

## Annex 1 List of contacts

- Agentia ISPA - Ministry of Transport, Construction and Tourism
- CFR Calatori – Romanian Railways Passengers
- CFR Marfa – Romanian Railways Freight
- CNCFR SA – National Company of Romanian Railways
- DGAc – General Directorate of Civil Aviation
- DGITF – General Directorate of Railway Transport
- DGITR – General Directorate of Road Transport
- DGM – General Directorate of Management and Strategy
- DGMS – General Directorate of Environment
- DGTN – General Directorate of Water Transport
- Metrorex SA
- Ministry of Transport, Construction and Tourism
- NCMNR – National Company of Motorways and National Roads

## Annex 2 List of consulted documents

- Analysis of Absorption Capacity of the EU Funds in Romania; European Institute of Romania.
- A reformed Cohesion Policy for a changing Europe; Regions, Cities and Border areas for Growth and Jobs; Inforegio fact sheet 2006; European Union Regional Policy.
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- Council Regulation (EC) No 1080/2006 of the European Parliament and of the Council of 5 July 2006 on the European Regional Development Fund and repealing Regulation (EC) No 1783/1999.
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- Council Regulation (EC) No 1082/2006 of the European Parliament and of the Council of 5 July 2006 on a European grouping of territorial cooperation (EGTC).
- Council Regulation (EC) No 1083/2006 of 11 July 2006 laying down general provisions on the European Regional Development Fund, the European Social fund and the Cohesion Fund and repealing Regulation (EC) No 1260/1999.
- Council Regulation (EC) No 1084/2006 of the European Parliament and of the Council of 11 July 2006 on the Cohesion Fund and repealing Regulation (EC) No 1164/1999.
- Document de Poziție Revizuit al României Capitolul 9 în Domeniul Transporturilor; 2001.
- Informal Position Paper of the Commission Services with general and specific comments on the draft version of the Romanian SOPT 2007-2013; 12 December 2006.
- ISPA in Romania; Delegation of the European Commission in Romania; 15 June 2006.
- National Development Plan 2007-2013; Government of Romania; December 2005.
- National Strategic Reference Framework; Government of Romania; draft; April 2006.
- National Strategic Reference Framework; Government of Romania; 2<sup>nd</sup> draft; October 2006.
- National ISPA Strategy: Transport Sector; draft; Ministry of Transport, Construction and Tourism, Government of Romania; July 2003.
- Regions and Cities for Growth and Jobs; An overview of Regulations 2007-2013 on Cohesion and Regional Policy; Inforegio fact sheet 2006; European Union Regional Policy.
- Romania 2005 Comprehensive Monitoring Report; COM(2005)534 final; European Commission.
- Romania Sectoral Operational Programme Transport 2007-2013; Programme Complement; Ministry of Transport, Construction and Tourism, Government of Romania; August 2006.

- Sector Operational Programme – Transport (SOPT) 2007-2013; Ministry of Transport, Construction and Tourism, Government of Romania; version April 2006.
- Strategic Evaluation on Environment and Risk Prevention under Structural and Cohesion Funds for the Period 2007-2013; National Evaluation Report for Romania; GHK for DG Regio; 10 November 2006.
- Strategic Evaluation on Innovation and the Knowledge Based Economy in relation to the Structural and Cohesion Funds, for the programming period 2007-2013, Country Report Romania; Technopolis for DG Regio; 14 July 2006.
- Strategic Evaluation on Transport Investment Priorities under Structural and Cohesion Funds for the Programming Period 2007-2013; Final Report; Ecorys for DG Regio; October 2006.
- Strategic Evaluation on Transport Investment Priorities under Structural and Cohesion Funds for the Programming Period 2007-2013; Country Report Romania; Ecorys for DG Regio; October 2006.
- Study on the Potential and Needs of the New Member States – Country Report Romania; European Policies Research Centre, University of Strathclyde, Glasgow, UK; August 2005.
- Technical Assistance to the Ministry of Transport, Construction and Tourism for Managing Structural Instruments; Final Report; Scott Wilson Consortium; July 2006.
- The New Programming Period, 2000-2006 Methodological Working Papers; Working Paper 2; The Ex-Ante Evaluation of the Structural Funds interventions; European Commission.
- The New Programming Period, 2007-2013: Methodological Working Papers; Working Paper No. 1 on Ex-Ante Evaluation; European Commission; August 2006.
- Traffic Study on the Pan-European Corridor IV – and other main routes between Brasov and the Hungarian border; Dorsch Consult; Final Report; July 2005.

## Annex 3 Proposed set of indicators

### INTRODUCTION

In a draft "Strategic Indicators Paper" prepared in 2006 output and result indicators of the SOPT were reviewed assessed and proposals were carried out for monitoring and measuring the indicators. The main scope of this exercise was to retain only simple indicators that can easily be measured which is based on a recommendation made in the EC working document on indicators for monitoring. Furthermore, it was considered to ensure that the target values of the indicators were reasonable. According to this target levels were systematically reduced at about 80% of initial expectations. The paper provides a detailed description on how these target values were estimated based on official baseline statistics.

It can be confirmed that, in general, almost all of the output and result indicators are monitoring the effects of the envisaged interventions of the programme, that the indicators are relevant and are according to SAMRT criteria. However, a few recommendations are made, to add on result and, in particular, (specific and global) impact indicators to allow a more comprehensive measuring of programme's intended impacts on the economic development and to monitor environmental effects of the infrastructure investments. Proposed indicators are also defined according to the list of "Core Indicators for ERDF and Cohesion Fund" (Annex 1 of the Indicative Guidelines for Monitoring and Evaluation Indicators, EC WD No 2)

In the "Strategy" chapter of the SOPT reference is made to the overall development goals of the National Strategic Reference Framework (NSRF) and the Lisbon and Gothenburg strategies of growth, jobs and sustainable development. As the SOPT is definitely impacting on economic growth and employment some additional core indicators to measure specific and global impacts at programme level have to be defined. Proposals for such indicators are provided in the subsequent chapter of the present document.

The NSRF estimates an overall net increase in the average number of employees of about 130,000 persons by 2013 compared to 2005 as result of all Structural Fund interventions. The SOPT is not directly targeted to create new jobs or increase employment growth. However, the construction of infrastructure creates or at least maintains a significant number of jobs. Although being a temporarily employment effect it will have a significant influence on labour market developments for a number of years as the investment period is relatively long. Furthermore, the envisaged increase in transport activities will have an impact on the economic development as a whole and therewith an employment effect.

According to macroeconomic forecasts of the National Commission for Prognosis, Romania's GDP will increase on average by 5.6%, in the period 2007 – 2013. The economic growth will be based on the domestic demand, especially on Government's investments, including those financed with the support of the EU funds. The NRSF estimates that the impact of the Structural and Cohesion Funds will generate an additional 15% increase in Romania's GDP by 2015 compared to a situation without these funds. This growth estimate was calculated by using a

macroeconomic model in which improvements of transport infrastructure were used as one of the key factors to generate growth. However, it will be rather difficult in the framework of a SOPT monitoring system to simply isolate the particular impact of the SOPT on the economic growth rate. Therefore, a SOPT impact monitoring should use "GDP growth" as a context indicator.

The draft report on the Strategic Environmental Assessment (SEA) is proposing a system of monitoring the SOPT environmental effects and provides a list of proposed environmental monitoring indicators. The report considers the fact that, in general, in the framework of a monitoring system of environmental indicators at national or regional level, it is rather impossible to separate the SOPT environmental impacts from impacts of other activities or interventions (e.g. projects financed from sources other than the SOPT). According to the SEA team the provided list of indicators which is based on standard requirements for monitoring environmental effects of infrastructure investments and transport activities should be modified to accommodate the particular needs and project particularities. The SEA team proposes "to selectively use monitoring indicators to monitor environmental effects based on the characteristics of the projects selected for funding". The monitoring results of particular projects could be aggregated and these aggregates could serve as a basis to estimate the overall environmental effects of the SOPT. Such data collection and processing procedure implies that most of the proposed environmental indicators will be used in the monitoring system of the programme and further defined and described in the Programme Complement. A selected list of core indicators which could be seen as obligatory should be drawn from the SEA list and added to the SOPT impact indicator list at the level of the programme. A proposal for such list is inserted into the impact indicator table of the following chapter of the present document.

For some of the impact indicators presented in the following chapter the target values have not yet been defined. Based on a further specification of related operations and the present missing target values and base lines can be defined (for some of the indicators base line values might not be applicable). However, in principle, there is no obligation to define target values for impact indicators prior to the beginning of a programme implementation. The EC indicator guidelines accept also defining of target values for impact indicators during the first phase of implementation. For all proposed indicators further explanation and best practice examples from other countries could be provided, if there will be seen a need for it.

The following "core" indicators measuring impacts and the output and results at the level of each priority axis shall be complemented by a more detailed set of monitoring indicators which in particular will differentiate between types and users of transport facilities, regions and areas etc.. This extended set of indicators should be presented in the Programme Complement together with a detailed description of data collection, data processing and integration of all indicators into the SMIS in order to guarantee consistent aggregation of indicators across all SOPs and to establish an overall monitoring system for the Structural Fund.

### Programme Impact Indicators

Indicator	Unit	Baseline	Baseline Year	Target (2015)	Source	Definition / Comments
<b>Impact</b>						
Jobs created / maintained	No	-	-		SOP-T Monitoring System / surveys	Temporarily jobs to be measured during investment / construction period
Value for timesaving stemming from new and reconstructed roads for passengers	Euro/ year	-	-		survey	Value for timesaving is a core indicator listed in the EU regulation
Value for timesaving stemming from new and reconstructed roads for freight	Euro/ year	-	-		survey	
Value for timesaving stemming from rehabilitated railways for passengers	Euro/ year	-	-		survey	
Value for timesaving stemming from rehabilitated railways for freight	Euro/ year	-	-		survey	
<b>Environmental Impact</b>						
Emissions by mode of: - SOx - NOx, - VOCs, - PM10	kt / year	-	-		Data aggregated from the project level may be further compared with data from the national monitoring data	Reduction of emissions levels.. Data should be also calculated for intercity and international transportations.
Transport emissions of greenhouse gases (CO2 equivalent) by mode	kt/year	-	-		Effects for specific projects and the SOPT respectively should be calculated based on fuel consumption.	Decrease GHG emissions from transport Reduction of GHG emission levels due to the transport traffic.
Land fragmentation increase due to SOPT	ha		-		SOP-T Monitoring System	Protect and improve the conditions and functions of terrestrial and aquatic eco-systems against anthropogenic degradation, habitat fragmentation and deforestation
Infrastructure surface land take in Romania (increase due to projects)	ha	-	-		Data from the monitoring of the specific projects supported within the SOPT and national statistics	Preserve the natural diversity of fauna, flora, and habitats in protected areas and potential Natura 2000 sites
Transport final energy consumption (total and by mode)	GJ / year	-	-		Data from monitoring of specific projects and from the National statistics data	Improve energy efficiency and use of energy resources

## PRIORITY AXIS

For all transport infrastructure interventions / operations the result indicators are of the same type. As the effects of infrastructure improvements of TEN and outside TEN related investments are difficult to separate due to network impacts it seems to be advisable to monitor the results of Priority Axis 1 to 4 of the SOP-T in one common result monitoring system. Furthermore, the estimates of target values for the respective result indicators were effected on an aggregated level and are not differentiating between the particular axis.

### Priority Axis 1: Modernisation and development of TEN-T priority axes

#### Output Indicators

Indicator	Unit	Baseline	Baseline Year	Target (2015)	Source	Definition / Comments
<b>Output</b>						
TEN-New motorways completed	lane -km	0	2007	600	SOP-T Monitoring System	
TEN- rehabilitated motorways	lane -km	0			SOP-T Monitoring System	
TEN-Interoperable railway rehabilitated/upgraded	km	0	2007	180	SOP-T Monitoring System	
TEN-Navigable waters fully open to navigation	km	0	2007	450	SOP-T Monitoring System	

### Priority Axis 2: Modernisation and development of national transport infrastructure outside the TEN-T priority axes

#### Output Indicators

Indicator	Unit	Baseline	Baseline Year	Target (2015)	Source	Definition / Comments
<b>Output</b>						
National roads rehabilitated	km	0	2007	800	SOP-T Monitoring System	
Railway stations rehabilitated/upgraded	No	0	2007	18	SOP-T Monitoring System	
Railway bridges	No	0	2007		SOP-T Monitoring System	
Railway tunnels	km	0	2007		SOP-T Monitoring System	
Ports rehabilitated/upgraded	No	0	2007	1	SOP-T Monitoring System	
Airports rehabilitated/upgraded	No	0	2007	3	SOP-T Monitoring System	

**Priority Axis 3:  
Upgrade the railway passenger rolling stock on the national railway network**

***Output Indicator***

Indicator	Unit	Baseline	Baseline Year	Target (2015)	Source	Definition / Comments
<b>Output</b>						
New EMUs	No	0	2007	45	SOP-T Monitoring System	

**Priority Axis 4:  
Sustainable development of the transport sector**

***Output Indicators***

Indicator	Unit	Baseline	Baseline Year	Target (2015)	Source	Definition / Comments
<b>Output</b>						
New/upgraded intermodal terminals	No	0	2007	10	MA SOP-T	
Improved/upgraded level crossings	No	0	2007	80	MA SOP-T	
km of road through linear villages improved as per safety	km	0	2007	180	MA SOP-T	
Environmental strategy for the transport sector	No		2007	1	MA SOP-T	



**RESULT INDICATORS OF PRIORITY AXIS 1 TO 4:**

Indicator	Unit	Baseline	Baseline Year	Target (2015)	Source	Definition / Comments
<b>Result</b>						
Increase in passenger traffic (road and rail)	million passenger - km	81 833 (estimate)	2007	+ 37%	Cestrin / National Statistics	basic value to be verified: NDP 2004: 19,707.9 mil.
Increase in railway passenger traffic	million passenger - km	9 494 (estimate)	2007	+ 26%	National Statistics	
Inland freight traffic	million tonne - km	65 842 (estimate)	2007	+ 33%	National Statistics	
Transported passengers on rivers and inland canals	mil	0.2 (NDP)	2004	1.0 (NDP)	SOP-T Monitoring System / surveys	
Goods conveyed in transit through ports, of which maritime river	Mil. ton	71.74 40.53 31.21	2004	115 (NDP) 80 (NDP) 35 (NDP)	SOP-T Monitoring System / surveys	
Increase in passenger traffic through airports	thousand passengers	3 949 (estimate)	2007	+ 45%	SOP-T Monitoring System / surveys	
Increase in freight traffic through airports	ton	22 506 (estimate)	2007	+ 41%	SOP-T Monitoring System / surveys	basic value to be verified: NDP 2004: 5,500
Reduction in serious accidents	serious accidents / million passenger cars	2 155	2003	- 20%	National Statistics / Road Police	
Reduction in fatalities	fatalities / million passenger cars	724	2003	- 20%	National Statistics / Road Police	

**Priority Axis 5:  
Technical Assistance**

The envisaged key areas of intervention of this priority axis are:

- Support for effective SOPT managing, implementing, monitoring and controlling;
- Information and publicity regarding SOPT.

The rationale for this priority axes is based on the Articles 46, 47 – 49 and 69 of the Council Regulation No 1083/2006. In particular for the communication plan reference is made to the implementing rules of the Regulation.

As regards priority axis 5 no indicators are to be specified. Since the activities of this Priority Axis are determined by the general regulation (monitoring, implementation, evaluation, communication) and operationally described by the (draft) implementing rules of the Council Regulation indicators are not relevant here as the authorities responsible for planning and implementation just need to comply to European law.

## Annex 4 Strategic Environment Assessment

**Environmental Report**  
*(strategic environmental  
assessment)*

**Sectoral Operational  
Programme**

*Transport Infrastructure*  
**Romania**

EuropeAid/121373/D/SV/RO

Reference

Bucharest, January 2007

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## List of abbreviations and acronyms

<b>Abbreviation or acronym</b>	<b>Explanation</b>
CF	Cohesion Fund
DG1076/2004 on SEA	Government Decision no.1076/8.07.2004 for setting up the environmental assessment procedure of certain plans and programmes (Of.J.no.707/5.08.2004)
EIA	Environmental impact assessment (project level assessment of environmental effects)
Env.	Abbreviation for "environmental" or "environment"
ERDF	European Regional Development Fund
EUSDS	EU Sustainable Development Strategy (Gothenburg strategy, 2001)
GRDP Handbook	Handbook on SEA for Cohesion Policy 2007-2013"
KAI	Key area of intervention
MA	Managing Authority (for SOPT it is the MTCT)
MTCT	Ministry of Transport, Construction and Tourism of Romania
NDP	National Development Plan
NGO	Non-governmental organization
PA	Priority Axes
PT	Public transport (which includes urban public transport (metro, tram, trolley, bus and micro-bus) as well as national public transport system of rail, bus, water public transport and air)
REC	Regional Environmental Center for Central and Eastern Europe
SEA	Strategic environmental assessment
SEA Directive	The European Council Directive no. 2001/42/EC on assessment of the effects of certain plans and programmes on the environment
SOPT	Sectoral Operation Programme - Transport 2007-2013
TEN-T	Trans-European Networks
NRSF	National Strategic Reference Framework

## Non-technical summary

The Sectoral Operational Programme – Transport for the years 2007-2013 (SOPT) is a document prepared to enable the distribution of EU financial sources in the area of transport infrastructure development. This SOPT is being elaborated by the Ministry of Transport, Construction and Tourism of Romania (hereinafter MTCT), which is the Managing Authority of the SOPT. It adheres to the thematic priority identified in the National Strategic Reference Framework aimed at “expanding and improving transport infrastructure” identified in the Romanian Law no. 203/2003 on development and modernization of the transport network important at national and European level, which underpins the strategies identified in the White Paper on the European Transport Policy and directives detailing the Trans-European Networks (TEN-T). The SOPT defines objectives, priority axes and key areas of intervention within which it will make possible to apply for the project co-financing from the EU Funds.

