

**COST 350 – WG 2**  
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**COST350**  
**Integrated Assessment of**  
**Environmental Impact of Traffic and**  
**Transport Infrastructure**  
**- A Strategic Approach**

**Part C**  
**Chapter 2**  
**WG 2 Final Report**

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# 1 Introduction: scope and workspace of WG2

Following the final report of WG1, which is referred to as the COST 350 Framework Document, the outcome of COST 350 should be a handbook or methodological guide that is focused on the actual application of SEA in decision-making on transport infrastructure.

Within this context, the objective of WG2 is to provide an overview of planning situations that are considered most relevant from the point of view of SEA application. For these planning situations the main problems and planning issues should be elaborated, the impacts and used indicators are to be considered, the specification of assessment and evaluation methods should be outlined and the required data and instruments (tools) should be identified.

In accordance with the decisions of the COST 350 Management Committee these planning situations should be defined in terms of:

1. the planning and decision-making process;
2. the overall methodological approach;
3. types and scope of measures considered in alternative planning options;
4. scenario developments considered;
5. the assessment of transport system characteristics (level of detail; specific parameters taken into account; types of models and data used);
6. environmental and other impacts/indicators considered (specification of impacts and impact mechanisms; assessment methods; models and data applied);
7. integration and evaluation methods applied;
8. specific problems encountered.

Moreover, planning situations are to be considered at different geographical levels which would be relevant from the perspective of SEA, i.e. the national, regional, local and corridor level.

The activities in WG2 have been structured around the identification and description of relevant case studies on a country level. The specific purpose of the activities in WG2 is to provide an operational basis for the methodological development activities to be undertaken in working groups 3, 4 and 5. In order to achieve this purpose, the description and assessment of the country case studies were aimed to yield the following concrete results:

- Provide clear examples of practical situations for which the methodological guide in COST 350 is to be developed in order to focus the scope of development activities in the other work packages.
- Provide examples of relevant approaches in terms of methods, tools, indicators and analysis procedures applied in various countries to serve as 'building blocks' for the development of the methodological guide in COST 350.
- Identify important issues in present approaches for which the methodological guide to be developed in COST 350 should provide solutions.

In WG2, a total of 15 cases in 9 different countries have been identified and described, ranging from the national to local planning levels. Initial case descriptions were structured according to a questionnaire involving a range of different questions. In a second step, this questionnaire was restructured and amended in order to provide more elaborate descriptions and assessments of specific parts of the relevant case studies for the purpose of providing a more solid basis for the methodological development activities in work packages 3, 4 and 5. The further elaboration of case studies according to the restructured questionnaire was carried out by some countries, but not by all.

Based on the case study descriptions of the participating countries provided by the WG2 members, a further processing and evaluation of case study results took place from two different perspectives:

- 1) An evaluation and comparison of case studies from the viewpoint of compliance with the SEA Directive, based on a structure of SEA compliance criteria.
- 2) A summary description of case study results, providing an overview of main findings and comparison of case studies.

Further steps taken in WG2 have focused on the implications of the WG2 results for the continuation of the work in COST 350, in particular the specification of activities and priorities to be set within the various other working groups.

The present report describes the results of the activities in WG2 and is the final product of WG2. Chapter 2 addresses the evaluation of SEA compliance of the various case studies. Chapter 3 contains the summary and comparison of case study results based on the case study descriptions for the various countries provided by the WG2 participants. Chapter 4 provides a synthesis of case study results and an overview of main conclusions. Based on the findings of WG2, chapter 5 proposes an action agenda for the continuation of the COST 350 activities in the other working groups.

An overview and description of SEA compliance criteria used in the evaluation of SEA compliance in chapter 2 is included in Annex A. Annex B provides a description of the hierarchical planning levels most relevant for COST 350. At Annex C is the current (May 2006) legislation of participating countries compiled by WG5, National SEA legislation relevant for COST350 (May 2006).

## 2 Case study compliance with SEA

### 2.1 Introduction

This chapter deals with the evaluation of case studies from the viewpoint of compliance with the SEA Directive. The specific objective of this evaluation is to judge the extent to which the characteristics of the planning situations considered in the cases *would* comply with the conditions, which would require the execution of a SEA, and the extent to which the execution of the assessment was actually carried out *according to SEA requirements*. This leads to a further focusing on the most appropriate area of SEA application and provides further insights in the present possibilities and shortcomings to comply with the SEA Directive, providing an important basis for specifying needs and setting priorities in the COST 350 methodology development. Note, in none of the cases was a formal SEA actually carried out.

In order to judge the present cases, an interpretation was made of the requirements as described in the SEA Directive 2001/42/EC and additional information provided about the implementation of SEA. These requirements have been formulated in the form of a number of "SEA compliance criteria" within two main groups, i.e. (1) process related, and (2) related to the contents of SEA. An overview and description of these criteria is provided in Annex A. It should be noted that the criteria developed are partly based on an *interpretation* of SEA requirements which have been drafted and communicated within WG2 and do not reflect an officially endorsed set of criteria.

Using the criteria described in Annex A, WG2 participants have provided their assessment of the SEA compliance of their country case studies. Other available information includes the case study descriptions based on the questionnaire, which was developed in WG2 to facilitate the case study descriptions. It should be noted that two subsequent versions of this questionnaire were developed. An original version was developed and applied at the end of 2002. It was then concluded that more information was needed focusing on the actual methodologies applied that led to an extended questionnaire according to a new structure. The present situation is that most countries have provided a case study description according to the original questionnaire, but not all countries have provided a case study description according to the extended questionnaire. An overview of the status of the available information is presented in Table 2.1, which contains the following information:

- The planning level/scale and country to which the case study applies.
- The orientation of the case study (policy or programme oriented).
- The acronym and name/description of the case study.
- The information available in terms of the original questionnaire, the extended questionnaire and the SEA compliance assessment (in terms of yes or no).

The evaluation summary described is based on the information available as presented in Table 2.1.

An overview of the SEA compliance assessment according to the criteria specified in Annex A is provided in Table 2.2. In principle, the compliance assessment is based on a specification in terms of yes (if the statement is true) or no (if the statement is false). Given the results of the present evaluations and the description of the available cases studies it was found necessary to add a number of other possibilities to express the assessment of the various criteria, i.e.:

- p/l (partly or limited) if the condition has only been fulfilled partly or to a limited extent;
- nk (not known) if the criterion cannot be judged due to a lack of information.



**Table 2.1 Status of available information on cases**

Planning level/scale	Country	Orientation	Acronym	Name/description	Questionnaire (original)	Questionnaire (extended)	SEA compliance assessment
National	Italy	Policy	PGT	National Transport Plan	yes	yes	yes
	Netherlands	Policy	NVVP	National Transport and Traffic Plan	yes	yes	yes
	Germany	Programme	FTIP	Federal Transport Infrastructure Plan	yes	yes	yes
	Portugal	Policy	NRP2000	National Road Plan	no	yes	??
Regional	Italy	Policy	PRT	Regional Transport Plan	yes	yes	yes
	Belgium	Policy	Bel-Flem	Flemish Transport Policy Plan	yes	no	no
	UK	Programme	SWARMMS	South West Area Multi Modal Study	yes	no	yes
	Austria	Programme	Aus-Vien	Region of Vienna	yes	no	yes
	Portugal	Policy	Alto Minho	Application of NRP in Alto Minho	no	yes	yes
Local	UK	Policy	UK-LTP	Local Transport Plans	yes	no	yes
	Italy	Policy	PUM	Urban Mobility Plans	yes	very brief	no
	Belgium	Programme	IRIS	Mobility Plan Brussels Area	yes	no	no
Corridor	Netherlands	Policy	BRUT	Breda - Utrecht Corridor	yes	yes	yes
	Hungary	Programme	Danube	Danube Corridor	yes	yes	yes
	Spain	Programme	EsIn	Estudio Informativo	no	yes	yes

**Table 2.2 Results of SEA compliance assessment of country case studies** (Note: cases have **not** been subject to an actual SEA!)

	Cases - national level				Cases - regional level					Cases - local level			Cases - corridor level		
	PGT	NVVP	FTIP	NRP 2000	PRT	Bel-Flem	SWAR MMS	Aus-Vien	Alto Minho	UK-LTP	PUM	IRIS	BRUT	Danu be	EsIn
<b>Process-related</b>															
<i>SEA requirements</i>															
P1 Preparation/adoption by official authority	yes	yes	yes	yes	yes	no	yes	no	no	yes	yes	yes	yes	yes	yes
P2 Required by legislative/admin. provisions	yes	yes	no	yes	yes	no	no	no	no	yes	yes	no	yes	yes?	yes
P3 Significant env. effects/framework EIA projects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
<i>Conditions SEA execution</i>															
P4 Prior to legislative procedure	yes	yes	yes	yes	yes	no	yes	yes	no	yes	yes	no	yes	yes	no
P5 Proactive identification of options	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
P6 Decision-making based on environmental assessment and consultation results	yes	yes	p/l	no	p/l	no	yes	p/l	no	yes	no	no	p/l	yes	yes
<i>Consultation commitment</i>															
P7 Requirement of SEA	yes	no	no	no	yes	p/l	no	no	no	no	no	no	no	yes	no
P8 Scope and detail of assessment	yes	yes	yes	no	yes	p/l	yes	yes	no	yes	yes	yes	yes	yes	no
P9 Environmental report / draft plan/programme	yes	yes	yes	no	yes	p/l	yes	p/l	no	nk	no	no	yes	yes?	yes
<i>Information on adopted plan/programme</i>															
P10 What (plan, env. impacts, monitoring measures)	yes	p/l	yes	p/l	yes	yes	yes	yes	yes	p/l	p/l	p/l	p/l	yes	yes
P11 To whom (authorities, public, Member States)	yes	yes	yes	yes	yes	yes	yes	yes	no	yes	p/l	p/l	p/l	yes?	yes
<i>Other process requirements</i>															
P12 Provisions for quality assurance	no	no	no	no	no	no	no	yes	no	yes	no	no	no	yes?	no
P13 Monitoring provisions	yes	yes	no	no	p/l	no	no	p/l	no	no	no	no	no	yes?	yes
<b>Related to contents</b>															
<i>Scope</i>															
C1 Aimed at assessment of env. impacts	p/l	p/l	yes	p/l	p/l	yes	yes	p/l	yes	no	no	no	p/l	yes	yes
C2 Strategic planning stage/level	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	no
C3 Policy/programme oriented	yes	yes	yes	yes	yes	yes	yes	yes	no	yes	yes	yes	yes	yes	no
<i>Main elements of approach</i>															
C4 Consideration of future context	yes	yes	yes	nk	p/l	yes	yes	yes	yes	no	no	yes	no	yes	yes
C5 (Broad) range of alternatives	p/l	p/l	p/l	nk	p/l	p/l	yes	yes	p/l	p/l	p/l	yes	p/l	yes?	yes
C6 Environmental objectives / indicator structure	p/l	p/l	p/l	p/l	p/l	yes	yes	yes	yes	p/l	no	no	p/l	yes?	no?
<i>End product (environmental report)</i>															
C7 Objectives and scope	yes	yes	p/l	no	yes	p/l	yes	yes	yes	yes	yes	yes	yes	yes	no
C8 Environmental problem analysis	p/l	p/l	yes	no	p/l	p/l	yes	p/l	yes	no	no	no	no	yes	yes?
C9 Environmental impact analysis	p/l	p/l	yes	p/l	yes	yes	yes	yes	yes	p/l	no	no	no	yes	yes?
C10 Evaluation and selection of alternatives	p/l	no	p/l	nk	no	p/l	yes	yes	yes	yes	yes	yes	p/l	yes	yes
C11 Monitoring programme	yes	no	no	no	p/l	no	no	p/l	yes?	no	no	no	no	no	yes

**Legend:** p/l: partly/limited; nk: not known  assessment by country representatives  preliminary assessment based on case study descriptions



In addition to the assessments actually provided by country participants (see the overview presented in Table 2.1), an attempt was made to assess the SEA compliance for the remaining cases based on the information contained in the questionnaire(s). In those cases, the results of the SEA assessment are shown in Table 2.2 in a different colour. These results should still be verified by the respective WG2 participants.

In the following paragraphs a brief verbal description is provided of the main results from each of the case studies. A further (critical) evaluation and summary of main conclusions regarding the SEA compliance of the case studies considered is presented in chapter 4 (section 4.1).

## **2.2 PGT: National Transport Plan (Italy)**

The basic conditions for SEA requirement and SEA execution are all met. The SEA approach is considered during the preparation of the plan and prior to its submission to the legislative procedures and there is a pro-active identification of options that would best achieve environmental and other objectives. Environmental impacts and results of consultation are taken into account in the decision-making process, although the extent of the environmental impacts is quite limited.

The SEA criteria regarding consultation commitments and provision of plan information are met. A range of relevant parties is consulted in the various stages of the planning and analysis process. With respect to the other process requirements there are no specific provisions for quality assurance. Given the cyclic nature of the planning process, the monitoring of significant effects is included in the planning.

Regarding the scope of the PGT there is only a limited focus on the assessment of environmental impacts. With respect to the approach, in the process a range of alternatives are explicitly considered and the planning methodology helps in simulating the effects of these alternatives to choose the best ones. (There is explicit consideration of a future context, but there is no explicit consideration of a range of alternatives.) With respect to the environmental objectives and indicator structure, the focus is merely on CO<sub>2</sub> as the primary goal. In principle, the end product of the analysis process is a report containing all the essential ingredients, i.e. an analysis of the environmental problems (consideration of current state and future development under a 'no change' alternative); the environmental impacts of alternatives; and an evaluation of alternatives leading to the selection of a preferred alternative. In the critical analysis provided with the original case study description it was made clear that the procedures and methodologies applied are rather theoretical. Intentions are good, but there is still a lack of transparency, as well as practicable and operational means to support the assessments. Hence, the criteria related to the environmental problem and impact analysis and the evaluation/selection of alternatives are only partly met.

## **2.3 NVVP: National Transport and Traffic Plan (Netherlands)**

The basic conditions for SEA requirement and SEA execution are all met. Since the SEA procedure was not formally taken into account, there was no consultation on the SEA requirement of the plan. A range of parties were involved and consulted regarding the scope of assessment and the end results of the planning exercise. The relevant information on the results of the planning process and the basis for the decision-making is provided to the relevant parties and the general public. However, the information provided on the environmental considerations in decision-making is rather limited. There are no specific provisions for quality assurance. Given the cyclic nature of the planning process, the monitoring of significant effects is included in the planning.

The SEA criteria regarding the scope of the NVVP are all met, although the orientation towards the assessment of environmental impacts is limited. With respect to the approach, there is explicit consideration of a future context but there are some limitations regarding the scope and definition of alternatives, the environmental objectives and the related indicator structure. Considerable attention is paid in the end product to objectives and scope. However, the analysis of future problems and the environmental impacts of alternatives are limited and largely have a descriptive and indicative nature. An actual integrated analysis and evaluation and selection of alternatives does not take place. There is no further specification of an actual monitoring programme.

It should be noted that the NVVP was not actually implemented because the proposed plan was rejected by Parliament. Since then, the scope of the plan has somewhat changed and is now called the National Mobility Plan, which is presently in preparation. However, it is expected that most of the descriptions and observations related to the SEA compliance of the NVVP will still apply to this National Mobility Plan.

## **2.4 FTIP: Federal Transport Infrastructure Plan (Germany)**

Apparently, there is no legal requirement for the plan, although other conditions for SEA requirement are fulfilled. Decision-making was only influenced by the environmental assessment and the results of consultation to a limited extent. Other conditions for SEA execution are met.

Consultation with relevant parties has taken place and consultation commitments are met. The public was *informed* via Internet but without the possibility of genuine consultation. In this respect, the requirements of the SEA directive were not completely met.

The available information on the results of the planning process and the basis for the decision-making is presented to the relevant parties and the general public. However, there were no rules how to integrate the results of the environmental report in the decision making process. Regarding to the critical projects, there were discussions within the administration and within the political committees ending with the recommendation that some of these projects should be regarded carefully in the next planning stages. There are no specific provisions for quality assurance and monitoring of the effects of the plan.

The topic of the environmental assessment was nearly 1,500 individual projects. The whole network, as the outcome of the plan, was not assessed. Hence, there is no integrated environmental assessment of alternative plans. Other SEA criteria regarding the scope of the FTIP are met.

With respect to the approach, there is explicit consideration of a future context. Alternatives are merely considered on a project level. There are no strategic (policy related) alternatives regarding the plan as a whole. Use is made of several environmental indicators, which are generally not associated with specified environmental objectives.

The environmental impact analysis and the evaluation/selection of alternatives pertain to the projects that are considered under the 'umbrella' of the plan. In this respect the environmental assessment is a summation of the effects of individual projects.

