

Non-technical summary

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CROSS BORDER COOPERATION PROGRAMME HUNGARY – AUSTRIA 2014 - 2020

Comments of the public consultation incorporated

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1 NON-TECHNICAL SUMMARY – GENERAL REMARKS

Within the framework of the European Regional Development Fund (ERDF) a cross-border cooperation (CBC) programme for the period of 2014-2020 was developed for the cross-border area Austria-Hungary consisting of the NUTS 3 regions Nordburgenland, Mittelburgenland and Südburgenland, Niederösterreich Süd, Wiener Umland/Südteil, Wien, Graz and Ost-Steiermark, and the Hungarian NUTS3 regions Győr-Moson-Sopron, Vas and Zala. The core programme area remained in large part the same as in 2007 – 2013, with the addition of the metropolitan area of Graz being the only exception. CBC is a specific instrument in the portfolio of European and national instruments available for territorial development.

The Strategic Environmental Assessment is required for this program, as it cannot be excluded that projects which are implemented with the help of the program have an impact on the environment - both negative and positive. Therefore, according to an EC Directive, an environmental assessment is provided. The purpose of the SEA is to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development. The SEA was carried out simultaneously to the preparation of the programme by the Verracon GmbH (for Austria) and the BFI (for the Hungarian side) The core part of every Strategic Environmental Assessment is the Environmental Report and is based on the OP draft of 5 June 2014 - the final version of the Environmental Report dated from 28 June 2014 also considers comments received during the consultation of the Environmental Report (12.05.2014 - 14.06.2014). The report must include various steps:

- The methodology and analytical framework are explained.
- It is shown the current state of the environmental situation.
- It is the current development trend of environmental impacts roughly explained, in the case that the program is not being implemented - the so-called zero-option, or trend without implementing the programme.
- On the basis of common indicators, the potential environmental impacts of each investment-priority are examined.
- Finally, recommendations and comments are submitted to the program.

2 SHORT DESCRIPTION OF THE PROGRAM

The following needs were identified as most relevant in the course of programming:

- Enhancing the competitiveness of small and medium enterprises.
- Protecting the environment and promoting resource efficiency

- Needs related to transport and mobility.
- Needs related to regional governance and institutional cooperation.

According to the recognised needs, four Thematic Objectives (TOs) and within seven Investment Priorities (IPs) had been selected, as follows:

TO 3	Enhancing the Competitiveness of SME-s	IP 3d)	supporting the capacity of SMEs to engage in growth and innovation processes
TO 6	Protecting the Environment and Promoting Resource Efficiency	IP 6c)	protecting, promoting and developing cultural and natural heritage
		IP 6d)	protecting and restoring biodiversity, soil protection and restoration and promoting ecosystem services including NATURA 2000 and green infrastructures
		IP 6f)	promoting innovative technologies to improve environmental protection and resource efficiency in the waste sector, water sector, soil protection or to reduce air pollution
TO7	Promoting Sustainable Transport and Removing Bottlenecks in Key Network Infrastructures	IP 7b)	enhancing regional mobility
		IP 7c)	green transport systems
TO11	Enhancing Institutional Capacity and an Efficient Public Administration	CBC	promoting legal and administrative cooperation and cooperation between citizens and institutions

3 METHODOLOGY

3.1 Planning Process

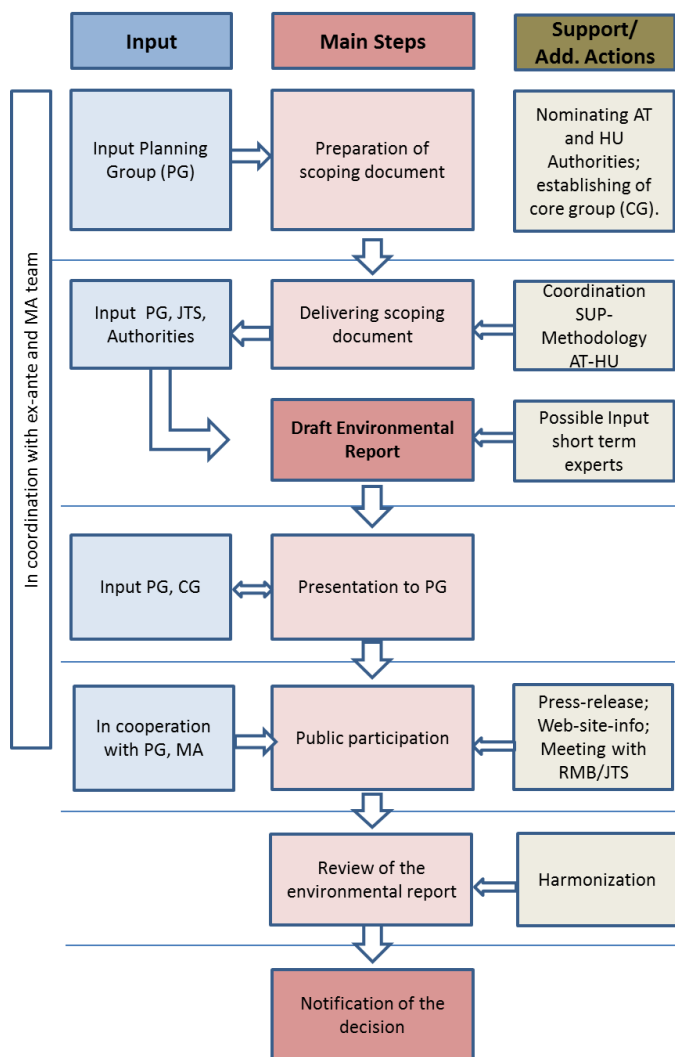
Following the general guidelines for the SEA seven steps need to be taken:

1. **"Screening"**: investigation of whether the plan or programme falls under the SEA legislation. Thus possible negative effects due to the programme cannot be excluded a SEA will be examined.
2. **"Scoping"**: defining the boundaries of investigation, assessment and assumptions required,

3. "Documentation of the state of the environment", effectively a baseline on which to base judgments,
4. "Determination of the likely (non-marginal) environmental impacts", usually in terms of Direction of Change rather than firm figures,

Point 3 and 4 are worked out in this Environmental Report.

5. Informing and consulting the public,
6. Influencing "Decision taking" based on the assessment and,
7. Monitoring of the effects of plans and programmes after their implementation.



Due to the size of the study area and the temporary processing time a small observation scale has been chosen.

3.2 Environmental Report

This step aims to define the relevant environmental issues, which should be considered within the SEA. Information on the state of the environment and natural resources relevant to the programming document will be presented. The likely evolution of these trends without implementation of the programming document will be outlined as a basis for the assessment of impacts of the programme. The rating always is examined in comparison to the trend without implementing the programme, and not referring to the status quo.

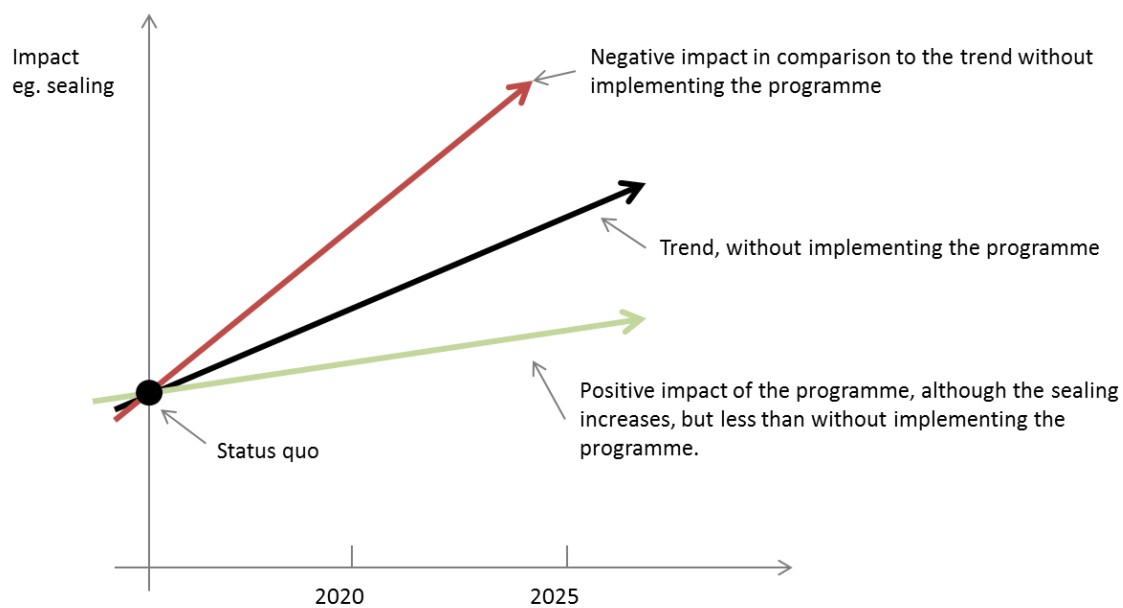


Figure 1: The Rating Scheme. Source: Hoffert-Hösl (Verracon GmbH)

Based on the identified issues the relevant environmental objectives that should be considered on international and national level within the programming document and the SEA process will be set out. Furthermore suitable environmental guiding questions or indicators will be formulated, that will guide analyses within the SEA process. The Environmental Issues and Indicators are described in detail.

The assessment will be done by a qualitative description of possible positive or negative effects which are induced by objectives and priorities of the programming document. Synergies and conflicts between the relevant environmental objectives and the specific development objectives and priorities proposed in the programming document are analyzed.

The methodical approach follows the general question:

“Is there any significant positive or negative effect on environmental issues in the programming area due to possible actions related to programme priorities fields of activity pointed out in the OP?”