The SOPT was one of 4 sectoral operational programmes screened to be assessed by strategic environmental assessment (hereinafter SEA), as provided for in the Government Decision no.1076/8.07.2004 for setting up the environmental assessment procedure of certain plans and programmes (Of.J.no.707/5.08.2004). The content and scope of the assessment was endorsed by the scoping meeting of a Working Group established for the purpose of SEA by the Managing Authority (please see the Annex 1 for the list of invited stakeholders). The scoping meeting took place on the 8<sup>th</sup> of September 2006. The minutes of the meeting are attached in the Annex 2 of this report (in Romanian only).

The SEA began immediately after the decision of the scoping meeting. At the time of the start of the process, a draft SOPT version from April 2006 was made available to the SEA team. The process then continued simultaneously with the amendments introduced to the SOPT by the MA due to consultations with SEA team and ex-ante evaluation recommendations.

All parts of the SOPT were assessed within SEA. The SEA experts based their conclusions in recommendations on a number of national and international documents relevant to the SOPT including the draft programme complements elaborated by the MA. The basic reference framework for conducting SEA was a set of relevant environmental objectives endorsed by the Scoping meeting referred above. The objectives were formulated on the basis of the analysis of existing relevant national and international strategic documents (strategies, plans and programmes) and the current status of environmental issues related to the nature and focus of the SOPT. The final set of the relevant environmental objectives also included relevant human health issues and specific issues related to nature and biodiversity protection (within the framework of Natura 2000).

Using the set of relevant environmental objectives the SEA team assessed the SOPT sections and proposed the following changes to the SOPT:

- to complement the "Analysis of the current situation" with a separate section dedicated to the environmental situation analysis related to issues arising due to transport;
- to complement and modify the SOPT descriptive part, including the SWOT analysis;
- to complement and modify the global and specific objectives of the SOPT by emphasizing the sustainable transport development objective;
- to modify formulation of some of the key areas of intervention in order to strengthen the potential progress towards sustainable development of the actions envisioned.

The draft environmental report was completed on 15th of November and was prepared for the version SOPT dated April and included modifications of November versions of 2006. The SOPT and the draft environmental report were made available for public consultations at the end of November 2006. Based on the request of the Ministry of Finance, that wished to ensure that SEA considers alternatives options, another draft / version of the SOPT was provided to the SEA team on 23rd of January 2007. This version has been consequently still included in the final version of the environmental report.

The SOPT contains priority axes that are worked out in detailed key areas of intervention, which are the most important part of the SOPT in terms of assessment of its possible negative impacts and potential environment benefits and alternatives. Assessment was carried out for each separate key area of intervention and was based on the analysis of its consistency with the relevant environmental objectives - i.e. whether and how the intervention areas may positively or negatively affect the attainment of the relevant environmental objectives in Romania. Alternative reformulations of objectives, priority axes and KAIs, where appropriate and reasonable, were proposed and discussed.

On the basis of this assessment, the SEA team made proposals for implementation and modification of the focus of the areas of intervention and also suggested conditions for their implementation. Another important output of the assessment was the proposal for the monitoring of environmental effects during the SOPT implementation and a proposal for environmental criteria that will help to evaluate the environmental performance of the projects proposed for funding within SOPT. It is anticipated that integration of environmental criteria and indicators into the overall implementation and monitoring system of the SOPT will enable to focus the support from the EU funds on those activities, which will bring bigger positive effects to the environment and will minimize adverse impacts. In the framework of the assessment, human health issues as well as impacts on the Natura 2000 network were addressed.

#### ***Major recommendations and findings of the analysis***

All chapters and sections were reviewed during the strategic environmental assessment focusing on those parts that could reveal the environmental effects of the projects to be funded under the priorities of the SOPT. The biggest focus and attention was paid to the strategic level statements of the SOPT, which are the global objective, specific objectives, priority axes and key areas of intervention. In elaboration of the proposals for environmental monitoring system of the SOPT, information was correlated with the programme complements, which contained more information on the monitoring indicators of SOPT.

Results of the assessments covered two versions of the SOPT: i) 2005 version of this SOPT and ii) April 2006 version of the SOPT.

Both versions of the SOPT differ by the scope. Earlier version lacked the objective "Promote sustainable development especially by minimizing adverse effects of transport on the environment and improving safety" and KAI 4.3 within Priority axis 4 "Sustainable development of the transport sector" called "Minimise adverse effects of transport on the environment".

Assessment of the Key Area of Intervention "Minimise adverse effects of transport on the environment" proposed in later SOPT versions indicates that this intervention as well as adding a separate objective of the SOPT on sustainable transport development is likely to have significantly positive environmental effects and its inclusion improves an overall balance of positive and adverse environmental impacts of the SOPT.

Comparison of both versions of the SOPT thus leads to a conclusion that the latest version of SOPT (April and November 2006) is likely to have more positive environmental effects than the previous (2005) version of the SOPT, since

- the new objective "Promote sustainable development especially by minimizing adverse effects of transport on the environment and improving safety" brought into the SOPT will clearly add to the environmental safety of the transport sector;
- KAI 4.3 "Minimise adverse effects of transport on the environment" is likely to have significant positive effects by expending activities under priority axis 4, then the originally proposal
- the last version enables better integration of sustainable development and environment to the SOPT.

The global and specific objectives of the SOPT are on a national scale therefore the assessment scope (scale) of the SOPT was on the national level as well.

It is emphasized in the SOPT that urban transport infrastructure is not the subject of the SOPT, and it may be dealt by ROP, which addresses regional policy issues, since municipal transport is a matter governed by municipalities and local authorities. SEA analysis and recommendations contain references to the public transport (PT) focusing mostly on the national and international infrastructure used by PT, since there is no way to separate it, analyzing the impacts of the development of rail, air and water transport addressed in the SOPT as well as Priority axes (5) on "Sustainable development of the transport sector", which is important for PT development, especially if one of the Key Areas of Intervention under PA-5 is aimed at the introduction of efficient non-polluting/environmentally friendly transport infrastructure initiatives for all transport modes and mitigation of the environmental impacts of the past developments in the transport sector as a whole. The SEA team emphasizes the importance of such measures to PT.

Suggestions for modifications (alternative formulations) of the specific objectives of the SOPT were proposed as follows:

Objective 1. Promote international and transit movements of people and goods in Romania by providing effective connections of the port of Constanta, as well as **transit transport from EU to the south** through the modernization and devel-

opment of the relevant TEN-T priority axes **applying necessary environmental measures**

Objective 2. Promote effective movement of persons and goods among Romanian regions and their transfer from the hinterland to priority axes by modernizing and developing national and TEN-T networks **according to sustainable development principles**

Objective 3. n/a

Objective 4. Support sustainable transport development by minimizing adverse effects of transport on the environment and **improving traffic safety and human health**

Suggestions for modifications (alternative formulations) of Priority Axes (PA) were as follows:

PA 1: Modernization and development of TEN-T priority axes **aiming at sustainable transport system integrated with EU transport networks**

PA 2: Modernization and development of the national transport infrastructure outside the TEN-T priority axes **aiming at sustainable national transport system**

PA 3 Upgrade the railway passenger rolling stock on the national and TEN-T railway networks

PA 4 **Modernization of transport sector aiming at higher degree of environmental protection, human health and passenger safety**

Suggestions for modifications (alternative formulations) of Key area of intervention (KAI) were as follows:

KAI 1.1 Modernization and development of **sustainable** road infrastructure along the TEN-T priority axis 7

KAI 1.2: Modernization and development of **sustainable** railway infrastructure along the TEN-T priority axis 22

KAI 2.1: Modernization and development of national road infrastructure **adopting sustainable transport principles and ensuring the highest possible environmental protection**

KAI 4.1: **Development of inter-modal terminals and logistic centres**

KAI 4.3: Minimize adverse effects of transport on the environment **by developing the national Environmental Strategy of Transport Sector and other activities aimed at mitigation of env. effects**

KAI 1.3; 2.2; 2.3; 2.4; 3.1 and KAI 4.2 n/a

The implementation of the objectives and priority axes of the SOPT will likely have significant environmental effects on the environment. Special attention should be given and selection of appropriate mitigation measures to offset the potential negative impacts should be done for Priority Axes (PA) 1 and 2. Most likely positive effects are to be expected from carrying out measures planned under PA 3 and 4.

Key mitigation measures proposed for SOPT are:

- all projects should have EIA carried out with special focus given on alternatives to reduce any potential significant impacts on Natura 2000 and landscape fragmentation. Since the exact locations of the projects are not known, special attention should be given to overlap and interaction of the developments with Natura 2000 network which is to be approved at the end of 2006;
- priority support should be given to the investments that promote BATs;

- priority support should be given to the investments that promote minimization of energy consumption, increase energy efficiency and energy demand (e.g. oil and gas) and promote reuse of the natural resources;
- projects enabling PT use and development should have a priority (e.g. rail versus road and measures aimed at PT promotion);
- projects prioritised using the environmental section criteria proposed in the report should take priority in the overall SOPT funding.

During the assessment, as additional measure to prevent, reduce and as fully as possible offset any significant adverse effects on the environment, a system for environmental evaluation and selection of project applications was proposed. The system for environmental evaluation was designed in two stages with pre-project environmental evaluation during project preparation and formal environmental evaluation within official selection procedures. A draft recommended form for project proposal evaluation from environmental impact point of view was elaborated, which is based on the relevant environmental objectives and will enable to assess proposed project impact on the relevant environmental objectives.

In order to implement the system it was recommended:

- To incorporate the proposed measures that should be taken to minimise, reduce or offset the likely significant environmental effects of each area of intervention provided (outlined in the sub-chapter 8.1) among the core selection criteria for project applications.
- To incorporate the proposed environmental evaluation of project applications into the overall system of evaluating and selecting projects
- To ensure sufficient personnel and professional capacities for environmental areas within the project evaluation
- To ensure that the applicants are informed sufficiently about environmental issues and about possible links of the draft projects to the environment.

To ensure monitoring of environmental effects of the programme a set of environmental indicators were proposed (coordinated with the national environmental monitoring indicators as well as EEA indicators sets). SEA aimed at establishment of indicators to monitor effects on each relevant environmental objective. In order to ensure monitoring, it was recommended:

- To incorporate the environmental indicators proposed into the overall system of monitoring the SOPT implementation impacts
- To connect the monitoring system to the system of evaluating and selecting the projects i.e. use the same environmental objectives/indicators for the project evaluation and selection and also for further project monitoring;
- To link monitoring of the SOPT to monitoring of the single projects i.e. summarize results of the monitoring from the project level in order to estimate overall effects of the SOPT to the relevant environmental objectives.
- To publish the results of monitoring;
- To ensure sufficient personnel and professional capacities for environmental areas within the SOPT monitoring;
- To involve the Ministry of Environment and Water into the discussion about the overall system of monitoring and especially the way of incorporating environmental issues into the overall system before it is launched;

- To ensure that the applicants are informed sufficiently about environmental issues and about possible links of the draft projects to the environment;
- to invite environmental NGOs to take part in the monitoring committee (-s) established for the SOPT.

### ***Consultations***

In order to consult the public in the preparation and assessment of the SOPT, the SEA team proposed to establish a webpage within the MTCT, where the SEA working documents and other relevant information were posted (<http://gatekeeper.mt.ro>). Visitors to the site will also be able to comment on the draft documents in writing and register to take part in the public debate which will take place at the end of the SEA process.

REC Romania created a web-page on its website ([www.recromania.ro](http://www.recromania.ro)) dedicated to the "Ex-ante Evaluation" (EuropeAid/121373/D/SV/RO), which contains most of the interim papers produced during the SEA of 4 Operational Programmes assessed under this contract. Comments on the draft environmental report for SOPT may be also sent to the following e-mail address: [oana.boingeanu@recromania.ro](mailto:oana.boingeanu@recromania.ro) by the 19<sup>th</sup> of January 2007. Minutes of the public debate are attached in the Annex 6.

Pursuant to the relevant national legislation the public debate was organized after the formal submission of the SOPT including this environmental report to the Ministry of Environment and Water and the open consultation phase of 45 days with other relevant stakeholders and the public as required by the national law. The comments and suggestions raised during this consultation phase and the public debate were considered within the final version of the SOPT. Table of responses to the comments of the public and other stakeholders during the public consultation period and public debate held on the 15<sup>th</sup> of January 2007 are attached in the Annex 7.



## Introduction and methodology

### 1.1 Objectives of the SEA

Strategic environmental assessment is a tool for minimizing the risk and to maximize positive effects of proposed plans and programmes on the environment. The European Council Directive no. 2001/42/EC on assessment of the effects of certain plans and programmes on the environment (hereinafter SEA Directive) requires SEA to be carried out during the elaboration of the plan or programme and requires preparation of an environmental report; carrying out of consultations and taking into account of the environmental report and the results of the consultations in decision-making. Romania transposed the SEA Directive by the Governmental Decision 1076 of 8<sup>th</sup> of July 2004.

The SEA Directive came into force in July 2004 and is applicable to Cohesion and Structural Fund's programming for 2007-2013.

The Cohesion Policy programming process analyses and proposes development interventions. The SEA process examines individual outputs of the planning process and it may propose any necessary amendments to maximize the environmental benefits of development proposal and to minimize their negative environmental impacts and risks. As such, the programming process and the SEA process follow a very similar logic, and this is the basis for the approach recommend by the project implementing Consortium.

Additionally, SEA is a key tool not only for "greening" plans and programmes and for improving their general logic, consistency and chances for success<sup>1</sup> within the overall Cohesion Policy objectives, by providing linkages with parallel planning process (such as ex-ante or national strategic planning) and contributing to sustainable development.

Moreover, the requirements of the SEA Directive must be interpreted in such a way that Romanian Environmental NGOs and Civil Society have an effective involvement in the consultation process and are able to be informed about and to contribute to the Strategic Environmental Assessment.

<sup>1</sup> Handbook on SEA for Cohesion Policy 2007-2013, Greening the Regional Development Programmes project, 2006

## 1.2 Methodology

This SEA follows a specific SEA approach outlined in the "Handbook on SEA for Cohesion Policy 2007-2013" (hereinafter GRDP Handbook) which was elaborated within the Interreg IIIC project "Greening Regional Development Programmes". This Handbook was welcomed by the DG Regio and EG Environment in 2006 as a recommended approach for conducting SEA for the Operational Programmes for EU Cohesion Policy in 2007-2013.

The SEA methodology used this assessment fully incorporates the requirements of the SEA Directive, methodological recommendations contained in the GRDP Handbook and the national SEA requirements in Romania set up by GD no.1076/2004. Based on these requirements, this SEA aimed to:

- determine the key issues that are to be considered during elaboration of the programming document;
- analyse the context of the programming document and likely future trends, if the programming document is not implemented;
- identify an optimal set of specific development objectives and priorities;
- identify optimal measures which will best enable achievement of the objectives;
- propose an optimal monitoring and management system;
- provide for early and effective consultations with the relevant authorities and the concerned public, including citizens and organized stakeholder groups;
- inform decision makers about the programming document and its likely impacts;
- notify relevant authorities and the public about the final programming document and the reasons for its adoption.

Assessment of the draft SOPT was based on the following steps:

- Analysis of the main environmental issues and trends in Romania.
- Analysis of relevant environmental plans and programmes and related strategies on international, EU and national levels.
- Determination of the relevant environmental objectives for the SOPT.
- Assessment of the descriptive part of SOPT – whether it properly reflects the main relevant environmental issues for the SOPT.
- Environmental assessment of the SOPT strategy (objectives and priority axis).
- Environmental assessment of the priority axes and areas of intervention.
- Proposals for changes in the SOPT text, based on the evaluations carried out.
- Proposal for the environmental indicators to monitor environmental impacts of the SOPT implementation
- Proposal for environmental criteria for selection of projects.
- Compilation of a draft environmental report.

## 2 Sectoral Operational Programme - Transport content and context

### 2.1 Introduction

The Sectoral Operational Programme – Transport is a document concerning the use of the EU financial and national co-financing sources in the area of transport in Romania. The programme is being developed by the Ministry of Transport, Construction and Tourism of Romania. The SOPT is being elaborated upon the objectives of the National Strategic Reference Framework (hereinafter NRSF), in particular on its transport objective (as in the draft version of April 2006) was set “to promote a transport system in Romania, which will facilitate safe, fast and efficient movement of people and goods nationally and internationally to European standards”.

The SOPT sets the objectives, priority axes and key areas of interventions for support of the framework of which it will be possible to submit project proposal for co-financing from the EU Structural and Cohesion Funds. SOPT will be financed from European Regional Development Fund (ERDF) and Cohesion Fund (CF) (as indicated in the April Draft of NRSF).