## **2.5 NRP 2000: National Road Plan (Portugal)**

An assessment of SEA compliance has not been delivered. The NRP 2000 is prepared by an official authority (*Ministry of Social Equipment*) in co-operation with other ministries and parties and is anchored in national law. Clearly, the options are involved with significant environmental effects. Decision-making follows the NRP 2000. There is

a pro-active consideration of options. The consideration of environmental effects and the public participation is quite limited. Since the SEA procedure was not yet taken into account, there was no consultation on the SEA requirement of the plan; this is also true for the other consultation aspects. The plan information provided relevant for SEA is limited. Results are provided to relevant authorities. There is no mention of provisions for quality assurance or monitoring.

The orientation towards the assessment of environmental impacts is limited. Other aspects regarding the scope of the plan are met. The future context and alternative strategies are considered in the analysis not clearly. Environmental objectives and indicators are only considered to a very limited extent. The end product is limited: there is no explicit consideration of the plan's objectives and scope, no environmental problem analysis and no monitoring programme. The environmental impact analysis is limited. Alternatives have not been evaluated and selected.

## **2.6 PRT: Regional Transport Plan (Italy)**

The basic conditions for SEA requirement and SEA execution are mostly met. However, there are limitations regarding the environmental considerations in decision-making, as the approach is more curative than preventive and does not focus on policies aimed to reduce traffic flows and related environmental effects.

The criteria regarding consultation commitments and provision of plan information are basically met. A range of relevant parties are actually consulted in the various stages of the planning and analysis process and provided with the relevant information. With respect to the other process requirements there are no specific provisions for quality assurance and there is only limited attention to the monitoring of significant effects as part of the planning process.

Regarding the scope of the PRT, the assessment of environmental impacts is subject to certain limitations. In the planning procedure, sustainability objectives are emphasised and the impacts of emissions, noise and ecological risks are explicitly considered. But the environmental analysis focuses on identifying environmental criticalities rather than policies that would reduce the environmental effects. There is also limitations with respect to the various aspects of the overall approach related to the future context, the range of alternatives considered in the analysis, and the specification of environmental objectives and indicators.

The above limitations also become manifest in the end product, in particular in the analysis of environmental problems and the evaluation and selection of alternatives.

## **2.7 Bel-Flem: Flemish Transport Policy Plan (Belgium)**

An assessment of SEA compliance has not yet been delivered. A preliminary assessment of SEA compliance was made on the basis of the available case study description.

From the description, it seems that the development of the policy plan can be interpreted as a study financed by the environmental administration, not leading to a formal adoption of the plan by an official authority. Also, there seems to be no legal basis. The focus is on the environmental effects. The study is involved with a pro-active identification of options, but other conditions regarding the SEA execution are not met.

Consultation commitment is only reflected to a limited extent through a steering group in which only some of the relevant ministries are represented. The impacts of the measures included in the policy plan were presented to a number of focus groups and a summary of their responses was added to the plan. There is no mention of provisions for quality assurance or monitoring in the planning process.

SEA criteria regarding the scope of the policy plan are all met. Included in the approach is the consideration of a future context, a specification of at least a number of environmental objectives (targets) and the consideration of an indicator structure. The number of alternatives considered on policy plan level is limited.

With respect to the end product, it seems that the attention to objectives and scope, environmental problem analysis and the evaluation/selection of alternatives are limited (although there is mention of the use of a MCA approach). An environmental impact analysis is included. There is no mention of a monitoring programme.

## **2.8 SWARMMS: Southwest Region (UK)**

An assessment of SEA compliance has not yet been delivered. The UK multi modal studies (MMS) were conceived and initiated, undertaken and reported, ahead of the SEA legislative requirement.

The SWARMMS was undertaken by the Government Office for the South West and can be considered a building block for transport policy development. There was no actual legislative requirement although the findings of the MMS once accepted by ministers would be taken forward via formal land use and transport strategies and plans. The MMS were conceived politically to seek desirable solutions to known transport problems. Options considered do have significant environmental effects. Almost all conditions regarding the SEA execution seem to have been met.

Since the SEA procedure was not formally taken into account, there was no consultation on the SEA requirement of the plan. Other consultation commitments are met. The results in terms of the impacts of plan alternatives were presented to all relevant stakeholders. There was no mention of provisions for quality assurance or monitoring in the process.

SEA criteria regarding the scope of the policy plan were all met. Included in the approach were the consideration of a future context and a broad range of alternatives. Also a quite extensive structure of indicators, including environmental indicators, was considered. Within the environmental objective, ten sub-objectives are mentioned. The UK Government has stated objectives for transport, including the environmental sub-objectives, which are all positive and desirable (e.g. to reduce noise, to protect and enhance the landscape, etc). While the impact of plans on these objectives is scored, on a textual scale, they lack specific quantification and target setting.

The end product includes a description of objectives and scope, an environmental impact analysis and an evaluation of alternatives informed by environmental problem analysis. There is no mention of a monitoring programme as part of the plan.

## **2.9 Aus-Vien: Region of Vienna (Austria)**

In Austria the SUPerNOW was not required by legislative, regulatory or administrative provisions, but it was prepared by an official authority (town planning department of Vienna). However, it was carried out on a voluntary basis to set a framework for projects subject to EIA. Decision-making was only based on the SEA and consultation results to a limited extent. The other conditions regarding the SEA execution are met. The consultation commitment is only involved with the scope and level of detail of the assessment and partly to the environmental report and the draft plan. Public consultation was carried out in a two-step approach: (1) the relevant interest groups concerned (environmental NGOs, the chambers, local politicians) were invited to participate at the SEA Round Table. There the SEA team (consisting of planning and

environmental authorities, external planners and the interest groups) carried out the SEA steps all together, from defining the objectives to defining planning conclusions. This participative process took 1,5 years. (2) the broader public (meaning everybody concerned or interested) was continuously informed about the SEA via website and there were 5 public meetings held, where people could give their comments to some extent. But there was no possibility to formally comment on the environmental report or the draft plan/programme. The result of the SEA was adopted by the Vienna government, but there was no concluding statement afterwards as intended by the Directive art. 9. The results of the planning exercise were publicly made available, although there was no complete environmental report (not all results of the SEA process were documented in the report of the planners).

Certain provisions for quality assurance were taken. The executive summary made available to the public includes some monitoring provisions regarding the development of settlement patterns, the environment and the behaviour of population, to be monitored and compared to the prognoses and aims of the plan.

The planning was not specifically aimed at the assessment of environmental impacts but the environmental effects of development options were explicitly considered. Other SEA criteria regarding the scope of the plan are met. After analysing the strengths and weaknesses of the region, five options for future development were defined, each including a package of measures from traffic management to infrastructure measures (different modes, capacities, routing). An extensive list of criteria was used, including a lot of environmental criteria.

No specific environmental report, but a technical report was prepared as the end product. This report includes a description of objectives and scope, an environmental problem and impact analysis and an evaluation of alternatives. In addition, some attention was given to a monitoring programme.

## **2.10 Alto Minho: NRP in Alto Minho Region (Portugal)**

The case study is apparently to be regarded as a preliminary SEA that is not (yet) prepared/adopted by an official authority nor required by legislation. The plan has significant environmental effects. The plan is not followed by a legislative procedure or any decision-making, but it does contain a proactive identification of options. There is no consultation according to SEA. Results from plan options including environmental impact are available but these were not officially provided to relevant authorities and parties involved in decision making. There is no mention of provisions for quality assurance or monitoring.

The analysis was aimed at the assessment of environmental and other impacts at the strategic level, but was not programme or policy oriented. A limited number of alternatives were considered within a future context. Environmental objectives and indicators have been considered. The end product involves objectives and scope, an environmental problem and impact analysis, and an evaluation of alternatives. The need for monitoring is mentioned.

## **2.11 UK-LTP: Local Transport Plans (UK)**

Future Local Transport Plans (LTPs) will be subject to SEA legislation. The Northampton LTP studied by the COST350 Action was however prepared ahead of the SEA legislative requirement. Limited changes are needed and recognised in the UK in order for LTPs and their preparatory process to fully comply with SEA.

The basic conditions for SEA requirement and SEA execution all seem to be met. However, it is not transparent to what extent the environmental assessment actually plays a role in the

decision-making process. Since the SEA procedure was not formally taken into account, there was no consultation on the SEA requirement of the plan. A range of parties were involved and consulted regarding the scope of assessment and the end results of the planning exercise. The results in terms of the impacts of plan alternatives are presented to all relevant stakeholders. However, there seems to be only limited attention to the role of environmental considerations in the decision-making. The quality assurance seems to be arranged through a set of quality criteria as part of the guidance by the Department of Transport. There is no mention of provisions for monitoring in the planning process.

There is no indication that the planning is specifically aimed at the assessment of environmental impacts, but other SEA criteria regarding the scope of the plan seem to be met. Since the plan has a five-year horizon, consideration of the future context is limited to land use and transport forecasts. Alternative strategies are considered but there is no indication on the number of alternative strategies. There is consideration of environmental objectives (the local translation of the government's objectives for transport) but not explicitly a related set of environmental indicators.

The end product includes a description of objectives and scope and an evaluation of alternatives. An environmental problem analysis does not seem to be included and the environmental impact analysis is presumably limited. There is no mention of a monitoring programme as part of the plan.

## **2.12 PUM: Urban Mobility Plans (Italy)**

An assessment of SEA compliance has not yet been delivered. A preliminary assessment of SEA compliance was made on the basis of the available case study description.

The basic conditions for SEA requirement are met. With respect to SEA execution there is no indication that decision-making is actually based on an environmental assessment. Since the SEA procedure was not formally taken into account, there was no consultation on the SEA requirement of the plan or on the environmental report. There seems to be little attention to the environmental considerations in the information provided on the plan impacts and the involvement of the public seems limited. There is no mention of quality assurance and provisions for monitoring in the planning process.

There is no indication of any specific assessment of environmental impacts, but other SEA criteria regarding the scope of the plan seem to be met. With respect to the approach there is basically no consideration of the future context and it seems that a limited set of alternatives are considered. There is no explicit consideration of environmental objectives based on environmental indicators.

The end product includes a description of objectives and scope and an evaluation of alternatives. There is no environmental problem analysis and no explicit environmental impact analysis. There is also no mention of a monitoring programme as part of the plan.

## **2.13 IRIS: Mobility Plan Brussels Area (Belgium)**

An assessment of SEA compliance has not yet been delivered. A preliminary assessment of SEA compliance was made on the basis of the available case study description.

There is no legislative requirement for the plan. Other conditions for SEA requirement are met. The plan is involved with a pro-active identification of options. Other conditions with respect to SEA execution are not met. Since the SEA procedure was not formally taken into account, there

was no consultation on the SEA requirement of the plan or on the environmental report. There seems to be little attention to the environmental considerations in the information provided on the plan impacts and the involvement of the public seems limited. There is no mention of quality assurance and provisions for monitoring in the planning process.

There is no indication of any specific assessment of environmental impacts, but other SEA criteria regarding the scope of the plan seem to be met. With respect to the approach there is basic consideration of the future context and a broad set of measures is considered. There is no explicit consideration of environmental objectives based on environmental indicators.

The end product includes a description of objectives and scope and an evaluation of alternatives. There is no environmental problem analysis and no explicit environmental impact analysis and no mention of a monitoring programme as part of the plan.

#### **2.14 BRUT: Breda - Utrecht Corridor (Netherlands)**

The basic conditions for SEA requirement are met. The environmental assessment only plays a limited role in the decision-making. Other conditions regarding SEA execution are met. Since the SEA procedure was not formally taken into account, there was no consultation on the SEA requirement of the plan. A range of parties were involved and consulted regarding the scope of assessment and the end results of the planning exercise. The information provided on the environmental considerations in decision-making is merely descriptive and quite limited. The relevant information on the results of the planning process and the basis for the decision-making is provided to the relevant parties, but not to the general public. There are no specific provisions for quality assurance and the monitoring of significant effects in the planning.

The assessment of environmental impacts only plays a modest role in the analysis. Other SEA criteria regarding the scope of the planning are met. With respect to the approach, there is no explicit consideration of a future context. Also, there are limitations regarding the scope and definition of alternatives, the environmental objectives and the related indicator structure.

The end product includes a description of objectives and scope and, to a limited extent, an evaluation and selection of alternatives. There is no explicit environmental problem analysis and environmental impact analysis. Also there is no further specification of an actual monitoring programme.

#### **2.15 Danube: Danube Corridor (Hungary)**

In the original assessment all compliance criteria have been indicated as a yes, except the inclusion of a monitoring programme in the end product. Given the case study descriptions, a number of questions arise with respect to the interpretation of the compliance criteria.

The Danube Corridor study was made before the legislation on SEA; the law on this field has been enacted this year (21. 07 2004) by the Hungarian Parliament. The public participation in the study was really not a public hearing, but it was made in the framework of workshops and open discussions. As quality assurance the EN ISO 9001 has to be mentioned and was introduced before this study. Monitoring was not explicitly planned. Alternative strategies were considered in a later phase: e.g. this year (2004) the high speed train and short distance air lines between Budapest and Viennawere investigated; inland navigation was compared to the road freight transport too. Environmental objectives were specified first of all for air pollution and noise level, as is the indicator structure the air polluting exhaust components (CO, CH, NOX) had to be mentioned.

## **2.16 EsIn: Estudio Informativo (Spain)**

The basic conditions for SEA requirement are met. In its present form, the planning studies do not formally precede a legislative procedure aimed at decision-making. Other conditions regarding SEA execution are met. There is no consultation on the SEA requirement nor the scope and detail of the assessment. However, there is a consultation involving the relevant parties and the public, which is to be taken into account in the final version of the plan. Consequently, the relevant information on the impacts of alternative strategies is provided to all relevant parties. There are no specific provisions for quality assurance, but the monitoring of significant effects is included in the planning.

The studies are aimed at the assessment of environmental impacts. However, the planning level is not considered strategic nor policy or programme oriented. Apparently, the planning level is close to the project level, and the assessment of environmental impacts seems to be close to the EIA level. There is explicit consideration of a future context (with limited time horizon) and a range of project alternatives. It is indicated that there is no concrete specification of environmental objectives and a related indicator structure.

The end product is not specific about the objectives and scope of the study. It does include an environmental problem and impact analysis, an evaluation and selection of alternatives and a monitoring programme. However, as indicated, the assessment of environmental effects is in fact based on an elaboration of EIA (project) level.

### 3 Summary description and comparison of case studies

The present chapter provides a summary description and comparison of case study results according to the following structure:

- I. Planning process
- II. Methodology
- III. Results
- IV. Analysis
- V. New methodological developments

The above structure corresponds with the amended structure, which was used for the country case study descriptions as provided by the WG2 members. The comparison of case studies distinguishes between four different geographical levels, i.e. the National, Regional, Local and Corridor level. The following sections 3.1 through 3.4 summarise the relevant case study results for each of these levels.

#### 3.1 National level

Three case studies were selected for this level:

- Italy – National Transport Plan (PGT)
- The Netherlands – the National Traffic and Transport Plan (NVVP)
- Germany – the Federal Transport Infrastructure Plan (FTIP)

Additional input came from Portugal (National Road Plan – NRP 2000, National Plan of Economic and Social Development - NPESD and Operational Program of Accessibilities and Transports - OPAT).

##### 3.1.1 Planning process

###### **Reason or idea to develop the programme/plan**

The analysis of the case studies identified various reasons to develop a national plan or program. On the one hand those plans could be orientated mainly on economic criteria (a simple list of projects to be carried out), other countries have a strong orientation on sustainable development in their plans.

In the German Federal Transport Infrastructure Plan the environment is taken into account by the environmental significances for all environmental factors of the single projects contained in the plan. The impact significance is a product of the effects magnitude of a project and the value of the resource affected. However, there were no rules how to integrate the results of the environmental report in the decision making process. Related to the critical projects there were discussions within the administration and within the political committees ending with the recommendation that some of these projects should be regarded carefully in the next planning stages. In addition some environmental effects, which can be assessed monetarily, became part of the cost-benefit-analyses.

The development of a sustainable mobility is a central theme in the national plan of Italy. To the traditional aim of the transport system - to satisfy the mobility needs - further basic objectives are added: the decrease of the environmental pollution levels; the increase of the transport safety level; and, the influence of the transport system on the social-economical-territorial sustainability conditions. This means, that the transport infrastructures have to interact with the system of protected areas, the project of the national ecological network, the system of historical city centres and, in general, the landscape.

As the coherence of the objectives, constraints and strategies have to be assured on the national territory, the PGT gives direction to development of the regional plans (PRT). The Italian PGT highlights SEA becoming a mandatory route for initiatives; in such a way it could be possible to guarantee the objectives agreed upon in international sessions (Rio Conference, Kyoto Protocol, etc.).

