MA through selection criteria of the projects – it should be a condition MA through selection criteria of the projects – it should be one of the eligible activities MA through selection criteria of the projects – it should be one of the projects – it should be one of the eligible activities
		Good sea water	MM	All new buildings should have proper waste water treatment – i.e. be connected to sewage system with waste water treatment. Innovative solutions for waste water treatment in remote areas with no sewage system	as above (see MM for groundwater) as above (see MM for groundwater)	

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Issues	Environmental objective		Mitigation measures (MM) & Recommendations (R)	Rationale and feasibility of the mitigation measures	Body responsible and mechanism for implementation
	Good bathing water (sea and freshwater))	MM	All new buildings should have proper waste water treatment – i.e. be connected to sewage system with waste water treatment.	as above (see MM for groundwater)	
	jresnwaler))		Innovative solutions for waste water treatment in remote areas with no sewage system	as above (see MM for groundwater)	
		ММ	Sufficient quantities of good drinking water should be available before promoting tourism development in an area.	Tourism is a sector that depends on good quality of water and largely contributes to consumption of it. Tourism projects should be supported only if they are located in areas with sufficient water of good quality to support such development or that include exploration and sustainable use of new drinking water sources. The measure is feasible in the entire programme area and for all the projects dealing with tourism.	MA through selection criteria of the projects – it should be a condition
	Safety and assurance of the water body		Use of alternative water resources (e.g. rainwater), recycling of waste water.	Drinking water is often used for purposes where water of lower quality could be used, e.g. irrigation, technological processes, Projects should be supported that will decrease use of drinking water for such purposes. The measure is feasible in the entire programme area and for all the projects.	MA through selection criteria of the projects – it should be one of the eligible activities
quantity j water sup demand	quantity for water supply demands		Increase of public awareness on use and quality of drinking water	In the areas with drinking water shortages (e.g. entire Istria, Karst, the islands) awareness should be raised through any project where large quantities of water are required, especially in tourism sector. Innovative public awareness activities should therefore be part of any such project.	MA through selection criteria of the projects – it should be a condition
		R	Introducing clean technologies; water-conserving technologies, establishing closed-loop systems.	Through promotion of projects that include SME networking, exchange of experience etc. in the field of clean technologies and water-conserving technologies, the programme could largely stimulate sustainable development of programme area. The recommendation is feasible in the entire programme area and for all the projects dealing with SMEs, technology, tourism, education and research.	MA through selection criteria of the projects – it should be one of the eligible activities and highly graded.

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Issues	Environmental objectiveMitigation measures (MM) & Recommendations (R)		Mitigation measures (MM) & Recommendations (R)	Rationale and feasibility of the mitigation measures	Body responsible and mechanism for implementation
	Improvement of hydro	ММ	Support of such river tourism that will have minimal impact on morphological characteristics (waterways arrangement, applying of natural hydraulic engineering techniques).	The projects supported by the programme that will deal with tourism activities (e.g. water sports of various types on rivers and lakes) should not involve "hard" infrastructure development, only minor changes to water bodies (e.g. establishment of entering points for kayaking and rafting) and only when necessary. The measure is feasible in the entire programme area and for all the projects.	MA through selection criteria of the projects – it should be a condition
	characteristics (fresh waters, sea shores)		Minimise interventions into the river banks and sea shore – no building on the river banks and sea shore.	Infrastructure development supported by the programme should not interfere with natural watercourses and habitats around them. Therefore development of new infrastructure should be directed away from river banks and sea shore. Only "soft" infrastructure (e.g. campsite, walkways,) related to sustainable use of rivers and sea shore could be stimulated. The measure is feasible in the entire programme area and for all the projects.	MA through selection criteria of the projects – it should be a condition
		MM	Impact of the programme on the environmental objective will be insignificant, we did not predict any mitigation measures.	-	-
Noise	of population exposed to noise	R	Efficient land use planning for different activities (separation of dwelling areas and tourist areas/open-air event places).	The projects that stimulate potentially noisy activities, events and infrastructure that will support such activities should be properly located as not to disturb the inhabitants and visitors in the area. The recommendation is feasible in the entire programme area and for all the projects.	MA through grading system of the projects
Resources	Rational use and conservation of natural resources (land,	MM	Impact of the programme on the environmental objective will be insignificant, we did not predict any mitigation measures.	-	-
	mineral goods, fossil fuel)	R	Foster investments and improved use in existing infrastructure	Projects that focus on restoration and revitalisation of existing infrastructure (buildings, supply systems, technology) should be promoted. The recommendation is feasible in the entire programme area and for all the projects.	MA through grading system of the projects