### 2.2 Summary of main chapters

The SOPT (draft of April 2006) contains the following main parts:

- Abbreviations and acronyms
- List of tables
- List of figures;
- Introduction
- 1. Analysis of the current situation
  - o Recent trends in the transport sector of Romania;
  - o Road transport;
  - o Rail Transport;
  - o Air Transport;
  - o Waterborne transport;
  - o Intermodal and combined transport;
  - o System review;
- 2. SWOT (strengths, weaknesses, opportunities and threats) analysis
- 3. Strategy:
  - o Objectives;
  - o List of priority axes;
  - o Coherence and compliance with the community and national policies;
  - o Complementarity with other Operational Programmes and the operations financed from EAFRD and EFF;
- 4. Financial plan:
  - o SOPT financial plan;
  - o Major projects.

5. Implementation
  - o Management;
  - o Monitoring and Evaluation.
  - o Financial Management and Control,
  - o Information and publicity
  - o Single management information system
6. Partnership
  - Annexes:
    - o Indicative list of major projects;
    - o Indicative list of state aid schemes;
    - o Ex-ante evaluation summary (to follow);
    - o SOPT supporting information

All chapters and sections were reviewed during the strategic environmental assessment focusing on those parts that could reveal the environmental effects of the projects to be funded under the priorities of the SOPT.

### **2.3 General and specific objectives and priority axes and justification why certain issues are not dealt in SOPT**

The objective of the SOPT is to “promote a transport system in Romania, which will facilitate safe, fast and efficient movement of persons and goods with appropriate level of service at European standards, nationally, Europe-wide and between and within Romanian regions”. Global objective is in accordance with the General Principles of the EU Cohesion Policy 2007-2013 (Community Strategic Guidelines, 2007-2013).

In order to achieve the global objective, financial means within the SOPT will be concentrated on defined priority axes which are aimed at implementing 4 specific objectives of the SOPT. Specific objectives of the programme are as follows:

- Promote international and transit movements of people and goods in Romania by providing effective connections of the port of Constanta, as well as Greece, Bulgaria and Turkey, with the EU through the modernization and development of the relevant TEN-T priority axes;
- Promote effective movement of persons and goods among Romanian regions and their transfer from the hinterland to priority axes by modernizing and developing national and TEN-T networks;
- Promote the development of a balanced transport system of modes, based on the respective competitive advantage of each, by encouraging the development of rail, waterborne and inter modal transport;
- Promote sustainable development especially by minimizing adverse effects of transport on the environment and improving safety.

The global and specific objectives of the SOPT are on a national scale therefore the analysis of the SOPT was on the national level as well. It is recommended to present in the SOPT the details of the planned routes for renovation and extension in a visual form to enable better presentation and specification.

The SOPT has the following Priority axes:

1. Modernization and development of TEN-T priority axes

2. Modernization and development of the national transport infrastructure outside the TEN-T priority axes
3. Upgrade the railway passenger rolling stock on the national and TEN-T railway networks
4. Sustainable development of the transport sector
5. Technical Assistance

It is emphasized in the SOPT that urban transport infrastructure is not the subject of the SOPT, and it may be dealt by ROP, which addresses regional policy issues, since municipal transport is a matter which is governed by municipalities and local authorities. SEA analysis and recommendations contain references to the public transport (PT) focusing mostly on the national and international infrastructure used by PT, since there is no way to separate it, analyzing the impacts of the development of rail, air and water transport addressed in the SOPT as well as Priority axes (5) on "Sustainable development of the transport sector", which is impossible to split from PT development, especially if one of the Key Areas of Intervention under PA-5 is aimed at the introduction of efficient non-polluting/environmentally friendly transport infrastructure initiatives for **all transport modes** and mitigation of the environmental impacts of the past developments in the transport sector as a whole. The SEA team considers that such measures should be applicable to PT as well.

#### 2.4 Links to relevant national plans and programmes and international (European) documents

The SOPT main objectives are in correspondence with the strategic part of the Romanian NRSF (2007-2013, draft April 2006) that is under finalization and with the National Development Plan (NDP). Knowing the scope and focus of the SOPT, it was natural to anticipate that there will be links to national and international (mainly European) strategic programming and legal documents, which have been highlighted in the SOPT Chapter 3.3 on "Coherence and compliance with the community and national policies".

SEA determined that in terms of the environment and transport, the SOPT has a link to the following national concepts:

- Law no. 271/2003, for ratifying the Gothenburg Protocol
- Governmental Decision (hereinafter GD) no. 731/2004 on the approval of the National Strategy for Atmosphere Protection (Of.J.no.496/02.06.2004)
- GD no. 738/2004 on the approval of the National Action Plan for Atmosphere Protection (Of.J.no.476/27.05.2004)
- National Reducing Plan for sulphur dioxide and nitrogen oxides emissions and powders from large combustion plants and the measures take on account the conformation of the limit values for the emission, approved by Joint Ministerial Order MEWM 833/13.09.2005, MEC 545/26.09.2005 MAI 859/2005 (Of.J.no.888/4.10.2005).
- GD no. 568/2001 (Of.J.no.348/29.06.2001) on setting up the technical requirements for limiting the VOC emissions resulting from storing, loading, unloading and distribution of petrol from terminals to service stations, amended by GD no.893/2005
- Order of the Minister of EWM no. 781/2004 on the approval of Methodological Norms regarding the measurement and analyses of volatile organic compounds resulted from storage and loading/ unloading of petrol at terminals (Of.J.no.1243/23.12.2004);

- Order of the Minister of Industry and Resources no. 337/2001 approving the Norms regarding the technical inspection of the installations, equipment and devices used for reducing VOC emissions resulted from storing, loading, unloading and distribution of petrol from terminals and service stations (Of.J.no.10/10.01.2002), as amended by Order of the Minister of Economy and Commerce no.122/2005 (Of.J.no.324/18.04.2005)
- EGO no. 243/2000 on atmosphere protection (Of. J. no. 63/06.12.2000) adopted by Law no. 655/2001 (Of.J.no.773/04.12.2001).
- DG no. 541/2003 amended and supplemented by GD 322/2005 on establishment of certain measures for limitation of emissions of certain pollutants into the air from large combustion plants through are transposed the provisions of Directive 2001/80/EC;
- Order of the Minister of Environment and Water Management no. 592/2002 on the approval of the Norms regarding the establishing of the limit values, of the threshold values and of criteria and methods of assessment for sulphur dioxide, nitrogen dioxide and nitrogen oxides, particulate matters, (PM10 and PM2.5) lead, benzene, carbon monoxide and ozone in ambient air - (Of.J.no.765/21.10.2002);
- National Sustainable Development Strategy (1999).
- EGO no.195/2005 on Environmental protection (Of. J. no. 1196/30.12.2005) approved by Law no. 265/2006 (Of.J.no.586/06.07.2006);
- GD 321/2005 for reassessment and management of the environmental noise;
- Law no. 24/1994 (Of.J.no.119/12.05.1994) ratified the UN Framework Convention on Climate Change (hereinafter UNFCCC)
- Law no.3/2001 (Of.J.no.81/16.02.2001) ratified the UNFCCC's Kyoto Protocol
- National Strategy on Climate Change 2005-2007, approved by GD no.645/2005 (Of.J.no.670/27.07.2005)
- National Action plan on Climate Change 2005-2007, approved by GD no.1877/2005 (Of.J.no.110/06.02.2006);
- MO of Waters and Environmental Protection no. 860/2002 (Of.J.no.52/03.01.2003) on the approval of the procedure for environmental impact assessment and issue of the environmental agreement;
- GD no. 918/2002 (Of.J.no.686/17.09.2002) establishing the framework procedure for the environmental impact assessment and approving the list of public and private projects which the procedure must be applied.

Some of the above mentioned documents are being referred and linked with the strategy of the SOPT, such as Law 3/2001 for ratifying the Kyoto Agreement and Government Decision 321/2005 for reassessment and management of the environmental noise. Others are important from the environmental assessment point of view.

European documents referred to in the SOPT were: European strategies for growth, jobs (Lisbon Agenda, 2000), Community Strategic Guidelines for the Cohesion Policy in support of growth and jobs, 2007-2013, Negotiation Chapter 9-Transport, White Paper on European transport policy (EC, 2001) and Conclusions of the European Council from Goteborg 2001.

Direct link is drawn in the SOPT to the international strategic framework with references to sustainable development (Gothenburg, 2001), which is underlined in the SOPT.

***EU Strategy for Sustainable Development (Gothenburg 2001)***

The European Council in Gothenburg (2001) adopted the first EU Sustainable Development Strategy (hereinafter EUSDS), which was renewed in Brussels in 2006 with the view of the proposals of the World Summit on Sustainable Development in Johannesburg (2002). It made synergies with the Lisbon strategy therefore amending the SDS with the objectives aimed at social and economic dimension of the development.

The EUSDS points out to the unsustainable trends in relation to climate change and energy use, which threatens public health, poverty and social exclusion, management of natural resources, biodiversity loss, land use and transport. The EUSDS posed new targets to European countries, with some of them directly or indirectly linked to the transport sector. Key challenges presented in the EUSDS are directly linked with the transport. First of them is Climate Change and clean energy and the second is sustainable development. Operational objectives that are related to transport include:

- Adaptation to, and mitigation of, climate change should be integrated in all relevant European policies.
- By 2010 5,75% of transport fuel should consist of bio-fuels, as an indicative target;
- Reaching an overall saving of 9% of final energy consumption over 9 years until 2017;
- Decoupling economic growth and the demand for transport with the aim of reducing environmental impacts.
- Achieving sustainable levels of transport energy use and reducing transport greenhouse gas emissions.
- Reducing pollutant emissions from transport to levels that minimise effects on human health and/or the environment.
- Achieving a balanced shift towards environment friendly transport modes to bring about a sustainable transport and mobility system.
- Reducing transport noise both at source and through mitigation measures to ensure overall exposure levels minimise impacts on health.
- Modernising the EU framework for public passenger transport services to encourage better efficiency and performance by 2010.
- In line with the EU strategy on CO<sub>2</sub> emissions from light duty vehicles, the average new car fleet should achieve CO<sub>2</sub> emissions of 140g/km (2008/09) and 120g/km (2012).
- Halving road transport deaths by 2010 compared to 2000.

The introduction of policies to promote railways (both in passenger and freight transport) and public road transport leads to more favourable development of the EU transport sector. Improvements are even greater if policies towards the more rational use of transport modes (through improving vehicle load factors) are also implemented. In this case energy requirements in the transport sector may fall by -13.0% from actual levels in 2010 and remain quite significant even in the long run (-8.7% in 2030).

There was a limited response of consumers to several policy instruments used in the past, e.g. a very high taxation on private road transport fuels. The increasing importance of the transport sector in the future evolution of the EU energy system resulted in the White Paper for Transport, which can play a significant role in easing the pressures caused by rapid growth of the transport use. That kind of policy options also will contribute to improvements in congestion, air quality etc.

In order to obtain a better analytical insight into the results of this scenario, two alternative cases were defined:

- A scenario assuming that the share of rail (both passenger and freight) and public road transport activity will remain essentially stable at the 1998 level up to 2010, in contrast to the actual trend of continuously diminishing shares of these modes. This growth will occur to the detriment of other transport modes, thereby leading to a higher share of rail and public road transport.
- A scenario involving the assumptions made above for rail and public road transport activity but assuming, additionally, that load factors of all transport modes will increase significantly by 2010 in comparison to actual trends. This means that all transport modes will be used in a much more efficient way than today. This scenario is in line with the Commission's White Paper on Transport. It can therefore be considered as the scenario involving virtually all measures that can be implemented up to 2010 to curb energy consumption and CO2 emissions from transportation under future economic developments.

**The Commission's November 2000 Green Paper on Security of Supply** highlighted the important role of transport in the growth of energy demand and CO2 emissions. Transport in the enlarged Union accounted for 26% of overall CO2 emissions in 2000. According to TEN-STAC estimates for the enlarged EU, greenhouse gases are expected to increase for all transport modes between 2000 and 2020 by 40%. Emissions are set to increase by almost 34% for current and new Member States and approximately by 70% in the acceding countries. The highest growth is forecast for the air transport sector, 67% for the enlarged EU as a whole.

The European Environment Agency report (No 3/2006) "Transport and environment facing a dilemma: TERM 2005: indicators tracking transport and environment in the European Union" underline few very important key messages for transport sector:

- Freight transport volumes are growing with no sign of decoupling from GDP;
- Passenger transport volumes have paralleled economic growth;
- Greenhouse gas emissions from transport are growing;
- Harmful emissions decline, but air quality problems require continued attention;
- Road freight continues to gain market share;
- Air passenger transport grows while share of road and rail remain constant;
- Developments in fuels contribute to emission reductions;
- Car occupancy and lorry load factors decline in countries for which data are available;
- New technology can cut emissions and fuel consumption, but more effort is needed to achieve CO2 targets;
- Price structures increasingly aligned with and yet well below external costs level.

**The Commission's White Paper** proposes some 60 specific measures on transport policy to be taken at Community level, which address the following issues, and are to be a part of Romanian SOPT:

- Revitalizing the railways;
- Improving quality in the road transport sector;



- Promoting transport by sea and inland waterway;
- Striking a balance between growth in air transport and the environment.
- Turning inter-modality into reality;
- Building the trans-European transport network;
- Improving road safety;
- Adopting a policy on effective charging for transport;
- Recognizing the rights and obligations of users;
- Developing high-quality urban transport;
- Putting research and technology at the service of clean, efficient transport;
- Developing medium- and long-term environmental objectives for a sustainable transport system.

Elaborating major developments strategies, as SOPT, to produce an overall impact greater than could be produced by any other programs is a major thrust of sustainable development plans. Documenting and evaluating these sustainability initiatives—both their institutional framework and the substance of their accomplishments—could provide valuable models for further developments of transport in Romania according to sustainable principles.

The emerging view, then, is that economic development and environmental protection are both desired objectives along with social justice (equity); that transportation planners should be pursuing strategies, as is the SOPT, that deliver on all counts, not just on the economic front; and that analyses should reflect the full range of concerns about projects—economic, social, and environmental.

It would further recognize that a continuing policy of unrestricted car use is not sustainable – economically, socially or environmentally. An alternative and sustainable transport strategy would contain specific targets and measures to reduce car use. This would be achieved by a number of means, which would fall broadly into two categories:

- a. reducing travel demand (via means such as better urban planning practices including mixed use zoning, urban infill rather than continuing sprawl, development of more effective activity centres, etc), and
- b. reversing the current hierarchy of transport priorities so that planning and funding are consistently directed to facilitating the following priorities (in this order): public transport, rail, multi modal, walking, cycling and other transport modes (including private motor vehicles).

The EU has initiated a number of policy initiatives to limit the negative effects of the growing transport development trend. It is encouraging a shift from road transport to modes with lower environmental impacts, such as clean buses, shipping and rail. The Commission has also proposed that Member States introduce infrastructure charging to influence transport demand, by moving towards a situation where prices paid by transport users reflect the full costs to society (e.g. the Euro vignette directive), but implementation remains limited. Moreover, significant progress albeit offset by increase in demand and volume of transport, has been made in vehicle and fuel technology, driven by EU legislation and initiatives. Finally, actions are being pursued to improve the urban environment and land-use management, for example through the EU Research Framework Programme.

Complete list of relevant national and European strategic documents is provided in the Annex 3 to this document. Relevant objectives and priorities proposed by the existing international and national conceptual documents have been used by

the SEA team when compiling a set of reference objectives in the environment and health protection area (as provided in the Chapter 5 below).

### 3 An outline of the reasons for selecting the options (alternatives) examined and issues related to collection of data required

#### 3.1 Choosing the options to be examined

Relevant legislation – both Directive (2001/42/EC) and Governmental Decision (1076/2004) – require the reasonable alternatives of the programme to be considered within the SEA.

In the case of the programming for SF the SOPs are a one option programmes and a no-programme (or no-SOPT) alternative is a default alternative to the programming document. The no-programme has been examined in the chapter 4 on the Current state of the environment and the likely evolution thereof without implementation of the SOPT, which revealed that the no-SOPT alternative would mean further deterioration of environmental situation and as such, no action is likely to have significant negative effects on the environment. Therefore the analysis further concentrated not on the alternatives of the SOP, but on the alternatives and possible improvement of positive effects on the environment of components of the SOP, such as objectives, priority axes and key areas of intervention (KAIs).

SEA Directive guidance of the EC "Implementation of Directive 2001/42 on the Assessment of the Effects of Certain Plans and Programmes on the Environment" provides the most clear explanation on the treatment of the alternatives in the plan or programme elaboration process.

Para 5.11 of the guidance refers to the fact that "the obligation to identify, describe and evaluate reasonable alternatives must be read in the context of the objective of the Directive which is to ensure that the effects of implementing plans and programmes are taken into account during their preparation and before their adoption". Since the SEA process takes place before the adaptation of the SOP and enables analysis, it complies with the requirement to have analysis performed before the adaptation process.

Additionally, the para 5.14 refers to the fact that the "alternatives chosen should be realistic". The assessment should not engage into a process of elaboration of unrealistic alternatives and focus on the work, which can bring the biggest benefits to the process and minimization of negative and increase of positive effects to the environment.