In the Netherlands, the National Transport and Traffic Plan (NVVP) describes the policy guidelines related to the future development of the national Netherlands transportation system for the period 2001-2020. Policy guidelines are formulated in relation to projected transportation needs (following from socio-economic projections) and specified objectives in terms of mobility, accessibility, safety, and environmental and spatial quality. In this respect, the NVVP coordinates the policies for the transport and traffic sector with other relevant planning sectors at the national level, such as physical planning, water management, environmental management and nature conservation. The NVVP provides an overview of preferred development directions and policy options, serving as a framework for the identification and evaluation of more specific policy measures on regional and sub-regional levels. As such, the NVVP forms the top level in a transport planning hierarchy from the national to the regional and local level.

Other priorities could be the development of the network (e.g. Eastern European countries) for the access to the European market. In Portugal the National Plan of Economic and Social Development (NPESD) forms a new model for Portugal's development, accomplished by the Operational Program of Accessibilities and Transports (OPAT) with the following priorities: Integration of national structuring corridors into the Trans-European Transport network; reinforcement of intermodality; reinforcement of national cohesion and promotion of quality; efficiency; and, safety of the transport system.

In general, the national planning level forms the top of the planning hierarchy, providing the policy guidelines and indications to develop the plans/programmes on regional and/or local level. In this respect it is noted, that policy guidelines cannot be the basis of a SEA. A specification of the tangible measures of a plan or program is required to carry out an actual assessment.

### **Legal basis for the programmes and link to the directive 2001/42/EU**

According to the Article 3 of the Directive 2001/42/EU the execution of an SEA is required when the plan/programme is:

- Subject to preparation and/or adoption by an official authority
- Required by legislative, regulatory or administrative provisions
- Have significant environmental effects or set framework for projects subject to EIA.

In the Netherlands the NVVP is indeed subject to adoption by an official authority, is required by legislative, regulatory or administrative provisions and serves as a framework for the identification and evaluation of more specific policy measures on national, regional and sub-regional level. This is the obvious link of the plan (NVVP) to the directive 2001/42/EU.

The German FTIP is not required by national legislative but carried out by an official authority. Hence there was no need for carrying out an SEA and there were no discussions about the requirements of SEA. Although the environmental assessments were done voluntarily. The procedure almost accords to the guidelines of the Directive. Only a public participation process is not foreseen and a system to monitor ex-post effects is not provided. The requirements of annex 1 of the directive are nearly met; the effects on all environmental factors are described.

In Italy a series of mandatory national and regional laws are the basis for the PRT.

In the past, when the SEA directive was not incorporated in the national laws of most European countries, many of them followed the philosophy of the directive on a voluntary basis. The recommendation of WG2 is, that all countries should exert for an implementation of all relevant national programmes and plans into their national laws with the subsequence of a mandatory SEA for each of them.

### **Concerned parties and form of public participation/information**

Usually there are many parties involved in the preparation of a national plan or program. As most important factor a strong linkage between land use planning and transport planning was identified, but on the other hand the answers from most of the countries showed a lack of this linkage. All efforts must be done for an integrated transport and land use planning to grant a sustainable context and to provide a solid basis for the development of a SEA. For the development of a SEA in minimum two parties should be mainly involved: the transport sector and the environmental sector (the respective authorities may vary from country to country).

Public participation should happen by means of affected parties and/or stakeholders, while the public at large should be informed at the end of each step before setting the decisions for the next phase of a plan or program. Affected stakeholders could be public authorities (e.g. Ministries for Interior, Finances, Agriculture, Forestry, Fishery, Economy etc.), regional authorities and regional bodies, provinces and municipalities, transport organisations, social and business organisations, research centres and academic institutes, consumer associations, environmental bodies and NGO's.

### **Duration period of programmes and plans**

As a result of the case studies the period of plans and programmes lasts between 5 and 20 years. In the opinion of WG2 a preferable period should be the evaluation of all plans and programmes every 5-10 years with an overlapping of the prognosis (e.g. for plan 2000 a prognosis for 2020 and for the evaluation of the plan in 2010 a prognosis for 2030).

## **3.1.2 Methodology**

### **Methodology and standards used in the process (cost-benefit-analysis, multi criteria analysis et cetera), relevant criteria and level of detail of the considered criteria**

In Italy the Information System for the Monitoring and the Planning of the Italian transport system (SIMPT) provides a methodology for the transport monitoring and planning. Different models for all components of the transport system and their impacts are considered in an integrated way.

The SIMPT has been carried out to support the monitoring of the Italian transport system (demand and supply), the definition of short and long-term policies (General Transport Plan - PGT) and the offer of information to the operators (local authorities, transport companies, etc.). The SIMPT defines the indicators concerning the transport system performance, grouped in impacts on the transport users (time, costs, accessibility changes), level of use of infrastructures and services (flows and saturation level), impacts on operators (management and investment costs, traffic revenues) and external impacts (consumptions, pollutant emissions, accidents).

To calibrate the models for calculation of this indicators either a long number of interviews (further the official data) about the users' behaviour or a large survey about traffic flows have been carried out. For more details on all this see the Italian case study on PGT.

In the Netherlands the policy options are considered within a number of categories:

- **Spatial planning:** measures affecting the location of activities related to the generation of transport demands (persons and goods).

- **Mobility management:** measures affecting the extent and time of transport demand and the use of transport modes (market regulation, public-private co-operation, inter-modal transfer, loading percentage and occupation rate of passenger cars, parking policies).
- **Pricing:** levies and charges related to the actual use of transport modes (per km), possibly to be varied in time, space, environmental impact, or to the use of infrastructure.
- **Efficiency of infrastructure use:** dynamic use of infrastructure (use of safety lanes in rush hour); traffic regulation (highway access regulation, speed control); dynamic information supply; and, incident management.
- **Capacity increase of transport networks:** expansion of existing links; addition of new links (new alignments); transfer possibilities; public transport capacity.
- **Technical improvements of transport modes:** reduction of vehicle noise production and emission of pollutants; increase of vehicle safety.
- **Mitigation measures:** measures to reduce environmental effects such as speed reduction, adjustment of road surface, noise protection measures.

The principal objectives to be achieved in a transport policy or plan are:

- Mobility and accessibility.
- Transport safety: internal and external (human) safety. *What is the meaning of external and internal safety? We only know subjective and objective safety.*
- Quality of living environment (from a social (human) perspective).
- Environmental and spatial quality (from an ecological perspective).

More specific indicators and objectives are considered within each of these principal objectives. It is observed, however, that environmental objectives have only been defined to a limited extent.

In Germany the Federal Transport Infrastructure Plan consists of more than 1.500 single projects, which were singled out through proposals from the 16 States. The projects proposed are assessed. The used elements are:

- **Cost-benefit analysis**
  - Simulation of the traffic flow (transport infrastructure network models, apportionment procedure)
  - Evaluation components
  - Transport costs
  - Transport infrastructure preservation
  - Traffic safety
  - Accessibility
  - Spatial impacts
  - Environmental effects (those which are monetarily assessable)
  - Induced traffic
  - Providing links to and from seaports and airports
  - Investment costs
  - Transport interdependencies
- **Spatial impact assessment**
  - Basic features and overview of procedures
  - Distribution and development objectives
  - Relief and modal shift objectives
  - Relief on corridors with high traffic density
  - Relief at the local level, e.g. effects on the urban environment
- **Environmental and nature conservation appraisal**
  - Early identification system for selecting projects for an environmental risk assessment

- **Environmental risk assessment**

- Impact significances of all environmental factors as a product of the effects' magnitude of the projects and the value of the resources affected

- Identification of Nature-2000-areas affected

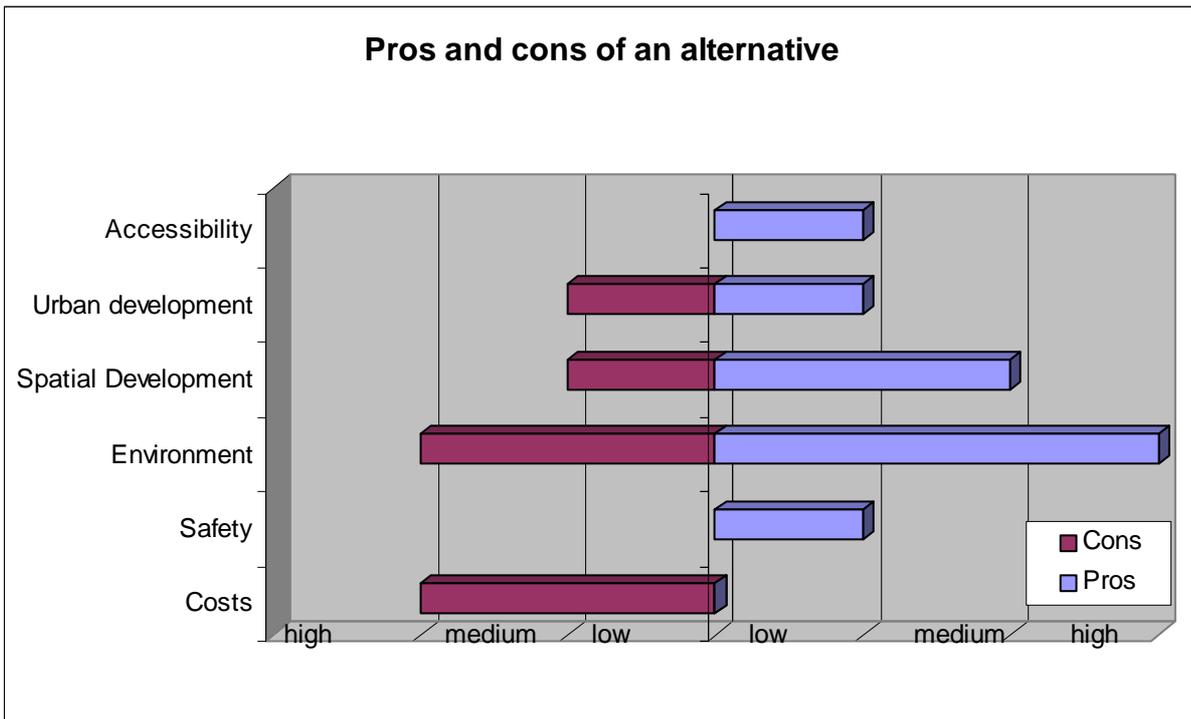
In Portugal the Model of Analysis and Strategic Planning of the National Road Network provides a continuous monitoring of the public road network for four different parameters of performance: accessibility / mobility, economy, safety and the environment. With this model the administration is in the position to evaluate the performance of the public road network system and to justify strategic options.

In the opinion of WG2 for the planning process at the SEA-stage a more global approach with no detailed calculation is to be proposed. Existing data and material of a wider scale should be used as much as possible. Both, qualitative and quantitative criteria could and should be used in the assessment as a way to guarantee a comprehensive evaluation.

The development of the plan/programme cannot be linear. There must be space for step back loops in every phase of the development. As the assessment should be broad and qualitative, it makes no sense to start first with an evaluation of the single projects and then put them together for an SEA.

Analysing the case studies some unsolved problems could be identified:

- How to combine environmental, social and economic factors. It seems that it is not useful to create a tool for mixing those different aspects as the output of a formal cost-benefit analyses, a spatial analysis and an environmental risk analyses to one factor. In this case the decision makers have to do their decision while knowing the pros and cons of an alternative (see Figure 3.1).
- The level of detail involved in some of the indicators used.
- The fact that environmental indicators and objectives have only been defined to a limited extent.
- here are gaps between land use planning and transport planning. Land use planning should be the base of multi-modal transport planning.
- In some cases the evaluation of advantages and disadvantages is missing.



**Figure 3.1 Comparison of pros and cons of an alternative**

In the opinion of WG2 pros and cons should be detected first, then measured through qualitative or quantitative indicators, then prioritised through weights of importance, and finally an attempt should be undertaken to combine environmental, social and environmental –and perhaps also territorial, functional, etc.

**Flow diagram (graphical presentation) for the explanation of the programme / plan**

Flow diagrams are a helpful tool for a better understanding of a single case, but the task of COST 350 is not to evaluate the whole planning process and not to identify a most ideal methodology for this process. Thus no comparison of the flow diagrams has been made. You find the flow diagrams in the respective case studies.

**3.1.3 Results**

**Output of the programmes and/or plans**

SEA is improving the whole planning process, but good links between general plans and the project level are necessary. To make a SEA effective it should be carried out quickly. Some risks can be seen emerging from long lasting procedures with the need for too much detailed data or too much single project data and in too vague an outcome of the procedure.

SEA would have to run parallel to (at the same time as) the planning process. For the adoption of a plan / programme (implementation of new components / projects) it seems preferable to perform the SEA before adding these new elements.

The methodological approach should be developed for the planning needs at the various administrative and geographical levels and in the various stages of the planning process (from strategic to tactical and operational). These planning needs should lead to the development of a variety of models and tools in order to predict, describe and assess transportation development requirements and impacts of alternative transport development options.

The modelling principles generally adopted include the assessment of:

- Transport generating activities and transport demand
- Transport flows between and within origin and destination zones.
- Allocation of transport flows to transport modes and networks.
- Assignment of traffic flows to transport networks.
- Impacts related to traffic flows and transport networks.

In addition to the aspects of time and space, there is a wide variety of other dimensions included in the modelling of transport systems, related to e.g. the types of transport (persons with different travel motives, different types of goods); modes of transport (including single-modal versus multi-modal, and public versus private transport); and various impacts of traffic flows and transport networks (cost and time aspects; noise and pollution; safety and health; etc.) to be taken into account. Consequently, the available models to support transport and infrastructure planning are generally complex.

Models and tools recommended in the PGT that should be applied:

- Tools for scenario development in transport demand assessment.
- A national and regional modelling system for person-related transport demand and transport flows.
- A toolbox for regional person-related transport demand and traffic flow modelling.
- Models for the assessment of goods-related transport demand and transport flows.
- Models regarding the simulation of traffic flows (capacities, travel times and time losses).
- General and more detailed models and tools for the assessment and evaluation of impacts due to traffic flows and transportation networks and, in particular noise and air pollution levels of emission, emission contours, traffic accidents and number of casualties, spatial impacts (land take and fragmentation), etc.).

In this framework, the first important result of PGT is the continuous monitoring of the Italian transport system. (For further recommendations and tools see paragraph 3.1.5.).

Another result of PGT is the development of an infrastructure system solving the current deficiencies by the individuation of an integrated system of infrastructures forming the backbone of the Italian passengers and goods mobility system.

Therefore, the result is that the individuation of the SNIT will allow for:

1. the definition of a first whole of infrastructure interventions to be realized on a medium-long period;
2. the distribution of competences and responsibilities among the different levels of government; really, it is the State that finances, totally or partly, the interventions necessary to make the SNIT efficient; while for the infrastructures not belonging to the SNIT, general criteria and financing procedures are suggested.

With regard to the evaluation methodology, the main reference is the people and freight transport demand deriving from the two scenarios “high” and “low” concerning the evolution of the socio-demographic and economic parameters.

In those countries with a gradual decision making process the conclusion of a program or plan very often is leading into mandatory guidelines for plans and programmes on the next geographical level. Some national plans become mandatory by implementation into a national law.

In Germany with the structure of many single projects in the Federal Transport Infrastructure Plan the assessing of the impacts of projected new construction work or work to upgrade existing infrastructure has the consequence, that those projects, which, from a present-day perspective, can no longer be dispensed with, are deemed to have been realized. The transport

infrastructure network models and the procedures for calculating the strain on transport infrastructure have in many cases been significantly improved compared with the last Federal Transport Infrastructure Plan.

### **Influence of the environmental aspect on the decision making process**

The EU has passed legislation to reduce the environmental impacts from transport infrastructure and traffic. This includes, for example, EU-standards concerning the vehicle noise and air emissions, but also standards relating to the quality of air and water. These standards, which are implemented through national legislation, should be used as criteria when developing a plan.

Based on the available case studies it seems that the actual influence of environmental aspects in strategic decision-making is still rather limited. This is due to the fact that the scope of the actual environmental impact assessment is often limited and/or merely qualitative. Also it is not quite clear how environmental aspects are taken into account in decision-making.

Objectives in terms of reduction of emission of CO<sub>2</sub>, local air pollution and noise, but as well as for safety, fragmentation and biodiversity loss are to be defined. Another important set of criteria could relate to the sustainable use of the physical environment, to be further developed in detail.

In the multi criteria analysis the environmental aspects influence the final decision with a weight between 25% and 40%. As Spain is reporting, in the previous selection phase the influence of the environmental aspects could lead to a rejection of corridors that are not compatible with environmental objectives.

The environmental strategies of the Italian PGT are mainly concerned with interventions on:

- the reduction of negative effects due to road transport and to the ways of using road vehicles;
- the technological innovation;
- the promotion of public transport;
- the rationalisation of logistic chains and distribution of freight;
- the enhancement of infrastructure, normative and financial conditions to promote the development of long distance freight transport, using different modes from road transport.