Ісспес	Environmental	]	Mitigation measures (MM)	Rationale and feasibility of the mitigation	Body responsible and mechanism for
155005	objective		& Recommendations (R)	inteasures	implementation
			Brownfield sites and degraded areas should be primarily used as sites for new construction.	Projects that include new developments and focus them on revitalisation of brownfield sites or degraded areas (e.g. abandoned industrial areas, quarries,) should be promoted. The recommendation is feasible in the entire programme area and for all the projects.	MA through grading system of the projects
			Urban sprawl must not be encouraged. Use of alternative energy sources	<ul> <li>Projects supported by the programme should focus their activities within settlements (unless related to natural resources that are typically outside settlements - e.g. conservation and promotion of biodiversity) – both villages and towns. All the development should be directed off the agricultural land. Suitability of location should therefore be checked before project approval. The recommendation is feasible in the entire programme area and for all the projects.</li> <li>The programme should support projects that use alternative energy sources for their core activities (e.g. solar power for water heating in tourism, biogas in villages,), thus decreasing impact of their sector on the environment and resource use. The recommendation is feasible in the entire programme</li> </ul>	MA through selection criteria of the projects – projects that support concentration of activities in settlements should be highly graded. MA through selection criteria of the projects – it should be one of the eligible activities and highly graded.
Soil	Soil protection against erosion and pollution	MM R	Impact of the programme on the environmental objective will be insignificant, we did not predict any mitigation measures. Recommendations for water and	-	-
			resources will have positive impact on soil as well.	as above (see MM and R for water and resources)	
Nature	Protect and restore habitats and natural systems and	MM	Impact of the programme on the environmental objective will be mainly positive, we did not predict any mitigation measures.	-	-

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Issues	Environmental objective	Mitigation measures (MM) & Recommendations (R)		Rationale and feasibility of the mitigation measures	Body responsible and mechanism for
	preserve biodiversity	R	Locations with low importance for biodiversity should be primarily used as sites for new construction.	Infrastructure development supported by the programme should not decrease biodiversity in the programme area, therefore development of new infrastructure should be directed to locations with low importance. This recommendation goes hand in hand with several others – e.g. construction away from river banks, reuse of brownfield sites and prevention of urban sprawl. Only "soft" infrastructure (e.g. walkways, educational trails) related to biodiversity conservation could be stimulated. The measure is feasible in the entire programme area and for all the projects.	MA through selection criteria of the projects.
			Investments in new infrastructure require attention and possibly an EIA on existing natural areas, protected areas and Natura 2000 areas.	Developments in the protected areas, Natura 2000 areas and similar should have basic EIA to show that potential negative impacts have been considered and avoided or mitigated. The measure is feasible in the entire programme area and for all the projects.	MA through selection criteria of the projects.
	Effective and integrated nature conservation in protected areas	MM	Impact of the programme on the environmental objective will be positive, we did not predict any mitigation measures.	-	-
Population and health		ММ	Impact of the programme on the environmental objective will be insignificant, we did not predict any mitigation measures.	-	-
	Accessibility (services, public transport)	R	Public transport (also cross- border) to different public services should be established to increase accessibility (health services, administration offices, cultural heritage, post office, banks,).	The programme area is very poorly interconnected by public transport, limiting mobility to car-owners, excluding vulnerable groups (poor, elderly, youngsters) and increasing transport-related pollution in the area. The recommendation is feasible in adjacent project areas with strong links in employment, schooling and tourism and is linked to the measures suggested to cut down air pollution.	MA through selection criteria of the projects – it should be one of the eligible activities and highly graded.