The development of the environmental issues and guiding questions/indicators in case that the program will not be implemented will create a “zero”-option which will be defined as the “**baseline” for the overall assessment process.**

Measures to prevent reduce and offset adverse effects and the suggestions for improvement (which are brought in during the programming process) are suggested to the drafting team.

These suggestions are regarded as alternatives. A summary on how the environmental considerations and the opinions expressed in the SEA have been taken into account will be provided.

4 ENVIRONMENTAL OBJECTIVES

The environmental protection objectives, including the selected relevant indicators, which are relevant for the programme and the programme region, are described in several protocols, strategies and legislatives. They present the higher aim to be reached by each action affecting the environmental issues that are described later in this report.

4.1 International Objectives

- Johannesburg Declaration 2002: guiding principles on sustainable development; builds on earlier declarations made at the United Nations Conference at Stockholm in 1972, and the Earth Summit in Rio de Janeiro in 1992
- Protocol of Kyoto 1997: International aims of Climate protection
- UN Convention on Biological Diversity (CBD, 1992)
- CBD Strategic Plan 2011-2020
- Nagoya-Protocol 2010

Aims: The conservation of biological diversity, the sustainable use of the components of biological diversity (CBD) and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources (Nagoya-Protocol).

4.2 Objectives for the European Union

It is not possible within this SEA to give a complete summary of objectives valid in the European Union. Some of the most important directives are:

- **EU biodiversity strategy 2020**, (COM(2011)0244). Aims: halt loss of biodiversity and decline of ecosystems and their services within EU, raise EU contribution to international protection of biodiversity. The Strategy follows three priorities, which were adopted in June 2010:
 - Smart growth: developing an economy based on knowledge and innovation.

- Sustainable growth: promoting a more resource efficient, greener and more competitive economy.
- Inclusive growth: fostering a high-employment economy delivering social and territorial cohesion.
- **Natura 2000**: European network of more than 26,000 protected sites (bird and habitats); Aims: implementation of CBD; ensure the survival of Europe’s most valuable species and habitats
- **EU strategy for the Danube region** (EUSDR, 2011). Aims related to subject of protection: protecting the environment in the Danube region and preserve biodiversity and landscapes.
- **Council Directive 92/43/EEC of 21 May 1992** on the conservation of natural habitats and of wild fauna and flora
- **Council Directive 79/409/EEC of 2 April 1979** on the conservation of wild birds
- **Directive 2000/60/EC** of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy (“Water Framework Directive”).

4.3 Objectives and Legal Basis for Each Objective by Country

Factors	Objectives	Legal Basis
Environmental Media Soil Water Air Climate The Land- scape	<p>The functions of the soil (archive function, soils with high soil fertility, and soil as a site for rare plant species) are to back up sustainable or to restore. Impacts on the soil concerning its natural functions as well as its function as an archive of natural and cultural history should be avoided where possible.</p> <p>Achieve good quality of surface and ground waters as defined in the Water Framework Directive 2015</p> <p>Save present quality of ground waters</p> <p>Comply with legal limits listed in the</p>	<ul style="list-style-type: none"> • Bundesgesetz vom 3. Juli 1975, mit dem das Forstwesen geregelt wird (Forstgesetz 1975), BGBl. Nr. 440/1975 idF BGBl. I Nr. 83/2004 • Verordnung des Bundesministers für Land- und Forstwirtschaft betreffend Schwellenwerte für Grundwasserinhaltsstoffe (Grundwasserschwellenwertverordnung - GSwV), BGBl. Nr. 502/1991 idF BGBl. II Nr. 147/2002 • Richtlinie 2001/42/EG des Europäischen Parlament und des Rates vom 27. Juni 2001 über die Prüfung der Umweltauswirkungen bestimmter Pläne und Programme, ABl. Nr. L197/30 vom 21. Juli 2001 • Bundesgesetz über die Prüfung der Umweltverträglichkeit (Umweltverträglichkeitsprüfungsgesetz 2000 – UVPG 2000), BGBl. Nr. 697/1993 idF BGBl. I Nr. 153/2004 • Richtlinie 2000/60/EG des Europäischen Parlaments und des Rates vom 23. Oktober 2000 zur Schaffung eines Ordnungsrahmens für Maßnahmen der Gemeinschaft im Bereich der Wasserpolitik, ABl. Nr. L 327/1 vom 22. Dezember 2000 idF ABl. Nr. L 331/1 vom 15. Dezember 2001 (Wasser Rahmenrichtlinie, WRRL) • Wasserrechtsgesetz 1959 - WRG 1959, BGBl. Nr. 215/1959 idF BGBl. I Nr. 112/2003

Factors	Objectives	Legal Basis
	<p>Air Quality Framework Directive</p> <p>Promote low carbon technologies to reduce emissions and noise</p> <p>Reduce greenhouse gas emissions according to Kyoto protocol</p> <p>Minimize land consumption.</p>	<ul style="list-style-type: none"> • 2007. évi CXXIX. törvény a termőföld védelméről • 2012. évi CCCVIII., és az 1995. LVII. törvény a vízgazdálkodásról • 2007. évi LX. törvény az ENSZ Éghajlatváltozási Keretegyezménye és annak Kiotói Jegyzőkönyve végrehajtási keretrendszeréről • 306/2010. (XII. 23.) Korm. rendelet a levegő védelméről • 310/2008. (XII. 20.) Korm. rendelet az ózonréteget lebontó anyagokkal és egy fluortartalmú üvegházhatású gázokkal kapcsolatos tevékenységekről • 306/2010. (XII. 23.) Korm. rend. a levegő védelméről • 10/2001. (IV. 19.) KöM rendelet az egyes tevékenységek és berendezések illékony szerves vegyület kibocsátásának korlátozásáról • 4/2011. (I. 14.) VM rendelet a levegőterheltségi szint határértékeiről és a helyhez kötött légszennyező pontforrások kibocsátási határértékeiről • 6/2011. (I. 14.) VM rendelet a levegőterheltségi szint és a helyhez kötött légszennyező források kibocsátásának vizsgálatával, ellenőrzésével, értékelésével kapcsolatos szabályokról • 6/2009. (IV. 14.) KvVM-EüM-FVM együttes rendelet A földtani közeg és a felszín alatti vízszennyezéssel szembeni védelméhez szükséges határértékekről és a szennyezések méréséről • A Tanács 98/83/EK irányelve (1998. november 3.) az emberi fogyasztásra szánt víz minőségéről • 201/2001. (X. 25.) Korm. rendelet az ivóvíz minőségi követelményeiről és az ellenőrzés rendjéről • 219/2004. (VII. 21.) Korm. rendelet a felszín alatti vizek védelméről • 50/2001. (IV. 3.) Korm. rendelet a szennyvizek és szennyvíziszapok mezőgazdasági felhasználásának és kezelésének szabályairól • Nemzeti Éghajlatváltozási Stratégia 2013 • Nemzeti Energiastratégia 2030
Fauna and Flora Woodland Forest Wild Habitats Biological Diversity	<p>Ensure that permanent biodiversity populations including their habitat and the exchange between populations as well as hiking and re-colonisations are allowed according to their degree of hazard. The land use of appropriately used areas should be avoided. A fragmentation of habitats and life-networks should be avoided. An impairment of areas with special protection status (FFH habitats, conservation areas), no matter which category of living organisms and the Red List have to be excluded.</p> <p>Raise greater public awareness of biodiversity issues</p> <p>Raise area and category of conservation areas to protect and restore habitats and halt the loss of biodiversity and degradation of ecosystem functions</p>	<ul style="list-style-type: none"> • Richtlinie 92/43/EWG des Rates vom 21. Mai 1992 zur Erhaltung der natürlichen Lebensräume sowie der wildlebenden Tiere und Pflanzen (Fauna-Flora-Habitat-Richtlinie), ABl. Nr. L 206/7 vom 22. Juli 1992, idF ABl. Nr. L 284/1 vom 31. Dezember 2003 • Richtlinie 79/409/EWG des Rates vom 2. April 1979 über die Erhaltung der wildlebenden Vogelarten (Vogelschutz-Richtlinie), ABl. Nr. L 103/1 vom 25. April 1979 idF ABl. Nr. L 236/870 vom 23. September 2003 • EU biodiversity strategy 2020, (COM(2011)0244) • Aims: halt loss of biodiversity and decline of ecosystems and their services within EU, raise EU contribution to international protection of biodiversity • Natura 2000: European network of more than 26,000 protected sites (bird and habitats); • Aims: implementation of CBD; ensure the survival of Europe's most valuable species and habitats • EU strategy for the Danube region (EUSDR, 2011) • Aims related to subject of protection: protecting the environment in the Danube region and preserve biodiversity and landscapes • Austrian Biodiversity Strategy (BMLFUW 2005a) • Austrian National Park Strategy (Österreichische Nationalpark-Strategie) (BMLFUW 2010) • priority list for protection of habitats, plants and vertebrates, (NATURSCHUTZBUND Österreich 2008) • Austrian AgriEnvironmental Programme, (ÖPUL) for conserving biodiversity on agricultural areas and forests