### **3.1.4 Analysis**

What seems to be generally lacking in most of the countries is a structured analysis process with a clear definition of operational objectives (in terms of a well defined indicator structure and specified targets to be achieved); a clearly defined set of policy options; and a systematic comparison of the effects and potential benefits of policy options within a defined set of future development scenario's. Instead very often an extensive and largely qualitative description of the very many aspects involved in transport and infrastructure planning is described. In this description, use is made of a variety of existing tools, available knowledge, and expert judgement of many parties, in order to provide information on the effects of future developments and selective policy options. Procedures followed, information sources and the reliability of results provided are often unclear and not necessarily complete nor consistent.

As the report from the Netherlands is pointing out, there is an absence of an adequate set of integrated analysis tools, which would be capable of handling the relevant quantitative assessments in a coherent and consistent way, at an appropriate level of detail. The present models used are very detailed and complex, requiring a great many data inputs which are often irrelevant for the strategic stages of analysis, and not always available. Moreover the use of such models is expensive, time consuming and non-transparent. Linkages between the models dealing with the various aspects of transport and infrastructure planning often do not exist. User options for the analysis of specific developments and measures are limited as well as the

possibilities for the presentation of integrated results and the comparison of alternative developments and policy options.

In Germany the environmental impacts of the single projects of the plan were estimated in detail and were considered when deciding over the priority-list of the future expansion of the traffic infrastructure. Monetised environmental impacts were considered in the CBA, non-monetised factors were assessed in the environmental risk analysis..

For the decision makers this information was a good help but the cost-benefit factor is still authoritative for the project selection. The environmental impact is additional information that has mainly led to recommendations for the following planning stages.

Italy reported the efforts to collect all the data needed for its SIMPT. The evaluation (also of the environmental indicators) seems to be too precise and too heavily orientated towards traditional EIA.

SEA needs a (fast) methodology that determines a range of options based on a vision and then forecasts the likely outcomes of each option. SE Assessments should be broad, as non-technical as possible and even qualitative. The methodology should be fast, user-friendly and flexible enough to change the basic information whenever needed, so that the methodology could be used to determine an appropriate *strategy for action* rather than to predict the potential outcomes of individual actions.

### 3.1.5 New methodological developments

At the moment there is a discussion in the German Research Association for Road and Transport about publishing guidance for SEA in the traffic and transport sector, including environmental objectives, proposals for the structure and requirement specification of the environmental report. In road planning in Germany there are three steps in the planning process: The first is the infrastructure plan, the second is the determination of the alignment and the last is the approval procedure. In the last two steps EIA is available. For the first step an SEA should be undertaken. The guidelines will streamline the differences between SEA and EIA:

- The scale in SEA is less detailed, by about a factor of 10.
- In SEA it would be too expensive to make ad hoc surveys, so reference should be made to existing data for the whole planning region.
- The focus in SEA is the whole infrastructure network, while in EIA only one project is assessed.
- In EIA projects' effects on environment are assessed. In SEA the focus is on network effects and only care for the projects' effects if they are recognizable in this early stage.
- In both procedures technical and site alternatives are sought. In SEA system alternatives are also analysed.
- In SEA the main target are effects that cannot be correctly considered in EIA, for example CO<sub>2</sub>.
- Effects, which are addressed at both stages, have different scales and focuses.

In SEA effects are to be analysed which cannot be explored in EIA, such as global climate change, fragmentation and sealing of the soil. For this analysis a network assessment is required. But on the other hand you have to take into account the effects of the single elements of the programme/plan in SEA if know at this early stage of the planning process. That will open two options:

- avoiding and mitigating environmental conflicts;
- excluding not enforceable projects at the earliest stage.

How can we ensure that environmental aspects are considered in the decision making process?

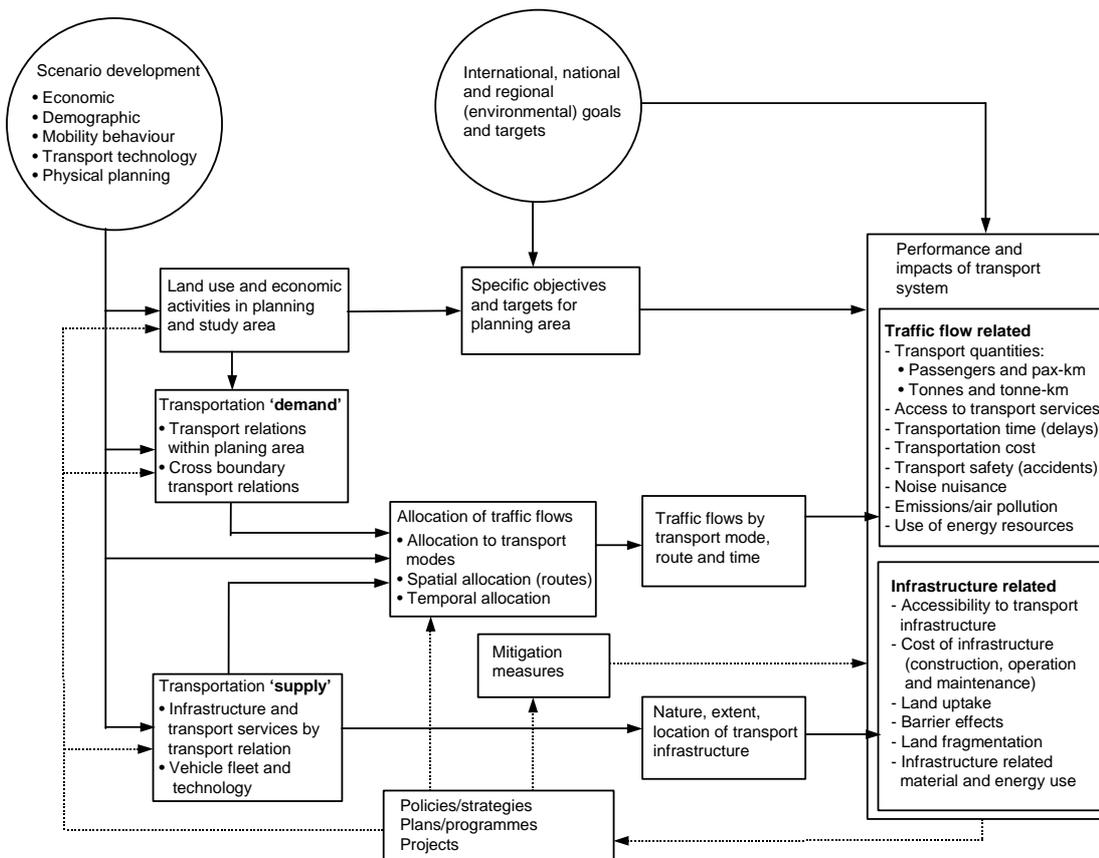
- Integrate SEA in the planning process.
- Give clear recommendations of project priorities from the environmental point of view. These will be weighed up with the other interests as safety, spatial order or urban development.
- Reduce complexity of your report and confine to relevant issues.

The conclusions of the critical analysis of the Netherlands case studies lead to a specification of various needs with respect to the methodology and tools required for adequate strategic transport and traffic planning on national and (sub)regional levels. Such needs include:

- The definition of a clearly defined structure of operational (quantifiable) indicators which reflect the full scope of relevant objectives, related to mobility and accessibility; transport safety; (social) quality of living environment; and environmental and spatial quality.
- A set of integrated analysis tools, capable of handling the relevant quantitative assessments in a coherent and consistent way, at the appropriate level of detail.
- A structured analysis process describing the various steps of analysis

Considering the above type of needs and the presently available methodology and tools it is observed that there is generally a rather large gap between the abstract, strategic and qualitative approaches underlying the national and regional planning levels, and the very detailed and complex approaches applied at the lower transport and traffic planning levels.

Thus the Netherlands is working on an integrated instrument for strategic transport planning, as shown in Figure 3.2.



**Figure 3.2 System diagram for assessment of traffic and infrastructure impacts**

Figure 3.2 describes the most important causal relationships to be considered in the impact assessment of transportation systems. The starting point is the assessment of transportation

demand and supply. The first follows from the specification of land use and economic activities in the planning and study area, driven by scenario developments. The second follows from the specification of existing transportation networks and vehicle fleet.

The allocation of traffic flows in terms of transport modes, space (routes) and time follows from the confrontation of transportation demand and supply. This allocation is based on choices of users of transportation systems. The rules and regulations, which determine the allocation of traffic flows, are affected by scenario developments and measures (for example with respect to the availability and cost and time characteristics of transport modes).

Within the performance and impacts of the transportation system a distinction can be made into two groups of effects, i.e. the 'dynamic' effects related to the volume and location of actual traffic flows and the 'static' effects following from the presence of transport infrastructure. The present diagram provides a rather extensive list of the potential impacts to be considered.

The performance and impacts of the transportation system can be compared with general or specific objectives following from (inter)national or regional goals and targets. Policies/strategies, plans/programmes or specific projects can be formulated at various hierarchical levels to change (improve) the various components of the transportation system in order to achieve these objectives.

## **3.2 Regional level**

The following case studies have been selected for this level:

Belgium – the Flemish Transport Plan  
United Kingdom – the London to South West and South Wales Multi Modal Study (SWARMMS)  
Austria – the Northeast Region of Vienna (SUPerNOW)  
Italy – the Piemonte Region (PRT)  
Portugal – Alto Minho Region

Additional input came from the Antwerp Master Plan.

### **3.2.1 Planning process**

#### **Reason or idea to develop the programme/project**

In Belgium, on one hand the SEA Directive was adopted and had to be transformed into national legislation, while on another, a transport policy plan was in preparation. One of the main goals of this transport policy plan was to stop the increase of environmental impact of the transport sector. When looking for an example where SEA could be tried out it was decided to look at environmental issues of the transport policy plan.

The reasons to develop the PRT in Italy can be found in the choice of devolution by the State assigning the land use and transport competences to the Regions. Thus the Regions can plan the transport on their territory. The analysis of the transport situation in the Piemonte Region envisaged further reasons to develop this plan:

- Unsatisfactory accessibility of large areas of the region.
- Low efficiency of the existing network.
- Urban mobility has recently increased caused to singular local decisions.
- Intermodality has not developed well.
- Changing funding for transport of goods leading to functional and logistic problems.

The imbalance of regions was also one of the main reasons to carry out in Portugal the SEA for the Alto-Minho Region with the purpose of evaluating in a macro-scale the physical, environmental and social restrictions associated to the National Road Plan in that region.

The basis for the UK South West study was a White Paper named "A New Deal for Transport: Better for Everyone", which heralded a radical change in transport policy with improved public transport and reduced dependence on cars. The need of two studies was identified (SWARMMS is one of them) and subsequently the Government published a 10 Years Plan for Transport.

Open questions concerning the further development in the north east part of Vienna and the surrounding communities linked with the question of the need or not of a new motorway by-pass were the starting-point of the SUPerNOW, a SEA for the north east region of Vienna. The results should be integrated into the Vienna Traffic Masterplan.

The reduced accessibility of the Antwerp agglomeration by more and more traffic congestions, which is gradually a threat to the vital economic functions of Flanders was the reason for developing the Antwerp Master Plan.

### **Legal basis for the programmes and link to the directive 2001/42/EU**

In Austria the SUPerNOW was not required by legislative, regulatory or administrative provisions, but it was prepared by an official authority (town planning department of Vienna). However, it was carried out on a voluntary basis to set a framework for projects subject to EIA.

Belgium is reporting a direct link to the EU-directive, because this European legislation has been converted into the regional legislation of Flanders since the end of 2002. In Italy a series of mandatory national and regional laws are the basis for the PRT. In other cases (UK and Austria) the plan should lead to an input in regional legislation or masterplans. A linkage of the study to the methodology of the EU-directive on a voluntary base is reported from Portugal.

The Italian PRT is required by legislative provisions and it is subject to the adoption by an official authority, the Regional Government. It is mandatory in term of regional contents.

### **Concerned parties and form of public participation/information**

The parties concerned are quite similar to the national level, only the influence of national authorities is less. The main actors are the same: parties representing transport on the one hand and environment on the other hand, road and rail representatives as well as regional and local bodies, researchers and interest groups.

In the Italian PRT there is no public involvement foreseen in the definition of the plan. In the SWARMMS every single step of the development of the plan is shared with the public until the publication of the Final Report. The study has been guided by a broadly based steering group and has included extensive consultation with a wide range of stakeholders by means of exhibitions, workshops and intermediate publications.

For the Vienna Region the integration of all relevant interest groups within an SEA-team, which works together during the whole planning and SEA process, was performed. Planning and SEA were completely interlinked to one common process. A model of "SEA round table" was used and the integration of the broader public was done by means of a SEA-homepage and via interviews of NGOs.

### **Duration period of the programmes and/or plans**

The Italian PRT-plan has a ten-year duration, but it is updated every three years. The SWARMMS of UK has used a forecast year of 2016, for the Austrian SUPerNOW a period of 20 years is mentioned. The respective recommendations of WG2 you find at the National level.

### 3.2.2 Methodology

#### **Methodology and standards used in the process (cost-benefit-analysis, multi criteria analysis et cetera), relevant criteria and level of detail of the considered criteria**

The Italian approach covers four main steps:

- Analysis (system performance, state of the art of the transport in the region).
- Aims (system of values and design criteria).
- Projects (regional/local network and services).
- Operating strategies (economical and financial policies).

The “analysis” can be compared to a monitoring, but it is really only a collection of data coming from the national census. A Territorial Information System (SIT) has been used to represent the network, the supply characteristics, and the mobility data. The state of the art of the demand is depicted (as traffic flows and O/D matrix) using a traditional demand model (M2) for the regional area, allowing the assignment of the flows to the network. It is not declared in which way the impacts (air pollution and noise) are calculated, but it seems that the CORINAIR methodology is used for air pollution and some simple regression models for noise.

For the Flemish Transport Plan in Belgium and the Austrian SUPerNOW a multi criteria analysis was used, the SWARMMS-study in the UK followed a national methodology for multi-modal-studies (GOMMMS). The EMME/2 traffic model and the TUBA (Transport Users Benefits Assessment) were used in the UK, the VISEM-VISUM traffic model in Austria.

The examples provided in the case studies are not very clear about the specific environmental indicators used and the way in which they were assessed. This seems to indicate that the actual assessment of environmental impacts may be quite limited. The specification of operational indicators to be used in quantitative and qualitative assessments therefore is an important priority in the development of the COST 350 methodology. In addition, the need of adjustment between the traffic calculation models as well as between the multi criteria analysis models was identified by WG2. Qualitative and quantitative indicators should be used together and there is a need for tools for a common evaluation in multi criteria analysis and multi-modal studies. WG2 is suggesting a methodology for a better integration of environmental aspects in transport issues, to introduce land use development and an increased supply of social indicators.

### 3.2.3 Results

#### **Output of the programmes and/or plans**

The result of the Master Plan of Antwerp was the determination, which infrastructure works could offer the best solution for the traffic problems in and around Antwerp. A list of priority projects was obtained after calculating the presented projects in a mobility based multi-modal model for Antwerp. On the other side possible alternatives were developed and calculated for the determination of available alternatives for the master plan strategy.

In the Portuguese Alto-Minho study two main questions arose, which should be object of an active public participation: the necessity of applying the National Roads Plan designed to the region and a parallel or alternative discussion about the articulation and integration of the existing transport system on the regional level. All three transport modes should work together,

inside a National Park which will be crossed, the improvement of the existing roads should be an option and the different infrastructure plans applicability must be monitored in an efficient way, in order to achieve their aims.

As a result of the Italian PRT the following strategies are suggested:

- the definition of the rules of the plan: functional, project, territorial, administrative-procedural, and financial rules;
- the definition of the economical and financial policies for carrying out the plan;
- the need to define organizational and promotional strategies appropriate to the complexity of the objectives.

Another result of the plan is its total cost, subdivided into the three objectives, where each of them contains a list of projects:

- to improve the inter-regional network;
- to make regional the transport system;
- to govern the mobility of the urban areas.

The SWARMMS study in the UK consists of ten components:

- Four Study-Wide Theme Plans (reducing the growth in travel demand, tourism, rural access to the transport system and inter-modal freight).
- Four Multi-Modal Transport Corridor Plans.
- Two Principal Urban Area (PUA) Plans.

The expected effect of the Flemish Transport Plan results in a changing trend for CO<sub>2</sub> emissions and a reduction of the noise nuisance. From an environmental perspective, every additional infrastructure investment is considered negative. Belgium has already a dense network. Additional infrastructure will increase fragmentation, resulting in a loss of ecosystems and interference with monuments and landscapes.

The results from the Vienna Northeast Regional Study (SUPerNOW) could be summarised as follows:

- Recommendations for spatial and traffic development in the North-East of Vienna.
- Sites where urban development should take place.
- Measures for traffic avoidance.
- Project recommendations in the public transport sector.
- Project recommendations for new roads and highways.
- Mitigation measures.
- Measures for monitoring.