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Environmental Report for	Cross border Cooperation	<b>Operational Programme</b>	Slovenia-Croatia 2007-2013
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Issues	Environmental objective	Mitigation measures (MM) & Recommendations (R)		Rationale and feasibility of the mitigation measures	Body responsible and mechanism for implementation
	Protection of population and material goods from harmful water effects (e.g.decreased flood risk)	MM	Impact of the programme on the environmental objective will be insignificant, we did not predict any mitigation measures.	-	-
		R	There should be no building in flood risk areas.	Any project supported by the programme should be located outside of the flood-prone areas. This could be achieved by careful observation of urban planning measures and combination of other recommendations, e.g. minimisation of urban sprawl and no building on the river banks and sea shore.	MA through selection criteria of the projects.
Energy	Increase of energy efficiency in all areas of energy consumption and supply	MM	Impact of the programme on the environmental objective will be positive, we did not predict any mitigation measures.	-	-
		R	Focus on energy efficiency, including promotion of district heating, alternative fuels and building energy efficiency.	The programme should support projects for use and promotion of measures for energy efficiency, especially in public buildings and services. The recommendation is feasible in the entire programme area and for all the projects.	MA through selection criteria of the projects – it should be one of the eligible activities and highly graded.
	Increased use and promotion of the renewable energy sources	ММ	Impact of the programme on the environmental objective will be insignificant, we did not predict any mitigation measures.	-	-
		R	Use of biomass and other renewable energy resources should be encouraged.	The programme should support projects for use and promotion of renewable energy sources. The recommendation is feasible in the entire programme area and for all the projects.	MA through selection criteria of the projects – it should be one of the eligible activities and highly graded.
Waste	Decreasing quantities of waste by approximately	MM	Impact of the programme on the environmental objective will be insignificant, we did not predict any mitigation measures.	-	-

Issues	Environmental objective	Mitigation measures (MM) & Recommendations (R)		Rationale and feasibility of the mitigation measures	Body responsible and mechanism for implementation
20 % by 2010 R and by 50 % by 2050 compared to 2000		Prepare a cross border strategy for waste and its possible proper use as secondary material.	Cross-border Waste Strategies for adjacent regions could solve many problems related to proper waste management, waste disposal and recycling. Projects dealing with waste management and including such strategies could be supported, especially if they focus on reuse and recycling of waste. The recommendation is feasible in the entire programme area and for the projects dealing with sustainable development.	MA through selection criteria of the projects – it should be one of the eligible activities and highly graded.	
			Support projects for cross-border waste disposal.	Certain areas along the border constitute regions in geographical terms, therefore waste management and waste disposal could be more efficient. The recommendation is feasible in the entire programme area and for the projects dealing with sustainable development.	MA through selection criteria of the projects – it should be one of the eligible activities and highly graded.
Cultural heritage and Landscape	Revitalisation and restoration of cultural heritage	MM	Impact of the programme on the environmental objective will be positive, we did not predict any mitigation measures.	-	-
		R	Topology of the cultural landscape should be taken into consideration when building is foreseen (traditional architecture,).	In projects that involve infrastructure renewal or development, the buildings should be restored and revitalised in line with cultural heritage guidelines, esp. in case of protected or listed cultural heritage buildings. New infrastructure should be designed in such way that it will not interfere with cultural landscape of the surrounding area. The recommendation is feasible in the entire programme area and for the projects dealing with sustainable development.	MA through grading system of the projects
			Support to spatial planning should be oriented to urban and village regeneration.	see above ( <i>Rational use and conservation of natural resources – urban sprawl</i> ) In addition to concentrating development in settlements, traditional landscape and cultural characteristics should be respected at designing the new/renovated infrastructure. The recommendation is feasible in the entire programme area and for all the projects.	MA through grading system of the projects