Factors	Objectives	Legal Basis
		<ul style="list-style-type: none"> • 1998. évi XXVIII. törvény az állatok védelméről és kíméletéről • 2009. évi XXXVII. törvény az erdőről, az erdő védelméről és az erdőgazdálkodásról • 1995. évi LXXXI. törvény a Biológiai Sokféleség Egyezmény ki-hirdetéséről • A természet védelméről szóló 1996. évi LIII. törvény • 275/2004. (X. 8.) Korm. rendelet az európai közösségi jelentőségű természetvédelmi rendeltetésű területekről (Natura 2000 területek)
<p>Human Health</p> <p>Landscape and landscape household</p> <p>Landscape scenery</p> <p>Utilization and exploitation</p> <p>Material assets</p> <p>Cultural Heritage</p>	<p>The program is to be developed so that adverse environmental impacts on the living serving areas and other public use areas or buildings are exclusively or predominantly as far as possible avoided.</p> <p>Substantial reduction of noise pollution/exposure</p> <p>Reduce the share of population exposed to long term medium noise level from e.g. traffic and industry</p> <p>Promote low carbon technologies to reduce emissions and noise</p> <p>Reduction of sealed soil per day</p> <p>Establish green infrastructure</p> <p>Valorise cultural heritage in a sustainable, environment friendly and resource efficient way</p> <p>Raise awareness amongst local authorities, population and tourists</p> <p>Maintain and restore the protective capacity of ecosystems</p> <p>Increase recycling rates and resource efficiency from extraction and processing</p> <p>Reduce total amount of waste disposed</p> <p>Increase use of renewable raw materials</p> <p>Stabilize final energy consumption</p> <p>Increase share of renewable energy sources like hydro and wind power, biomass and photovoltaic</p> <p>Increase security of supply</p> <p>Improve energy efficiency</p> <p>Improve cross border accessibility by public transport infrastructure</p> <p>Improve regional mobility by environmental friendly transport solutions</p>	<ul style="list-style-type: none"> • Luftqualitäts- Rahmen-RL; Richtlinie 96/62/EG des Rates vom 27. September 1996 über die Beurteilung und die Kontrolle der Luftqualität, ABl. Nr. L 296/55 vom 21. November 1996 idF ABl. Nr. L 284/1 vom 31. Dezember 2003; Richtlinie 1999/30/EG des Rates vom 22. April 1999, über Grenzwerte für Schwefeldioxid, Stickstoffdioxid und Stickstoffoxide, Partikel und Blei in der Luft, ABl. Nr. L 163/41 vom 29. Juni 1999 idF ABl. Nr. L 278/35 vom 23. Oktober 2001 • Richtlinie 2000/69/EG des Europäischen Parlaments und des Rates vom 16. November 2000 über Grenzwerte für Benzol und Kohlenmonoxid in der Luft, ABl. Nr. L 313/12 vom 13. Dezember 2000 idF ABl. Nr. L 111/31 vom 20. April 2001 • Richtlinie 2002/3/EG des Europäischen Parlaments und des Rates vom 12. Februar 2002 über den Ozongehalt der Luft, ABl. Nr. L 67/14 vom 9. März 2002 • Richtlinie 2004/107/EG des Europäischen Parlaments und des Rates vom 15. Dezember 2004 über Arsen, Kadmium, Quecksilber, Nickel und polyzyklische aromatische Kohlenwasserstoffe in der Luft, ABl. Nr. L 23/3 vom 26. Jänner 2005 • Bundesgesetz über Maßnahmen zur Abwehr der Ozonbelastung und die Information der Bevölkerung über hohe Ozonbelastungen, mit dem das Smogalarmgesetz, BGBl. Nr. 38/1989, geändert wird (Ozongesetz), BGBl. Nr. 210/1992 idF BGBl. I Nr. 34/2003 • Immissionsschutzgesetz-Luft, BGBl. I Nr. 115/1997 idF BGBl. I Nr. 34/2003 • Richtlinie 96/61/EG des Rates vom 24. September 1996 über die integrierte Vermeidung und Verminderung der Umweltverschmutzung (IPPC-Richtlinie), ABl. Nr. L 257/26 vom 10. Oktober 1996 idF ABl. Nr. L 284/1 vom 31. Dezember 2003 • Bundesgesetz vom 7. Juni 1989 zur Finanzierung und Durchführung der Altlastensanierung, mit dem das Umwelt- und Wasserwirtschaftsfondsgesetz, BGBl. Nr. 79/1987, das Wasserbautenförderungsgesetz, BGBl. Nr. 148/1985, das Umweltfondsgesetz, BGBl. Nr. 567/1983, und das Bundesgesetz vom 20. März 1985 über die Umweltkontrolle, BGBl. Nr. 127/1985, geändert werden (Altlastensanierungsgesetz), BGBl. Nr. 299/1989 idF v. BGBl. I Nr. 71/2003 • KYOTO PROTOCOL TO THE UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE, 11 December 1997 <hr/> <ul style="list-style-type: none"> • 2003. évi XXVI. törvény az Országos Területrendezési Tervről • 2001. évi LXIV. törvény a kulturális örökség védelméről • 2012. évi XCV. törvény a kölcsönzött kulturális javak különleges védelméről • 324/2010. (XII. 27.) Korm. rendelet a Kulturális Örökségvédelmi Hivatalról, a kulturális örökségvédelmi szakigazgatási szervekről, és eljárásaikra vonatkozó általános szabályokról • A hulladékokról szóló 2012. évi CLXXXV. törvény;

Factors	Objectives	Legal Basis
		<ul style="list-style-type: none"> • 98/2001. (VI. 15.) Korm. rendelet a veszélyes hulladékokkal kapcsolatos tevékenységek végzésének feltételeiről; • 1/2002. (I.11.) EüM rendelet az egészségügyi intézményekben keletkező hulladék kezeléséről; • 16/2002. (IV. 10.) EÜM rendelet a települési szilárd és folyékony hulladékokkal kapcsolatos közegészségügyi követelményekről

Table 1: Environmental Objectives and legal basis in Austria and Hungary (selection)

4.4 Indicators and Environmental Protection Issues /Objectives

The SEA will cover the following subjects of protection (Environmental issues) and their associated indicators:

Environmental Issue	Specification	Indicators
Environmental Media	Soil Water Air Climate The Landscape	<ul style="list-style-type: none"> • Land consumption, sealing • Impact on soil quality • Impact on water quality • Impact on hydrology • Visual impacts on landscape • Airborne emissions excl. GHG-emissions
Fauna and Flora	Fauna Flora Woodland Forest Wild Habitats Biological Diversity	<ul style="list-style-type: none"> • Impact on Biodiversity (Development of threatened species according to Red Lists) • Forest condition, silviculture • Condition and development of nature protection areas • Impacts due to barrier effects • Impacts on wild habitats
Human beings	Health Landscape and landscape household Landscape scenery Utilization and exploitation Material assets Cultural Heritage	<ul style="list-style-type: none"> • Land consumption • Number/area of regions threatened from natural hazards • Status of hazard zone planning • Increase of traffic • Increase of waste • Use of renewable raw materials • Use of fossil raw materials • Increase of energy consumption

		<ul style="list-style-type: none"> • Impacts on cultural heritage • Volume of vehicular traffic • Quality of infrastructure for environmental friendly mobility
Interactions and correlations		<ul style="list-style-type: none"> • Accumulation of impacts • Coaction of impacts

Table 2: Environmental Issues and Indicators.

5 CURRENT SITUATION AND TRENDS WITHOUT PROGRAMME IMPLEMENTATION

In the following, only the most important and relevant parameters are specified, a complete list of indicators is worked out in the Environmental Report

5.1 Status Quo and Trend without Implementing the Programme – Austria

5.1.1 Increase of land consumption, sealing, and visual impacts on landscape

5.1.1.1 Status

The construction and transport area has between 2009 and 2012 increased by nearly 10% (BEV 2009, 2012). During the same period, however, the population increased by only 1.1% and the number of households increased by 2.4% (Statistics Austria 2012a).

The total daily rate of sealing (construction and traffic areas, sports facilities, infrastructure areas) was in the period 2009-2012 at 22.4 ha / day and remains compared to the previous period (2001-2009) at a very high level. The decline in the growth of construction and traffic areas was due to the large increase of other infrastructure areas (supply and disposal areas, storage areas, etc.) in the amount of + 12.4 ha / day. Already 17% of the permanent settlement area is taken by these uses.

This is accompanied by the progressive soil sealing, i.e., the soil cover by impermeable layers (asphalt). On average the last three years at least **4.3 ha per day** were sealed (BEV 2009, 2012).

5.1.1.2 Trend

- As it can be seen from the figures the sealing process progresses rapidly in the programme area. Although the dramatic trend of land use has slowed somewhat in recent years (due to the economic crisis), it cannot be assumed that there is a trend reversal.

	The influence on the landscape remains at a high level. The conflict between the production of renewable energy and landscape (wind power plants, monocultures for "organic" heating plants) remains.
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5.1.2 Impact on water quality

5.1.2.1 Status

In Austria, natural surface water bodies without modified or artificial waters account for 88% of the network. Sixteen per cent of these have a high ecological status, 23% have a good one, and 51% have a moderate, 8% a poor and 2% a bad ecological status. With 100 per cent of Austrian drinking water coming from ground- and spring water, the quality of drinking water is among the very best in the world. In the intensively agricultural used areas in the North and East of Austria like the Marchfeld region or the Wiener Umland there are some deficits in the saprobiological waterquality and nutrient loads in the running waters. Failure to meet the target due to general pollutant loads – organic load, nutrients – occurred in only 19% of water bodies.

Most of the water monitoring stations of running waters – 83% for annual mean and 60% for maximum value – show nitrate concentrations of < 10 mg NO₃/l for the reporting period 2003-2007, the last reporting period in accordance with the EU Nitrates Directive 91/676/EEC. If one considers the development of nitrate concentrations in running waters over many years, on the whole it can be assumed that the situation is stable.

In Austria, extensive measures were carried out for water pollution control in recent decades. In the year 2007 an action plan for the Raab River has been implemented between Hungary and Austria, which is successfully finished.

According to the Water Framework Directive almost two thirds of Austrian rivers did not reach the so called "good ecological status". Therefor incentive schemes were carried out to increase the number of projects concerning the ecological improvement of water bodies of passage of fish and other aquatic organisms. Until the end of 2011 110 projects were carried out.

Although the chemical quality of ground and surface waters is improving, however, action is needed in the field of the hydro-morphological condition of the water bodies, as clearly shown in the figure above.