### **Legal conclusion of the programmes / plans**

The normative effectiveness of the Italian PRT-plan is:

- directly mandatory in term of regional contents (where the competency is regional), and in term of territorial concerns;
- indirectly mandatory as to the sub-regional subjects that have to take into account in their sectional and territorial tools;
- policy (guidelines) in every other case.

In Belgium the results of the SEA were included in the Flemish Transport Policy Plan.

Recommendations for the policy level were one of the outputs of the Vienna SUPerNOW.

In the UK the result of the SWARMMS were debated by the regional assemblies making recommendations to Ministers on Regional Transport investment priorities. To assist in this process the South-West Regional Assembly held a hearing at which invited organisations had

the opportunity to present their response to the study conclusions and recommendations. Where supported by the assemblies, the results of the study will be used to inform the process of reviewing and developing their Regional Transport Strategies.

### **Influence of the environmental aspect on the decision making process**

All plan components of the master plan of Antwerp are examined on their consequences on people and environment by means of an environment impact evaluation (Plan-MER). The evaluation of the impact of the master plan will happen in this Plan-MER at two levels:

- the evaluation at plan level for the different strategies;
- the evaluation at area level, a more detailed research by area of the plan area.

In the Italian PRT-plan the environmental perspective is very present: the concept of sustainability is mentioned many times. While in the first part, analysis, the concept of environment is introduced when the criticalities are found on the network in term of pollution, noise, and risks due to transport of dangerous goods; the sustainability is mentioned in the second part, aims, in the definition of the system of values and design criteria. Thus, the estimate of the environmental impacts (emissions of CO and NO<sub>x</sub> and noise) is done assessing the compatibility between the land sensibility and the pressures.

In the second part of the plan, where the aims are declared, the concept of sustainability appears as one of the values of the plan and the concept of prevention and mitigation is strongly affirmed, as already described. These objectives can be reached thanks to a system of values and the design criteria. The system of values is centralized on equity, efficiency-efficacy, and sustainability. Concerning the sustainability, the plan affirms that each project and the whole of the transport policy has to be evaluated in term of compatibility with the involved natural and environmental resources, to minimize the impacts from transport activities on the territory, on human health, and in term of safety.

After such a declaration of sustainability, the attention goes, as already before, on the impacts due to emissions and noise, on one hand, and the ecological risk on the other hand. But the main focus is, again, not on the policies aimed to reduce the levels of traffic, but on the land use in the protected areas and on the technology to improve the public transport (of course less problematic than private transport), joined to mitigation measures.

The final result is a list of projects and some recommendations to minimize the environmental problems, but not any real policy focused to prevention, that is to control the transport demand is provided.

### **3.2.4 Analysis**

In the Portuguese case study the difficulties are mentioned to establish objective guidelines in order to implement an adequate methodology that allows the application of a strategic approach of plans and programs and achieves the effective targets of a strategic environmental assessment.

The structure of the Italian PRT is not model-oriented as PGT. A transport demand model (EMME2) is used, but it does not appear an informative system to manage all the models (land-use, transport, and environment). The approach is devoted to a re-organization of the transport and minor interest is given to the environmental concerns. Some weak points can be envisaged, under either the technical or the environmental perspective.

The UK study is described as a comprehensive exercise in major strategic transport thinking with close correlation between objectives and strategy/recommendations. The study however

sets these recommendations, how they are incorporated into programmes of investment is more politically driven – for better, for worse.

In Belgium the SEA for the Flemish Transport Plan was a real challenge. On the one hand a concept had to be developed, but on the other hand results were expected for the transport policy plan. The experts had to change from developing a concept to calculations and vice-versa. The SEA was needed as input for the political debate. Quantifying the effects guided the discussion. The SEA was also necessary to evaluate the contribution of the transport sector to reach environmental goals. Without SEA discussions would have been focussed on short time objectives, safety and economic issues. In the summary of the SEA a chapter is added with the evaluation of the process by the administration.

### **3.4.5 New methodological developments**

No new methodological developments have been mentioned in the case studies of the regional level.

## **3.3 Local level**

Compared to the national, regional or corridor level the local transport plans are affecting every single step of the daily life of individuals in a more direct and intensive way than plans and programmes on other geographical levels (e.g. housing, school, business, access to authorities, shopping, leisure). The social well being, the accessibility, welfare and the quality of life are factors of main interest.

Additional transport modes have to be added at the local level:

cycling and walking.

This is leading to additional indicators, such as:

availability of parking space;  
access to public transport by walking;  
school travel plans etc.

and could, for example, raise diverging needs in terms of public involvement.

Three case studies have been selected for this level:

United Kingdom – the Local Transport Plan Northamptonshire (LTP).

Italy – the Urban Mobility Plan Padova (PUM).

Belgium – the Brussels Capital Mobility Plan (IRIS).

### **3.3.1 Planning Process**

#### **Reason or idea to develop the programme/plan**

The Italian PUM has been developed with the target to improve the accessibility and to maintain social well being and the quality of urban life.

The IRIS-Plan of Brussels arose from the concern about the quality of life of Brussels citizens.

In the UK the Local Transport Plans (LTPs) are the documents through which local authorities bid to Government for transport-related resources. In addition, they provide a strategic plan

describing how the authority intends to address transport problems and future transport needs with objectives, strategies and programmes that are both sustainable and integrated. The LTP sets a five-year horizon for funding enhancing the planning of proposals and better integration with other policy areas. The five year programme may comprise, major schemes; a programme of measures which, taken together, are of similar significance to a major scheme and a variety of minor measures.

The objectives of the LPT are:

- To reduce the number and severity of road traffic accidents.
- To improve access to workplaces and other facilities for all the population including people with disabilities, the very young, the elderly and people on low incomes.
- To minimise the impact of traffic on the environment.
- To maintain and improve the vitality and viability of the town centres.
- To increase bus patronage amongst former car users and people who currently experience low levels of access to facilities.
- To increase the number of trips made by cycling and walking.
- To reduce the total amount of travel by private cars.
- To reduce delays suffered by road users essential to Northamptonshire's prosperity.

### **Legal basis for the programmes and link to the directive 2001/42/EU**

In the UK and Italy there is a legal requirement to Local/Urban Transport/Mobility Plans. In the opinion of WG2 an integrated concept from the national to the regional and local level based on a respective law offers a more ideal supposition for the sustainable development in a country. It is expected, that future plans will be subject to the EU-directive. All case studies mentioned here have been elaborated prior to the directive.

### **Concerned parties and form of public participation/information**

For the LPT in the UK consultations were held with the key stakeholders, interest groups as well as about 100 individuals from the Northamptonshire Environmental Forum to support the individual plan stages of: Problems, Issues & Opportunities; Objectives; Strategies; Implementation Programme and Performance Indicators & Targets. The LTP also reports how the consultation results influenced and assisted in the formulation of the plan.

For the Italian PUM the users behaviour and users needs have been investigated. An information office was installed to constantly supply information about these needs.

At the Brussels IRIS-plan a big contribution came by 5000 household enquiries, company enquiries, enquiries about modal choice motivation, origin/destination enquiries on road vehicles and railway stations and traffic counts of road traffic and public transport passengers.

## **3.3.2 Methodology**

### **Methodology and standards used in the process (cost-benefit-analysis, multi criteria analysis et cetera), relevant criteria and level of detail of the considered criteria**

In the Italian PUM the investment and running expenses were taken into account.

In the IRIS program of Brussels a wider scale of indicators is used: overall travel duration, average speed on the network, traffic load on the network, fuel consumption, investment and operating costs, noise level disturbance, change of modal choice. A big part of data was collected by means of public enquiries (see 3.3.1.).

### 3.3.3 Results

#### Output of the programmes or plans

The LPT in the UK produced a series of strategies each comprising a series of toolboxes dealing with particular actions. These included: development plan; travel awareness; public transport; freight transport; highway network management; cycling and walking; highway safety; parking; highway improvement; integration with wider policies. A concrete list of single measures was not outlined.

In Italy the

- relaunching of collective transport with the use of advanced technologies compatible with the city;
  - completion of the road system, coordinated with interventions over the public transport, and the urban design of the public spaces;
  - reordering and strengthening of the parking in the centre and in the outskirts of the city;
  - showing up the advantages of slow mobility that permits to enlarge cycle-pedestrian areas and lanes in a way that is compatible with the actual and future functions;
  - policy concerning parking fares suitable to guarantee their use during the whole day;
  - policy concerning public transport fares focussed on social equity and able to finance the improvement of service level that is sought over the collective transport net;
- have been the major outputs of the PUM.

A list of about 180 measures (fiscal, infrastructure, information...) regarding the main themes

- town planning;
- public transportation system;
- traffic;
- parking policy;
- cycling and walking paths;
- goods;

was the result of the Brussels IRIS-plan.

#### Legal conclusion of the programmes or plans

In Brussels and the UK there have been no legal conclusions; the Italian PUM led to a community decree.

#### Influence of the environmental aspect on the decision making process

In Italy the environmental evaluation of a plan is made in a similar procedure on all subsequent administrative levels, step by step, the Directors Plan, then the Operating Plans and lastly preparing the Feasibility Plans.

### 3.3.4 Analysis

UK is reporting that the LTPs have made the process for requesting funding from Government more transparent, and over time there will be improved links between the strategies and the individual expenditure proposals.

The plan provides a series of intended actions for the local transport authority however, most are not specific as to what will be undertaken by the end of the plan period. Also although the anticipated outcomes are provided, these are suitably vague. The public consultation processes actually influenced the proportion of funding within the broad strategies being proposed.

### **3.3.5 New methodological developments**

No new methodological developments were mentioned in the case studies of the local level.

## **3.4 Corridor level**

Two case studies have been selected for this level:

Hungary – the Danube Corridor

The Netherlands – the Breda-Utrecht Corridor (BRUT)

Additional input came from Spain from Informative Studies.

### **3.4.1 Planning process**

#### **Reason or idea to develop the programme / plan**

The chosen examples show well two typical planning situations that could be the reasons to develop such a study. The Danube Corridor in Hungary is an important part of the Trans-European Transport Network and plays a determinative role for the economical growth of Hungary. On the other hand the Breda-Utrecht Corridor in the Netherlands represents an 80 km long route with very heavy traffic and daily traffic congestions. Thus the Dutch Road Administration decided to prepare a so-called reconnaissance study for this corridor.

#### **Legal basis for the programmes and link to the directive 2001/42/EU**

In the Netherlands the legal basis is the National Traffic and Transport Plan (NVVP), mentioned in the case studies for the National level, and its executive (financial) program, but no direct link to the EU-directive.

For the Danube Corridor Hungary is reporting a direct link to the directive (reason to develop the study). The legal background is the decisions of DG Transport and DG Environment in the European Commission for the corridor.

#### **Parties concerned and public participation / information**

The parties concerned are quite similar to those expressed in the chapter for national and regional level.

The Breda-Utrecht project is elaborated in close cooperation with local and regional parties such as provinces, municipalities, water boards and the chamber of commerce, but without public participation. Public participation takes place during subsequent planning stages.

In Hungary similar stakeholder were involved, the broad public is informed at the end on the results of the study by a summary publication.

#### **Duration period of the programme / project**

The prognosis and evaluation for the transport and its environmental impact was made in the Danube Corridor study in short term for 2008, medium term for 2015 and long term for 2030.

### 3.4.2 Methodology

#### **Methodology and standards used in the process (cost-benefit-analysis, multi criteria analysis et cetera), relevant criteria and level of detail of the considered criteria**

The basic target of the Danube Corridor SEA was to evaluate all environmental impacts of sub sectors of the transport on the Hungarian territory of the Danube-Corridor for the present situation and then forecast the trends for the future situation and elaborate strategies to achieve environmentally sustainable transport. All the relevant criteria, named in the chapter National level of this report, were taken into account. The external costs were used as a basic tool for the environmental risk analysis. On the basis of international agreements, WHO-guidelines and the "Long Term Strategy for Environmentally Friendly Development of the Transport and its Infrastructure (Decree of the Government 2206/2000 (IX.13.)) the criteria representing local regional and global interests were taken into consideration.

At the BRUT corridor the problem analysis was carried out based on a processing of existing data and reports, and on workshops with the relevant parties involved. One of the main results was the identification of three separate problem areas, which are: the two urban areas around the cities of Utrecht in the north, and Breda in the south; and, the central, largely rural, part of the corridor. A specific feature of this middle part is that it crosses two major rivers (the Rhine and the Meuse). In a next step, possible solutions were identified and discussed in a similar type of process, i.e. by consultation of, and discussions with, the relevant parties involved. Hence the main methodological basis was found in the use of expert judgment. More specific tools applied merely involved the use of an existing system within the Public Works Department for the estimation of project costs and the use of existing modelling results on traffic intensities for the year 2000.

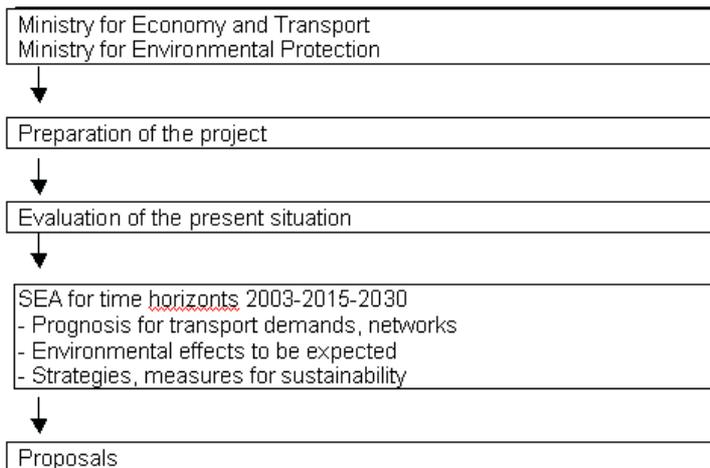
In Spain in each decision making process a set of criteria is used in the Informative Study. For the previous selection the most commonly used criteria to assess the carrying capacity of the territory are:

- Environmental.
- Technical/functional.
- Socio-economic.
- Physical/topographic.
- Urban planning.

For the cost-benefit analysis in the following phase Spain is using quite similar indicators as described in the German case study in the chapter National level.

### Sketch a flow diagram for the explanation of the programme / project.

The process of the Danube Corridor SEA is described as follows (Figure 3.3):



For the Netherlands see the general description in the chapter National level.

### 3.4.3 Results

#### Output of the programmes / projects

The main result of the Dutch BRUT-study is basically a descriptive document on the present and future problems, the parties involved and their related interests, and an identification of possible solutions. Furthermore it was recommended to enter into a next stage of planning and design with respect to one of the main bottlenecks in the middle part of the corridor, i.e. the area around the crossing of the river Rhine.

In Hungary the very detailed present situation on the sub sectors of the transport and their environmental impacts as well as the prognosis for networks, fleets and transport outputs and the expected environmental effects are reported as one of the main results of this project. Secondly the set of the strategies to improve sustainability is mentioned. Thirdly this SEA case study has given a lot of experiences for the practice of strategic environmental assessment on the field of transport in Hungary.

#### Legal conclusions of the programmes / projects

As direct legal conclusions of the Danube Corridor SEA in Hungary the following measures are considered:

- prohibition of traffic of heavy duty trucks on weekends as well as in transit on main roads where motorways are available;
- strategies (proposals) for reduction of CO<sub>2</sub>-emission of road transport.

The recommendation of the BRUT-study in the Netherlands is to start a so-called combined route determination and EIA procedure for the middle part of the road section.

#### Influence of the environmental aspect on the decision making process

At the BRUT-study environmental issues were mainly discussed in the way of opportunities and conditions for further planning. Assessment of possible effects was descriptive, bases on expert judgment and legal limits (e.g. for noise).

Spain is reporting that in the early selection phase the influence of the environmental aspects could lead to a rejection of not environmental compatible corridors. Portugal is confirming this for its studies.

#### **3.4.4 Analysis**

The guidelines developed in the BRUT study have broadened the scope for the execution of reconnaissance studies. It can be concluded that, from a process point of view, these guidelines have worked very well and have led to the active participation of all parties involved in providing a broad overview of the relevant aspects of the problem and the possible solutions. However, there was no actual formulation and screening of possible solutions based on future predictions and quantitative estimates of main impacts, according to the specific and more general transport planning objectives. One of the reasons is that the study was merely a first attempt to apply the recently developed guidelines and took place in the absence of a national plan providing the required boundary conditions. The most important reason however is in the lack of appropriate analysis tools that allow for a broad and relatively quick application, based on readily available data. In this respect, there is a lot of similarity with the problems observed in the preparation of the NVVP.

The comment for the Danube Corridor SEA is, that the investigated transport corridor is very important in terms of the expected increase of transport demand and it can be considered as a basis for environmental risk analysis of transport development. Public consultation is a big issue that, until now, was not handled appropriately in Hungary.