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Issues	Environmental objective	Mitigation measures (MM) & Recommendations (R)		Rationale and feasibility of the mitigation measures	Body responsible and mechanism for implementation
			Cooperation in cultural heritage conservation could focus on promotion of environmentally friendly renovation of buildings as well as promotion of traditional knowledge used as environmentally friendly techniques.	Projects that focus on exchange of experience and knowledge of cultural heritage conservation and revitalisation, especially environmentally friendly techniques for it should be strongly supported. Through promotion of results of such projects other programme-supported projects could gain on quality as they could use the results for some of their activities. The recommendation is feasible in the entire programme area and for the projects dealing with cultural exchange.	MA through selection criteria of the projects – it should be one of the eligible activities and highly graded.
	Accessibility of cultural heritage and identification of educational potential	MM	Impact of the programme on the environmental objective will be positive, we did not predict any mitigation measures.	-	-
	Preservation of	ММ	Impact of the programme on the environmental objective will be insignificant, we did not predict any mitigation measures.	-	-
	contribute to recognition of cultural landscape	R	Recommendations to curb urban sprawl, improve hydromorphological characteristics of rivers and sea and sustainable use of resources also support preservation of cultural landscape.	see above (Rational use and conservation of natural resources – urban sprawl, improvement of hydromorphological characteristics of rivers and sea, sustainable use of resources)	

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The following recommendations should be considered in all environmental issues mentioned above:

- Support the uptake of Environmental Management Systems and Audit Schemes in tourism industry (ISO 14.000, EMAS, Eco-labels, green purchases etc.).
- $\circ$   $\;$  Support explicitly sustainable products for tourism and leisure economy.
- $\circ$  Support measures which focus on environmental awareness of the public.

All mitigation measures should be implemented during the implementation of the programme and the projects funded by it.

# 7. EVALUATION AND RECOMMENDATIONS FOR SELECTION CRITERIA FOR ACTIVITIES OR PROJECTS TO BE IMPLEMENTED THROUGH THE PROGRAMMING DOCUMENT

The SEA Directive requires description of the measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment from implementing the programming document.<sup>1</sup> This requirement poses a particular challenge for Cohesion Policy programming documents. These documents may formulate only very general development interventions. The implementation of these plans and programmes will depend largely upon the management system for selection and monitoring of the actual activities (or projects), which are specified and chosen only after the programming document has been finalized and approved.

In such cases the SEA can suggest specific project evaluation criteria to ensure the selection of projects which will contribute, to the greatest extent possible, to the relevant environmental objectives and indicators and thus facilitate environmentally suitable implementation of the programming document. In a sense, this could be viewed also as a mitigation measure or a recommendation on the operational level of the programme. Therefore these evaluation/selection criteria should help to:

- assess positive or negative effects of proposed activities (or projects) on the relevant environmental issues, objectives and indicators;
- formulate detailed measures within the activities to prevent, reduce and as fully as possible offset any significant adverse effects on the environment.

Ideally, such evaluation/selection criteria should become an integral part of the management system for implementation of the programming document.

#### **Proposed approach**

Evaluation/selection criteria for selection of projects to be funded by Cross border Cooperation Operational Programme Slovenia-Croatia 2007-2013 will be defined later in the programming process by joint collaboration of both sides. Usually these criteria are designed to assess the capacity of the applicant, eligibility of the project and the applicant, quality and cross-border impact. However, to ensure sustainable development of the programming area, the evaluation/selection criteria should include assessment of environmental impacts as well; environmental assessment should be part of the quality assessment of the projects, thus improving the integration of horizontal issue "sustainable development" in each project.

Evaluation/selection criteria could be divided in general criteria that could be applied to all projects and specific criteria applicable to the specific activity field.

Suggestions given in this chapter should be discussed with the team preparing the Operational Programme to select a manageable number of environmental criteria that would be easy to apply. In addition, a table for evaluation should be developed – to see for each criteria if the project has adverse, positive, or no impact on the issue in question.

General criteria

<sup>&</sup>lt;sup>1</sup> SEA Directive, Annex I, item (g)