5.1.2.2 Trend

0 +	The successes achieved in the prevention of water pollution are due to waste water treatment. For running waters a need for action was identified, in particular as far as the structure of water bodies and the hydrology are concerned. Remediation priorities up to 2015 include measures for the removal of barriers to fish migration and to improve the
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structures of water bodies, e.g. by restoring them to their natural state. An expansion of hydroelectric power generation is not entirely compatible with the ecological targets and should take into account the requirements of the Water Framework Directive. The trend without implementing the programme can be rated as slightly positive, due to actions already implemented.

Action is needed, especially in the improvement of hydro-morphological condition.

5.1.3 Airborne emissions, GHG-emissions, Impact on climate

5.1.3.1 Status

In 2011, in Austria 82.8 million tonnes of CO₂ equivalent emitted and thus by about 6.0% more than in 1990. The greenhouse gas emissions were 14.1 million tonnes of CO₂ equivalent over the annual average of around 68.8 million tonnes of CO₂ equivalent for the 2008-2012 Kyoto target set in Austria in 2011. With the exception of 2010, the GHG emissions have decreased steadily since 2005. The increase in 2010 is due to the recovery of the economy after the 2009 crisis, the decline from 2010 to 2011 on the decreasing consumption of fossil fuels, partly due to the relatively mild winter of 2011 (UMWELTBUNDESAMT 2013A).

Important successes have been achieved in air quality management, but there is still much to be done. Particulate matter and nitrogen oxides put much more strain on the health of the Austrian population than is allowed under European Union regulations. Depending on where one lives, particulate matter alone can reduce one's average life expectancy by several months.

For the implementation of the Kyoto Protocol it was necessary to achieve a 13% reduction of the national emission levels of 1990 in the period 2008-2012. A much larger part than originally planned of this reduction was achieved through the use of flexible instruments (i.e. climate change mitigation efforts abroad funded by Austria). But Austria failed to reach the targets of the "Klimastrategie 2007" (BMLFUW 2007)

The measures implemented up to now have not been sufficient to guarantee that compliance with the limit values in Austria can be achieved within the pre-scribed period or in the future. In 2010 nitrogen oxide levels were about 40 % above the admissible levels specified in the Austrian Emission Ceilings Act - Air. The admissible levels of the European Air Quality Directive for particulate matter were exceeded in seven of the nine Austrian federal provinces in 2011. Several guide-

lines were implemented to achieve the 20% reduction of greenhouse gas emissions¹, (Umweltbundesamt, 2013)

5.1.3.2 Trends

0 -	In summary, it cannot be clearly understood from a positive trend. In an additional scenario "with additional measures" there is even an improvement in the situation. However, this seems optimistic. Realistically, a slight negative trend can be assumed, depending on the development of the economy and the climatic situation.
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5.1.4 Impact on Biodiversity, red-list-species, wild habitats and barrier effects

5.1.4.1 Situation

In Austria there are about 3,000 native ferns and flowering plants. Of these, 40% were already about 15 years ago at risk (BMUJF 1999). Current Austria-wide Red Lists of endangered plants are not available. The number of animal species in Austria is estimated at 45,000 (GEISER 1998), of this total, 98.6% to invertebrates. Current Red lists of endangered animals in Austria are for 19 groups of animals before (BMLFUW 2005b, 2007, 2009) as well as for old breeds of domestic animals (BMLFUW 2010b).

The five most vulnerable vertebrate species are Ground Squirrels, Great Bustard, Greater Horseshoe Bat, Orsini's Viper and Corncrake (ANL 2008). A prioritization of other groups of animals and plants and habitats is planned. In the program area, numerous habitats for these species are present. In recent years, a number of conservation measures have been carried out, especially on the Danube, March, Mur and Lafnitz.

For Ground Squirrel and Great Bustard conservation projects were carried out both in Burgenland and Lower Austria. For the Great Bustard was achieved through habitat improvement measures already a significant population increase. Other species, whose populations or stocks in recent years could be improved locally in Austria, include yellow-bellied toad and forest steppe sagebrush. In recent years, the wildcat especially south of the Danube and in the Thaya Valley National Park was spotted.

¹ Emissionshandelsrichtlinie (RL 2009/29/EG); Effort-Sharing (Entscheidung Nr. 406/2009/EG); Richtlinie erneuerbare Energien (RL 2009/28/EG); Richtlinie über die Abscheidung und geologische Speicherung von Kohlendioxid (Carbon Capture and Storage) (RL 2009/31/EG); Energiestrategie Österreich (LEBENS MINISTERIUM & BMWFJ 2010); Klimaschutzgesetz (KSG; BGBl. I Nr. 106/2011)

In the last decade, measures to combat invasive alien plants have been carried out, for example, in the National Park Donau-Auen (balsam, acacia) as well as in the Vienna Woods (Giant Hogweed, Knotweed, Balsam).

There are numerous initiatives and programs (ÖPUL, LIFE) to get biodiversity and promote. Unfavourable factors on biodiversity represent in every case the use of land for construction and traffic areas and the associated fragmentation of the landscape.

To prevent the establishment of additional non-native species measures are to develop and to implement. The fight against once established, non-native invasive species (invasive species) is hardly possible or only with high resource use. In some protected areas, such measures are already being carried out.

In order to improve the stock situation of the FF-Habitats and the birds of the cultural landscape further measures to species and habitat protection are to be integrated into the new programs. The production of biomass must be compatible with nature.

As for the **fragmentation of habitats**, so the programme area is already at a very unfavourable level. Each transport-related construction project, regardless of size, can have an impact on the biotope network. In the execution of such measures is essential to pay attention to the environmental impact.

5.1.4.2 Trend

-	Despite the large number of measures, many species and habitats are in a precarious situation, which will be exacerbated even further by climate change.
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5.1.5 Condition and development of nature protection areas

5.1.5.1 Situation

Overall, Austria has more than 35,000 km² with regard to biodiversity particularly valuable cultural landscapes. Of these landscapes are 8,400 km² protected through national parks, nature reserves or Natura 2000 areas (Biodiversity and Conservation). Nearly 15,000 km² particularly valuable agricultural environment in the agricultural area, but only 2,500 km² of these areas can be found in one of the three categories of protected areas mentioned. Derived from the EU project NATREG in Styria, where more than 900 km² were defined as greenbelt proposals (Wieser et al. 2011), would be allocated to Austria, a share of about 18 % of the permanent settlement area (5,600 km²) to be held free for green infrastructure permanently from a building .

About 27 % of the Austrian areas are protected sites: 16 % are Natura 2000 sites, National parks or strong protected areas. 11% are less protected areas like nature preserves or protected landscapes. Because of its geographic situation and its cultural landscape which has grown over centu-

ries, Lower Austria has a large variety of habitats and species worthy of protection. Following the Natura 2000 procedure, the competent authorities in Lower Austria selected 20 Natura 2000 sites under the Habitats Directive and 16 sites under the Birds Directive. Together these areas account for approx. 23% of Lower Austria's territory and were declared by ordinance to be "European Protection Areas". In Vienna there are 4 and in Burgenland 16 Natura 2000 sites. With additional 6 nature preserve areas, 8 protected landscapes and one national park the situation in Burgenland is very unique.

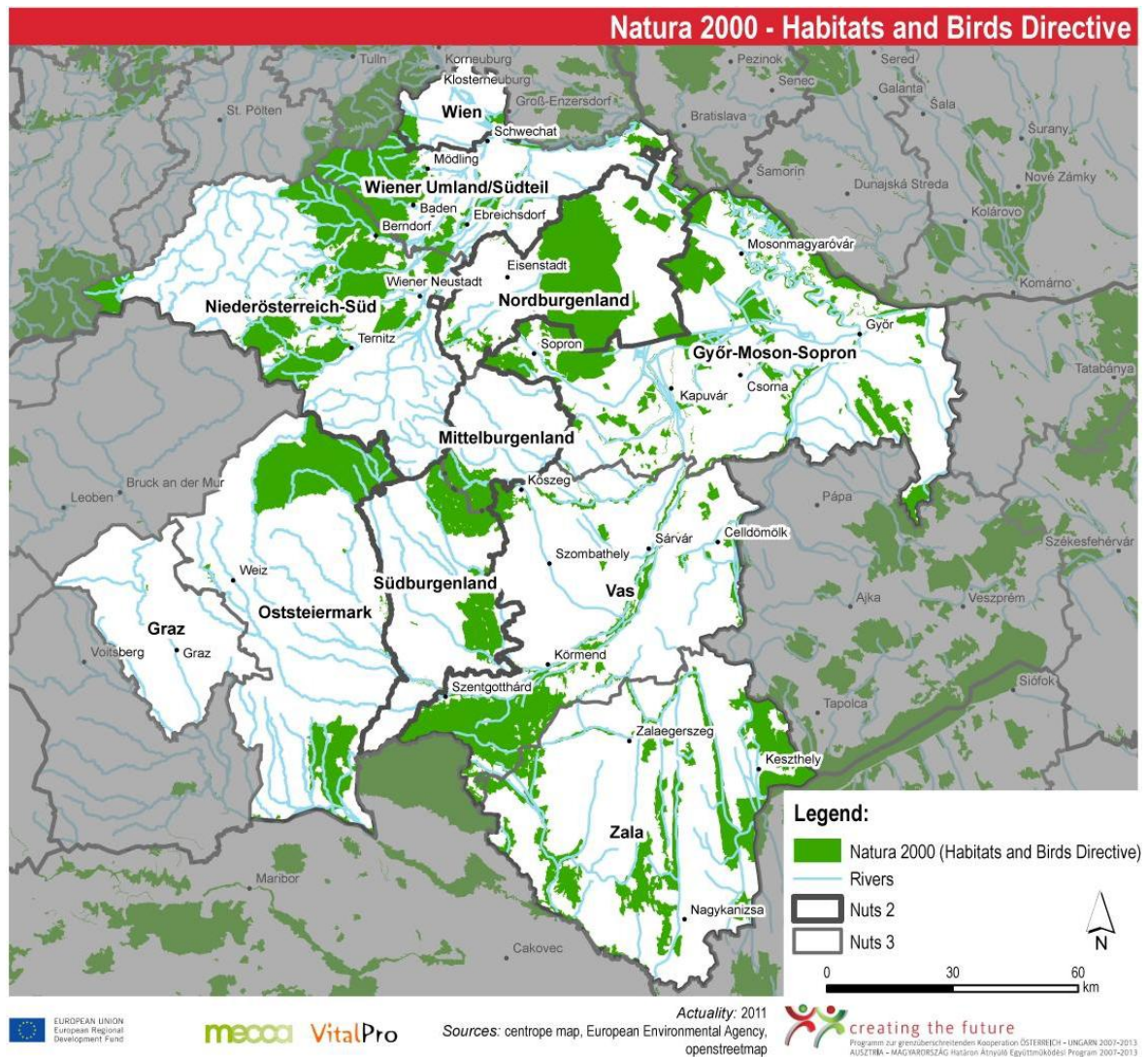


Figure 2: Natura 2000 areas in the programme area.