Spain is indicating an excessive disaggregation of some criteria (above all in a relative way, analysing some criteria against others) and that produces a loss of significance of this criteria in the decision making process. Their weight is so small that it is nearly impossible that they could influence the decision.

#### **3.4.5 New methodological developments**

For the new methodological developments in the Netherlands see chapter National level.

## 4 Case study results: evaluation and main conclusions

Based on the case study result as considered in the previous chapters the present chapter provides an evaluation and overview of main conclusions regarding:

1. The SEA compliance of case studies.
2. The scope and contents of the case studies

### 4.1 Evaluation of SEA compliance of case studies

A first and most important observation is that the SEA Directive has only become effective since July 2004 and so far has not yet been formally applied. Consequently, there is no 'history' and actual experience in the execution of the SEA, nor in the interpretation and operation of the terms and specifications provided in the SEA Directive and the various accompanying documents.

This becomes clearly manifest in the ambiguity related to some of the criteria used for the evaluation of SEA compliance. In order to provide a proper assessment of the SEA compliance criteria many further specifications would be required regarding such critical issues as:

- the scope and extent of the environmental assessment required;
- the extent and form of consultation and required procedures;
- alternative solutions to be considered (aiming to reduce environmental effects);
- the contents and level of detail to be included in (the) environmental report(s);
- the nature and extent of monitoring requirements.

Due to the absence of (more) specific information on actual SEA requirements the assessment of the various compliance criteria cannot be carried out very accurately and is subject to speculation. Therefore, the present evaluation of the SEA compliance of the case studies should be regarded as a rather crude exercise, merely to provide certain indications about the SEA compliance of the cases considered.

In this respect, the following provides an overview of observations within the following categories:

- (Other) general observations.
- Observations cases national level.
- Observations cases regional level.
- Observations cases local level.
- Observations cases corridor level.

#### General observations

- Although the SEA Directive was not yet effective at the time of the planning project, in some cases the anticipated SEA requirement was an important trigger to the analysis (for example Bel-Flem, Aus-Vien and Danube).
- In all cases there are significant environmental effects (regardless of the fact whether they are actually assessed).
- All cases are involved with a pro-active identification of options.
- In many cases, consultation on SEA requirement has not taken place.
- Provisions for quality assurance and monitoring in the planning process are often lacking or limited. This is also reflected in the fact that the end product in most cases does not include a monitoring programme.

### **Observations cases national level**

- Conditions for SEA requirements and execution are generally met
- Process-related requirements on consultation commitment and provision of information are mostly met (only some limitations with NVVP).
- The orientation on the assessment of environmental impacts is limited. Other compliance criteria regarding scope are all met.
- The future context is generally taken into account, but in all cases there are imitations with respect to the range of alternatives considered and the explicit consideration of environmental objectives and indicators.
- The end product generally suffers from limitations with respect to the environmental problem and impact analysis and the evaluation and selection of alternatives.

### **Observations cases regional level**

- Some of the regional cases considered are not adopted by an official authority and most are not required by legislation.
- The orientation towards actual decision-making is limited.
- Process-related requirements on consultation commitment are only partly met; the requirements on provision of information to relevant parties are generally met.
- Conditions related to scope and approach of the analysis is met in most cases.
- An environmental impact analysis is generally included in the end product; an evaluation of alternatives was not carried out in all cases.

### **Observations cases local level**

- Conditions for SEA requirements are generally met.
- There is only a limited orientation towards the assessment of environmental impacts and the consideration of environmental impacts in decision-making (assessments are often limited to impacts related to mobility, transport efficiency and costs).
- There is less attention to the future context.

### **Observations cases corridor level**

- Conditions for SEA requirements and SEA execution are generally met.
- There is at least some emphasis on the assessment of environmental impacts and its role in the decision-making process.

### **Overall conclusions**

The main issues to be addressed in the evaluation relate to the following questions:

- To what extent are the case studies to be regarded as suitable examples meeting the requirements and conditions for SEA application?
- To what extent have the case studies been carried out in agreement with the specifications of the SEA Directive, and which are the main bottlenecks observed in complying with these directives?

Except for a few cases, the plan or programme considered in the case is prepared or adopted by an official authority and required by legislative provisions. In all cases there are significant environmental effects. Almost all cases are involved with planning exercises prior to legislative procedures and all cases are of a pro-active nature. The only reservation relates to the criterion stating that decision-making should be based on environmental assessment and consultation results. For a considerable number of cases, this relation is considered rather weak or is even non-existent. The overall conclusion with respect to the first question is that nearly all cases considered are to be regarded as suitable examples for SEA application. This confirms the fact that relevant SEA applications can indeed be found at all geographical scales considered.

With respect to the second question it can be concluded that in nearly all cases there have been serious attempts to include the analysis and evaluation of environmental impacts on the various

planning levels, maybe with the exception of the (strategic) local level. The more limited attention to environmental impacts on this level may find its cause in the fact that for the local level such impacts are generally considered within the project-based EIA's.

However, the results of the evaluation show that limitations are encountered in the specification of environmental objectives, the related indicator structure and the actual impacts. On the higher planning levels this has resulted in rather descriptive and qualitative approaches. On the lower levels, the impact assessment is sometimes based on methods applied in the project based EIA. Obviously, the challenge of COST 350 is to develop methods which are consistent with EIA but can be applied on higher abstraction levels (using the more limited and crude data available in strategic planning stages), while still providing concrete information on the relevant environmental impacts which can be used in the comparison and evaluation of planning alternatives.

## **4.2 Evaluation of scope and contents of case studies**

Based on the summary description and comparison of case studies in chapter 3, the following provides an overview of main conclusions within each of the topics: planning process, methodology, results, analysis, and new methodological developments.

### **Planning process**

Common aspects across countries include the existence of a number of geographical levels (including the national, regional and local level) and a planning process involving a number of levels ranging from more strategic to more operational planning levels. By definition, SEA is focusing on the strategic level, which may be considered at different geographical levels. With respect to the definition and interpretation of the relevant hierarchical levels to be considered in COST 350, some very clear recommendations were made by Dr. Kerstin Arbter from Austria (at the request of Friedrich Zotter). The notions of Dr. Arbter will be addressed in section 4.3 of this chapter and the recommendations regarding the relevant hierarchical planning levels will be elaborated in Annex B.

In all countries there is generally a complex multi-actor setting involving a range of public authorities on the various hierarchical planning levels and public and private stakeholders. In each country the Ministries of Transport and Environment are (the most) important players.

The need and philosophy of the SEA directive are taken into account in each country but there is generally no formal and operational incorporation of SEA in the legislative procedures of the planning process. Limitations become manifest in:

- The fact that planning at higher hierarchical levels is often based on a wish list of intentions rather than on the actual evaluation of alternative plans/programs based on relevant effects (such as environmental effects).
- The operational specification of environmental objectives and targets.
- The absence of explicit links between land use and transportation planning.
- The possibilities for involvement of relevant stakeholders.

### **Methodology**

Although there may be differences in terminology, there is quite a bit of general consensus and similarity with respect to:

- The relevant steps in the analysis and evaluation of transport systems and networks, with general steps including: the generation of transport demand; the generation of transport flows between origin and destination zones; the allocation of transport flows to transport modes and networks; the generation of traffic flows on transport networks; and the assessment of impacts of transportation networks and traffic flows.

- The relevant objectives and criteria, with the most common aspects pertaining to: mobility and accessibility, transport safety, quality of living environment and environmental and spatial quality.
- The types of relevant strategies and measures considered, such as: spatial planning and mobility management; use and capacity of infrastructure networks; technical improvements to transport modes; and measures to reduce environmental effects.

Common deficiencies in available methodology and modelling tools relate to:

- Limitations in the specification of environmental objectives and indicators.
- The quantitative (or qualitative) assessment of impacts on strategic planning levels.
- The complexity of quantitative assessments (level of detail of indicators used, data needs, analysis efforts).
- The integration of modelling approaches and tools.
- The combination (aggregation) of impacts.
- The evaluation of different types of impacts: economic, environmental, social, and both quantitative and qualitative (multi criteria analysis methods and tools).

## **Results**

Relevant and desired results of the plans/programs on strategic level generally include:

- Decisions on preferred policies/strategies regarding the future development of transport systems, including transport management and networks.
- Guidelines/directives for developing plans/projects on lower hierarchical levels and in tactical/operational planning phases.
- The monitoring of the actual performance (impacts) of transport systems and networks.

Actual results achieved are in most cases quite limited. Observed limitations are:

- The impact assessment is usually quite selective and often merely descriptive.
- In many cases no clear decisions are taken.
- If decisions are taken, the justification of such decisions is usually not very transparent. For example, a list of preferred projects may be produced of which the contribution to specified objectives is not known.
- The actual influence of environmental aspects in strategic decision-making in most cases seems to be rather small.

## **Analysis**

There is a general lack of an integrated analysis approach and appropriate modelling tools that are capable of dealing with the strategic analysis level. Another problem is the availability of appropriate data, which is representative for, and can be handled at, the strategic level.

To the extent that environmental impacts are considered there is often no clear distinction between SEA and EIA. There seems to be a tendency to apply EIA indicators on a SEA level, which is in conflict with the level of detail and complexity that can be handled on the strategic level. Consequently, the impacts actually considered are often merely qualitative and usually quite limited.

## **New methodological developments**

New methodological developments should focus on integrated network approaches and meet the following requirements:

- use of generally available data appropriate for strategic planning levels;
- use of relatively simple modelling and assessment principles (both quantitative and qualitative);
- fast, user-friendly and transparent analysis procedures;
- include options for integration and evaluation of relevant effects.

From the results of the case studies there are no indications that integrated network approaches, which meet the above requirements, are readily available. However, in some countries there are certain ongoing developments along these lines that could contribute to the methodological developments anticipated in COST 350.

### Overall conclusions

- Within the various countries and cases there is a lot of commonality in processes and methods applied and the needs felt to (better) take account of environmental impacts in strategic planning stages.
- In all cases, limitations are encountered in the actual assessment of environmental impacts in strategic planning stages.
- Appropriate methodology and modelling tools for strategic assessment of environmental impacts are not readily available.

### 4.3 Lessons learned

Based on the lessons learned from the case studies as described in the previous parts of this document, this section summarises the most relevant general recommendations for COST 350. Important contributions to these recommendations were based on a paper produced by Dr. Kerstin Arbter's (from Austria) at the request of Friedrich Zotter, and on some results from other SEA research.

- When starting the planning and SEA process, the planning task and the corresponding hierarchical planning level should be defined clearly. It must be clear, which questions should be answered by the plan/programme. The planning task (= planning situation) could either be:
  - (1) defining overall principles of transport policy;
  - (2) defining the transport network;
  - (3) choosing specific lines for infrastructure; or
  - (4) designing projects with their construction details.

These planning tasks correspond to the following hierarchical planning levels:

- (1) Policy level (assessment tool: SEA).
- (2) Strategic plan/programme level (assessment tool: SEA).
- (3) Site specific plan/programme level (assessment tool: EIA/SEA).
- (4) Project level (assessment tool: EIA).

The latest SEA-research results show<sup>1</sup> that in transport planning SEAs, the hierarchy to distinguish planning situations based on planning tasks seems to be more practical than merely defining the geographical scale of plans/programmes (national, regional, local and corridor level). See Annex B for more information on this issue.

- In practice, the four assessment levels can be linked, e.g. by giving recommendations which effects should be assessed in more detail and which issues should be addressed at the following planning level (see also Annex B). The SEA assessment methods should follow minimum standards. For example, the assessment methods should:
  - be transparent, also for layman, in order to gain the support of stakeholders and decision makers;
  - focus on the most relevant impacts, which can be assessed robustly at SEA level (leave the "examine everything"-approach);

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<sup>1</sup> Dr. Kerstin Arbter – Technisches Büro für Landschaftsplanung, Wien  
Fischer, T.B. 2002. Strategic Environmental Assessment in Transport and Land-use Planning, 300 pages, Earthscan, London.

- provide a clear picture of impacts, without getting lost in irrelevant details;
  - clearly document and explain all assumptions;
  - declare lack of know-how and data, open questions for the next assessment level and insecurities in the prognosis transparently;
  - be adapted to the availability of data;
  - not be too time-consuming in order to integrate the results into the planning process;
  - be robust (different experts should come to similar results).
- Assessment methods for SEA clearly differ from methods used for project-EIAs. They are in principle more qualitative, less detailed, and follow a broader approach. Practice shows, getting away from the use of the well-known EIA assessment methods seems to be challenging. However, at SEA level this is necessary in order not to overload the SEA process and not to get lost in long lasting, detailed procedures.
  - SEA helps reaching (inter)national environmental objectives and conveying these objectives to specific planning tasks. EU or national standards, e.g. derived from national environmental plans or EU legislation (e.g. concerning noise, air emissions, quality of air and water, etc.) should be taken as benchmarks for SEA. Objective-led SEAs therefore should link environmental objectives or targets to assessment criteria or indicators. Criteria and indicators should provide a clear answer if and to which extent the options at stake fulfil or miss the given objectives or targets. Therefore criteria and indicators should be transparently derived from the defined objectives and targets. These criteria and indicators could be complemented by others, exploring the extent to which existing environmental problems would be ameliorated or providing information about which societal groups would be affected by considering distributional impacts. In addition to these absolute assessment aspects, the options could also be compared based on their relative scoring (which one is best and which one is worst, and on account of which aspects).
  - In any case, one should be careful with assessing environmental impacts in monetary terms, as objective, unbiased and accepted transformation rules to "money-values" are lacking for the time being. As they depend on values and weighting, even science cannot provide undisputed rules. Assumptions that one would have to make for such transformations could cause broad criticism, which in turn could devalue the assessment as a whole.

## 5 Action agenda for other working groups

In the Framework Document, which was the end result of Working Group 1, working groups (and related work packages) were defined as follows:

WG2: Transport infrastructure planning situations and options

WG3: Environmental impacts/ indicators and assessment methods

WG4: Transport planning option parameters and assessment methods

WG5: Aggregation of impacts/indicators and integration methods

WG6: Synthesis of COST 350 methodology

In relation to these working groups it was stated in the Framework Document that:

- Working groups 2 and 6 would be involved with the overview and integration of the relevant subject matter considered in COST 350, requiring a country oriented staffing (i.e. pursuing a broad representation of participating countries).
- The staffing of working groups 3, 4, and 5 would be discipline oriented, requiring different mixes of technical and scientific inputs.
- The specific purpose of the activities in WG2 is to provide an operational basis for the methodological development activities to be undertaken in working groups 3, 4 and 5.
- WG6 would be involved with tasks that are a logical continuation of the activities in WG2.

With the results included in the present document, the activities of WG2 have come to an end. Based on the results and findings of WG2, this chapter provides an overview of important directives and actions for the other working groups.

### Working Group 3

WG3 is involved with the specification and development of the methodology for the assessment of environmental impacts. Main tasks are related to the identification and specification of relevant indicators and operational methods and tools to quantify these indicators. The indicators and assessment methods should correspond to the hierarchical levels relevant for SEA.

A first identification of relevant indicators has taken place during the development of the Framework Document. In starting up the activities of WG3, further discussions were held on the identification of relevant indicators of which the results are reflected in the minutes of the meeting in Lyon (October 2002). After a period of delay in the Cost 350 activities, the working group was restructured. In the beginning of this year, further initiatives were taken to launch a questionnaire aimed at the identification of indicators and the methodologies applied in quantifying and defining the significance of indicators. In this questionnaire, suggestions are also invited on a possible extension of indicators to be considered with respect to water-related transport.

Up till now, a quite substantive effort was spent on the discussion of what indicators to consider. Final conclusions regarding the indicators to be considered have not yet been reached. Given the complicated nature of this question, this is quite understandable. For example, a major item of discussion has been whether indicators should be strictly limited to environmental issues or whether the indicator structure should include social impacts and possibly even economic impacts. This has led to the general consensus that the focus of COST 350 should clearly be on environmental impacts, but still there would be a potentially wide scope of impacts to be considered. Other questions pertain to the geographical scale (local/regional versus global) and to the importance of scientific and specialist inputs in defining and assessing the impacts.

There is a risk that the further continuation of these discussions will stand in the way of actual progress in the development of the COST 350 methodology. It must therefore be concluded that there is a strong urgency to reach an agreement about the most relevant indicators to be considered and to get to the stage of identifying feasible and promising methodological

approaches. The activities of WG3 should then focus on the identification and specification of feasible modelling approaches for the assessment of the relevant environmental impacts and on the related data requirements. In this respect, there should be a close interaction with WG4 to verify that data related to transport networks and transport flows which are required for the assessment of environmental impacts can be actually provided based on the methods and approaches proposed by WG4.

