Summary

Project objectives and approach

The project describes the state of the progress of methodologies for SEA and evaluates the perception of SEA by the decision-makers.

The study has been prepared in two phases:
- an inventory and an analysis of experiences with SEA by means of a literature survey, desk study of SEA cases in several countries (mainly Western Europe) and interviews (policy makers and SEA experts)
- an overview of successful methodologies used for strategic environmental assessment.

The report defines SEA as “taking account of environmental impacts in strategic actions” and describes the following phases in the process of SEA:

1. Definition of objects
   - Sectoral or regional objectives and constraints
   - Environmental objectives
   - Environmental issues

2. Formulation of options for the strategic actions
   - Optimisation for sectoral or regional objectives
   - Optimisation for environmental objectives

3. Environmental impact analysis
   - Baseline data
   - Uncontroversial aggregation
   - Environmental indicators

4. Information analysis
   - Further aggregation
   - Uncertainties
   - Presentation of options and impacts

5. Decision
Cases analysed

- The European High Speed Train Network (European Commission)
- Road Program Nordrhein-Westfalen (Germany)
- Revised Lancashire Structure Plan (UK)
- Nation Ten-year Waste management Programme (the Netherlands)
- Provincial 4 years Waste Management programs
- Second structure electricity supply (the Netherlands)
- Sichuan Gas development (Development Aid Projects, China)
- Betuwelijn Cargo Rail Line (the Netherlands)
- Environmental assessment of political program (the Netherlands)
- Cumulative environmental assessment of the Meremere Ecological district (New Zealand)
- Feasibility of underground transportation infrastructure (the Netherlands)

SEA Methods described

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Conclusions and hypotheses about SEA

The consultants present the following conclusions and hypotheses about SEA

With respect to the availability of tools

1. In all studied SEAs suitable tools were available. Despite considerable uncertainties, in all studied SEAs, an answer has been found for the major questions. It seems likely that the availability of SEA methodology represents no obstacles for the performance of SEA of any strategic action.

2. The appropriateness of a specific method depend on the type of strategic action to be assessed (sector, strategic level, environmental issues) and on the information available. It is therefore difficult to give general guidelines on which methods to use.

3. In most of the studied SEAs, several options for the strategic action have been assessed. Most options and their distinctive environmental impacts have been presented to the decision-makers in the SEA report. Some interviewed persons suggest that options should represent the essential choices to be made by the decision makers and that the number of options should be limited to less than 5-10 clearly different options. This is one of the recommendations resulting of the SEA for Underground Infrastructure (par 4.12). Environmental assessment had in most cases a demonstrable influence on the finally selected option. For instance in the cases Road Development Nordrhein-Westfalen, Ten-year Waste Management Program, Structure Scheme Electricity Supply, Sichuan Gas development plan, and Betuwelijn Cargo Rail Line.

4. SEA is an iterative process. The accent is laid on environmental design of the strategic action, more iteration cycles appears to be needed for ensuring a sound communication between environmental and sectoral experts. This would facilitate the development of an environmental awareness of the agency responsible for development of the strategic action.

5. The application of SEA in some cases most probably caused changes in the environmental awareness of the agency responsible for the strategic action. This is difficult to determine however. To the authors’ opinion this is clearly the case for all Dutch examples, where many agencies have eventually incorporated environmental experts in the departments responsible for strategy development.

6. Environmental indicators have in most SEAs been chosen at a high level in effect networks. This has proved workable in most SEAs. The feasibility of working with such environmental indicators depends on the knowledge of what happens in the tail end of the effect networks. Nowadays, more and more knowledge is available about relationship between such indicators and the impact on environmental interests and values. Scientific research is carried out and policy objectives are formulated for environmental indicators. Pressure groups state their point of views. Therefore it seem a matter of time before the importance of environmental indicators can be evaluated directly, and less subjectively, at least in the countries covered by this study.
With respect to the level of abstraction

7. The level of abstraction for impact analysis should be balanced with the strategic level of information analysis, especially if details will be further elaborated in a tiered system of SEA/EIA. A sound definition of the approach for information analysis in an early stage of the SEA preparation seems helpful in order to avoid unnecessary detail in impact analysis. This conclusion is supported at least by the Structure Scheme Electricity Supply. In the authors’ opinion, the causes of the tendency towards unnecessary detail are that the environmental experts are not used to dealing with such a degrees of uncertainty and that the public is too impatient to wait for more detailed impact predictions in later stages of decision-making.