Further Para 5.14 refers to the process of the studying process: "Part of the reason for studying alternatives, is to find ways of reducing or avoiding the significant adverse environmental effects of the proposed plan or programme. Ideally, though the Directive does not require that, the final draft plan or programme would be the one which best contributes to the objectives set out in Article 1. A deliberate selection of alternatives for assessment, which had much more adverse effects, in order to promote the draft plan or programme would

not be appropriate for the fulfillment of the purpose of this paragraph.” This approach presented in the Guidance enabled the SEA team, due to programming process and available time, to focus on the programme as the core alternative and worked on options for internal levels of the programming process.

In case of operational programmes, the alternatives were discussed during the elaboration of SOPT. The SEA team assessed the **alternative objectives, priority axes** (except the Priority Axis focused on Technical Assistance) **and priority areas of interventions** contained in the draft working version of SOPT, and provided recommendations **for choosing their optimal formulation** (from the environmental point of view).

The analysis of objectives, priority axes and KAIs resulted in formulation of more environmentally sound alternatives to the options presented in the SOP. When SEA identified a possible significant negative effect on the level of KAI, proposed alternative formulations were suggested of the KAIs or in the form of the system for environmental evaluation and selection of project applications. All these options have been suggested to the relevant authorities through internal submissions (SEA working group) and internal meetings with MAs. They were also presented to the public as in the draft environmental report. Some options generated by the SEA experts have been deemed too extreme and therefore were not supported by the Managing Authority

Final draft of SOPT is being submitted as a “one-option” document accompanied by ex-ante evaluation and environmental reports and the statement of the SEA Authority on how the environmental considerations have been integrated in the plan or programme, and how the environmental report have been prepared.

SEA team is well aware that many real alternatives for implementation of the programme will be when the specific projects. These projects will vary in size, type, location, etc and will inevitably have differing environmental impacts. In order to select those alternative projects with the best environmental performance, SEA team suggested environmental indicators and projects selection criteria that should be included into the implementation and monitoring system of SOPT.

### 3.2 Assessment of alternative SOPT versions

The draft environmental report was completed on 15th of November and was prepared for the version SOP dated April and included modifications of November versions of 2006. The SOPT and the draft environmental report were made available for public consultations at the end of November 2006. Based on the request of the Ministry of Finance, that wished to ensure that SEA considers alternatives options, another draft / version of the SOPT was provided to the SEA team on 23rd of January 2007. This version has been consequently still included in the final version of the environmental report.

Results of the assessments covered two versions of the SOPT: i) 2005 version of this SOPT and ii) April 2006 version of the SOPT.

Both versions of the SOPT differ by the scope. Earlier version lacked the objective “Promote sustainable development especially by minimizing adverse effects

of transport on the environment and improving safety” and KAI 4.3 within Priority axis 4 “Sustainable development of the transport sector” called “Minimise adverse effects of transport on the environment”.

Assessment of the Key Area of Intervention “Minimise adverse effects of transport on the environment” proposed in later SOPT versions indicates that this intervention as well as adding a separate objective of the SOPT on sustainable transport development is likely to have significantly positive environmental effects and its inclusion improves an overall balance of positive and adverse environmental impacts of the SOPT.

Comparison of both versions of the SOPT thus leads to a conclusion that the latest version of SOPT (April and November 2006) is likely to have more positive environmental effects than the previous (2005) version of the SOPT, since

- the new objective “Promote sustainable development especially by minimizing adverse effects of transport on the environment and improving safety” brought into the SOPT will clearly add to the environmental safety of the transport sector;
- KAI 4.3 “Minimise adverse effects of transport on the environment” is likely to have significant positive effects by expending activities under priority axis 4, then the originally proposal
- the last version enables better integration of sustainable development and environment to the SOPT.

### **3.3 Issues related to collecting required data and other**

The Ministry of Public Finance and the Managing Authority have provided to the SEA team sufficient amount of relevant documents to work out the assessment. To date the April (second) and and November (third) drafts of SOPT were assessed for significant environmental effects.

Considering that the SEA started in a moment when the second draft of the SOPT was prepared, the benefits of the assessment would have been more efficient, if the process had started earlier together with the programming process (The first draft of the SOP was produced in December 2005). The SEA team emphasizes that it’s rather difficult for the MA to introduce changes into the document, which has been in preparation for more than a 1 year. Parallel start of the SEA with the programming would have enabled a gradual optimization of the SOPT from the environmental point of view and would have facilitated a deeper mutual cooperation among the MA and SEA teams.

The analysis, recommendations and observations of the environmental effects of the SOPT presented in this report were elaborated during the period between of September and October 2006. Nevertheless, the SEA team produced the Environmental Report adhering to the requirements of the SEA Directive (2001/42/EC) and Romanian DG no.1076/8.07.2004 in the best scope achievable within the available time limits.

The Draft Environmental Report is a self-standing document which is also annexed to the Ex-ante Report.

## 4 The current state of the environment and the likely evolution thereof without implementation of the SOPT

### 4.1 Environmental analysis and likely evolution thereof without implementation of the SOPT

The environmental situation analysis was prepared for all environmental issues identified during the scoping phase of the project. The issues are as follow: air, water, soil, climate change, biodiversity, human health, environmental risk management, resource efficiency and conservation/ sustainable resource management, landscape and cultural heritage, energy efficiency and renewable energy sources, awareness raising on environmental issues and sustainable transport

In this section, the key topics and problems of the environment and public health are identified, with attention being paid to the link towards issues caused by transport sector in particular.

**Table 1. Current state of the environment and likely evolution of thereof without implementation of the SOPT**

Env. issues	Current state of the environmental	Likely future trends
Air	<p>The impact of transport to the air quality has increased due to an increase in numbers of new private and public vehicles and of the mobility for both passengers and freight, both for domestic and international transport.</p> <p>The main transport emissions are NO<sub>x</sub>, SO<sub>x</sub>, PM (particulate matter), VOCs, as well as heavy metals (e.g. lead).</p> <p>Romania planed a total phase-out of vehicles without exhaust emission control by 2005, though the objective was difficult to reach given the slow progress that has been made so far in introducing unleaded petrol. To date less than 40% of petrol sold is unleaded. Furthermore, in order to ensure the correct functioning of vehicles' exhaust-emission control the fuel quality in general should be improved.</p> <p>In 1996 a very small fraction of the petrol-driven vehicles had catalytic converters in the Romania, having the lowest share in 1996 among EU (close to 0 %). The situation gradually improved due to improvements</p>	<p>With transport sector being on a rise, the air quality problems caused by transport will rise, especially on specific corridors, in the high sensitive areas (mountain passes), on the congested network and in the urban areas.</p> <p>PT, which is an internationally recognized way to reduce the air pollution (especially urban), is used less and less in Romania (see more under "Sustainable transport" issue) due to unsatisfactory maintenance level, limited number of cars and bad management of time (time schedule). If no action is taken, usage of public transport and its share will continue to drop sharply and private cars will grow further diminishing poor urban air quality.</p> <p>If no real measures and amendments will take place, the incidence of respiratory diseases will increase in big cities, given the increasing number of cars, until less polluting cars will be introduced to partly reduce the problems.</p> <p>With regards to pollution due to PM, if there will be no improvement</p>

Env. issues	Current state of the environmental	Likely future trends
	<p>in economy, but still large way to go before it reaches the EU average. The air pollution in the cities is largely caused transport, though there is no data in Romania on the comparison of pollution caused by private transport vs. PT or other means of pollution.</p>	<p>in Bucharest on the short and medium term, the already alarming situation in relation to human health will continue to deteriorate not only in the city, but also in the surrounding areas. An indirect impact is likely from the transfer of the impact on environment to the impact on the socio-economic system, as a result of life quality deteriorating. Trains are seen as more ecological means of transportation but if the transportation costs and the quality as well as the accessibility to more communities in country will not improve it is unlikely the reducing usage trend will be overcome.</p>
Water	<p>Though transport is not the major contributor to the water pollution, it is contributing to the quality of the water of the surface and indirectly to the underground water quality due to soil pollution.</p> <p><b><i>Danube and the Black Sea water</i></b></p> <p>The Danube collects the surface water of most tributaries in Romania and is affected by direct pollution (waterborne transport and waste disposal), underground water quality and run off from soil. The water quality in the Danube is largely polluted by nitrogen and phosphorus compounds as well as other chemicals released to the surface mostly by the economic and social activities on land. Danube water was classified as class II by its ecological status and it has significant amounts of organochloride pesticides type, toxic and carcinogenic substances, concentrations of which exceed sometimes the maximum admissible limits. In 2003 the Danube got very low due to a very severe droughts and it affected the overall quality of water as well as navigation conditions in the river.</p>	<p><b><i>Danube and the Black Sea water</i></b></p> <p>The Black Sea ecosystem mostly suffers from eutrophication and insufficiently treated sewage flowing into the Danube or the other tributary rivers. If environmental measures to the transport network will not be carried out, pollution of the Danube and the Black Sea will continue from oil discharges to the surface and the marine waters by boats and ships with the incidents increasing due to outdated fleet and service facilities in the harbours and docking stations. The pollution accidents of releases of harmful substances from cargo ships can be curbed or tackled only if well qualified personnel have tools and materials to deal with such pollution. With increased trade by water and roads will increase the risk of such accidents and if no measures are taken, there will be more harm done to the aquatic eco-systems and indirectly to human health.</p>
Soil	<p>Soil pollution from transport sector is caused largely due to emissions to the air, by direct spills (oil, petrol and chemicals) and discharges on the road surfaces which are washed off with rain waters. Data on the soil pollution due to traffic is scarce in Romania, though the problem, even if localized is of significance in relation to indirect effect on surface and underground water quality. Means of keeping road surface free from ice in winter time is of special concern. Soil erosion is being caused by new constructions of infrastructure if anti-erosion measures are not well</p>	<p>With intensification of traffic, pollution from transport sector and impact on soil will continue to grow. The risk of accidents and accidental and routine (winter ice clearance) spills of chemical will increase putting more pressure on this natural resource. With slow efforts to reduce lead and sulphur pollution from petrol and oil, transport sector will continue to contribute to acidification and lead pollution of the surrounding of the roads.</p>

Env. issues	Current state of the environmental	Likely future trends
	<p>planned. Especially the problem is being exacerbated if the sections of forest are cleared for the new roads. In such cases where anti-erosion measures are mostly degraded, significant soil losses occur and leakage of pollution to the underground waters.</p> <p>Acidification is an issue largely caused by emissions from LCPs and thermal municipal units with the transport sector being the third largest source of emissions containing sulphur. The outcome of it is soil acidification and pollution of open water bodies, impact on ecosystems, as well as erosion of buildings, degradation of archaeological and cultural sites.</p>	
Climate change	<p>According to the 3<sup>rd</sup> National Communication on CC in 2001 11% of GHG emissions belonged to transport sector in Romania. The total net GHG emissions decreased by about 50% in 2002 compared to the reference year 1989. This large decrease is mainly due to industrial production decrease (decrease of power consumption and closure of some industrial branches/outputs) and the restructuring of the economy in the transition to a market economy rather than climate change reduction measures and policies.</p> <p>Due to reduction of emission of GHG from industry, share of transport emission on GHG increased in Romania, the trend noted by EEA in its TERM 2005 report (No.3/2006)..</p>	<p>As Romania is making efforts to accelerate economic growth, the transport demand and traffic flows will further grow in Romania, the idea is to limit the growth of GHG emissions from transport by making efforts to optimise the use of different transport modes. More use of environmentally friendly transport modes as rail, inland water and PT will limit the increase of the GHG from the transport sector. The largest growth in emissions in relative terms can be witnessed in the transport sector. The increasing trends of usage of private transport will further increase grow of GHG emissions share because of transport.</p>
Biodiversity	<p><b>Natura 2000 network</b></p> <p>There are 5 of 11 bio-geographic regions in Romania, which is the highest number of bio-geographic regions found within a single EU Member State. Natura 2000 network is under development and should be finalized by the end of this year. 190 SPA (special avifauna protection areas) have been identified representing about 27% of the Romanian territory and 370 SCI (sites of community importance) representing about 14 % of the Romanian territory have been identified. There are areas where anthropogenic activities have had negative effects on the conservation of wild species.</p> <p>Construction of roads and transport corridors has a direct and mostly irreversible impact on the ecosystems and biodiversity. At the moment Romania enjoys one of the smallest segmentation of the habitats, which has the biggest value</p>	<p>If no measures are taken to preserve biodiversity due to new transport corridors, further segmentation of landscape and habitats will take place which could reduce natural diversity both in natural species quality and compositions.</p> <p>Intensification of investments into the transport sector (development of this sector has a strong impact on biodiversity and protection areas) with no measures taken to reduce the impacts on biodiversity, forest and habitats will lead to further habitat fragmentation and biodiversity loss. The loss will be accelerated by intensification of economy development and especially linked with the forest product use and illegal or large scale uncontrolled forest cuttings.</p> <p><b>Natura 2000 network</b></p> <p>If the Natura 2000 sites list will not be approved by the end of the</p>



Env. issues	Current state of the environmental	Likely future trends
	from nature conservation point of view.	year, many projects of the SOPT may start without assessment and measures which would take into account the network.
Human health	<p><b>Noise</b> Noise is a matter of concern especially in the urban agglomerations which are high sensitive areas due to the high density of population. The main source is the road traffic (in and outside the cities) as well as railway. As a result of the intense traffic levels of noise beyond the standard admissible norms are registered.</p> <p>PT vehicles are also a major noise and vibration source. The existence of surface PT increase the phonic pollution, especially on the main roads, where more transportation lines are concentrated and PT lines are not separated and prioritised.</p> <p>Noise and vibration generated by the road traffic is clearly a Romanian phenomenon, with a significant effect on the people which live or work in the proximity of intensive traffic zones. The noise and vibration caused by the road traffic in the urban areas comes mainly from the engines and exhaust gas devices and in the rural areas it is caused by the interaction of tiers with the carriage road.</p> <p>The percentage values of the population quota which is estimated to be affected by the corresponding noise levels (Leq), per 24 hours 2 m far from the building frontage, vary from one noise source to other. So, the road traffic affects 32% of population with noise levels up to 55 dB(A), 23% with noise levels up to 60 dB(A) and 10.5% with noise levels between 65-75 dB(A).</p> <p>The rail traffic affects only 5% of population with noise levels up to 60 dB(A), and only 1.5% with noise levels between 65-70 dB(A).</p> <p>The air traffic affects only 0.05% of entire population with noise levels up to 60 dB(A)</p> <p>One of the sources of noise pollution in Romania is air traffic (due to use of noisy aircrafts). Air passenger traffic has been growing strongly since 1998 at an average rate exceeding 10% per annum, recording in 2005 over 4 millions passengers transported (70.9% of them via the Henri Coanda Airport, Bucharest). Domestic travel accounted for just over 11% of all passenger traffic at</p>	<p><b>Noise</b> Due to intensification of the traffic in the urban areas as well as outside the towns and cities, the road noise traffic is likely to grow. The noise arising from air traffic will grow as well due to increase in number of flights and passengers.</p> <p><b>Traffic safety</b> According to Romanian statistics, the number of serious road accidents has declined from around 9,000 per year in the early 1990s to 6,900 in 2003. However, according to the Road Policy data, the number of serious accidents rise with 5.3% between 2004 and 2005, the number of people killed rising in the same period with 8.2%. This trend is likely to continue due to increasing number of vehicles if no measures are taken and safety of roads and pedestrians stays the same. The grow rate of 6,800 AADT in 2015 is forecast raising the concern.</p>

Env. issues	Current state of the environmental	Likely future trends
	<p>Romanian airports. Henri Coanda Airport handles around 80% of all air cargo in Romania.</p> <p><b>Traffic safety</b></p> <p>After the Statistical data in 1991 in Romania was 8,948 car traffic accidents and in 2005 the number was declined up to 6,905 (from which 36.1% are with death people). About 40% of the serious accidents occur on national roads, another 40% in urban area and the remaining 20% on other roads. The number of deaths from road accidents appears to be similar to other countries, at 11 per 100,000 inhabitants. However, considering a low level vehicle ownership in Romania, the accident rate per million vehicle-km is significantly higher than in other countries.</p>	
Environmental risk management	<p>Transport accidents have a big impact on the environment by causing intense air and water pollution by discharges of harmful substances into air (traffic accidents often result in fires) as well as water (spills from vehicles transporting harmful substances on surface and in waters, which are very toxic to humans as well as nature).</p> <p>Information on the extent of the phenomenon was not obtained during the study and though such accidents are rare, the intensity of traffic on the roads and road congestion increased the risk of such accidents additionally due to worsened cover of rails and road surfaces.</p> <p>Additional environmental risks comes from oil pipes breaking, illegal waste deposits from ships, leakages of detergents and organic pollutants and illegal discharged of oil from ships, etc.</p>	<p>With increase in transport use and transportation of good within Romania and on Romania's transit routes such accidents and risk is likely to grow. If no measures are taken to make the roads more secure (with better surfaces, marking and measures ensuring traffic safety), improved rail infrastructure as well as port facilities, such risk is likely to grow.</p> <p>Oil spills to marine areas have a significant impact on environmental quality affecting all aspects of marine ecosystems. The impacts of accidental spills can be catastrophic on coastal zones that are often sites designated for their high ecological quality. Spills can also have severe repercussions for tourism, aqua-culture and fisheries in affected areas.</p>
Resource efficiency and conservation/sustainable resource management	<p>Resources used in transport sector relate to transport infrastructure (e.g. land, stone, sand, wood), transport vehicles (e.g. iron, metals) and fuel. Up to date, transport sector experience relatively low pressure related to natural resources used to develop transport infrastructure due to low investments, though in the last few years the trend of the development accelerated, which is putting more pressures on the resources related to infrastructure development especially land.</p> <p>Due to increased number of cars and transporting vehicles the consumption of fuel increased. Though the car fleet remains rather old, especially in PT (including trains). Energy</p>	<p>Energy efficiency is one of the major targets for transport sector and if no measures will be implemented from SOPT, the private car fleet will continue to improve due to overall development of the country's economy, but the PT transport, which is the solution to reduce pollution caused by transport vehicles and reduce congestion in the urban cities will continue to deteriorate.</p> <p>If no investments are made into infrastructure, the pressure on natural resources will be less to be used for the development of the roads and rail roads, but the pressure on the energy resources used to continue to grow due to ineffi-</p>