The loss of biodiversity within the EU could not be halted sufficiently in order to reach the goals established in 2010. In Austria the preservation of the biodiversity is not secured satisfactory although various conservation and cultivation measures have been taken. This applies for the program area (PA) as well.

5.1.5.2 Trend

+	As mentioned in the OP the high ecological awareness in Austria and the increasing interest in Hungary will continue to play an important role for cross-border cooperation in the fields of environment protection and renewable energy . Know-how-transfer, exchange of good practices and institutional cooperation will be facilitated through existing networks in those topics. While Austria has more experience in the fields of environmental protection and renewable energy, Hungary has enormous agricultural potential. Both countries have experience in common nature management.
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5.1.6 Status of hazard zone planning and impact on Number/area of regions threatened from natural hazards

5.1.6.1 Situation

The potentially vulnerable floodplains of HQ200 (200-year flood) in Austria include 3,955 km² (HORA, Umweltbundesamt). Within these areas are more than 250,000 buildings, just fewer than 9% of the total building stock (Umweltbundesamt, 2012). Nearly 60% of these buildings are located within the zone of HQ30 (30-year flood).

Priority areas for flood protection and other natural hazard events are set in the regional spatial order and must be kept free in the local spatial planning of buildings. This requires in particular the increased legal coupling of hazard zone planning and zoning by the legal consequences of the contents of hazard zone maps for dedication decisions in the planning legislation (BMLFUW 2012b , ÖROK 2011). Regard to the natural hazards the involvement of regional planning is necessary because in the 2011 amendment to the water Act (Federal Law Gazette I No. 14/ 2011) the creation of danger zone planning is required for areas with potential significant flood risk , unless there is adequate flood protection exists and there are no equivalent plans are available.

5.1.6.2 Trend

+	Due to climate change there is an increased space requirement for active and passive flood and natural protection. When creating danger zone plans and designation of flood areas climate change but is <i>not</i> yet considered (BMVIT & BMLFUW 2009). Proposed actions and recommendations for a space-based natural hazard management (BMLFUW 2004 BMVIT & BMLFUW 2009 ÖROK 2004) are to be implemented.
	However, natural hazard planning is already on a high level. There are already foreseen

some measures to improve the situation.

5.1.7 Use of renewable and fossile raw materials

5.1.7.1 Situation

The status of resource consumption, waste development and recovery and the use of renewable

The Austrian DMC (domestic material consumption) increased from 114 million tons to 197 million tons from 1960 to 2008. In 2008, 24 tons per capita has been consumed in comparison to 16 t average within the European Union (EU-27). Non-metal minerals like sand or gravel (62 %), followed by biomass (22 %), fossil fuels (12 %) and metals (4 %) had the largest share on the materials consumed. At the same time, however, the resource efficiency could be improved about 160%. This was in 2010 with a ton of primary raw materials 2.6 times economic performance can be achieved as in 1960.

Total material imports increased six times to 88 million tonnes. The increased material consumption caused by production and private consumption presents one key driver for the increased waste generation. The development and use of complex products lead to a heavy dependency on fossil fuels and scarce resources such as rare earths.

Ambitious aim of the Resource Efficiency Action Plan is the completely decoupling of the economic development from resource consumption and its resulting environmental impacts. As a requirement, resource efficiency in Austria need to be raised upon 50 % by the year 2020 for the decrease of the total resource input.

5.1.7.2 Trend

From 2007 to 2010, the use of materials in Austria has decreased, but at the same time the economy stagnated. In continuation of the existing long-term trends in domestic material consumption from 2008 to 2020 will increase by 8%, although the resource efficiency increases to 15% (BMLFUW & BMWFJ 2011).

The in Federal Waste Management Plan (BMLFUW 2011) conducted assessment of future development comes to the conclusion that by 2016 it is expected to increase the amount of waste. By participating in separate collection value -rich fractions, although a significant portion of the waste can be recycled, yet resource management, waste prevention and recycling are to continue to accelerate.

There is great potential for the prevention of waste in the construction industry involve the techniques of prolonging life building. The recycling of construction waste can be increased by the use of quality-assured recycled building materials with low pollutant

content further. The prevention of food waste contributes significantly to the conservation of resources, since foods are extremely resource - and energy-intensive to produce and distribute. The treatment of food waste is energy - and cost-intensive. The potential for prevention of food waste is considerable.

Nevertheless it must be assumed that the consumption of natural resources increases, once the economy recovers. This will concern land use, as well as food and inorganic resources (oil, gas, earth).

5.1.8 Use of renewable energy and its rate within the energy mix

5.1.8.1 Situation

The climate and energy package of the European Union as well as the Austrian energy strategy and the Climate Act 2011 specify that the share of renewable energy sources should be raised to 34% of gross final energy consumption in 2020, that final energy consumption should be stabilised at the level of 2005 (1,100 PJ) and that greenhouse gas emissions in the non-emission trading sector should be reduced by 16% below 2005 levels.

The share of renewable energy sources in 2011 was a total of 31.0%, which is still well below the target of 34%. Therefore, the application of renewable energy sources (currently 357.5 PJ) must be increased by 2020 even with constant energy consumption. At the same time we should pay greater attention to the conservation of the natural habitat and biodiversity.

The last few years have seen an increase in both the relative and the absolute contribution of renewable energy sources to national consumption.

Renewable Energy has become a main focus of Austrian climate policy within the last years. If measured on the entire end use consumption, Austria (in 2011) provided for nearly 30% of its total energy needs with renewable energy sources. It ranks high in renewable energy production mainly due to its high share in hydropower, wind power and biomass and was among the four EU countries with the highest share of energy from renewable sources in gross final energy consumption. By sector, this means 65% renewable electricity (mainly out of water and wind power), 46% renewable heat (mainly from biomass and some heat pumps, solar thermal and geothermal units), but only 7% of renewable fuels at the transport sector.

Burgenland in the electricity sector is **energy self-sufficient within 2013**; it is the aim of the federal state to get a 55% share of total energy by renewables by 2020 and total autonomy by 2050. Lower Austria shall become energy self-sufficient in the sector of electricity by 2015 and a 50% share of renewables regarding total energy by 2020 (MECCA, 2013).

5.1.8.2 Trend

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If the major part of the proposed package of measures is implemented, the above-mentioned targets (1,100 PJ; 34% renewable energy as well as -16% GHG emissions) can be achieved or surpassed.

5.1.9 Status of energy consumption

5.1.9.1 Situation

The gross inland consumption has increased in Austria since 1990 by 36% and amounted 1,427 PJ in 2011 (Statistics Austria 2012a). 72% of the gross inland consumption was applied by fossil fuels in 2011, 26% by renewable and 2% by electricity imports. Between 2005 and 2011 the gross domestic consumption has decreased by 2%. For fossil fuels, a reduction of 7% was recorded. The use of renewable energy sources has increased by 28% over this period (Statistics Austria 2012a).

Between 2005 and 2011, final energy consumption decreased by 2.6%. Reductions occurred in the sectors of households (- 7.4%), transport (- 5.4%) and agriculture (- 0.9%), growth in industry (1.7%) and services (5.7%; STATISTIK AUSTRIA 2012a).

The transport sector had in 2011 with 33% the largest share of final energy consumption. This comes to 91% from fossil products, 6% from renewable and 3% from electricity. The 29% of the industry come to 50% from fossil products to 31% from electricity, 16% from renewable and 3% from heat. The 24% of households to 39% originate from fossil products, 27% from renewable sources to 23% of electricity and 10% of heat. The 12% of business services originate from 35% electricity, 33% from fossil products, 27% from thermal and 5% from renewables. In the agricultural sector accounted for 2%.

Austria sets a strong political and economic focus on cutting down energy consumption and increase energy efficiency in the sectors industry, mobility and housing. The rising need for energy and heavy dependency on energy imports.

An expansion of hydroelectric power generation is not entirely compatible with the ecological targets and should take into account the requirements of the Water Framework Directive.

5.1.9.2 Trend

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The dependence of the energy consumption and the economic situation is clearly visible. The general trend of rapidly rising energy consumption seems to have halted since 2005. Final energy consumption in 2011 was 11 PJ below target for the year 2020, before a new record was in 2010 with 1,134 PJ reached. The decrease from 2010 to 2011 is primarily due to lower energy consumption for households and services due to a warmer winter. For a secure compliance 1,100 PJ target, it is necessary to reduce the power con-

	sumption continuously. In order to prevent the occurrence of rebound effects on efficiency measures, energy prices and their share of tax is an essential tool. However a slight increase of energy consumption is to be expected, although the efficiency of energy consumption rises.
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5.1.10 Status of mobility and its impact on environment

5.1.10.1 Situation

To achieve a sustainable reduction of traffic volumes in the long term, binding environmental policy targets have to be integrated into transport and spatial planning, and infrastructure development as well as cost structures in transport have to be designed in such a way that the targets can be achieved (UMWELTBUNDESAMT, 2013).