From the results of the case studies, it follows that there is a quite common understanding about at least a number of relevant indicators. Moreover, there is a general lack of practically applicable methods to quantify these indicators for the planning options considered on the strategic planning levels that are typical for SEA. Hence it seems that the *true challenge* in this respect is not so much in defining an extensive or complete set of indicators, but rather in developing practicable means to take into account the more or less commonly agreed upon environmental impacts on a strategic planning level. In particular the challenges are:

- to find meaningful expressions - either qualitative or quantitative - for the impacts which are commonly regarded as relevant, taking into account the state of the art level of scientific knowledge;
- to identify or develop methods of assessing these impacts within the practical boundary conditions of the strategic planning level (i.e. based on generally available data, limited efforts and limited complexity);
- to avoid duplication of environmental impacts, methods and tools as applied in more detailed assessments such as EIA, but still ensure consistency with methods applied at these more detailed levels.

The recommended approach therefore is define a core set of impacts/indicators which correspond to the relevant hierarchical SEA levels and which are commonly accepted as a basis for the further methodological development as soon as possible. Indicators should be clearly linked to environmental objectives and targets.

During the development process in WG3 there should be a possibility to add on to these indicators and assessment methods, based on a (limited) further inventory and possible concrete suggestions of COST 350 participants. In order for indicators and assessment methods to be added, they should be clearly described and their need should be well motivated.

Potential indicators have already been identified in various sources, i.e. the SEA Directive 2001/42/EC, the SEA manual on Transport Infrastructure (European Commission, DG VII Transport, February 1999) and the WG1 Framework Document. In the SEA Directive 2001/41/SEA, the impacts to be considered are only referred to in a general way. Effects explicitly mentioned are: 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 these factors. The manual on SEA of Transport Infrastructure explicitly mentions and describes a number of impacts/criteria within two main categories, i.e. global/regional effects and local effects. Within the Framework Document of WG1, a list of presumably relevant impacts was drafted, also distinguishing between a global/regional and local category. Table 5.1 provides an overview of potential indicators based on the above sources.

- From Table 5.1 it appears that the effects and indicators mentioned in relevant documents seem to be rather consistent. Also, these effects and indicators are in agreement with the impacts that are quite commonly considered in various case studies. Following a further verification with other relevant EU directives and regulations, this would provide a basis for the selection of a more limited list of key impacts to be primarily considered in COST 350.

**Table 5.1 Overview of potential environmental effects in SEA**

Environmental effects	In SEA Directive 2001/42/EC	In SEA manual on transport Infrastructure	In WG1 Framework Document
<b>Global / regional effects</b>			
Emission of air pollutants (various substances)	air	*	*
Climate change	climatic factors	*	*
Ozone depletion	human health		
Acidification	flora	*	
Photochemical smog	human health	*	
Non-renewable energy consumption		*	
Depletion of material resources/waste production	material assets	*	*
<b>Local effects</b>			
Local air quality (various substances)	air, human health	*	*
Water pollution (various substances)	water, human health	*	*
Soil pollution	soil	*	*
Noise nuisance/vibration	population, fauna	*	*
Traffic accidents /victims	population, human health	*	*
Barrier effects / land fragmentation of different types of areas, i.e. • ecological • residential	biodiversity, fauna population	* *	* *
Land take of different categories of land, i.e. • ecological • residential • cultural heritage	biodiversity population cultural heritage	* * *	* * *
Soil erosion	soil		*
Hydrologic/hydraulic risks	water	*	*
Landscape, visual effects (aesthetics)	landscape	*	*

#### Working group 4

The assessment of environmental impacts of transport infrastructure should be built on the specification of concrete information regarding the relevant transport planning options to be evaluated. Such information includes the characteristics and location of physical transport infrastructure, as well as the information on the types and intensities of the traffic flows accommodated. The core task of WG4 is to mobilise and further develop the available knowledge in the field of transport planning, transport systems and transport modelling in order to provide the required information for the relevant planning situations and geographical levels considered.

From the description and comparison of case study results it follows that there is actually a lot of knowledge and tools available in this field of expertise. Also it seems that quite common approaches are followed across the various countries in the analysis of transportation requirements and the performance of transport networks and infrastructure. However, within these common approaches there may be a wide variation of specific models and specific modelling principles. Another relevant observation is that most modelling approaches apply to rather detailed and concrete situations, which are more suited to the more advanced planning stages related to feasibility and design. On the more strategic planning levels the present analysis capabilities are still focused on the cost and efficiency of infrastructure networks rather than on the integrated assessment of networks from the viewpoint of overall sustainability. Consequently, the availability of modelling tools for quantitative assessments on strategic planning levels seems to be quite limited.

Therefore the *actual challenge* of WG4 is in the development of practicable and feasible methods to provide the required information on transport networks and traffic flows on larger physical scales, within the boundary conditions as dictated by the overall methodology. Examples of such boundary conditions are the limited availability of data on larger geographical

scales and practical limitations in the methodological complexity and analysis efforts that can be handled.

The present activities within WG4 focus on the execution of a rather substantial survey that, in addition to the results of WG2, aims to provide detailed information on a country-based inventory of models and available databases. This questionnaire intends to investigate the specific models used, and the current approaches in the collection and use of the related data. The focus is on the potential application of existing models and data in dealing with the strategic planning levels that are typical to SEA. The questionnaire is directed towards a rather wide range of models and databases overlapping the work fields of WG3 and WG4.

From the viewpoint of WG2 it is essential that the activities in WG4 should focus on the actual identification and further specification of feasible, generic approaches to provide the relevant information on transport networks and transport flows for the planning alternatives considered on the relevant strategic planning levels. Such approaches are to be considered for the generic modelling steps which are common to transport infrastructure planning, ranging from the projection and specification of transport demand to the allocation and specification of traffic flows on transport networks. Models should be capable of taking transport management measures (e.g. to reduce the amount of traffic) into account.

Based on the information to be provided by WG4, the assessment of environmental impacts is to be further specified by WG3. Regarding the interaction between WG3 and WG4 there should be a clear understanding as to the separation of activities and responsibilities of the two working groups. It is emphasized that the identification and specification of methods and tools for the assessment of environmental impacts is the primary domain of WG3. Relevant information on environmental modelling approaches and related data, which may follow from the questionnaire of WG4, should therefore be brought to the attention of WG3 and not be further processed or elaborated within WG4.

In this respect, the processing of the results of the country-specific questionnaire of WG4 should focus on the following issues:

- Boundary conditions and limitations with respect to transport system data availability on relevant strategic planning levels and possibilities to enhance data availability (for example by developing connections to commonly available statistical data sources).
- Limitations and potential of available models to deal with transport system related modelling steps on a strategic planning level, including transport management measures.
- Possibilities to adapt existing modelling approach to overcome these limitations.

The results of such an inquiry would be the identification of existing or adjusted modelling approaches which are best suited to handle the more abstract strategic planning levels, providing a concrete basis for the further methodological development in WG4. As a condition of acceptance, all suggested models should be simple, transparent, reliable and easy to explain, both for the general public and the decision makers.

### **Working Group 5**

The focus of WG5 is on the inventory and review of existing concepts and methods related to the aggregation of environmental indicators, in order to facilitate the interpretation and evaluation of the environmental impacts in the decision-making process. As a first step it should become clear to what degree aggregation is actually necessary in order to meet decision-making requirements. The specification of the indicator structure and impacts to be considered, mainly following from the activities in WG3, is an important input to the activities in WG5.

In the last year, WG5 has been quite active in specifying the concrete questions and issues related to various aggregation requirements that may emerge from the decision-making process. A questionnaire was developed as one of the major means to get access to existing methods

developed and/or applied and to relevant available literature sources. The responses to the questionnaire and the results obtained from it, so far seem to be somewhat disappointing. Also, from the result of the case studies there do not seem to be very clear examples of promising applications and developments in this field.

A potential drawback of the present inventory may be that the scope of the questions is rather wide. Following the specifications on the indicator structure to be made in WG3, it is recommended that steps would be taken to limit the scope and become more specific about the actual questions to be addressed in WG5. In addressing these more specific questions, it is suggested that a number of routes is simultaneously taken, as follows:

- revitalize and focus the present questionnaire on the more specific questions to be addressed;
- explicitly invite external experts to provide their ideas and suggestions with respect to existing or possible new approaches on the specific questions to be addressed;
- identify and develop potential approaches within WG5, and invite expert opinions outside COST 350 on the possible application of such approaches.

### **Working Group 6**

Following the termination of the activities in WG2, it is suggested that the activities in WG6 are considered as a logical continuation of the activities of WG2. The envisaged continuation would focus on the *guiding and monitoring* of the further developments within the other working groups based on the selection of a limited number of country cases which are believed to be most representative for the scope of COST 350. The representative cases would be further used to guide and test the methodological developments within the other working groups. During the development process, these cases would ensure the link between the theoretical and methodological development activities and the practical requirements arising from implementation feasibility, given the actual country situations from which the cases have emerged. In a later stage, the cases would serve as the basis for integrating the overall COST methodology and illustrating its use and results.

From this perspective, WG6 will be responsible for the synthesis of the COST methodology and the delivery of the final product of COST 350. In this process it should be ensured that SEA requirements are fulfilled. In this respect, particular attention should be given to relevant SEA related developments and the communication with potential users and (other) interested parties.

The envisaged role and activities of WG6 are considered crucial to the further development process in COST 350. Consequently, it is essential that clear arrangements will be made regarding the tasks and staffing of WG6 and the organization and coordination of activities within and across the various working groups.

## Annex A Overview of SEA compliance criteria

Within the activities of WG2, a number of relevant country case studies have been identified and described. In view of the orientation of the methodological developments in COST 350 on the SEA directive of the EU, the question was raised to what extent the various case studies are representative for SEA (in particular: would be actually subject to SEA and/or have been actually conducted according to SEA requirements). For this purpose a number of SEA compliance criteria were formulated as described in this annex. It should be noted that these criteria are merely used to judge the potential SEA compliance of cases, as for none of the cases a formal SEA was actually carried out.

SEA compliance criteria have been 'derived' from the texts of Directive 2001/42 of the European Parliament and of the Council on the Assessment of the Effects of Certain Plans and Programmes on the Environment (articles 1 through 14 and Annex I), and of the document provided by the EC on the *implementation* of Directive 2001/42.

SEA compliance criteria have been defined within two main groups, i.e. (1) process related (criteria P1 through P13) and (2) related to the contents of SEA (criteria C1 through C11). Certain criteria directly refer to the specific contents of the various articles of Directive 2001/42. Other criteria were based on an *interpretation* of one or more of the articles of Directive 2001/42, using the additional information provided in the EC document on the *implementation* of Directive 2001/42.

The following provides an overview of the compliance criteria defined with reference to the relevant article(s) of Directive 2001/42 providing the basis for the respective criterion. In cases where the criterion is based on an interpretation of the article(s) of the Directive, this is indicated by adding the words '*interpretation of*' in referring to the relevant article(s).

### "Process related" SEA compliance criteria

Process related compliance criteria are distinguished within the following categories.

SEA requirements of plan/programme (criteria to determine whether the execution of an SEA would be required):

- P1 Subject to preparation and/or adoption by an official authority (article 2(a)).
- P2 Required by legislative, regulatory or administrative provisions (article 2(a)).
- P3 Have significant environmental effects or set framework for projects subject to EIA (articles 3.1 and 3.2).

Conditions to be met in SEA execution:

- P4 To be carried out at early stages of plan/programme preparation and *before* submission of the plan/programme to the legislative procedure (article 4.1).
- P5 Identification of options in *proactive* setting, leading to the selection of a preferred option (flexible process in order to identify options capable of achieving environmental and other objectives) (*interpretation of* articles 4.1 and 5.1).
- P6 Decision-making to be based on environmental assessment report and consultation results (article 8).

Consultation commitment (when and whom to consult in the SEA process):

- P7 On assessment of SEA requirement - relevant authorities (articles 3.3 through 3.5).
- P8 On scope and detail of assessment - relevant authorities (articles 5.4 and 6.3).
- P9 On environmental report and draft plan/programme - relevant authorities and public concerned (also in other Member States in case of transboundary situations) (articles 6 and 7).

Information to be provided on adopted plan/programme:

P10 What (article 9.1):

- the adopted plan;
- role of environmental considerations in decision-making;
- monitoring measures.

P11 To whom: representatives of relevant authorities and public (also to consulted member states in case of transboundary situations) (article 9.1).

Other process requirements:

P12 Provisions for quality assurance of environmental report (article 12.2).

P13 Monitoring provisions related to significant environmental effects (article 10.1).

### **SEA compliance criteria related to contents**

Compliance criteria related to contents are distinguished within the following categories.

Scope of SEA:

- C1 Aimed at the assessment of environmental impacts (with a view to sustainable development) of plans/programmes with significant effect on environment (articles 1 and 3.1).
- C2 Involved with strategic planning stage/level: based on broader vision, goals and objectives in context (*interpretation of articles 3.3 through 3.6*).
- C3 Scale and types of alternatives to be considered: policy/programme oriented (not project specific) (*interpretation of article 5.1*).

Main elements of approach:

- C4 Explicit consideration of future context including a 'no change' alternative (*interpretation of article 5.1 and Annex I*).
- C5 Consideration of a (broad) range of reasonable alternatives (*interpretation of article 5.1 and Annex I*).
- C6 Environmental impact assessment based on environmental objectives reflected in explicit indicator structure (*interpretation of articles 5.1 through 5.3 and Annex I*).

End product: environmental assessment report, including:

- C7 Objectives (plan objectives and environmental protection objectives) and geographical scope.
- C8 (Environmental) problem analysis (based on current state and 'no change' alternative development).
- C9 Environmental impact analysis of alternatives based on impact/indicator structure.
- C10 Evaluation and selection of alternatives (including mitigation measures).
- C11 Monitoring programme.

Criteria C7 through C11 are all based on an *interpretation of the contents of Annex I to the Directive*.

## Annex B Hierarchical planning levels relevant for COST 350

This annex provides some general recommendations regarding the definition and interpretation of the hierarchical planning levels relevant for COST 350 and is merely based on the paper made by Dr. Kerstin Arbter's (from Austria, recommended by Friedrich Zotter) and some other SEA-research results.

In her paper Dr. Kerstin Arbter is not defining the planning situations by the geographical scale of plans/programmes (national, regional, local and corridor level), but by the planning tasks of plans/programmes (tiering). Not only this paper, but also some other research results (SEA research for 80 SEAs, encompassing any assessment of the environmental impacts of a Policy, Plan and Programme for the Netherlands, the UK and Germany - Fischer 1999c) stress the importance of a tiered SEA system.

The hierarchy based on planning tasks (tiering) distinguishes 4 levels:

- Policy level (assessment tool: SEA).
- Strategic plan/programme level (assessment tool: SEA).
- Site specific plan/programme level (assessment tool: EIA/SEA).
- Project level (assessment tool: EIA).

This hierarchy based on planning tasks seems to be more practical than the hierarchy based on geographical scale. Working with the geographical hierarchy has the disadvantage that the actual planning tasks could be similar at the national and the local level and in that case these two levels are not distinguishable at all. This problem was tackled several times in the WG2 as well - there was a lot of discussion about different geographical levels - but in the absence of anything better, the WG2 continued to work with this classification.

In this annex it is made clear that policies, plans and programmes (at strategic and site specific level) are instruments of different decision making tiers above the project level, each of which can be given distinct tasks and distinct assessment methods.

<b>Policy level:</b> defining the overarching <u>objectives</u> and <u>development directions</u> of transport policy
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### Planning tasks:

At policy level the strategic orientation of transport policy is defined, meaning setting overall objectives and strategic goals, e.g. ensuring accessibility, avoiding the need to travel, shifting private to public transport, promoting cycling and pedestrians as most environmentally sound traffic modes or promoting traffic saving land use patterns. Transport policies have a strong political context as they comprise subjective values and weightings, rather than objective facts and data. Usually they are vague and long-term (one or more decades to the future). At policy level in some cases, specific measures are missing. Transport policies are serving as an overall framework for more detailed plans/programmes including specific measures. Transport policies might also coordinate transport aspects with other planning sectors, such as land use planning, water management or environmental management. Ideally transport policies should be prepared at EU level or for more specific aspects, at national level but they also exist at regional and local level.

### Assessment method:

Assessments of the transport policies can deal with global impacts, such as climatic change, or life quality aspects. Due to their high degree of abstraction there is lot of insecurity in anticipating future impacts. Sometimes only tendencies and trends of impacts can be estimated (e.g. increase or decrease the situation), whereas the degree of impact cannot be predicted easily. Therefore the most appropriate assessment methods are qualitative methods like verbal

descriptions or causal chain analysis, drawing pictures of how impacts relate to each other. The latter is a method also used for integrating environmental, social and economic impacts in sustainability impact assessments. Assessment methods for the policy level are mainly based on common sense estimations, e.g. expert judgements, rather than mathematical calculations.