- *Prevention of environmental impacts* 
  - If new infrastructure is to be developed,
    - are the abandoned areas used? If not, is new infrastructure planned on locations with low importance for biodiversity (e.g. not in natural or semi-natural environment, but in settlement areas)?
    - will preservation of cultural heritage (esp. settlement, archeological and landscape heritage) be considered at its spatial planning?
  - Is new infrastructure planned within/close to permanent settlement areas with easy access to public utilities infrastructure (public environmental services) and sustainable transport (bus stops/lines, railway, cycle path)?
  - Is the proposed new infrastructure appropriately located (i.e. according to the land use planning documents),
  - If new infrastructure is proposed, does the project include EIA for it?
  - If the project is of programming nature is Strategic Environmental Assessment proposed within the project?
- *Reduction of environmental impacts* 
  - Does the project include sustainable use of resources, e.g. energy efficiency, renewable sources, reduced water use?
  - Does the project have larger impacts on cultural heritage units? Does it include cultural heritage restoration?
  - Does the project focus on use of mostly local resources (wood, agricultural products, minerals,etc.)?
  - Does the project contain measures for minimisation of pollution (emissions, waste)? To what extent in terms of materials used, transport planning, waste and waste water management,...?
  - Does the project provide for maximum transport efficiency in the view of resources, users, markets etc. (e.g. appropriate location, provision of public transport, cycling...)?
  - Does the project contain measures for energy efficiency?
  - Does the project contain measures for use of renewable energy?
- *Offsetting environmental impacts* 
  - If the project is expected to have adverse environmental impacts of regional character that are mainly irreversible, does it also contain measures to compensate for these impacts?
  - Does the project have considerable effect on important habitats and species? Does it include restoration of habitats or compensation by establishment of such habitats on new location? Will it restore migration corridors in case it is located in their area?
  - Does the project involve local community/inhabitants?
- Promotion of sustainable development
  - Does the project promote methods for pollution control and sustainable resource use (e.g. water, soil, minerals,...)?
  - Does the project promote energy efficiency and use of renewable energy?
  - Does the project promote development, transfer and use of environmental technologies and best available techniques?
  - Does the project promote environmental management, green purchasing and ecodesign?
  - Does the project increase accessibility (physical as well as in terms of informations) of the objects and areas of cultural landscape?
  - Does the project include awareness raising? Does that include local inhabitants, employees, visitors?

- Does the project include networking and exchange of experience with environmental management, best practice etc. between SMEs, local communities and institutions?
- Does the project focus on training and skills for environmental technologies and management?
- How does the project ensure internal assessment of environmental impacts? Does the project have any environmental indicators, are they clearly defined and simple to measure?

#### **Specific criteria for fields of activities**

#### **1.1.Tourism and rural development**

- Does it decentralise tourism activities in time and territory and decrease excessive concentration of tourism activities in certain heavily visited areas?
- When decentralising tourism activities, does it use existing infrastructure?
- Are the tourism activities focusing on town and village centres coupled with use of existing infrastructure and cultural heritage protection (restoration of buildings, location of activities within the restored heritage sites etc.)?
- Is the visitors infrastructure designed in a sustainable way? Is existing infrastructure used instead of building new one?
- Does it contain measures for sustainable transport management for the targeted tourist groups/activities?
- Does it increase the environmental awareness of the visitors?
- Is the activity designed in compliance with regional/local ecological and social limitations?
- Does it avoid adverse impacts on protected areas or NATURA 2000 sites? Will it comprise an assessment of impacts on these sites?
- If the project comprises activities in Protected Area or a Natura 2000 site, does it have clear visitors management plan in tune with Management Plan of Protected Area concerned?
- Does it advocate the importance of nature protection within nature related activities?
- Does it advocate Landscape and Cultural Heritage Protection?
- Does it include activities for accessibility and transport management of tourists, e.g. sustainable transportation to see/exploit all the marketed sights/activities, including cross-border and interregional public transportation (buses/taxis on demand, bus tickets for the entire region etc.)?
- Does it promote cross border consulting networks for renewable energy use and energy savings in the tourism industry?
- Does it improve the efficiency of water use?
- Does it fulfil the criteria for "Eco-labelling"?
- Does it promote the uptake of ISO 14.000/EMAS?
- Does it increase energy efficiency and/or does it increase the use of Renewable Energy?

#### **1.2.** Development of entrepreneurship

- Is the support of services for improving business cooperation connected to the adoption of "best available technologies" addressing emission control, energy efficiency and reduction of non-renewable resource demand?
- Does the project develop/promote environmentally friendly products, distribution chains etc.?
- Does it involve innovative approaches to noise reduction?

- Do projects that focus on enhancement of entrepreneurial spirit and exchange of experience and information on innovative solutions in branding, marketing and creation of new products of high quality,...).
- Does the project foster SME development in town and village centres (e.g. existing buildings, abandoned buildings) instead on new locations?
- Does it promote "eco-technology" networks and cluster initiatives? Does it focus on recycling, energy and material efficiency?
- Does it support networking for establishment of eco-businesses and sustainable products/services?
- Does it increase accessibility of existing environmental data sources?