In recent years, there has been an increase in range of cross-border public transport services, although only in some parts of the region. The frequency of connections and running times indicate positive values among major towns and between some smaller municipalities in Burgenland and Bratislava. It is necessary to note that the accessibility of the large cities by public transport is competitive to individual transport when comparing travel times. In Austria an implementation plan on fostering electro-mobility has been developed. By 2020, the target of 250.000 electric vehicles should be reached. Electro-mobility along with higher energy efficiency and intensified use of renewable energy sources should contribute towards environmental and climate protection. The master plan on cycling (Masterplan Radfahren, BMLFUW 2011) describes supporting measures for bicycle traffic in Austria and cycling should reach a total share of 10 % of traffic in Austria.

The situation of mobility and accessibility has already been described in the Regional Analysis and the SWOT analysis.

Of all sectors, the transport sector has seen the strongest increase in green-house gas emissions since 1990, although a reversal in the overall trend has been observed since 2005. This reversal has been brought about by the use of biofuels, an increase in the efficiency of single vehicles and higher energy prices and the economic crises. As regards air pollution, particle and nitrogen oxide emissions continue to cause problems, with transport being by far the largest contributor of nitrogen oxide emissions.

5.1.10.2 Trend

-	Although the environmental impacts generated by the traffic, in almost all statistics are declining, the absolute load is still very high. Due to the positive news is also the danger of getting used to this high level of stress.
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It is unlikely, and certainly not in the event of an economic upswing to reduce this high level.

5.1.11 Quality of infrastructure for environmental friendly mobility

5.1.11.1 Situation

In the last years several improvements to the rail system upgraded routes of regional and inter-regional importance. To improve the accessibility of Eisenstadt by rail, the line Neusiedl- Wulkaprodersdorf completed an electrification project in 2009. To improve the north-south-axis, electrification and modernization of the railway line between Sopron, Szombathely and Szentgotthárd has been finished, bringing the mid-part of Western Transdanubia closer to the agglomeration of Wien.

Around the Neusiedler See/Fertő tó and in other protected or sensitive areas, the concept of integrated transport rail-bus-bike facilitates accessibility to the region via sustainable transport. EuRegio trains and tickets have become a great success in the last years, connecting several towns across the borders. While in Austria several regional railways were closed in the last years, leaving especially large parts of the Mittelburgenland and Südburgenland with no rail link, Hungary still has a dense railway network. Most of the lines in Western Transdanubia are now operated by GYSEV and were upgraded in the last years.

In Austria a bus network of variable quality and micro systems (e.g. municipal busses) supplement the rail network. In Hungary nearly every community is accessible by public buses. Beside the main links, public transport is still not able to compete with individual transit when it comes to travel times.

Several actions are planned to improve the connectivity by public transport (MECCA, 2013).

The establishment of a bicycle network and building cross-border connection points increases the tourist attractiveness of the region. The inter-regional cycling network has been improved over the last decade. The network on the Hungarian side still needs to be improved and important Cross- border links between the two sides of the border are also missing. Further efforts have to be dedicated to organise common services and marketing of this network (MECCA, 2013).

5.1.11.2 Trend

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Mobility management on all levels (region, communities, and companies) has become a focus of transport policy in Austria within the last years. The Mobilitätszentrale Burgenland was one of the pioneers in Austria in that field, dealing with multimodal transport issues. Lighthouse projects like GREMO Pannonia were essential to foster sustainable transportation across the borders. One of the achievements of this project was the founding of the

first mobility centre in Hungary, located in Sopron.

However, as can be seen in the figure above, since 1995, the passenger car was the only category that has increased significantly. Therefore, many efforts should be made to develop the modal split further in the future.

5.2 Status Quo and Trend without Implementing the Programme – Hungary

5.2.1 Increase of land consumption, sealing

5.2.1.1 Status

In Hungary there is no up-to-date recording of sealing, we only can discursively forecast the rate of sealing from the quantity and rate of non-agricultural land. The difference cannot be large as the reason for the change of status is usually the will to use the land for - at least partly - constructional reasons. Thus the land, even if not 100 % sealed, will lose its ecological features and functions.

The rate of non-agricultural land in the West-Pannonian region is 20,72 %, almost the national average. However, the rate differs greatly among the 3 counties: the lowest rate we see in Vas county with 13,8 %, while in Zala the rate is 25,49 %.

In the previous decades quantity of non-agricultural lands constantly grew, though at a slowing speed. In 2012 the growth was the lowest in the past decade, only 1301 ha in the country.

5.2.1.2 Trend

According to the previously described status quo, the trend from environmental aspect is basically negative, though showing a slowdown. However, the planned and presently implemented road constructions, industrial developments forecast a speeding trend in the following years. An eventual economic boom will definitely contribute to a speed-up.

5.2.2 Impact on soil quality

5.2.2.1 Status

Predominant type of soil in the West-Transdanubian Region is brown earth, with larger areas of river terrace soil in the Hanság. In small areas we find grassland, meadow and skeletal soils as well as chernozems. Agrochemical and heavy metal loading of the soil is high in Vas County and in Győr-Moson-Sopron around Mosonmagyaróvár, other areas show medium rates. Soil erosion rarely occurs in Vas and Győr-Moson-Sopron counties, but means a great problem in Zala, where in some places 70 % of tilth is devastated by erosion. 50 % of the region's area is involved in agricultural use, with a higher rate in the north, having better soil qualities.

Fehler! Verweisquelle konnte nicht gefunden werden. shows organic matter stock of soil in West-Pannonia. The darker the colour is the more organic matter the soil contains.

Organic farming is very sparsely spread in the region and in Hungary, though it may contribute greatly to conserving, moreover improving soil quality. Only 2,4 % of agricultural land is used for organic or ecofarming, the tendency showing waves of increases and decreases in time. Comparing to neighbour countries and the EU, Hungary and the West-Pannonian region is lagging way behind the 5,5 % EU average, and especially Austria's 18,4 %.

5.2.2.2 Trend

-	Agriculture (especially use of fertilizers), lack of waste water management, old in-ground fossil fuel containers, waste disposal sites, reckless industrial activities continuously deteriorate soil quality. Small proportion of bio farming cannot yet eliminate negative impacts coming from other sources.
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5.2.3 Impact on water quality

5.2.3.1 Status

The region's most important surface watercourse is the Danube, arriving to Hungary from Austria with III. class water quality (acceptable, on a scale of I –V). Water quality, both qualitatively and quantitatively, is negatively influenced by the Gabčíkovo hydroelectric power plant and the Cúnovo dam. These have a negative impact on Hungary's largest drinking water reserve under the Szigetköz, threatening the drinking water supply of millions of inhabitants. The situation needs a solution based on international agreements.

Further rivers of the region are Rába and Mura, being the two least regulated, most natural rivers of Hungary – though it does not mean a very good water quality: Rába e. g. arrives from Austria with IV. rate, and reaches III. class only in Győr-Moson-Sopron. River Zala collects surface water from 50 % of the catchment basin of lake Balaton, and provides most of the lake's water. However, water quality of Zala is not satisfactory, due to high phosphoric concentration. (Most of its side watercourses are also polluted.)

Hungary's two largest lakes, Balaton and Fertő belong to the region, though only with part of their whole area. Both lakes are considered to have high importance from environmental-ecological aspects, providing wild habitats, contributing to biodiversity. Besides, there are smaller lakes-ponds used for fishing-bathing and further touristic aims. These have smaller importance from ecological viewpoints.

5.2.3.2 Trend

+	As a result of increase of sewerage rate, stricter regulation of nitrate emission on nitrate sensitive areas, emission-decreasing efforts in Austria, and water management developments for the sake of regeneration of surface watercourses, quality of surface water bodies and courses constantly improves. River Marcal slowly works up impacts
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of 2010 red mud pollution, so even at this highly critical point improvement can be reached. Leading thermal water into surface watercourses will not change the direction of these positive processes.

5.2.4 Airborne emissions excl. GHG-emissions, Impact on climate

5.2.4.1 Status

According to results of measures, quality of air generally can be regarded as acceptable in the region. Naturally, there are large differences in air pollution: most polluted points of the region are cities near highways or roads with very strong traffic, traffic being the largest resource of pollution. Highways M1, M7 and roads 1, 85, 856, 86, 74, 76 create pollution and noise centres: Győr, Mosonmagyaróvár, Sopron suffer the most, other settlements slightly less, due to bypasses.

According to regular measurement, further sources of pollution drew back in the past ten years: restructuring of industry, use of new types of fuel lacking lead and sulfur-dioxide, using natural gas as energy source instead of coal led to a decrease of general air pollution.

This of course should not let us sit back: continuous increase of traffic, new industrial developments (let us take the worst case: implementing a waste incinerator) might always mean a threat to the present fair condition.

Measurement of air quality is taken by automatic stations and manually in Győr-Moson-Sopron and Vas Counties and manually 4 points in Zala.

Road transport is another large noise source. Cities' noise pollution is efficiently decreased by building bypasses (Győr, Sopron, Szombathely, Zalaegerszeg, Nagykanizsa, Sárvár). In the case of Körmend and Csorna the bypass would be also a great relief for the city as well as on-going construction of M86 for settlements along road 86².

5.2.4.2 Trend

Quantity of particulate matter (PM₁₀ and PM_{2,5}) in cities will increase. The reasons are raising mobility with diesel engines; spreading of heating with firewood; in rural areas draughts and intensive agricultural activity couple with intensifying wind. Noise load near road and new industrial construction sites expectedly raises, in settlements with new bypasses probably reduces.