Env. issues	Current state of the environmental	Likely future trends
	efficiency in the transport sector is one of the most important issues which is exacerbated by the old infrastructure which is energy intensive.	cient transport infrastructure.
Landscape and cultural heritage	<p>Transport and transport infrastructure directly impact landscape of the country. The motorway construction speed has increased in the last years in Romania, which is rapidly changing the landscape of the country. Land is under continuous pressure from new transport infrastructure. Road is the biggest land consumer, followed by rail.</p> <p>After economic and social changes of the last decade of XX c., Romania has accumulated abandoned factory and infrastructure areas, sites with unfinished constructions and dilapidating abandoned housing units. Data on the area covered with brownfields is scares. Transport infrastructure brownfields constitute environmental potential, but unmanaged they reduce the attractiveness of the country even having in mind rich natural and cultural resources, examples of which are roads with bad maintenance as well as abandoned rail roads (especially narrow ones used for industrial purposes). Romania can be proud of the largest non-fragmented forest areas found in Europe (up 3,400 km<sup>2</sup>, EEA-ETC/TE, 2002).</p> <p><b>The Black Sea side</b> Development of the water born transport as well as development of the harbours on the sea side transformed the landscape of the Black Sea. Shipping is both the mean of transportation of industrial products as well as PT and had a strong effect on the transformation of the cultural and economic landscape of the cities such as Constanta, Mangalia and Midia. The major river/sea ports of Romania are Braila, Galati, Tulcea and Sulina on the Danube. Conditions of the ports are deteriorated and constitute not only threat to natural eco-systems but also to cultural landscape attractiveness of Romania.</p>	<p>If the actual tendencies related to the construction of new and major motorways without measures to reduce impacts on landscape will continue, they will cause further landscape fragmentation and cultural heritage deterioration due to the negative impacts of the traffic. Current situation and past trends with brownfield revitalization or the lack of thereof will further put pressures on green zones in and around urban areas threatening cultural landscape and elimination of green spaces in the cities which are already suffer from congestion and pollution. In the long run deterioration of the cultural and natural landscapes is inevitable. The take over of green fields in opposite to brownfields come from construction of new housings, urban development, shopping and administrative centres as well as industrial/production centres and business areas.</p> <p>Land taken by transport is withdrawn from other uses. Land take in natural areas may lead to a decrease of biodiversity, as may fragmentation by linear infrastructures such as roads, railways or canals. Land taken from agriculture or forestry may have harmful environmental effects (e.g. visual impact on landscapes) as well as socioeconomic impacts. Disused railway land is a valuable resource. Environmentally, the best alternative is to return this land back to nature.</p> <p><b>The Black Sea side</b> Considering the global climatic changes and the general rise in the sea level, as well as the regional geo-ecological conditions that characterize the Danube - Danube Delta - Black Sea geo-system, one can estimate that the medium-term erosion process will be at least as active as in the past two decades. The long-term predictions reveal an extension of beach erosion, especially because of the continuous decrease of sand material in the coastal area, because of the permanent rise in the sea level and an ever-higher energy level of the hydro-meteorological factors.</p>

Env. issues	Current state of the environmental	Likely future trends
Energy efficiency and renewable energy sources	<p>Transport is nearly fully dependent on fossil fuels. Increased economy development enabled improvements in energy efficiency of public and private transport in Romania. It showed the greatest decline in energy consumption, corresponding to economic decline among AC-12, where Romanian energy consumption by transport sector decreased by around 15%. The improvements in economy reversed in the last years. 80% of energy is consumed in Romania by road transport.</p> <p>Final energy consumption between 1990 and 2000 has reduced in Romania by 23%. The impacts occurred mainly due to new vehicles being important or old ones being gradually replace on the market.</p> <p>Road is the only growing transport energy consumer in Eastern European countries, as noted by the EEA (2003).</p>	<p>Energy consumption by transport sector will follow the current trends if no investments will take place in public transport sector, which showed a drafting decline during the last 2 decades. Road transport will continue to be the largest energy consumer due to PT and rail being gradually withdraw from the infrastructure due to inefficiency.</p> <p>If no support is given to renewable energy sources (such as bio-fuel), this sphere will not pick up by itself and Romania will continue to stand aside from developments of bio-fuel and bio-fuel market in terms of production as well as use.</p>
Awareness raising on environmental issues	<p>There are very few initiatives on public awareness and mostly coming from the NGO sector. There are limited funds available for NGOs and the government does not provide resources for such activities.</p> <p>Public's environmentally responsible behaviour was badly damaged by lack of investments in public transport system and neglect of its development in Romania in the last decade or more. Public switched to and increased investments into private car ownership. This practice has accelerated with the recent economic development trends.</p> <p>Alternative transport means such as cycling and walking have not been promoted in Romania and deteriorating environmental situation (increasing air pollution in the urban locations especially) is not in favour to support and promote such means. Further more, access to public transport by elderly and handicapped people is not enabled and such infrastructure is absent at large.</p> <p>Little has been done in the past to promote and raise awareness of environmentally friendly behaviour of public in relation to transport.</p>	<p>Unless public awareness raising activities efficiently moves to the level of interactive information and the framework for response and involvement of the public, the objective will take more time to achieve. With other national priorities existing in governmental policy, such as road development, awareness raising on the PT and rail transport usage as well as environmental effects of transport system in general will remain low and supported only by a handful of NGOs and environmentally informed citizens.</p> <p>If awareness raising on environmental effects will not becomes a part of the environmental strategy for transport sector, the objective will be sustained on a grass root bases at large and no significant positive effect may be expected from the public in a long run.</p>
Sustainable transport	<p>Lack of investment during 1990-2004 and a poor service quality has led to a fall in the public transport use. Strong increase in the number of road vehicles and particularly passenger cars (from 1.29mln in 1990 to 3.23mln in 2001, i.e. from 55.7 passenger cars per 1,000 inhabitants in 1990 to 144.3 in 2001 was ob-</p>	<p>PT, which is not the core subject of the SOPT, but is linked with overall development of transport sector due to sharing the national transport infrastructure as well as some sub-sectors such as waterborne transport and railway covered.</p> <p>Improvements linked with renovation of the PT fleet and making it</p>

Env. issues	Current state of the environmental	Likely future trends
	<p>served in the past. Freight motor vehicles grew from 258,701 in 1990 to 597,047 in 2001 that is an increase of about 230%. The freight and passenger railway transport (in tons-km/year and respectively passengers-km/year) has been characterised by a sharp decline between 1990 and 2001: -71.8% and -64.1% respectively. Increase in road traffic resulted in congestion not only in the cities but in the narrow rural and international roads.</p> <p>During the same period, a similar situation was in the freight transport (in tons-km) and passenger transport (in passengers-km) of other transport means: inland waterways transport (-16%, respectively -67%), maritime transport (-98%) and air transport (-79%, respectively -41%), except road.</p> <p>Significant decrease in bus (3.5 times) and mini-bus passenger transport (2.5 times) usage over 1990 – 2004. Compared with the EU countries, the interurban bus and mini-bus passenger-km per inhabitant per year are by far the lowest in Romania. The average in the EU is around 1,000 passenger-km, compared with just 242 passenger-km in Romania.</p> <p>After a decrease between 1990 and 1999, the traffic in the port of Constanta reached 33 millions tons in 2001 (compared with 42.4 mil. tones in 1990).</p> <p>From 2000 to 2005 number of the air passengers grew 1.77 times.</p> <p>Railway transportation is an ecological transportation and one of the most effective measures in order to reduce pollution, with positive results both on the short and medium run. The poor condition of the rail infrastructure has triggered a reduction of the operational speed while the level of comfort is affected by the ageing passenger fleet.</p> <p>In addition, the train timetable does not appear to be suited to the current needs, in particular because of the extensive use of large train units at low frequencies. It appears that the rail passenger company is primarily operating trains before meeting passenger needs; in other words, it is still not customer-oriented enough as remains the case in many other countries.</p>	<p>more attractive to the public and private users contribute to the private and public transportation and traffic congestion.</p> <p>The rapid growth in car ownership will be experienced over the next 10 years. If the status of public rail and public transport will continue to deteriorate, the usage of it will continue to drop. It is estimated that overall passenger transport average increase (in passengers-km) will be of 3.7% per year between 2005 and 2015 (from General Master Plan for Transports in Romania), with higher rates for road transport and lower rates for rail transport.</p> <p>It is estimated that overall freight transport (in tons-km) will increase in average by 1.1% per year between 2001 and 2006 and by 5.3% per year from 2006, with higher rates for road transport and lower rates for rail transport.</p> <p>If no SOPT measures will be carried out, already poor condition of the rail infrastructure will further continue to deteriorate and a further reduction of the operational speed and safety movement will take place, while the level of comfort will be affected by the ageing passenger fleet. In the same time the rail passenger company is primarily responsible for operating trains and is not customer-oriented. All these issues will persist in the close future, if no improvements both to infrastructure and fleet will be made.</p> <p>Water transportation infrastructure condition is further deteriorating and in many cases the equipment is operating 20 years beyond its economic life. The Danube River is under a "natural flow". There are few and unsatisfactory measures for improving the conditions of navigation and safety of operation of the river. In addition the quality of navigation on the Sulina Channel is in great need of consolidation of the riverbanks, and establishing topo-hydrographic measurement and signalling systems on the Romanian section of the Danube River. Otherwise, the current traffic flow can drastically decrease in the future.</p> <p>The average EU urban and inter-urban passenger-km per inhabitant is around 1,000 while in Romania it is only 242, which means, unless</p>

Env. issues	Current state of the environmental	Likely future trends
		<p>the public transport will become more attractive immediately, the number of private cars will continue to grow or at least will not help decrease the traffic in towns. The rail network needs significant improvement given the usage and poor condition of the infrastructure for efficient connections - on several tracks sectors the speed is restricted - before the interoperability will be possible. Frequency, journey time, level of comfort and higher accessibility to more areas of the country, need a lot of improvement otherwise is unlikely that railway transport will play a significant role in transport, in the detriment of other means. If there will be no measures to justify the price it is unlikely that trains will become a favourite mean of transportation, but rather necessary, therefore not contributing too much to the option of increasing the environmentally friendly transport options in Romania.</p>

#### 4.2 Issues proposed to be included into SWOT analysis of the SOPT

Based on the environmental analysis the SEA team proposed amendment of the SWOT table with the issues presented in the table below.

**Table 2. Recommended issues to be included into the SWOT table of the SOPT**

<b>Strengths</b>	<b>Weaknesses</b>
<ul style="list-style-type: none"> <li>- Existing public transport system.</li> <li>- SEA and EIA as the basic legislative tools to support environmental protection and sustainable development.</li> </ul>	<ul style="list-style-type: none"> <li>- Growing proportion of long-distance transport (transport of goods, raw materials, parts, etc.);</li> <li>- Reduced usage of public transport will be difficult to recover once lost;</li> <li>- Exceeding of noise limits in the cities</li> <li>- High contribution to the air pollution from traffic.</li> </ul>
<b>Opportunities</b>	<b>Threats</b>
<ul style="list-style-type: none"> <li>- supporting the less polluting transport modes (by developing sustainable transport infrastructures) will contribute to the human health, the environmental situation and at the same time, the economic competitiveness;</li> <li>- Growing individual transport costs (internalization of externalities);</li> <li>- Plans and actions to phase-out vehicles without exhaust emission control;</li> <li>- Further development of public transport systems</li> <li>- Plans and actions to phase out sales of unleaded petrol;</li> <li>- Adopting global environmental standards (ISO, EMAS)</li> <li>- New engines and techniques will improve energy efficiency and reduce air pollution</li> </ul>	<ul style="list-style-type: none"> <li>- Complicated (often applied bureaucratically) regulation tools, unsuitably transposed EU legislation</li> <li>- Growing fleet of vehicles causing high greenhouse gas emissions;</li> <li>- Construction of roads in green areas causing biodiversity degradation and increased usage of raw materials</li> <li>- Further development of means of transport causing significant adverse environmental effects (e.g. habitat fragmentation, landscape degradation)</li> </ul>

## 5 The environmental characteristics of areas likely to be significantly affected

The SOPT is prepared for the whole territory of the Romania. Since its not possible to identify the territorial locations of the priorities and activities planned within the SOPT (the strategic level of the Sectoral Operation Programme is on the scale of the country) the environmental analysis of the characteristics and issues provided in the chapter 4 is applicable and responds to the needs of this particular item of the content, as required by the national law and the EC Directive.

Environmental characteristics of the areas, where the certain projects to be supported under the SOPT will be carried out shall be assessed by EIA procedure where applicable.



- 6 Any existing environmental problems which are relevant to the SOPT including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to the GDO 236/2000 on the regime of the natural protected area, conservation of natural habitats, of wild flora and fauna, approved by Law 462/2001

### 6.1 Key environmental problems related to SOPT

This chapter points out to the key environmental problems in the transport sector which have been identified from SOPT and environmental analysis conducted for the assessment found in the Chapter 5

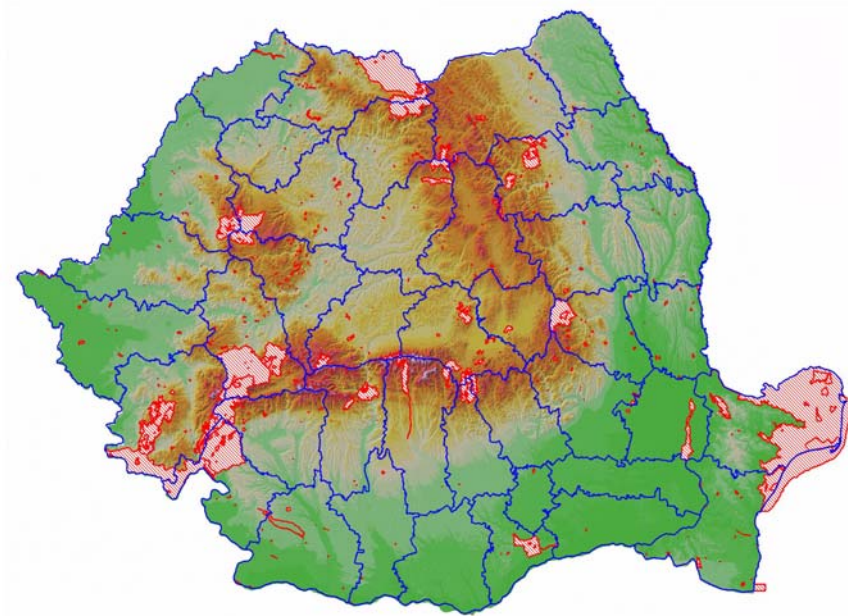
**Table 3. Key environmental problems related to the SOPT**

Env. issues	Key env. problems related to the SOPT
Air	Significant impact on air quality and human health due to emissions from traffic congestion and old vehicles, damaged and incomplete infrastructure as well as low quality fuels
Water	Water pollution from roads and rail due to impact of vehicles with damaged surfaces, old vehicles and indirectly from the run off water; Illegal and uncontrolled discharges to water from waterborne transport; Negative effects on waste ecosystems due to hydro-technical works (dragging, drainage, etc.).
Soil	Direct soil pollution due to precipitation of discharges from emissions from transport and run off from the surfaces with effects on the environment and human health
Climate change	Growing GHG emission from transport means, elevated emissions caused by old vehicles, traffic congestion and low quality infrastructure

Env. issues	Key env. problems related to the SOPT
Biodiversity	Problems related to habitat fragmentation and deforestation caused by transport infrastructure development Potential problem related to Natura 2000 network development (to be addressed in more details in the section below)
Human health	Significant environmental and human health problems related air pollution due to transport emissions; Environmental and human health problems caused by noise and vibration from transport means (vehicles) due to infrastructure deficiencies and old transport means; Water pollution from river and sea traffic with toxic substances (continuous and accidental pollution) Traffic safety issues due to traffic intensification. Soil pollution with hydrocarburants and heavy metals, continuous or accidental pollution
Environmental risk management	Environmental and human health risk due to transport accidents (release of pollution) due to overcrowded transport network, deteriorated traffic conditions and traffic congestion (road, rail, water born transport)
Resource efficiency and conservation/ sustainable resource management	Significant share of old vehicles which have no converters and do not comply with up-to-date emission and efficiency standards (obsolete fleet) Increasing problem of outdated vehicles and rail road infrastructure as well as vehicle waste oils and tires
Landscape and cultural heritage	Problem due to landscape fragmentation due to new traffic corridors badly planned without SEA enabling the assessment of cumulative effects and impacts on natural and cultural heritage
Energy efficiency and renewable energy sources	Increase in total usage of energy by transport (road mainly) and reduction of usage of rail and water due to aging infrastructure and fleet Significant lagging behind with quality fuel availability as well as availability of bio-fuel for transport means
Awareness raising on environmental issues	Lack of awareness about significance of PT and railroad development
Sustainable transport	Significant investments going into development of road transport infrastructure development where as support and facilitation of PT is lagging behind and has no development strategy on the national scale

## 6.2 The network of protected areas (future Natura 2000 sites)

The terrestrial protected areas national system represents about 8% of the Romania's territory with 26 old large biosphere reserves, national parks and natural parks and 8 new large protected areas established in 2004 and 2005. Outside the areas mentioned above there are 935 scientific reserve, nature monuments and natural reserves with a total area approximated at 18,000 ha.