8. Uncertainties in SEA impact prediction often are considerable. Techniques, related to information analysis, are available to describe the consequences of such uncertainties. Even in the presence of uncertainties, SEA will enable to improve the definition of the strategic problem and allow for guidelines to be drawn up for dealing with these uncertainties at the lower level of planning (especially in a tiered system of SEA/EIA). Therefore uncertainties seem to present no serious obstacles for the application of SEA. All studied cases clearly support this argument.

9. It seems advisable to use environmental indicators at a high level in effect networks. These indicators are relatively easy predictable and need less aggregation. The success of this approach varies with the state of environmental knowledge and policy in the country at stake. In countries with elaborated and testable policies, the “tail ends” of effect chains will be thoroughly studied and this will have resulted in clear and testable policy objectives for environmental indicators at high level. This has proved successful at least in all Dutch SEAs and in the Sichuan Gas Development Plan.

With respect to the time needed

The time and cost of SEA preparation seems to depend largely on
- The amount of detail (abstract versus detailed)
- The mode of organisation of the co-operation of agency responsible for the strategic action and the SEA team
- The official competence of involved civil servants for making decisions and choices during the process of SEA preparation

10. It seems clear that a detailed SEA would cost more time than an abstract (global) SEA, but often, no detailed information is needed to take strategic decisions. Less time is needed if testable policy objectives for measurable indicators at high level are already available.

11. Environmental experts responsible for preparation of a SEA may often not be the members of the agency responsible for the strategic action (they could be members of an environmental research institute, another governmental department or a consultant firm). Communication between both parties in these cases
therefore would probably have a rather formal character. Each iteration cycle would involve submission of a draft SEA report and a formal review by the agency. Iteration cycles in these cases therefore cost much time. It seems more efficient to incorporate environmental experts and sectoral experts in one SEA team, allowing optimising of the options for sectoral as well as environmental objectives simultaneously (having many quick, unreported iteration cycles). This has been part of the success of the least the following SEAs: Ten years Waste Management Program, Structure Scheme Electricity supply and Sichuan Gas development Plan.

12. In order to reduce the number of strategic options finally presented to decisions maker for selection, in most cases during SEA preparation a range of decisions had to be made. It seems likely that the time needed for these decisions can be greatly reduced if the sector agency is prepared to take decision when necessary. The involved civil servants should be competent to make these decisions. It would likely take unnecessary time if the sectoral agency would reconsider choices, which have been made earlier phases or iteration cycles.

13. Most studied examples of SEA needed a rather long period of usually more than 6 months for SEA preparations. It is the authors’ believe that this could be reduced to 3-6 months if the following considerations are met:
   - The level of detail for impact analysis should match with the strategic level (rough impact prediction for high-level-strategies)
   - Either national environmental policy should be well developed or the team preparing the SEA should have competence to make interpretations
   - Baseline data should be available on a suitable level of abstraction
   - An inter-disciplinary team of experienced experts should operate efficiently
   - The SEA report should concentrate on main environmental issues (probably less than 10 or even less than 5)
   - The method of information analysis should comprise not more than a small numbers of consultations with a group of competent persons (representing decision makers)
   - The sectoral agency should participate in the project team and be represented by persons who are competent to make minor strategic decisions in order to reduce number of distinctive options finally presented to decision-makers

For one successful case (the SEA for the Nation Ten-year Waste management program of the Netherlands) the period of SEA preparation could be reduced to five months. In that example most of the mentioned conditions have been met. The same period applies for the Lancashire Structure Plan SEA. In most examples however a longer time was needed most probably not all conditions mentioned above had been met.