5.2.5 Impact on Biodiversity and red-list-species, wild habitats and barrier effects

² We must however pay attention to the fact that, though bypasses help decrease noise pollution, at the same time they bring about new barriers for wild species.

5.2.5.1 Status

The region's status concerning biodiversity is fairly stable due to the relatively high rate of protected areas and conservation and protection activities of responsible organisations.

According to the IUCN³ there are 1 critically endangered and 4 endangered species living in the West-Pannonian region. Further 1 critically endangered and 1 endangered migratory bird species appear regularly.

24-26 further species of the region are rated as vulnerable; the population in each case is decreasing or unknown.

As far as biodiversity is concerned, we see diverse processes running paralelly. Biodiversity of bird populations on agricultural areas has been decreasing continuously since EU accession in 2004, because the EU subsidies resulted in more intensive farming. Number of Eurasian Skylarks (*Alauda arvensis*) e.g. has drastically decreased. The decrease is smaller where Organic-Agricultural farming is running⁴.

Paralelly, population of woodland species has increased since 2004 as well as larger birds of prey. Number of Eastern Imperial Eagle (*Aquila heliaca*) for example increased from 16 pairs in 1974 to 140 pairs in 2012. Number of pairs of White-tailed Eagle (*Haliaeetus albicilla*) is already 250.

Generally looked upon wild habitats, all human activities may have impact on them. From this point of view, all human activities should be restricted to decrease possible impacts. Looking at the subject realistically, the following wild habitats are most vulnerable and have to receive special attention: forests, meadows, grass and reeds.

To eliminate all barriers, or not creating any more of them is of course not possible. To strive to decrease the number of them, and raise new ones only with great care and prudence is an ecological must.

5.2.5.2 Trend

-	In spite of the above mentioned efforts, processes of everyday life and today's economy constantly undermine them, worsening the conditions of wild life. Compensating activities may mostly only reduce the caused negative effects.
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5.2.6 Condition and development of nature protection areas

³ See: www.iucnredlist.org/search

⁴ Magyar Madártani Egyesület, Mindennapi Madaraink Monitoringja <http://www.mme.hu/mindennapi-madaraink-monitoringja-mmm>

5.2.6.1 Status

Approximately 10,8 % of the region's territory, 120 913 ha is legally protected from environmental aspect⁵. There are 3 national parks (Fertő-Hanság Nemzeti Park, Órségi Nemzeti Park and – partially - Balaton-felvidéki Nemzeti Park), 7 landscape protection areas and 13 nature conservation areas in the region, along with further Natura 2000 areas.

National parks and environmental-related authorities carried out extensive activities in the last 20 years in the field of protection, recovery, conservation, often in cooperation with each other. EU support helped these activities greatly, and resulted in a good and improving condition of protected areas.

There are, however, abuses in these areas, like the large-scale intensive agricultural activities on the territory of Órségi Nemzeti Park in 2011, stemming probably from ignorance of a foreign farmer.

5.2.6.2 Trend

+	During the past financial cycle of the EU national parks were able to carry out developments that far exceed developments of the previous 25 years. Its results lead to the growing improvement of environmental condition of protected areas. According to present assumptions, deteriorating climatic conditions will not destroy this positive impact during the programme period, the trend will stay positive.
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5.2.7 Status of hazard zone planning and impact on Number/area of regions threatened from natural hazards

5.2.7.1 Status

The West-Pannonian region's main natural hazards are water, wind and heat.

Water causes troubles in different forms: flood, inland flooding and ground water. Flood can be expected on all surface streams, last year's (2013) Danube flood being an extreme example. Floods on the Rába, Mura and Zala regularly mean problems for inhabitants and authorities as well. Flood forecast systems⁶ for the Rába and Mura have been set up in the past 5 years to help preparation for hazard situation, with flood protective measures taken on-site. Both forecast systems work well and are to be maintained.

⁵ Országos területi helyzetkép. VÁTI Kht. Budapest, 2007.

⁶ See <http://www2.nyuduvizig.hu/?m=245> and <http://www2.nyuduvizig.hu/?m=246>.

Wind and heat - the latter more in larger towns – have not yet caused serious problems; they are the hazards of the future. Climate change will bring more changeable weather, higher temperature differences, wilder winds, and less amount of rain, falling more sporadically.

5.2.7.2 Trend

0-	Climate change will bring more changeable weather, higher temperature differences, wilder winds, and less amount of rain falling more sporadically. Hazard zone planning and environment related authorities must prepare for unusual weather conditions.
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5.2.8 Use of renewable and fossile raw materials

5.2.8.1 Status

Unfortunately there is no data record in Hungary concerning nationwide quantity of raw materials consumption, only on running price. Exchange of HUF data to EUR would add another uncertainty because of the rather unsteady exchange rates. Thus we rather give here the increase rate of raw materials' value. Between 2007 and 2010 the increase was 3,48 %, which shows a steady growth in spite of the economic depression.

5.2.8.2 Trend

-	Due to the booming GDP consumption of the population and economy will grow, thus use of raw materials and resources will expectedly also grow, resulting in a negative environmental impact. However, quantity of reused raw material grows as well, as the fees concerning waste disposal stimulate waste owners to reuse, recycle it. Overall effect is however, due to the raising amount, slightly negative.
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5.2.9 Use of renewable energy and its rate within the energy mix

5.2.9.1 Status

Aim is to reach the rate of 14,65 % for renewable energy by 2020⁷, though 2009/28 EU Directive sets 13 % for Hungary. The present situation is, however, not so good: rate of renewable energy is only at 8 % in the production of electricity. It is not easy to find relevant reliable data on rate of renewable energy within total energy consumption, as firewood is widely used by the population, but it often does not appear in official data records.

West-Pannonia's geographical and climatically aptitudes make it possible to rely on much type of renewable energies: solar, wind, geothermal, thermal and biogenic energy are most cost-efficient. According to a study by the Hungarian Academy of Sciences, potential of renewable energy of

⁷ Magyarország Megújuló Energia Hasznosítási Cselekvési Terve 2010-2020

Hungary is 2,5 times of the yearly energy consumption, 2 600 PJ/year vs. 1 100 PJ/year. Based on this data, it would be very advisable to turn to these energy sources.

In Hungary neither the legal surrounding, nor the society's acceptance and awareness is comfortable and helpful enough to foster the production and use of renewable energies.

5.2.9.2 Trend

+	Need for the use of renewable energy resources is becoming more and more significant in all sectors of economy. Reducing costs resulted in new investments that produce a growing amount of energy. As energy use decreased in the region, rate of renewable energy grew. This process will continue even if energy consumption starts to grow as well.
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5.2.10 Status of energy consumption

5.2.10.1 Status

In Hungary unfortunately there is no data collection on regional level concerning energy consumption, thus we can rely on national data⁸. No great differences are expectable between national and regional energy data rates.

Primary energy need of the country is still 1,22 times of the EU average on PPP. This rate hides two phenomena: high energy intensity and low energy use per capita.

Energy use of Hungary is on the slow decrease ever since 1990, with slight increases in 1995-96 and 2005-2006. Since 2006 the decrease is continuous.

Hungary is very dependent on import of energy sources, especially of fossil sources. In the past 20 years, though energy use has not reached the level of 1989, rate of import grew from 45 % in 1993 to almost 60 % by mid 2000s. 80 % of gas arrives from Russia in one pipeline, meaning a vulnerable situation for the country. Rate of import oil is only slightly less, coal being the only energy source with import rate below 50 %, parallel with rapidly decreasing amount.

5.2.10.2 Trend

-	Present low level of energy use is expected to be on the rise again due to the growth of GDP. Economic and technical forecasts say that the trend stays, and by 2020 exceeds pre-depression level.
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5.2.11 Impacts on cultural heritage and landscape

⁸ Nemzeti Energiestratégia 2030. Available at <http://www.kormany.hu/download/4/f8/70000/Nemzeti%20Energiastrat%C3%A9gia%202030%20teljes%20v%C3%A1ltozat.pdf>

5.2.11.1 Status

Natural makings largely define landscape. West-Pannonia's landscape has no outstanding makings (high hills, seaside, very traditional villages), but large woodlands in Zala, pleasing rises of Vas and caringly cultivated agricultural lands and riversides in Győr-Moson-Sopron combined with cultural relics all over the region give the impression of a well-kept, harmonious landscape. Very naturally, we can't avoid noticing print of the today: highways and windmills belong to the landscape as well as waterfalls and meadows.

In the region there are 2 314 monuments under national protection, giving 17 % of the country's all monuments. It's especially significant when we consider that the country's two most intact historical cities: Sopron and Kőszeg, and the two baroque cities: Győr and Szombathely belong to the region as well.

The following monuments are also of outstanding importance: Benedictine Archabbey and Community of Pannonhalma, nobiliary castles in Fertőd, Körmend and Keszthely, and the intact medieval churches of Lébény and Ják - to mention only the largest ones. Out of eight World Heritage Sites of Hungary two are located in the West-Pannonian region: the Millenary Benedictine Abbey of Pannonhalma and its natural environment, and the Fertő/Neusiedlersee Cultural Landscape. Zala County offers archaeological sites from the Middle Ages in Zalavár, Zalalövő, Keszthely-Fenekpuszta.

5.2.11.2 Trend

-	On-going developments connected to transport and industry as well as expectable developments of local enterprises and energetic reconstruction of buildings outside of ETC programme will expectedly cause damage of landscape and cityscape. Prioritised cultural heritage items' condition will improve, but the sources for the owners will shrink for development, thus we have to count with a slight decay of the situation in the future.
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5.2.12 Status of mobility

5.2.12.1 Status

The region shows a diverse picture as far as mobility is concerned.