**Figure 1: Network of protected areas in Romania**

The national forest fund covers 6,368,000 ha, of which 6,227,000 ha are forests and 141,000 ha represent afforested, cultivated or for forestry administration areas or other.

In order to meet the requirements of the EU Birds and Habitats Directives the Natura 2000 network is under construction in Romania.

Habitats, fauna and flora species from Birds and Habitats Directives were identified on the territory of Romania and presented in the annex of the Law 462/2001 (updated with Law no. 345/19.07.2006) on the status of natural protected area, natural habitats and species of wild flora and fauna conservation.

MoEWM has developed a national strategy for harmonization of EU requirements in terms of natural conservation and developed action plans for the implementation of the national strategy. Furthermore, implementation plans have been elaborated with time schedules for the implementation of the EU Birds and Habitats Directives.

Identified and selected natural protected areas and other landscape components must be included into the European Network of protected areas Natura

2000. At this moment 28 Special Protected Areas have been identified that are in compliance with the requirements of Birds Directive to become a part of the Natura 2000 network, which constitutes only the beginning for the work (approved between 2004-2005).

The Natura 2000 network will cover all five bio-geographical regions (Alpine, Continental, Pannonic, Steppic, Pontic), therefore there is a potential interference of transport network development activities since all regions of Romania are important from Natura 2000 point of view.

The obligation to carry environmental assessments for all plans and projects with potential impact on environment was set up. EIA process has to assess potential impacts on Natura 2000 sites and since the network establishment is on a way, it will constitute a challenge to the transport and other projects planned within the SOP. "A Methodological Guide for the biodiversity considerations insertion within the environmental impact assessment procedures" was elaborated as relates to the impact assessment on Natura 2000 network and based on the "Methodological Guide" elaborated by the European Commission. It should be a helpful tool in the assessment of process.

To enable smooth assessment and problem (if any) solving, impact assessment procedures have to have a strong consultation component with all key stakeholders of the process. The key stakeholders of Natura 2000 network are the authorities involved with the implementation and future management of Natura 2000, which are the Ministry of Environment and Water Management, other competent authorities involved in nature conservation (NEPA, REPAs, LEPAs and the National and Natural Parks Administrations including Romsilva) the Romanian Academy (which is responsible for the scientific approval of regulatory documents in relation to protected areas) and NGOs that work in the area of nature conservation.

Since the process of establishing Natura 2000 network as well as establishing the structures and framework for sound and effective management of the system is under early stages of development, it is strongly recommended not only to have consultations, but also to involve key stakeholders in the project assessment, i.e. invite environmental authorities, researchers and NGOs to provide inputs into the mitigation of possible negative impacts of the projects (please, see more under Chapter 9 and 10 under management and monitoring arrangements).

The environmental protection objectives, established at international, Community or national level, which are relevant to the plan or programme and the way those objectives and any environmental considerations have been taken into account during its preparation

### 6.3 The list of environmental objectives with explanation of its preparation

For the purpose of the assessment of environmental effects on the SOPT, a number of relevant environmental issues and objectives have been selected and formulated based on the national and international (European and Global) objectives and obligations that Romania has in the field of the Environment.

For the purpose of proposing a list of relevant environmental objectives, a reference list of key national and international environmental documents was collected and key strategic documents were consulted, the list of which is presented in the Annex 3.

Proposed set of relevant environmental issues and objectives for the purpose of assessment of the SOPT have been presented to the working group established for the purpose of SEA by the MA (Ministry of Transport, Construction and Tourism) during the scoping meeting which took place in September 2006. Comments received during and after the meeting were taken into account by the SEA team of experts. The table below presents the proposed final framework of the environmental issues and objectives for the purpose of SEA of SOPT.

**Table 4. Relevant environmental objectives for the strategic environmental assessment of the SOPT**

Env. issues	Relevant Environmental Objectives
Air	Maintain and improve the quality of ambient air within the limits set by the legal norms
	Minimize the transport impacts on the air quality at rural and urban level
Water	Limit water pollution from point and diffuse pollution sources
Soil	Limit point and diffused pollution of soil
Climate change	Decrease GHG emissions from transport
Biodiversity	Protect and improve the conditions and functions of terrestrial and aquatic eco-systems against anthropogenic degradation, habitat fragmentation and deforestation
	Preserve the natural diversity of fauna, flora, and habitats in protected areas and potential Natura 2000 sites
Human health	Facilitate improvement of human health by implementing measures aimed at pollution prevention
	Protect and improve the condition of settlements with respect to transport noxes, particularly noise and vibration

Env. issues	Relevant Environmental Objectives
	Increase population protection from risks associated with traffic accidents
Environmental risk management	Increase population protection from risk associated with natural disasters and industrial accidents caused by transportation
Resource efficiency and conservation/ sustainable resource management	Limit use of different natural resources used in transport sector
	Reduce waste generation, increase waste recovery, and facilitate recycling of all waste
Landscape and cultural heritage	Ensure protection of natural and cultural landscape from fragmentation due to traffic corridors
	Preserve, protect and rehabilitate the Romanian coastal zone of the Black Sea ensuring protection of natural (including aquatic and terrestrial ecosystems) and cultural heritage in order to achieve the sustainable development of the region
Energy efficiency and renewable energy sources	Improve energy efficiency and use of energy resources
	Improve the quality of fuels used by the transport vehicles in order to reduce the consumption of lead gasoline and sulphur diesel and support the use of eco-fuels (e.g. bio-fuel)
Awareness raising on environmental issues	Improve environmentally-responsible behaviour of the public by promoting usage of public transport and other env. friendly means of transport (e.g. cycling, walking)
Sustainable transport	Develop environmentally friendly transport (especially public transport system and multi modal transport)
	Reduce the transport external costs (related to noise, air pollution and climate change, accidents, infrastructure damages and congestion)
	Reduce the intensity of the car traffic

#### 6.4 The evaluation of general and specific objectives and priority axes

The objective of the SOPT is to **promote a transport system in Romania, which will facilitate safe, fast and efficient movement of persons and goods with appropriate level of service at European standards, nationally, Europe-wide and between and within Romanian regions.**

Based on the analysis of the environmental status in Romania, focus on links between transport and environment, and based on the assessment of specific

objectives, the SEA team proposes the following reformulation (alternative) of proposed global objective: is to promote a **sustainable** transport system in Romania, which will facilitate safe, fast and efficient movement of persons and goods with appropriate level of service at European standards, nationally, Europe-wide and between and within Romanian regions.

The assessment of specific objectives was focused on the likely environmental effects of the SOPT specific objectives to the relevant environmental objectives. The evaluation was done in the form of comments, explaining what effects (both positive and negative effects) might be caused by the implementation of the SOPs' specific objective and resulted in a possible reformulation of specific objectives and priority axes.

**Table 5. Proposed alternatives of the specific objectives of the SOPT**

Original specific objectives	Proposed alternatives of specific objectives
Promote international and transit movements of people and goods in Romania by providing effective connections of the port of Constanta, as well as Greece, Bulgaria and Turkey, with the EU through the modernization and development of the relevant TEN-T priority axes	Promote international and transit movements of people and goods in Romania by providing effective connections of the port of Constanta, as well as <b>transit transport from EU to the south</b> through the modernization and development of the relevant TEN-T priority axes <b>applying necessary environmental measures</b>
Promote effective movement of persons and goods among Romanian regions and their transfer from the hinterland to priority axes by modernizing and developing national and TEN-T networks	Promote effective movement of persons and goods among Romanian regions and their transfer from the hinterland to priority axes by modernizing and developing national and TEN-T networks <b>according to sustainable development principles</b>
Promote the development of a balanced transport system of modes, based on the respective competitive advantage of each, by encouraging the development of rail, waterborne and inter modal transport	n/a
Promote sustainable development especially by minimizing adverse effects of transport on the environment and improving safety	Support sustainable transport development by minimizing adverse effects of transport on the environment and <b>improving traffic safety and human health</b>

Suggestions for modifications of Priority Axes (PA) were as follows (text in red presents alternatives for the option of the PAs provided in the SOPT):

PA 1: Modernization and development of TEN-T priority axes **aiming at sustainable transport system integrated with EU transport networks**

PA 2: Modernization and development of the national transport infrastructure outside the TEN-T priority axes **aiming at sustainable national transport system**

PA 3 Upgrade the railway passenger rolling stock on the national and TEN-T railway networks

PA 4 **Modernization of** transport sector **aiming at higher degree of environmental protection, human health and passenger safety**

Full assessment is available in the Annex 4 to the report.

SEA came to the conclusion that due to implementation of the objectives and priority axes of the SOPT there may be significant environmental effects on the environment. The most likely negative effects are from implementation of priority axes 1 and 2. Most likely neutral and positive effects are to be expected from carrying out measures planned under PA 3 and 4.

It is important to apply mitigation measures recommended by the SEA and as prescribed by national Romanian legislation. Such measures should be developed within EIA carried out for new and upgrading go old transport infrastructure sections, implementation of river and marine port development, environmental infrastructure development as well as other projects identified via screening procedure for EIA.

Since the exact locations of the projects are not known, special attention should be given to overlap and interaction of the developments with Natura 2000 network which is to be approved at the end of 2006.

Key mitigation measures proposed for SOPT:

- all projects should have EIA carried out with special focus given on alternatives to reduce impact on Natura 2000 and landscape fragmentation;
- priority support should be given to the investments that promote BATs;
- priority support should be given to the investments that promote minimization of energy consumption, increase energy efficiency and energy demand (e.g. oil and gas) and promote reuse of the natural resources.

For other mitigation measures please see Chapters 8.1 and 9.



## 7 The likely significant effects<sup>1</sup> on the environment

### 7.1 Evaluation of areas of intervention and suggestion of specific measures to minimise, reduce or offset their likely significant environmental effects

After assessment focusing on whether the SOPT can have substantial effects on the environment (see Chapter 7 and Annex 4), further assessment was carried out on the proposed key areas of intervention in relation to the relevant environmental objectives, in other words, whether and how the key areas of support contribute (or do not contribute) to fulfilment of the relevant environmental objectives.

The evaluation was carried out in two phases.

In the first phase, the single areas of support were evaluated according to the following scale:

- + 2: substantial positive effect of the area of support on the given reference goal
- + 1: positive effect of the area of support on the given reference goal
- 0: no impact
- 1: negative impact of the area of support on the given reference goal
- 2: substantial negative impact of the area of support on the given reference goal
- ?: the impact cannot be identified

Comments on an important part of the evaluation, especially if a negative impact was identified were specified.

The evaluation was carried out independently by the SEA team experts (altogether 5 assessments). The outputs from the assessments were summarised in tables (MS Excel) and examined statistically (median and the standard deviation were calculated). In case standard deviation was more than 1 (substantial evaluation differences among the team members) the evaluation was discussed within the team and modified accordingly.

The assessment aimed at identification of potentially important negative conflicts of the SOPT areas of support with the reference goals in environmental protection. Those negative conflicts were considered important for which the median was – 1 and lower. For those conflicts the mitigation measures were further proposed in order to minimize the adverse environmental effects of the SOPT implementation.

<sup>1</sup> secondary, cumulative, synergistic, short, medium and long-term permanent and temporary, positive and negative effects including on issues such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors

The following tables present the joint evaluation of the SEA team, as it has been agreed during the discussion on the results from independent evaluation.

**Table 6. Assessment of the Key Areas of Intervention of the SOPT**

**Priority axis 1 - "Modernization and development of TEN-T priority axes"**

<b>Key area of intervention 1.1: Modernization and development of road infrastructure along the TEN-T priority axis 7</b>		
<b>Relevant env. objectives</b>	<b>Evaluation</b>	<b>Comments on likely env. effects</b>
Maintain and improve the quality of ambient air within the limits set by the legal norms	-2	The construction of new motorways will increase the car traffic along the TEN-T priority axis 7, so the air pollution levels will increase in these areas. Road construction process itself will have an important negative impact as well.
Minimize the transport impacts on the air quality at rural and urban level	1	The motorways network is developed to bypass urban and rural areas, so it is anticipated that the negative impacts of car traffic on the air quality of settlements will be minimized. The effect will be the intensification of car traffic and increased air pollution, therefore some negative general impact is expected.
Limit water pollution from point and diffuse pollution sources	-0.5	Modernization of roads will reduce relative water pollution due to transport by enabling better and more efficient traffic movement, if water collection or removal systems are in place as well.
Limit point and diffused pollution of soil	0	Relative decrease of emissions is expected given an improved transport systems. There will be relative reduction in soil pollution, but new roads and sections will expose new areas of soil to diffused pollution. Some negative impact is expected.
Decrease GHG emissions from transport	-1	The development of new and modernized road corridors will always increase the car traffic and fuel consumption therefore emissions, including GHGs. However, modernized roads can contribute to the reduction of fuel consumption, so the emissions will be lower.
Protect and improve the conditions and functions of terrestrial and aquatic eco-systems against anthropogenic degradation, habitat fragmentation and deforestation	-1	The activities within this key area are focused on the construction of new motorways and bypasses for cities located on, or adjacent to TEN-T priority axis 7. New and modernized roads could affect badly the eco-systems and cause habitats fragmentation, not only during the construction period but also after, especially if new sections of roads are built. The development of road infrastructure will cause significant anthropogenic degradation, habitat fragmentation and deforestation therefore EIA procedures should be performed.

<b>Key area of intervention 1.1:</b> Modernization and development of road infrastructure along the TEN-T priority axis 7		
<b>Relevant env. objectives</b>	<b>Evaluation</b>	<b>Comments on likely env. effects</b>
Preserve the natural diversity of fauna, flora, and habitats in protected areas and potential Natura 2000 sites	-1	The development of road TEN-T infrastructure will cause further habitat and landscape fragmentation. It's necessary to pay attention to mitigation measures which should be implemented in parallel with the construction of transport infrastructure aimed at reducing landscape fragmentation, protected areas and Natura 2000 sites. It is recommended to fully observe the EIA procedure to enable the best solutions for sections intersecting protected areas and Natura 2000 sites.
Facilitate improvement of human health by implementing measures aimed at pollution prevention	1	Contribution to air and noise pollution is expected but at the same time relative decrease of the noise and air pollution per km travelled, due to improved infrastructure and shortened road. The development of road TEN-T will lead to the improvement of air quality in urban areas by shifting car transport out of cities and therefore enabling better environment in urban locations.
Protect and improve the condition of settlements with respect to transport noxes, particularly noise and vibration	1	Contribution to air and noise pollution is expected from road construction, but if bypasses are developed for road transport they will reduce and shift noise and vibration from cities to rural areas.
Increase population protection from risks associated with traffic accidents	1	The development of road TEN-T infrastructure will lead to the improvement of transport conditions, shortening the travel time, reducing number of settlement bypassed by the road and diminish the number of accidents. Enabling higher speed and more cars in traffic will increase the risk of accidents.
Increase population protection from risk associated with natural disasters and industrial accidents caused by transportation	1	The development of road TEN-T infrastructure will lead to the improvement of conditions for dangerous goods transport and diminish the number of accidents. The impact on reduction of risks associated with natural disasters is minimum or zero.
Limit use of different natural resources used in transport sector	-1	Development of road infrastructure will increase the use of natural resources not only during the construction period but also after, due to increased fuel consumption, but it will increase fuel efficiency per km and tone of goods transported. It will be very difficult to evaluate the economy in fuel consumption due to better driving conditions, versus additional fuel consumption due to the rise of car traffic in these new and modernized roads. Experts consider that fuel economy could be greater than additional fuel consumption, because, on short and medium terms, car traffic could raise but fuel consumption economy will be higher.