#### 1.3.Fostering culture and social exchanges

- Does it promote not only restoration of objects but also cultural heritage and rural and urban centres in a sustainable way, i.e. with measures for energy and resource efficiency, district heating, accessibility by sustainable modes of transport,...?
- Does it promote not only restoration, but also use of objects of cultural heritage and rural and urban centres (i.e. revitalisation)?
- Does it improve accessibility and connectivity?
- o Does it improve skills training in environmental management in Local Authorities?
- Does it promote community capacity building in environmental management, assessment and public participation?
- Does it promote networking between communities for exchange of experience?
- Does it focus on dissemination of environmental information to communities?

#### **2.1.** Environmental protection

- Do the feasibility studies that are going to be financed include revitalisation of brown fields?
- Does the project focus on use of mostly local resources (wood, agricultural products, minerals, etc.)?
- Does the project contain measures in terms of transport planning?
- Does it promote recovering and recycling of waste?
- Does it promote best practices of land use planning and urban and village regeneration?
- Does it promote cross border resource and waste management?
- Does it include award schemes for innovative environmental approaches and performance by municipalities and enterprises?
- Does it stimulate networking and know how transfer in the fields of flood protection and maintenance of sewage infrastructure?

#### 2.2. Nature protection and sustainable development

- Does it include remediation/enhancement measures for protection of key species/habitats of cross-border importance?
- Does it improve accessibility of the cross-border protected areas?
- Does it include joint protected area management planning, including visitors management and joint development of sustainable visitors infrastructure?
- Does it stimulate exchange of experience in protected area management practices, habitat restoration and management as well as visitors management?
- Does it stimulate exchange of information on key species/habitats of cross-border importance both on distribution, ecologic requirements and on potential threats?

- Does it include measures for visitors management, including accessibility and their transport?
- Does it include collaboration with land owners and their awareness raising?
- Does it link nature conservation to cultural heritage and landscape conservation?
- Is the increase of environmental awareness of the visitors included in the activity?

Environmental aspects of evaluation/selection of the projects should be clearly pointed out in the call for project proposals. Thus the call for project proposals should clearly state that consideration of environmental impacts is one of the eligibility criteria – i.e. only projects which are designed so that the environmental impacts are prevented, reduced or offset will be eligible for co-financing. Info points should provide advice to applicants in the course of the call for project proposals on environmental aspects (i.e. conditions and requirements related to environmental impacts of projects).

When awarding funds for the projects, the subsidy contract for each project usually contains reporting requirements and other rights and duties related to the effective project implementation. Thus, subsidy contract should contain all the requirements and duties concerning environmental performance and monitoring important for assessment of environmental impacts.

Currently there is no clear list of eligible activities for each thematic field. List of eligible activities or examples of eligible projects with clearly shown environmental measures could be formed to give the applicants some guidance on preparation of environmentally friendly projects.

# 8. MONITORING

# 8.1 Monitoring system of the Operational Programme

Currently the Operational Programme Cross border Cooperation Operational Programme Slovenia-Croatia 2007-2013 (dated 16<sup>th</sup> July 2007) does describe the monitoring and evaluation systems for the entire programme and the indicators for each priority axis are suggested as following:

#### 1. Economic and social development

- Number of new cross border tourist services,
- Number of new cross border tourist destinations,
- Number of new natural and cultural assets integrated into sustainable tourist offer,
- Number of projects in the field of tourism and rural development,
- Number of projects supporting cooperation between SMEs and R&D organisations,
- Number of projects influencing increase of cross-border trade,
- Number of joint cultural events supported by the programme,
- Number of projects increasing cooperation between civil society associations.

#### 2. Sustainable management of natural resources

- Number of organisations included in awareness raising actions,
- Number of joint plans,
- Number of joint management of water sources,
- Number of waste disposal sites rehabilitated,
- Number of natural resources units revitalized,
- Number of projects increasing cooperation between local and regional actors with their crossborder counterparts for joint spatial planning,
- Number of projects in the field of environment protection,
- Number of project preserving and revitalising natural resources.