Most of Győr-Moson-Sopron County is very well connected to its neighbourhood, quickly available from other parts of Hungary as well as from Austria, Slovakia, moreover from Germany on public roads (M1 highway), railway (432 km), and waterway. Airports of Vienna and Bratislava are in an hour's proximity.

Vas and Zala Counties however are far less approachable. South of Zala has the advantage of the vicinity of M7 motorway leading to Croatia, but the distance of Zala's northern part and Vas County from the highways is more than 30 minutes, reaching as much as 90 minutes in some

cases (e.g. surrounding of Szombathely and Szentgotthárd). Finishing the construction of expressway M86 will shorten this time as from 2016, helping international transportation as well.

Railway lines wave through both Counties (453 and 291 kms), but there are no waterways, and only one smaller airport, Sármellék - near Lake Balaton – serves personal transport and trucking. Zalaegerszeg wishes to develop the small Andrásida airport to be able to receive public aircrafts.

Along the Austrian and Slovenian border the latter 15 years brought a change with reopening - and often upgrading - roads closed for 50 years, thus enabling the population in the border area to build up and rebuild personal and economical connections. Expressway S31 from Austria would give a quick reach of Vienna from Szombathely, but there appears no Hungarian intention to construct the sequence.

5.2.12.2 Trend

-	Mobility, parallel with GDP will slowly grow after the setback since 2008, leading to a repeated growth of motorisation. Sell of new cars will expectedly grow again, import of used cars slightly decrease, thus average age of cars might lowly start to lessen. Volume of motorisation and size of emission will show a mild increase in the program period.
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5.2.13 Quality of infrastructure for environment friendly mobility

5.2.13.1 Status

Infrastructural development in Hungary focused on infrastructure for environment friendly mobility greatly after the EU accession.

In West-Pannonia, length of bicycle roads grew above 350 kms (we must be aware of the fact that there are many more minor roads where, thanks to scanty traffic, cycling is actually as safe as on separate bicycle roads).

As far as electrification of rail transport is concerned, West-Pannonia had been lagging behind other regions for a long time. In turn, since 2000 electrification of railway lines was carried out in West-Pannonia only in this country, and that resulted in a rapid rise of electrified lines. These developments were carried out together with modernisation of intermodal stations, new electric multiple-units, developing more comfortable and user-friendly customer service.

In the frame of integral city development projects in most of the region's cities new bicycle roads were created, new bicycle parking places built or the old ones modernised. Moreover, Győr is planning to set up a community bicycle rental system.

Though electric cars sparsely run on the region's roads, there are altogether six charging points in the region by now: four in Győr-Moson-Sopron and two in Zala County.

5.2.13.2 Trend

++	Constant growth of the length of bicycle paths, establishing bicycle parking places and community bicycle rental system connected to city development constructions (e.g. Győr) as well as bicycle-friendly changes in national transport regulation, increase of length of electrified railway lines contribute to an environmental-friendly development of infrastructure greatly.
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6 ENVIRONMENTAL IMPACTS - SUMMARY

The main environmental problems are to be found in the enormous space consumption. The continued high amount of pollutant emissions, whether nitrogen oxides, greenhouse gases or phosphorus loads reveal a similar and worrying trend. The increasing energy consumption is indeed at least slowed down (due to the stagnant economy). It is, however, still at a high level, as well as waste generation. The greatest danger lies in the additional sealing by certain investments. Although the program provides only small-scale investments in infrastructure, it must be ensured, that all projects aiming a wise use of natural resources and taking care of biodiversity and habitats.

The situation in the organization of protected areas and water quality are at least improved. There is still major groundwater pollution, but the trend is upward. No significant upward trend is assessed for biodiversity and red list species, although especially in the protected areas many efforts are done to improve the situation.

Regarding traffic we have a similar situation. While there are tremendous efforts to better organize the traffic and introduce sustainable transport systems, nevertheless, the car and truck traffic is that the fastest growing segment.

7 ASSESSMENT OF LIKELY SIGNIFICANT EFFECTS

Generally, it must be said that it is a very environmentally friendly program. Many thematic priorities are aimed at environmentally relevant topics (improvement of water quality, development of nature reserves and cultural heritage, development of sustainable transport systems). In particular, the promotion of regulatory cooperation is very important for environmental issues.

7.1 IP 3d capacity of SME's to engage in growth and innovation processes

In case the supported innovation is connected to energy saving and climate-friendly, then the impact is positive. If not, the OP is likely to have negative impacts as well.

7.2 IP 6c Protecting, promoting and developing cultural & natural heritage

As the IP's aims are very nature-friendly, implementation carries almost no risk for the nature. Only recommendations can be made.

7.3 IP 6d Protecting and restoring biodiversity, soil protection and restoration and promoting ecosystem services including NATURA 2000 and green infrastructures

As the IP's aims contribute greatly to sustainability, there are no basically negative impacts and risks to be expected. Slight increase of GHGs from the increased traffic of researchers - professionals is negligible compared to the positive impacts.

7.4 IP 6f promoting innovative technologies to improve environmental protection and resource efficiency in the waste sector, water sector, soil protection or to reduce air pollution

Implementation of pilot and demonstration infrastructure might increase land sealing. Settling renewable energy plants needs careful cooperation with Authorities. A positive secondary trend is possible in case of emphasizing the careful use of resources and development of sustainable technology. Settling renewable energy plants (windmills, solar cells) or waste management infrastructures might have a negative impact on landscape. Supporting these settlements is suggested only under strict control of and cooperation with authorities. We suggest putting an emphasis on implementing ecological water management measures, not simple water management measures. Explicitly in the description of investment priority the development of water management concerning the Water Framework Directive according is mentioned. This content should have a positive effect on water quality, hydrology and hazard zone planning.

Particular attention in the implementation of the program shall be given to the improvement and development of the groundwater body. According to the Umweltbundesamt (UBA) the ground water body Parndorferplatte, Seewinkel, Wulkatal, southern Vienna Basin, Ikvatal, Rabnitz, and the Stremtal are under observation. Numerous groundwater monitoring wells are at risk of nitrate. Waste water treatment and water management will have a significant impact on water quality. Particular attention shall be paid to the quality of river Gyöngyös and the water supply of Kőszeg.

7.5 IP 7b enhancing regional mobility

As a general comment, we would like to emphasize that the construction of any new roads will have negative impact the examined factors of nature. Therefore we highly recommend preferring only road reconstructions, upgrades! As it is noted in the description of Investment Priority that only small-scale investments are planned and the emphasis is on coordination of mobility services, no significant loss of land it is to be expected, at most as part of the revival of cross-border linkages of small roads and small infrastructure. But newly built transport infrastructure will necessarily mean land consumption. Since the focus of this priority is to expand and increase the efficiency of public transport, it is expected to reduce emissions. Increased traffic – even if it is public – will cause higher emission, unless it substitutes private traffic.

7.6 IP 7c green transport systems

As IP 7c targets only small scale investments, negative impacts on nature are unlikely. Preparation of more sustainable, nature-friendly ways of transport will have general beneficial impacts on the long term. The improvement of sustainable, environmentally friendly transport systems leads to a general reduction of energy consumption, especially of fossil energy.

7.7 IP CBC Promoting legal and administrative cooperation

As a general comment concerning OP 11 the cooperation among regional/territorial governance structures and environment-related Authorities will definitely have positive impact on the SEA-indicators, although we cannot exactly predict, on which one and how large the impact shall be.

8 ALTERNATIVES AND RECOMENDATIONS

In addition to the evaluation of the impacts of the program, we propose to consider the following alternatives and recommendations:

- In addition to the operational programme's specifications a concretization of the action field or a careful project selection is suggested regarding supportable activities, which guarantees that projects explicitly pay attention to their environmental compatibility.
- It should be guaranteed that the overall positive intention to reduce negative effects of economic activity on the environment is fulfilled. Therefore integrative aspects during the project realisation have to be strengthened.
- Only projects which guarantee a sustainable development should be supported (e.g. according to mobility aspects, land use and possible conflicts, landscape and overall appearance of the townscape).

- Special attention must be paid on transportation needs, mobility concepts to minimized transportation needs should be an integrated part of cooperation concepts.
- Concerning wild habitats, any human intervention or activity might have negative impact. Therefore we suggest setting up a rating scale where the environmental impact on wild habitats is rated separately. The rating is positive if the impact is minimal or zero. Forests, meadows, grass and reeds must receive special attention.
- Projects concerning protected monumental city downtown buildings or sites, or landscape protected areas, the SEA group suggests to expect preliminary supporting declarations from responsible environmental authority. Alternatively, the rating scheme could negatively score these activities.
- In some IP-s construction activities might be supported. Here we suggest for the Programme to look into the future, and expect all constructions – let it be new works or reconstruction – to meet the expectations and conditions of *EU Directive 2010/31* on the energy performance of buildings. This would allow the Programme to show up project results pointing into the future.
- As in some IP-s construction works are possible to be carried out, we point at the danger of raising buildings in foreshores or floodplains. To avoid it, we suggest to exclude it with a prohibition concerning construction works in foreshores or floodplains – apart from water management works, of course.

In the Environmental Report many recommendations on water, climate and emissions, transport and mobility, biodiversity and protection of areas, waste volume, energy consumption and cooperation were made and delivered to the programming group.

9 MONITORING

About the detailed procedure for defining the specific scope and the specific objectives relating to the implementation of the SEA monitoring is at the present time due to lack of concrete project proposals still no accurate statement possible. Therefore it is recommended to implement a monitoring system in two steps:

It is recommended to specify general programme-oriented monitoring strategies in an early phase of the running tome of the programme (first half of 2015).

Then concrete project-specific assessment of environmental effects should be realized by independent experts. As a monitoring measure a regular (annual) review of the projects is recommended. An emphasis shall be placed on the sensitive investment priorities, such as 3d and 7b.