<b>Key area of intervention 1.1:</b> Modernization and development of road infrastructure along the TEN-T priority axis 7		
<b>Relevant env. objectives</b>	<b>Evaluation</b>	<b>Comments on likely env. effects</b>
Reduce waste generation, increase waste recovery, and facilitate recycling of all waste	0	Enabling construction waste's recycling during road construction can have positive effect. Better roads will lead to the use of more and new cars and, subsequently to increased waste production from old cars. Lack of infrastructure for cars' recycling will have indirect negative impact.
Ensure protection of natural and cultural landscape from fragmentation due to traffic corridors	-2	Development of road TEN-T infrastructure will cause further habitat and landscape fragmentation. It's necessary to pay attention to mitigation measures which should be implemented in parallel with the construction of transport infrastructure. Those measures can be planned only if proper EIAs are conducted.
Preserve, protect and rehabilitate the Romanian coastal zone of the Black Sea ensuring protection of natural (including terrestrial and aquatic ecosystems) and cultural heritage in order to achieve the sustainable development of the region	0	No or indirect link which can not be assessed
Improve energy efficiency and use of energy resources	1	Better road and railway infrastructure will enable better energy efficiency (better usage of petrol and oil per km travelled and tone of freight transported) therefore positive effect is expected.
Facilitate energy generation from renewable resources	0	No or indirect link which can not be assessed
Improve the quality of fuels used by transport vehicles in order to reduce the consumption of lead gasoline and sulphur diesel and support the use of eco-fuels (e.g. biofuel)	0	Better transport infrastructure will lead to more fuel consumption and therefore to more demand for fuel. Indirectly it will lead to the promotion of eco-fuel development, but the effect will be small and hard to estimate and other measures are needed in parallel.
Develop environmentally friendly transport (especially public transport system and multi modal transport)	1	The improved and modernized roads will increase the car traffic, so the road transport demand will be increased. If proper connections are provided with cities and with the regional transport, the effect will be increased.
Reduce the transport external costs (related to noise, air pollution and climate change, accidents, infrastructure damages and congestion)	1	The construction of road TEN-T infrastructure will cause the intensification of car traffic (and so increase the external costs) in specific areas (not including urban and rural areas). If development will be linked with new payment schemes for travelling on modern roads, there will be some internalization of the environmental effects. Reduction of traffic congestion and air pollution reduction due to bypasses is expected and therefore positive effect is anticipated.

<b>Key area of intervention 1.1:</b> Modernization and development of road infrastructure along the TEN-T priority axis 7		
<b>Relevant env. objectives</b>	<b>Evaluation</b>	<b>Comments on likely env. effects</b>
Reduce the intensity of the car traffic	0	The construction of road TEN-T infrastructure will cause the intensification of car traffic (and so increase the external costs). The potential contribution to the reduction of trucks circulating on the main roads would have a positive effect.
<b>Proposed reformulation of key area of intervention (if any):</b> Modernization and development of <b>sustainable</b> road infrastructure along the TEN-T priority axis 7		
<b>SEA recommendations (e.g. conditions for implementation, selection criteria etc.):</b> The development of road infrastructure will bring significant anthropogenic degradation, habitat fragmentation and deforestation therefore it is proposed to have not only EIAs conducted for sections of roads but, in order to reduce the negative impact, to have SEAs conducted for the entire length of the road to eliminate "salami slicing" effect. Attention should be paid to habitat fragmentation, recycling of construction materials in road construction and to measures aimed at reducing vibration and noise.		

<b>Key area of intervention 1.2:</b> Modernization and development of railway infrastructure along the TEN-T priority axis 22		
<b>Relevant env. objectives</b>	<b>Evaluation</b>	<b>Comments on likely env. effects</b>
Maintain and improve the quality of ambient air within the limits set by the legal norms	2	The development and modernization of rail transport infrastructure on the TEN-T priority axis 22, will minimize the air pollution levels along this corridor. Improvements in rail infrastructure will attract more passengers and the air pollution per passenger will reduce. Development of the railway on the TEN-T axis will reduce relative air pollution enabling more travel and better freight transport by rails, therefore positive effect is anticipated.
Minimize the transport impacts on the air quality at rural and urban level	2	The development and modernization of railway on the TEN-T priority axis 22, will minimize the air pollution levels along this corridor and has a potential to reduce the car traffic.
Limit water pollution from point and diffuse pollution sources	1	The effect of the development will be the intensification of rail traffic, construction of new branches of railroads and increased runaway water pollution. Measures for the reduction of water pollution and erosion must be elaborated to reduce the negative impact.
Limit point and diffused pollution of soil	0.5	The effect of the development will be the intensification of rail traffic, construction of new branches of railroad and increased soil pollution. Measures for the reduction of soil pollution and erosion have to be elaborated to reduce the negative impact.
Decrease GHG emissions from transport	2	Improvement of rail infrastructure will attract more passengers and the GHG per passenger will reduce. Positive effect is expected.

<b>Key area of intervention 1.2:</b> Modernization and development of railway infrastructure along the TEN-T priority axis 22		
<b>Relevant env. objectives</b>	<b>Evaluation</b>	<b>Comments on likely env. effects</b>
Protect and improve the conditions and functions of terrestrial and aquatic eco-systems against anthropogenic degradation, habitat fragmentation and deforestation	-1	Construction of new rail infrastructure will impact also eco-systems, habitats and deforestation, especially if new branches are built. The activities within this axis aim at making the railway infrastructure inter-operable along the TEN-T priority axis 22, as well as at improving the quality of rail services by modernizing the railway infrastructure and raising the maximum operational speed to 160 km/h for passenger trains and 120 km/h for freight trains. So, it could badly affect the eco-systems and fragment the habitats that will be crossed by these infrastructures.
Preserve the natural diversity of fauna, flora, and habitats in protected areas and potential Natura 2000 sites	-1	The development and modernization of the transport infrastructure, including railways, will harm the natural habitats in protected areas if the chosen corridors will cross these areas. In parallel, the impact of railways is less dangerous, environmentally speaking, than other infrastructure modes' (e.g. roads) because those ones support non environmentally friendly transport modes. It is recommended to carry out EIAs to reduce the negative impact.
Facilitate improvement of human health by implementing measures aimed at pollution prevention	1	Reduced pollution due to increased speed of trains and from enabled faster and increased freight transportation, as well as from the potential shift of freight from roads to rails will contribute to the improvement of human health.
Protect and improve the condition of settlements with respect to transport noxes, particularly noise and vibration	1	Improved railways will have some additional impact due to increased traffic on the rails and speed of travel. Measures have to be planned to protect inhabitants from increased exposure to noise and vibration by restricting speed and travel frequency at night.
Increase population protection from risks associated with traffic accidents	1	The development and modernization of railway infrastructure by improved infrastructure on the TEN-T priority axis 22, will strongly minimize the number of traffic accidents.
Increase population protection from risk associated with natural disasters and industrial accidents caused by transportation	1	Risk associated with industrial accidents and transportation of dangerous goods on the railroads will be reduced due to modernized and strengthened infrastructure. The development and modernization of railway infrastructure on the TEN-T priority axis 22, will strongly minimize the number of accidents, including the dangerous goods transported but will have no effect on the natural disasters.
Limit use of different natural resources used in transport sector	1	There will be some increase in the use of natural resources due to traffic intensification, but the efficiency will be increased.

<b>Key area of intervention 1.2:</b> Modernization and development of railway infrastructure along the TEN-T priority axis 22		
<b>Relevant env. objectives</b>	<b>Evaluation</b>	<b>Comments on likely env. effects</b>
Reduce waste generation, increase waste recovery, and facilitate recycling of all waste	0	The intensification of the use of rail infrastructure will lead to some increase in waste generation due to the wear out of the old equipment. Mitigation measures must be proposed in order to reduce the potential indirect and direct (due to removal of old rails) impact.
Ensure protection of natural and cultural landscape from fragmentation due to traffic corridors	-1	Construction of new railway infrastructure will impact the natural and cultural landscape, especially through extension works. The activities within this axis aim at making the railway infrastructure <i>inter-operable</i> along the TEN-T priority axis 22 and also at improving the quality of rail service by modernizing the railway infrastructure and raising the maximum operational speed to 160 km/h for passenger trains and 120 km/h for freight trains. So, it could affect (but not so badly) the eco-systems and fragment the habitats crossed by these infrastructures. It's necessary to pay attention to mitigation measures which should be implemented in parallel with the construction of transport infrastructure, measures that can be elaborated with the help of SEA and EIA procedures.
Preserve, protect and rehabilitate the Romanian coastal zone of the Black Sea ensuring protection of natural (including terrestrial and aquatic ecosystems) and cultural heritage in order to achieve the sustainable development of the region	0	No direct link or some indirect secondary link
Improve energy efficiency and use of energy resources	1	Promotion of railway transport will contribute to the efficient use of fuel consumption. Development has a potential significant positive effect.
Facilitate energy generation from renewable resources	0	No direct link
Improve the quality of fuels used by the transport vehicles in order to reduce the consumption of lead gasoline and sulphur diesel and support the use of eco-fuels (e.g. biofuel)	0	No direct link. There will be some indirect secondary effect given the need for more fuel and the development of bio-fuel for rail transport.
Develop environmentally friendly transport (especially public transport system and multi modal transport)	1	Railway infrastructure modernization is directly linked with the development of environmental friendly transport. The development and modernization of railway transport infrastructure on the TEN-T priority axis 22 will encourage the use of the railways and will have significant positive effect.

<b>Key area of intervention 1.2:</b> Modernization and development of railway infrastructure along the TEN-T priority axis 22		
<b>Relevant env. objectives</b>	<b>Evaluation</b>	<b>Comments on likely env. effects</b>
Reduce the transport external costs (related to noise, air pollution and climate change, accidents, infrastructure damages and congestion)	2	The development and modernization of railway transport infrastructure on the TEN-T priority axis 22, will encourage the development of environmentally-friendly transport which will lead to important reductions of the external costs, especially regarding transport congestion and pollution.
Reduce the intensity of the car traffic	1	Railways' improvement will probably lead to the reduction of the car traffic intensity. The development and modernization of railway transport infrastructure on the TEN-T priority axis 22, will encourage the development of environmentally-friendly transport as an alternative to the road transport.
<b>Proposed reformulation of key area of intervention (if any):</b> Modernization and development of <b>sustainable</b> railway infrastructure along the TEN-T priority axis 22		
<b>SEA recommendations (e.g. conditions for implementation, selection criteria etc.):</b> Attention must be paid to habitats fragmentation for new infrastructure and noise near settlements. SEA is recommended for the entire section of road, to eliminate 'salami slicing' effect and to ensure the best solutions against habitat fragmentation, enable better preservation of natural habitats and optimal solutions for intermodal access of the railroads.		

<b>Key area of intervention 1.3:</b> Modernization and development of water transport infrastructure along the TEN-T priority axis 18		
<b>Relevant env. objectives</b>	<b>Evaluation</b>	<b>Comments on likely env. effects</b>
Maintain and improve the quality of ambient air within the limits set by the legal norms	0	The effect of development will be the intensification of traffic and increased air pollution. The development and modernization of water transport infrastructure will improve the quality of ambient air because it will support the reduction of car traffic by switching the road transport demand towards water transport. to reduce the effect it is recommended to ensure the use of the high quality fuel.
Minimize the transport impacts on the air quality at rural and urban level	0	The effect of development will be the intensification of traffic and increased air pollution. The development and modernization of water transport infrastructure will improve the quality of ambient air because it will support the reduction of car traffic by switching the road transport demand towards water transport. In parallel, air quality of the urban areas, with great harbours, will be negatively affected by the intensification of water transport, but this situation is true only in very few locations (e.g. Giurgiu or Braila harbours). Mitigation measures have to be proposed via EIA procedures



<b>Key area of intervention 1.3:</b> Modernization and development of water transport infrastructure along the TEN-T priority axis 18		
<b>Relevant env. objectives</b>	<b>Evaluation</b>	<b>Comments on likely env. effects</b>
Limit water pollution from point and diffuse pollution sources	-1	The intensification of traffic on water will cause the increase of water pollution. The development and modernization of water transport infrastructure will diminish the water pollution by adopting the necessary measures.
Limit point and diffused pollution of soil	0	Modernization and improvement of water infrastructure will reduce soil pollution. Some positive effect can be expected although water and air pollution intensification due to increased traffic will have some negative impact.
Decrease GHG emissions from transport	0	The effect of development will be the intensification of traffic and increased air pollution and GHG emissions. Increased efficiency of travels will have a positive effect.
Protect and improve the conditions and functions of terrestrial and aquatic eco-systems against anthropogenic degradation, habitat fragmentation and deforestation	-1	The development of water transport infrastructure will have a significant impact on the functions of aquatic ecosystems of the Danube and its delta. The development and modernization of water transport infrastructure will affect the eco-systems by deepening the riverbeds and with the intensification of traffic and regularization of river flow.
Preserve the natural diversity of fauna, flora, and habitats in protected areas and potential Natura 2000 sites	-1	The development of water transport infrastructure will have significant impact, affecting the functions of aquatic ecosystems of the Danube linked with the protected areas and Natura 2000 sites. The development and modernization of transport infrastructure, including water transport, will harm the natural habitats in protected areas, especially in Danube Delta. Minimization of impacts can be achieved if measures are proposed within the EIAs carried out for the projects.
Facilitate improvement of human health by implementing measures aimed at pollution prevention	1	The modernization of the water transport infrastructure will improve the human health because it will support the reduction of car traffic intensity. By switching the road transport demand towards water transport there will be some reduction in air pollution. In parallel air quality, noise and vibration of the urban areas, with great harbours, will be negatively affected by the water transport activities, but this situation is true only in some locations (e.g. Giurgiu or Braila harbours). But, generally speaking, the modernization effects will be positive.
Protect and improve the condition of settlements with respect to transport noxes, particularly noise and vibration	0	Air quality, noise and vibration, of the urban areas with great harbours, will be negatively affected by the water transport activities. Noise along the navigation routes will be increased due to the intensification of travels.

<b>Key area of intervention 1.3:</b> Modernization and development of water transport infrastructure along the TEN-T priority axis 18		
<b>Relevant env. objectives</b>	<b>Evaluation</b>	<b>Comments on likely env. effects</b>
Increase population protection from risks associated with traffic accidents	0.5	Modern waterways will reduce the risk of industrial accidents (better conditions for transportation of dangerous good on water) as well as risks associated with general traffic accidents on water, although intensification of water traffic will relatively increase the risk.
Increase population protection from risk associated with natural disasters and industrial accidents caused by transportation	1	Rivers regularization will reduce the risk associated with industrial and water traffic accidents, but the impact on natural disasters can be indirect or secondary. Some protection increase can be expected if river flood barriers are being supported within the KAI.
Limit use of different natural resources used in transport sector	0	Intensification of water traffic will increase the use of natural resources (oil and petrol) therefore some negative impact is expected , but the efficiency of use will be increased.
Reduce waste generation, increase waste recovery, and facilitate recycling of all waste	0	There will be some waste generated due to activities, therefore measures to ensure the recycling and reuse of water transport waste should be developed.
Ensure protection of natural and cultural landscape from fragmentation due to traffic corridors	-1	The development of water transport infrastructure will have a significant impact affecting the functions of aquatic and marine eco-systems, especially in Danube Delta. Modernization and renovation works in some harbours will have some positive effect on the cultural landscape.
Preserve, protect and rehabilitate the Romanian coastal zone of the Black Sea ensuring protection of natural (including terrestrial and aquatic ecosystems) and cultural heritage in order to achieve the sustainable development of the region	0	This OP addresses TEN-T Priority axis 18, which includes the River Danube along its full length, the Black Sea canal to the port of Constanta as well as the Midia - Poarta Alba canal. It aims at developing the inland water transport infrastructure in Romania for increased utilization, therefore there is no connection with the Romanian coastal zone.
Improve energy efficiency and use of energy resources	1	There will be improvements of energy efficiency for the water transport sector given the infrastructure renovation and rehabilitation.
Facilitate energy generation from renewable resources	0	No direct link. Due to the national commitment to achieve 2% increase in bio-fuel consumption, there is a potential to encourage beneficiaries to utilize this kind of fuel and give priorities to such projects.
Improve the quality of fuels used by the transport vehicles in order to reduce the consumption of lead gasoline and sulphur diesel and support the use of eco-fuels (e.g. biofuel)	1	No direct link

<b>Key area of intervention 1.3:</b> Modernization and development of water transport infrastructure along the TEN-T priority axis 18		
<b>Relevant env. objectives</b>	<b>Evaluation</b>	<b>Comments on likely env. effects</b>
Develop environmentally friendly transport (especially public transport system and multi modal transport)	1	The development and modernization of water transport infrastructure directly supports an environmentally friendlier infrastructure given its potential to reduce private car traffic, which is very energy intensive and environmentally harmful. Switching from the road transport to water transports is considered environmentally friendly and therefore there is a significant potential positive effect.
Reduce the transport external costs (related to noise, air pollution and climate change, accidents, infrastructure damages and congestion)	1	The development and modernization of water transport infrastructure will diminish the external costs of transport because it will support the reduction of car traffic by switching the road transport demand towards water transport, reduce congestion in the urban and regional roads and will reduce the accidents.
Reduce the intensity of the car traffic	1	The development and modernization of water transport infrastructure will support the reduction of car traffic by switching the road transport demand to water transport.
<b>Proposed reformulation of key area of intervention (if any):</b>		
<b>SEA recommendations (e.g. conditions for implementation, selection criteria etc.):</b>		
<p>Se recomanda ca lucrarile structurale ce vizeaza modificarea albiei rurilor sa se realizeze prin utilizarea de materiale si tehnologii ecologice.</p> <p>EIAs have to be carried out to ensure minimization of the impacts on natural aquatic and delta habitats as well in order to propose measures supporting the rehabilitation and preservation of cultural and natural landscape and energy conservation. Pe de alta parte propunem ca atunci cand un proiect impune modificari morfologice ireversibile, cu impact de mediu sa fie impuse <i>masuri ecologice compensatorii</i> (renaturarea altor zone, inundarea altor suprafete etc.).</p>		

**Priority axis 2 - "Modernization and development of the national transport infrastructure outside the TEN-T priority axes"**

<b>Key area of intervention 2.1: Modernization and development of national road infrastructure</b>		
<b>Relevant env. objectives</b>	<b>Evaluation</b>	<b>Comments on likely env. effects</b>
Maintain and improve the quality of ambient air within the limits set by the legal norms	-1	Each modernization and development of road infrastructure provides better conditions for traffic, so it would be very possible to obtain the reverse effect desired, lower quality of ambient air. At least during the road construction period there will be an important negative impact. The development of new national roads has as consequences the intensification of car traffic and increased air pollution, but new sections of roads have a potential to remove the traffic from congested towns and settlements therefore there will be some positive effect too.
Minimize the transport impacts on the air quality at rural and urban level	-1	Better road infrastructure stimulates the demand for cars and traffic. Without adopting any complementary measures, the air quality, especially in the urban and rural areas will be negatively affected, with hot spots in congested intersections. During the operation period there will be a slightly positive effect due to car traffic optimization. These operations aim at the modernization and development of national road infrastructure sections that are located outside the TEN-T priority axes. This infrastructure will mainly cross through cities so the negative impact will be major.
Limit water pollution from point and diffuse pollution sources	0	The development of new road sections will reduce the water pollution given the better quality road surface, but it will increase the overall water pollution due to intensification of traffic along the new sections of roads.
Limit point and diffused pollution of soil	0	The development of new national roads has as consequences the intensification of car traffic and increased soil pollution and erosion. If mitigation measures are implemented soil erosion will be partially mitigated.
Decrease GHG emissions from transport	-2	Development and modernization of new sections of roads will increase the car traffic and fuel consumption and also increase the GHG emissions. The effect of the development will be the intensification of traffic and it will increase air pollution and GHG emissions.
Protect and improve the conditions and functions of terrestrial and aquatic eco-systems against anthropogenic degradation, habitat fragmentation and deforestation	-1	There will be a major impact on ecosystems and habitat fragmentation not only during the construction period but also after, due to the development of new sections of national roads (especially motorways). It's necessary to pay attention to mitigation measures which should be implemented in parallel with the construction of road infrastructure.