#### 3. Technical Assistance

- Number of projects approved and monitored,
- Number of promotional events.

In order to follow the environmental impacts of the programme on the relevant environmental objectives and indicators should be recorded on the programme level. In this way, any unforeseen adverse effects are identified in order to be able to undertake appropriate remedial actions before the end of the programming period.

The indicators for the priority axis **2. Sustainable management of natural resources** are in fact showing environmental effects, while the selected indicators for priority axis **1 Economic and social development** are mostly socio-economic. It is suggested that the indicators for priority axis 1 could contain also environmental indicators:

- Number of projects for eco-efficiency, energy efficiency, use of renewable resources,
- Number of regional initiatives or cross border partnerships for joint management of natural resources, green purchasing, eco-efficiency, eco-labelling, sustainable transport, cross-border public transport etc.

Suggested environmental indicators should be discussed with the team preparing the Operational Programme to select a manageable number of environmental indicators. Moreover, defining environmental indicators for each project should be a part of the tendering procedures (Terms of Reference, application forms) and the subsidy contract for each project should contain all the requirements concerning monitoring of environmental indicators.

# 8.2 Monitoring system for the programme implementation

#### Monitoring of the state of environment

For monitoring the state of environment or for ex post evaluation of state of environment suggested the indicators for state of environment /impact indicators should be used.

The listed indicators will give us information on state of environment in such a form that the evaluation on progress/deterioration of environment can be easily made and compared (see Table 3).

Indicators for state of environment:	State of indicator in Slovenia/ Croatia Before programme execution (see Table 3)	State of indicator in Slovenia/ Croatia?
Total GHG emissions on national level		
Emissions of SO <sub>2</sub> , NO <sub>x</sub> , PM10, Pb, CO, O <sub>3</sub> and benzene.		
Quantity of water in aquifer		
Quality of water in aquifer		
Water consumption per inhabitant		
Total amount of cleaned waste water		
Number of nature management plans		
Number of restored cultural heritage sites		
Number of users (visitors, employees, inhabitants) of the objects and areas of cultural heritage		
Life expectancy		
The damage caused by natural disasters		
Share of population exposed to noise		
Number of passengers in public transport		
Number of new public transport routes		
% of production of electrical from all renewable energy resources per entire production of electrical energy		
Total amount of municipal waste produced		
Total amount of hazardous waste produced by industry		
Total amount of municipal waste recycled (Slovenia) / recovered (Croatia)		
Total amount of municipal waste disposed at municipal waste disposal sites		

#### Table 10: Indicators for monitoring state of environment

Environmental monitoring is currently being carried out mostly by the Environmental Agency of the Republic of Slovenia, Environmental Agency of the Republic of Croatia, Statistical Office of the Republic of Slovenia and individual Counties in Croatia. The data enable us to monitor the status of the environment and obtain data on the environmental impacts of the Operational Programme's implementation in the Slovenian and Croatian part of the programming area. In addition, a system is being established to monitor the status of species and habitat types protected within the network of Natura 2000 sites, as well as the status of biodiversity in general.

#### Monitoring of the environmental objectives

The following table should be used for monitoring the achievement of relevant programming objectives in a project:

# Table 11: Monitoring covering full set of relevant environmental objectives for individual project

PROJECT						
	Assessment of impacts					
Relevant cross border	Positive	Neutral/not applicable	Negative	Comments		
Decrease of greenhouse		upplicusie				
emissions by 8% in the						
period 2008-2012 according						
to the 1986						
Attaining margin/target						
values for NO <sub>x</sub> , SO <sub>2</sub> , PM <sub>10</sub> ,						
$NO_2$ and Pb. CO and for						
benzene and ozone						
Good surface and ground						
water quality according to						
the Water Framework						
Directive 2015						
Good sea water						
Good bathing water (sea						
and surface)						
Safety of the water body						
quantity (e.g. abstraction,						
public water supply or						
beverage production)						
Improvement of hydro						
morphological						
characteristics						
Reduce the share of						
population exposed to noise						
Rational use of natural						
resources (land, mineral						
goods, fossil fuel)						
Soil protection against						
erosion and pollution						
Protect and restore habitats						
and natural systems and						
preserve biodiversity						
Effective and integrated						
nature conservation in						
protected areas						
Accessibility (services,						
public transport)						
Decreased flood risk						
Increase of energy efficiency						
in all areas of energy						
consumption						