**Strategic plan/programme level:** defining needs, purposes, modes (technologies) and capacities of specific measures

### Planning tasks:

Strategic plans/programmes deal with specific transport measures, both with traffic management measures *and* with infrastructure measures. Traffic management measures include e.g. financial, organizational and spatial planning measures. Infrastructure measures comprise the construction of new infrastructure, the extension and the reconstruction of existing infrastructure. Strategic plans/ programmes contain a package of measures to reach specific objectives, e.g. ensure mobility and accessibility. These plans/programmes should follow a multi-modal approach. Their task is to define the transport network, the modes of transport and the priorities for implementing the proposed measures. Strategic plans/programmes are often the basis for expenditure proposals and might be used as investment frameworks. Strategic transport plans/programmes should be prepared at EU level, at national level and at regional level. They are supposed to answer general questions concerning the transport system, e.g.:

- Questions concerning needs and purposes:

*If and why* specific measures are needed, e.g. if the transport net has to be completed or if management measures or land use measures can tackle mobility needs. Traffic management measures as well as infrastructure measures have to be taken into account answering these questions concerning needs and purposes.

- Questions concerning modes (technologies)

*Which modes* of transport (e.g. railway or highway) are appropriate in the transport network or *what kinds of management measures* are needed (e.g. congestion pricing).

- Questions concerning capacities

*What capacities* of infrastructure (e.g. number of tracks) or management measures (extent of road pricing fees) are needed?

### Assessment method:

Strategic plans/programmes define the needs, purposes, modes (technologies) and capacities of specific measures. They already include concrete infrastructure or management measures, brought together to packages. SEA will assess the comprehensive effects of these packages of measures, rather than assessing every single measure by its own. The focus of SEA is mainly on network effects. SEA will deal with environmental impacts as climate change, fragmentation and barrier effects, sealing, safety, atmospheric emissions (e.g. NO<sub>x</sub>, SO<sub>2</sub>, VOC, particulate matters), energy and resource use. These impacts mainly depend on the amount of traffic and the modes (traffic flow related impacts). Therefore the impacts of the options on generation or reduction of traffic flows and modal split have to be estimated first. Cumulative impacts<sup>2</sup> of several measures should be assessed, as well as secondary<sup>3</sup> and indirect<sup>4</sup> effects, because these effects often cannot be addressed properly at project level. But the mentioned environmental effects can be assessed without deciding on concrete routing or design of infrastructure. As a rule-of-thumb, the assessment should be limited to those aspects, which influence the decision on the package of measures and which cannot be dealt with at the following site-specific level. This also means to resist the temptation to switch to more in-depth planning levels. SEA assessment methods will be mainly qualitative with perhaps some quantitative aspects, if existing data allows quantification. Beside causal chain analyses and

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<sup>2</sup> Combination of effects of several measures

<sup>3</sup> Induced impacts (e.g. traffic generation by new infrastructure)

<sup>4</sup> E.g. impacts caused by mitigation measures (visual or fragmentation impacts caused by noise barriers)

verbal description of impacts, multi-criteria analysis is appropriate, using e.g. ordinal scales for estimating the degree of impacts (e.g. from very positive impact to very negative impact). Detailed and complex simulation models and quantifications how they are used for EIAs have to be treated with care at this level, because they often need a lot of data (which is sometimes lacking at the strategic planning level), they sometimes produce a lot of irrelevant results, they are usually time-consuming and expensive in application and they very often lack of transparency. Furthermore, simulation models often focus on infrastructure measures and fail to integrate the effects of management measures, which seems to be a clear limit for their use in SEA. Such models should only be applied if they cover the whole range of measures and if input data is available in appropriate quality. Evidence-led expert judgements given by different experts and stakeholders can often provide more reliable assessment results and they are particularly useful for building consensus amongst the interest groups concerned.

#### **Site specific plan/programme level: defining locations/lines**

##### **Planning tasks:**

Site-specific plans/programmes define locations/lines of infrastructure or management measures. At this planning level, usually the focus is on one specific measure and there is a strong spatial dimension in planning. Questions to be answered are: *where* a new rail way track or high way should be built (e.g. defining the corridor) or *for which areas* management measures should be in operation.

These site-specific plans/programmes should be prepared at regional or local level. They should already be covered by project-EIA provisions. If this should not be the case in some member states, either SEA or EIA procedures should be applied. Any lack of formal assessment of this kind of plans/programmes should be avoided.

##### **Assessment method:**

Site-specific plans/programmes define locations/lines of one single measure (mainly infrastructure measures). Assessment of these plans/programmes will deal with aspects like loss of habitats and biodiversity, noise, pollution, visual effects on landscape, townscape and heritage as well as with fragmentation with a strong spatial connection. The focus is on locating effects in the surrounding environment. Plans can be used to visualize spatial impacts. Geographical information systems (GIS) might be useful tools. Assessment methods will mainly be quantitative dealing with site-specific effects. Some qualitative aspects will remain, e.g. for describing visual impacts. Multi-criteria analysis is again considered as an appropriate method for impact assessment, using concrete emission amounts or extents of affected areas or combining quantitative and qualitative results. At this level the use of simulation models provide more reliable results, because the data necessary is more often available or easier to collate.

#### **Project level: defining project design**

##### **Planning tasks:**

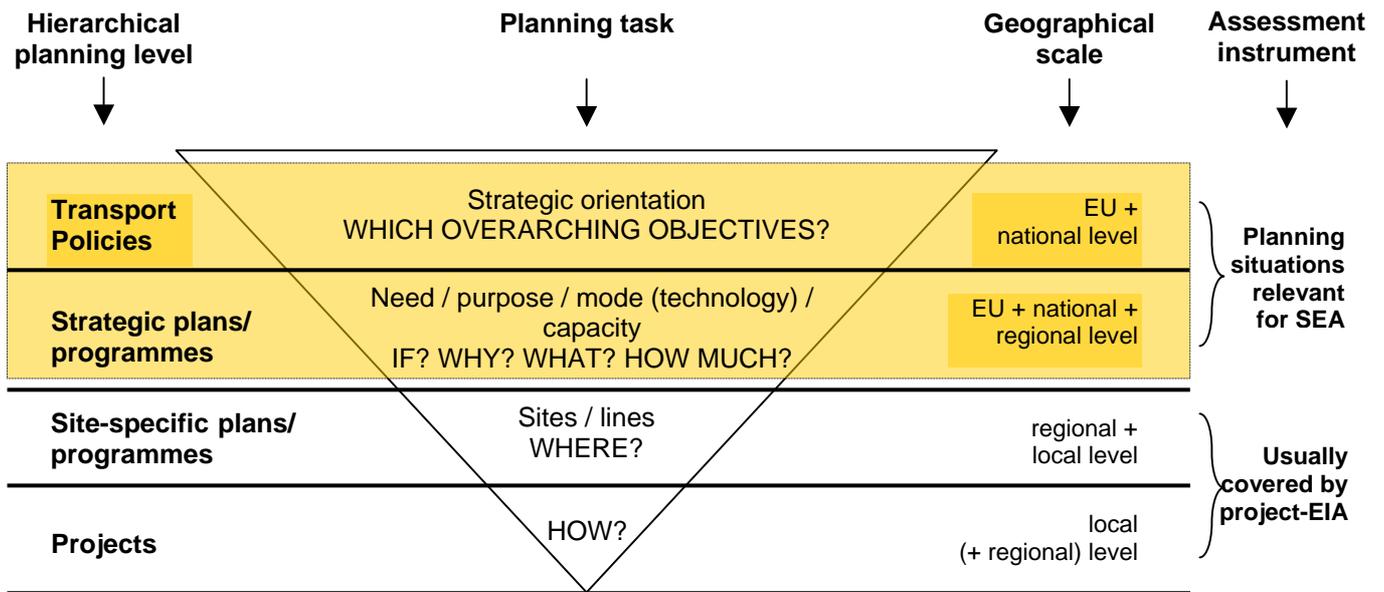
At project level you define how one single project should be built or how a certain measure could be fine-tuned, leading to project consent decisions. Projects should be designed at local (or regional) level. EIA is the appropriate assessment tool.

##### **Assessment method:**

Projects define specific construction details. EIA will deal with impacts like loss of habitats and biodiversity, noise, pollution, fragmentation, visual effects on landscape, townscape and heritage in higher detail. The focus is on defining mitigation measures to avoid negative impacts on the local environment. A definitive consent could be given if impacts can be mitigated to an

acceptable level. EIA methods will be mainly quantitative dealing with construction details. Again, multi-criteria analyses is an appropriate assessment method and simulation models will provide most reliable and robust results at this concrete planning level due to the exact input data available.

The following figure illustrates the four hierarchical planning levels with their corresponding plans tasks and the geographical scales at which they are mainly prepared. The relevant assessment instruments SEA and EIA are related to them. However, especially the geographical scales may vary. E.g., a city at local level could as well prepare a transport policy or strategic plans/programmes.



## Annex C National SEA legislation relevant for COST350 (May 2006)

COUNTRY	SEA DIRECTIVE TRANSPOSED	ADDITIONAL GUIDANCE
AUSTRIA	www.anidea.at/spvg.pdf In force since August 2005 for Federal Transport Plans and Programmes	
BELGIUM	<ul style="list-style-type: none"> <li>For the region of Flanders : "<u>Decreet van het Ministerie van de Vlaamse Regering van 18 december 2002 tot aanvulling van het decreet van 5 april 1995 houdende algemene bepalingen inzake milieubeleid met een titel betreffende de milieueffect- en veiligheidsrapportage.</u>", or in French translation "<u>Décret du Ministère de la Communauté Flamande du 18 décembre 2002 complétant le décret du 5 avril 1995 contenant des dispositions générales concernant la politique de l'environnement par un titre relatif à l'évaluation des incidences sur l'environnement et la sécurité</u>". Published in "Belgisch Staatsblad - Moniteur belge" of 13.02.2003 (pgs 7261 - 7280 for Dutch text and pages 7281 - 7298 for French translation</li> <li>For the region of Wallonie, "<u>Arrêté du Gouvernement wallon du 17 mars 2005 relatif au livre premier du Code de l'Environnement</u>" (published in Moniteur belge of May 4,2005, pgss 21184 - 21232)</li> <li>For the region of Brussels capital : "<u>Ordonnance du Ministère de la Région de Bruxelles-Capitale du 18 mars 2004 relative à l'évaluation des incidences de certains plans et programmes sur l'environnement</u>", published in Moniteur Belge of March 30, 2004 (pags 17836-17846)</li> </ul>	<p>The Decreet came into force on 21.04.2004. Subsequent amendments were introduced through Decreets of February 6 (M:B. March 9) and April 30 (M.B. June 8)</p> <p>Two annexes on Guidance published in Moniteur Belge of May 18, 2004 (pages. 39347 – 39348).</p>
CZECH REP.	Law No. 93/2004 Coll. Entered into force on May 1, 2004	Additional procedural guidance available in Czech language
FRANCE	<p><u>Ordonnance No. 2004-489 du 3 juin 2004 portant transposition de la directive 2001/42/CE du Parlement européen et du Conseil du 27 juin 2001 relative l'évaluation des incidences de certains plans et programmes sur l'environnement.</u> Published in O.J. of June 1, 2004</p> <p>The following existing Legal Codes have been subject to amendments as a result of the SEA Law.</p> <ul style="list-style-type: none"> <li>Code de l'environnement</li> <li>Code de l'urbanisme</li> <li>Code general des collectivités territoriales</li> </ul>	
GERMANY	<u>"Gesetz zur Einführung einer Strategischen Umweltprüfung und zur Umsetzung der Richtlinie 2001/42/EG (SUPG)".</u> Published in Bundesgesetzblatt 2005, Part I, pg. 1746.	Come into force on June 29, 2005. Guidance on SEA for Urban and

	<p><a href="http://bundesrecht.juris.de/bundesrecht/uvpg/gesamt.pdf">http://bundesrecht.juris.de/bundesrecht/uvpg/gesamt.pdf</a>.</p> <p><u><i>Europarechtsanpassungsgesetzes Bau – EAGBau, BGBl. 1.S. 1359.</i></u></p>	<p>Regional Planning has been approved on June 24, 2004</p>
<b>HUNGARY</b>	<ul style="list-style-type: none"> <li>• Law LXXVI/2004 amending Law LIII/1995 on <i>General Norms on Environmental Protection</i> and Law LIII/1996 on <i>Protection of Nature</i></li> </ul>	<p>Administrative Guidance at: Decree 2/2005 (I.11) on Environmental Assessment of certain Plans and Programmes.</p>
<b>IRELAND</b>	<ul style="list-style-type: none"> <li>• Statutory Instruments No. 435: European Communities (Environmental Assessment of certain plans and programmes) Regulations 2004. Note: These Regulation relate to SEA for Sectors other than Land Use Planning including Transport); and,</li> <li>• Statutory Instruments No. 436: Planning and development (Strategic Environmental Assessment) Regulations 2004.</li> </ul>	<p>Schedule 1 to the European Communities (Environmental Impact Assessment) of certain Plans and Programmes includes the criteria to determine significant effects upon the environment as set out in the SEA Directive.</p> <p>Implementation of SEA Directive (2001/42/EC): Assessment of the Effects of Certain Plans and Programmes on the Environment. Guidelines for Regional Authorities and Planning Authorities. (Department of Environment Heritage and Local Government, November 2004) Development of Strategic Environmental Assessment (SEA) Methodologies for Plans and Programmes in</p>

		Ireland –Synthesis Report (2001-DS-EEP-2/5) ERTDI Report Series No.18 (Environmental Protection Agency, 2004)
<b>ITALY</b>	Law 308 of December 15, 2004 delegating upon the Government consolidation of existing legislation on environmental issues, together with guidance for implementation. Published in Official journal No. 302 of 27/12/04, (supplemento Ordinario No. 187). Entered into force January 11, 2005 <a href="http://www.parlamento.it/parlam/leggi/04308l.htm">http://www.parlamento.it/parlam/leggi/04308l.htm</a>	
<b>LATVIA</b>	The Law on Environmental Impact Assessment was approved by the Latvian Parliament (Saeima) on 14 <sup>th</sup> October 1988. It was partially amended on May 30, 2001 entering into force on June 21, 2001.	Through Regulation of the Council of Ministers No.157 of March 23, 2004 “Procedures for Strategic Environmental Assessment “ that procedure is regulated further defining competences and responsibilities of all involved parties.
<b>LITHUANIA</b>	<p>General provisions of SEA Directive included under Law on Environmental Protection of the Republic of Lithuania (Zin., 1992, Nr. 5-75; 2004, Nr. 36-1179) and the Law on Territorial Planning (Zin., 1995, Nr. 107-2391; 2004, Nr. 21-617).</p> <p>Detailed requirements of the Directive have been transposed into an Order of the Government of the Republic of Lithuania on the Approval of the Order of Strategic Assessment of the Effects of Plans and Programs on the Environment and two Decisions of the Minister of Environment: Order of the Screening for the Strategic Assessment of the Effects of Plans and Programs on the Environment, and the Order of Public Participation in the Procedures of the Strategic Assessment of the Effects of Plans and Programs on the Environment and Informing the Assessment Stakeholders and Member States of the European Union.</p> <p>Following the Order of the Government No.967 (August 18, 2004), one more document was issued - Decision of the Minister of Environment (December 1, 2004, No.D1-609) - Order of Assessment of Significance of the Effects</p>	

	of Plans or Programs on Established or Potential Natura 2000 Sites.	
<b>NETHERLANDS</b>	The Dutch Lower Chamber has approved the Environmental Law (Wet Milieubeheer) on November 1, 2005.  This has been submitted to the Senate for ratification.	
<b>PORTUGAL</b>	Draft legislation in Parliament as in April, 2006. No official text is available	Technical methodological guidance included in: "Guia para Avaliação Estratégica de Impactes em Ordenamento do Território". Colecção Estudos 9. Edição: Direção-Geral do Ordenamento do Território e Desenvolvimento Urbano <a href="#">Outubro de 2003</a>
<b>POLAND</b>	Transposition of SEA Directive implemented through amendments to existing Law of Environmental Protection of April 27, 2001. Gradual coming into force between 2001 and 2005, as published in Dziennik Ustaw	
<b>SPAIN</b>	On 28 April 2006 the SEA Directive was transposed to the Spanish code of Laws- "LEY 9/2006, de 28 de abril, sobre evaluación de los efectos de determinados planes y programas en el medio ambiente." "Law 9/2006, of 28 April 2006- <i>Law on the Assessment of the effects of certain plans and programmes on the environment</i> ".	
<b>UNITED KINGDOM</b>	Statutory Instruments: <ul style="list-style-type: none"> <li>• England: <b>2004 No. 1633</b></li> <li>• Scotland: <b>2004 No. 258</b></li> <li>• Wales: <b>2004 No. 1656 (W.170)</b></li> <li>• Northern Ireland: <b>2004 No. 280</b></li> </ul>	