<b>Key area of intervention 2.1: Modernization and development of national road infrastructure</b>		
<b>Relevant env. objectives</b>	<b>Evaluation</b>	<b>Comments on likely env. effects</b>
Preserve the natural diversity of fauna, flora, and habitats in protected areas and potential Natura 2000 sites	-1	The development of new national roads will have significant impact because it will affect functions of terrestrial and aquatic eco-systems in protected areas and Natura 2000 sites (especially motorways). It's necessary to pay attention to mitigation measures which should be implemented in parallel with the construction of road infrastructure.
Facilitate improvement of human health by implementing measures aimed at pollution prevention	-1	Constructions (short term) and intensification of traffic (long term) will contribute to air and noise pollution, especially at the periphery, and human health will be negatively affected. Overall negative impact is expected, but improvements of infrastructure will lead to the alleviation of congestion in settlements and therefore to improvements of health conditions there. During construction phase mitigation measures have to be proposed to minimize negative effects.
Protect and improve the condition of settlements with respect to transport noxes, particularly noise and vibration	-1	Contribution to noise and vibration will happen during the construction and modernization, for a short period, but some decrease in noise and vibration is expected due to modern roads especially if settlement areas will be bypassed. Mitigations measures have to be planned if traffic intensification is to take place in the heavily populated areas or in the road branches laying near by houses and settlements.
Increase population protection from risks associated with traffic accidents	1	Increased traffic in the area will lead to higher number of accidents for pedestrians, but the number of car accidents will decrease.
Increase population protection from risk associated with natural disasters and industrial accidents caused by transportation	1	Indirect secondary effect can take place if the general road infrastructure is improved.
Reduce waste generation, increase waste recovery, and facilitate recycling of all waste	-0.5	There will be some secondary negative impact on waste generation due to increased traffic, which can be mitigated by measures such as the recycling of old vehicles introduced or the use of e.g. rubber and plastic waste in road construction or accident risk management. Limited recycling of construction waste during the road construction period is possible.
Ensure protection of natural and cultural landscape from fragmentation due to traffic corridors	-1	The modernization of national road infrastructure will cause damages on natural and cultural landscapes, but lower than the ones caused by the construction of new corridors (especially motorways). It's necessary to pay attention to mitigation measures which should be implemented in parallel with the construction of road infrastructure. SEA and EIA should be carried out to mitigate the effects on landscape.

<b>Key area of intervention 2.1:</b> Modernization and development of national road infrastructure		
<b>Relevant env. objectives</b>	<b>Evaluation</b>	<b>Comments on likely env. effects</b>
Preserve, protect and rehabilitate the Romanian coastal zone of the Black Sea ensuring protection of natural (including aquatic and terrestrial ecosystems) and cultural heritage in order to achieve the sustainable development of the region	-1	The modernization of national road infrastructure, along the Romanian coastal zone of the Black Sea, will cause damages on natural and cultural heritage. It's necessary to pay attention to mitigation measures which should be implemented in parallel with the construction of road infrastructure by carrying out SEAs and EIAs according to the size of the projects.
Improve energy efficiency and use of energy resources	-0.5	Better roads will improve energy efficiency (travel time and use of petrol), but the use of natural resources will increase, not only during the construction period but also after due to the increased fuel consumption.
Facilitate energy generation from renewable resources	0	No direct link
Improve the quality of fuels used by the transport vehicles in order to reduce the consumption of lead gasoline and sulphur diesel and support the use of eco-fuels (e.g. biofuel)	1	No direct link
Develop environmentally friendly transport (especially public transport system and multi modal transport)	1	If measures are enabled to such as developing cycling paths and multi modal transport access from national road system, there can be a link and a positive effect towards environmentally friendly transport development. Projects that have such components have to get a priority
Reduce the transport external costs (related to noise, air pollution and climate change, accidents, infrastructure damages and congestion)	-1	Car traffic will increase also pollution, noise and risk of accidents, increasing thus the external costs. Some reduction of congestion will result if bypasses are planned and constructed near towns and settlements, but general impact on climate change and further pollution will exist. It is obvious that modernized infrastructure will encourage the increase of car traffic, especially in settlements, so the external costs of transports (that are mostly related to car activity) will badly rise.
Reduce the intensity of the car traffic	-1	Modernizing the road infrastructure will increase car traffic on the medium and long term.
<b>Proposed reformulation of key area of intervention (if any):</b> Modernization and development of national road infrastructure <b>adopting sustainable transport principles and ensuring the highest possible environmental protection.</b>		
<b>SEA recommendations (e.g. conditions for implementation, selection criteria etc.):</b> It's necessary to pay attention to mitigation measures which should be implemented in parallel with the construction of road infrastructure (paying special attention to habitat fragmentation, recycling of construction materials, and measures for vibrations and noise mitigation) and which can be obtained from the implementation of SEA and EIA, according to the size of the projects and eliminating the "salami slicing" effect.		

<b>Key area of intervention 2.2: Modernization and development of national railway infrastructure</b>		
<b>Relevant env. objectives</b>	<b>Evaluation</b>	<b>Comments on likely env. effects</b>
Maintain and improve the quality of ambient air within the limits set by the legal norms	2	Improvement of rail infrastructure will attract more passengers and the air pollution per passenger will reduce. The railway corridors support environmentally friendly movements of people and goods. Improving this type of infrastructure will lead to an increased quality of ambient air.
Minimize the transport impacts on the air quality at rural and urban level	1	The railway corridors support environmentally friendly movements of people and goods. Improving this type of infrastructure will lead to an increased quality of ambient air especially in urban and rural areas.
Limit water pollution from point and diffuse pollution sources	0.5	Modernization of national railroads will contribute to better water protection and only increased traffic, due to more trains, will slightly increase water pollution risks.
Limit point and diffused pollution of soil	0.5	The modernization of national railroads will contribute to better soil protection due to better infrastructure, more efficient fuel consumption, high travel speed and only increased traffic, due to more trains, will slightly increase water pollution risks.
Decrease GHG emissions from transport	2	Improvements of rail infrastructure will attract more passengers and the GHG/passenger will reduce. The railway corridors support environmentally friendly movements of people and goods. Improving this type of infrastructure will lead to an increased quality of ambient air in the specified areas, including GHG.
Protect and improve the conditions and functions of aquatic and terrestrial eco-systems against anthropogenic degradation, habitat fragmentation and deforestation	-1	If constructions of new rail infrastructure will be supported, it will negatively impact eco-systems and habitats. Rehabilitation of railway tunnels/ bridges and high embankments will have some positive effect if environmental measures are carried out, such as the establishment of animal and amphibian crossing sections.
Preserve the natural diversity of fauna, flora, and habitats in protected areas and potential Natura 2000 sites	-1	The construction of new rail infrastructure will impact the eco-systems and habitats, but modernization of old sections will lead to better protection of habitats.
Facilitate improvement of human health by implementing measures aimed at pollution prevention	1	Reduced pollution, due to better infrastructure, will contribute in some way to the improvement of human health.
Protect and improve the condition of settlements with respect to transport noxes, particularly noise and vibration	0	Reduced pollution will contribute to improved conditions of the settlements and environment in terms of protection from noise and vibration. Intensification of traffic will raise the levels of noise and vibration. Mitigation measures should be proposed and implemented.

<b>Key area of intervention 2.2: Modernization and development of national railway infrastructure</b>		
<b>Relevant env. objectives</b>	<b>Evaluation</b>	<b>Comments on likely env. effects</b>
Increase population protection from risks associated with traffic accidents	1	Better rail infrastructure will diminish the number of rail accidents.
Increase population protection from risk associated with natural disasters and industrial accidents caused by transportation	1	Safety for dangerous goods transportation on the rail infrastructure will be increased as well as the risk associated with industrial accidents. Better rail infrastructure will diminish the number of rail accidents in general, but it will not contribute to the national disasters mitigation.
Reduce waste generation, increase waste recovery, and facilitate recycling of all waste	0.5	There will be some impact on waste generation due to reconstruction and renovation works. Activities for construction waste reuse and mitigation of impacts have to be developed within the projects.
Ensure protection of natural and cultural landscape from fragmentation due to traffic corridors	-1	The development (project pipeline) of the national rail infrastructure will further fragment the natural and cultural landscape if new sections of railroad are proposed. Negative impacts due to the new project pipelines must be assessed during EIAs.
Preserve, protect and rehabilitate the Romanian coastal zone of the Black Sea ensuring protection of natural (including aquatic and terrestrial ecosystems) and cultural heritage in order to achieve the sustainable development of the region	0	New rail infrastructure development (project pipeline) will impact on natural and cultural landscape. At the same time it will enable the decrease of road transport and associated type of pollution in the coastal zone. EIA has to be carried out to mitigate potential negative effects and increase the potential positive effects of the new railway development.
Improve energy efficiency and use of energy resources	1	Energy efficiency in rail road transport will be increased due to the KAI. Promotion of rail transport will contribute to the efficiency of fuel consumption.
Facilitate energy generation from renewable resources	0	No direct link
Improve the quality of fuels used by the transport vehicles in order to reduce the consumption of lead gasoline and sulphur diesel and support the use of eco-fuels (e.g. biofuel)	1	No direct link
Develop environmentally friendly transport (especially public transport system and multi modal transport)	1	The railway corridors support environmentally friendly movements of people and goods.



<b>Key area of intervention 2.2: Modernization and development of national railway infrastructure</b>		
<b>Relevant env. objectives</b>	<b>Evaluation</b>	<b>Comments on likely env. effects</b>
Reduce the transport external costs (related to noise, air pollution and climate change, accidents, infrastructure damages and congestion)	2	Rehabilitated sections of railroads will contribute to the decrease of air pollution and will reduce the transport external costs. The railway corridors support environmentally friendly movements of people and goods. Improving this type of infrastructure will contribute to the reduction of the transport external costs (accidents, noise impacts, damages, etc.).
Reduce the intensity of the car traffic	2	The improvement of railways will promote its use and will contribute to the reduction of the car traffic intensity. Railway corridors support environmentally friendly movements of people and goods and will offer a viable alternative to car transport.
<b>Proposed reformulation of key area of intervention (if any):</b>		
<b>SEA recommendations (e.g. conditions for implementation, selection criteria etc.):</b> Intensification of train traffic will raise the levels of noise and vibration. Mitigation measures should be proposed and implemented. The development of the new railways' project pipeline will further endanger natural and cultural landscapes. Potential negative impacts due to the new project pipelines must be assessed during SEA and special attention should be paid to habitats fragmentation by the new infrastructure and noise occurring near settlements. Positive effects of the new projects have to be assessed and contributions to the reduction of environmental pollution should be enabled through the development of better and more accessible rail infrastructure.		

<b>Key area of intervention 2.3: Modernization and development of river and maritime ports</b>		
<b>Relevant env. objectives</b>	<b>Evaluation</b>	<b>Comments on likely env. effects</b>
Maintain and improve the quality of ambient air within the limits set by the legal norms	-1	The development and modernization of river and maritime ports will affect air quality especially during constructions but also during operation, due to the bigger number of ships. Some improvement of the port access will have a positive effect given the elimination of detours via cities (Constanta) and because of enabling connection of ports traffic directly to the rail or road networks. Air quality of the urban areas, with great harbours, will be negatively affected by the water transport activities, so improved harbours will support the raise of water transport demand and diminish the ambient quality air in the mentioned areas. Some negative impacts are expected.
Minimize the transport impacts on the air quality at rural and urban level	-1	It will impact only the urban area where ports are located. The development of marine and river ports infrastructure will have a significant negative impact on air quality. More environmentally friendly projects have to get priority during the selection process
Limit water pollution from point and diffuse pollution sources	-1	Better port infrastructure may have negative and positive effects on water quality. Access of more ships in ports will lead to water pollution in those areas (due to fuel supply and maintenance activities). The development of marine and river ports infrastructure (environmental service development such as waste and waste water management) will have positive impact due to the elimination and mitigation of water pollution. It must be ensured that waste is not dumped into waters during the development and after the activities from/in the ports. This objective will be achieved by facilitating port operations and efficiency, increasing container stacking and handling capacity, and increasing vessel safety in the port of Constanta, as well as on the other Danube ports subsequent to the recommendations of an upcoming proposed study supporting the need for such initiatives. These activities could limit the water pollution from ports sources. Modernization of repairing ships or transport/transit type of ports should also include strong waste management programs, waste landfills treatment and recovery or new waste collection systems. For example, Romania's biggest and largest port from Constanta has such big waste landfill management issues that can only be solved by implementing a new modern and ecological type of landfill.

<b>Key area of intervention 2.3: Modernization and development of river and maritime ports</b>		
<b>Relevant env. objectives</b>	<b>Evaluation</b>	<b>Comments on likely env. effects</b>
Limit point and diffused pollution of soil	0	Increased traffic of ships will lead to water and soil pollution in ports so negative impacts are to be expected and mitigation measures, such as run off water collection and treatment systems must be proposed.
Decrease GHG emissions from transport	0	Air quality of the urban areas, with great harbours, will be negatively affected by the water transport intensification, so improved harbours will support the raise of water transport demand and raise the GHG emissions from transport in the mentioned areas. Increased GHG emissions will be expected during rehabilitation and development works.
Protect and improve the conditions and functions of terrestrial and aquatic eco-systems against anthropogenic degradation, habitat fragmentation and deforestation	-2	Significant impacts on aquatic eco-systems due to constructions and port activities (e.g. dredging, saline waters takeover, ship repairing activities, inside transport issues) will take place. Mitigation measures anticipated in EIA or SEA have to be carried out to minimize possible negative impacts or to propose modifications of the activities. Modernizing ports' infrastructure could have negative impacts on aquatic eco-systems.
Preserve the natural diversity of fauna, flora, and habitats in protected areas and potential Natura 2000 sites	-2	Ports' development on the Danube river is of big importance, where the whole area is protected. The development of marine and river ports infrastructure will have significant impact because it will affect protected areas and Natura 2000 sites. EIAs have to be carried out where such developments could affect the sites mentioned above. Modernizing ports' infrastructure could have negative impact on aquatic eco-systems.
Facilitate improvement of human health by implementing measures aimed at pollution prevention	-0.5	Human health in the urban areas, with large harbours, will be negatively affected by the water transport activities, so improved harbours will support the raise of water transport demand but affect the health quality.
Protect and improve the condition of settlements with respect to transport noxes, particularly noise and vibration	0	Air quality, noise and vibration, of the urban areas, with large harbours, will be negatively affected by the intensification of water transport activities (long term impact) and port development (short term impact). Measures should be adopted to mitigate noise and vibration, if living areas area affected, such as introducing restrictions for the activity time.
Increase population protection from risks associated with traffic accidents	1	Modern harbours will have a positive effect on the reduction and prevention of traffic accidents in water transport.
Increase population protection from risk associated with natural disasters and industrial accidents caused by transportation	1	Modern harbours will prevent industrial accidents, but no direct link will be established with natural disasters.