PROJECT				
			Assessment	t of impacts
Relevant cross border environmental objective	Positive	Neutral/not applicable	Negative	Comments
Increased use of the renewable energy sources				
Decreasing quantities of waste by approximately 20				
% by 2010 and by 50 % by 2050 compared to 2000				
Revitalisation and restoration of cultural				
heritage Accessibility of culture				
of educational potential				
Preservation of elements that contribute to recognition of cultural				
landscape				

# **9.**Note on the process and comprehensiveness of the report

The structure and chapter layout of the current environmental report is based on the *Decree laying* down the content of environmental report and on detailed procedure for the assessment of the effects on certain plans and programmes on the environment (Official Gazette of the RS, No. 73/05) that is based on the *Directive 2001/42*.

In preparing the chapters, we observed the provisions of the *Directive 2001/42 by the European Parliament and European Council dated 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment* (the "SEA Directive") and *the Protocol on SEA to the UNECE (Espoo) Convention on EIA in a Transboundary Context.* Croatia is not n EU Member State, therefore it is not obliged to implement the Directive, but as a Candidate Country it is integrating the Directive into its legislation right now, therefore following the Directive was a positive experience for both sides.

The evaluation criteria and methodology used are based on past experience in the field of strategic environmental assessments for programming documents (e.g. for Structural Programmes) and various handbooks on strategic environmental assessment of effects on the environment, in particular the "Handbook on SEA for Cohesion Policy 2007 - 2013".

The preparation of this environmental report was based on the statutory requirements, guidelines, scoping, type and extent of activities to be carried out in the context of the Operational Programme and selected data. Regular phone consultations with Managing Authority and Ministries in charge of environment in Slovenia and Croatia were undertaken to coordinate the process. A screening and scoping meeting was held in Zagreb in order to agree on key environmental issues, procedures and discuss legal background for cross-border Strategic Environmental Assessment.

The analysis of the state of the environment. environment was based on accessible data. The data ware collected from various databases and reports. The central data source for Slovenia was the State of the Environment Report, 2002 as amended by reports prepared by the Environmental Agency of the Republic of Slovenia for the European Environment Agency. The central data source for Croatia was the State of the environment Report, 2006 as amended by reports prepared by the Croatian Environment Agency.

The State of environment does not include exactly the same data for given issue, since the data base for each country differs. The differences were mainly due to the different monitoring system, sources of information, etc. However, we believe that the achievement of gathering comparable bilateral data was considerable and decided. The description of the current state of the environmental and trend of the environment was based on the selected guiding questions/indicators. The data from various sources are not always identical; however they do not contradict each other, which suggests that the trends are most likely correct.

Since the three priority axis and therefore corresponding activities of the programme are quite loosely - generally described and locations are not given the description of environmental impacts

should be examined as well later on during the programme execution. This also applies to the assessment of impacts on protected areas and Natura 2000 areas.

Environmental objectives of the programme in the cooperation area are formed in accordance to strategic programmes, plans and strategies. It should be emphasized that the environmental objective are not always identical for each country, which is why we combined the content of objectives of each country into one objective. Since the objectives do not contradict each other the jointly defined goals were easily set.

The effect of priorities will largely depend on what kind of projects will be supported. By supporting environmental technologies and preventive measures we can encourage economic growth and realize the environmental protection objectives of the programme. When assessing the impacts on achieving an individual environmental objective, we tried to provide a general evaluation, based on assumptions regarding the impacts of the proposed activities.

The environmental report will be assessed by the relevant national authorities and examined in the second phase of the strategic environmental assessment.

# **10.** CONCLUSION

The purpose of the strategic environmental assessment is to establish the compliance of the programme with the environmental objectives as set forth by the legislation and the strategic objectives at relevant levels. The results of the process of strategic environmental assessment are the environmental report and the adjusted programme with proposed mitigation measures.

The Operational Programme Slovenia-Croatia 2007-2013 in the frame of Pre-Accession Assistance Cross-border Cooperation is acceptable from the environmental aspect under the condition that mitigation measures suggested in the Environmental Report are considered.

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