Strategic Environmental Assessment for Transport Infrastructure Related Policies, Plans and Programmes

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A comparative analysis of North West England, Noord-Holland and Brandenburg-Berlin

A thesis submitted to the University of Manchester for the degree of PhD in the Faculty of Arts

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Abstract

SEA is a decision making tool for ensuring environmental impacts are considered at tiers above the project level, where project environmental impact assessment (EIA) is applied, i.e. at the level of policies, plans and programmes. In the European Union, project EIA is defined by directive 85/337/EEC. Current definitions of SEA range between 'the application of project EIA principles' to 'any assessment of the environmental impacts of a PPP'.

Understanding of how current SEA systems in different EU countries compare has remained poor, as to date there has been no systematic research. This thesis therefore aims to fill this gap in knowledge by systematically comparing SEA practice of transport and spatial/land use PPPs with a transport component (transport infrastructure related PPPs) in three EU countries, applying a regional approach and covering all assessments at all administrative levels in North West England, Noord-Holland and EVR Brandenburg-Berlin. Four research questions are answered, dealing with:

(1)The extent of SEA application and the possibility of classifying SEA types.

(2)Opinions of PPP makers on current SEA and attitudes towards formalised SEA.

(3)The role of SEA in considering sustainability objectives, targets and measures.

(4)The extent to which assessments result in potential SEA benefits.

It is found that SEA practice is more extensive than has frequently been suggested and 80 of 114 authorities preparing transport infrastructure related PPPs in the three regions, undertake an assessment of their environmental impacts. Assessments can be classified into three SEA types, representing different stages within a tiered SEA system. Following previous research, these are called policy-SEA, plan-SEA and programme-SEA. Each of the SEA types fulfils certain tasks. Policy-SEA focuses more on global and cumulative aspects and tends to be less site specific. Environmental and socio-economic impacts are assessed and a wide range of alternatives are considered, including intermodal aspects. Plan-SEA focuses on site specific environmental assessment. Programme-SEA ranks projects, using multi-criteria-analysis and cost-benefit-analysis, considering both environmental and socio-economic aspects.

Opinions on current SEA were somewhat better in Noord-Holland and EVR Brandenburg-Berlin than in North West England. Whilst attitudes of authorities, representing a cross-section of PPPs covering all administrative levels were most positive in Noord-Holland and most negative in EVR Brandenburg-Berlin, at the local level attitudes were most positive in EVR Brandenburg-Berlin and most negative in Noord-Holland. The extent of application of SEA procedural stages and the use of methods and techniques had a positive impact on attitudes and opinions of PPP makers.

On average, SEA led to a significant better consideration only of sustainability measures and only the policy-SEA type was able to obtain significant higher scores on objectives, targets and measures than PPPs not involving SEA. Policy-SEAs was also able to secure commonly perceived potential SEA benefits. The main reason for this is the early application in the planning cycle (providing for a greater opportunity to consider a wider range of impacts and alternatives) and the extensive coverage of procedural stages. Policy-SEA was most frequently applied in Noord-Holland, which is explained by the consensus based planning system in the Netherlands.

Whilst plan-SEA and to some extent programme-SEA for spatial/land use PPPs is most likely to be formally required after the introduction of a 'SEA directive' by the European Commission, there will probably be no requirements to apply policy-SEA. This research, however suggests that a tiered approach to SEA, considering all three SEA types should be applied.

Declaration

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Previous education and professional working experience

I studied Geography at the Freie Universität Berlin from 1986 to 1991. During this time I was enrolled as a post-graduate student during the academic year 1988/1989 at Wilfrid Laurier University in Waterloo, Ontario and during one term in 1990 at the Université Louis Pasteur in Strasbourg. From 1991 to 1994 I worked as a consultant on EIA related projects at GUT Brandenburg in Potsdam. From 1994 to 1996 I worked as a project manager at DEGES in Berlin on the Federal government programme 'Transport Projects of German Unity'. Since January 1999 I have been working as a research associate at the Faculty of the Built Environment, The University of the West of England in Bristol.

Für Agnes

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PART I

Background

Introduction to part I

Part I of the thesis consists of chapters 1 to 3, which include an introduction to the topic, the research methodology and the analytical framework for comparing strategic environmental assessment (SEA) practice in North West England, Noord-Holland and EVR (*engerer Verflechtungsraum* - planning region) Brandenburg-Berlin.

The introduction portrays current understanding of SEA and depicts the potential benefits that should result from SEA application. Furthermore, research aim, questions and objectives are outlined. In the methodology, the choice of the three sample regions is explained and the problems faced when undertaking trans-national comparative research on SEA are portrayed. Context variables for statistical analysis of SEA are established, based on the associated policies, plans and programmes (PPPs). Furthermore, the analytical framework for comparing SEA practice in the three sample regions is designed and the data collection is explained.

1 Introduction

This research aims at undertaking a systematic comparative review of strategic environmental assessment (SEA) for transport infrastructure related policies, plans and programmes (PPPs) in selected European Union (EU) countries with varying SEA experience. It is the first systematic and analytical trans-national comparison of SEA practice in the EU.

Chapter 1 introduces the research and is divided into six main sections. Section 1.1 portrays the background to SEA. This is followed by Section 1.2, which identifies the potential benefits from SEA application, as proposed in the SEA literature. In order to result in the potential benefits, SEA needs to be applied effectively, and section 1.3 therefore identifies aspects for effective SEA application. Section 1.4 explains the choice of transport for research, and the decision to include both transport and spatial/land use PPPs (transport infrastructure related PPPs) in the research is justified. Section 1.5 describes previous SEA research, based on which research problems and needs are determined. Section 1.6 sets out the research aims and objectives and finally section 1.7 outlines the structure of the thesis.

1.1 SEA background

1.1.1 Rationale

SEA is a rapidly emerging area of professional and general interest and practice. It aims at ensuring that environmental aspects are addressed and incorporated at decision making levels prior to, or above, the project level (Elling and Nielsen, 1996, p9), i.e. at strategic decision making levels, which are also frequently referred to in terms of policies, plans and programmes (Sadler and Verheem, 1996b, pp55-57) [1]. SEA helps to improve the quality of decision making by providing PPP makers with the information

[1]Following Elling and Nielsen (1996, p9), a "strategic action is usually understood to mean a situation in which one or more objectives can be achieved in different ways and in which the strategic element consists of optimizing the achievement of objectives by means of the most appropriate action". Following Hughes (1994, p168), a strategy "aims to specify clear goals and objectives; it attempts to move away from routine management tasks to consider, in a *systematic* way, longer-term considerations of the [...] future".

necessary to conduct informed choices, thus reducing the potential harm done to the environment. SEA is usually understood to be an iterative and adaptive process with an opportunity for external control and public involvement (Elling and Nielsen, 1996, p4). The usefulness of SEA has been widely discussed (see, for example, Sadler and Verheem, 1996a; Glasson, 1995b; Wood and Djeddour, 1992) and is reflected in the potential benefits that should result from SEA application. Potential SEA benefits are portrayed in section 1.2.

1.1.2 Origins and definition of SEA

The foundations of SEA were laid in 1969 by the National Environmental Policy Act (NEPA) in the USA. NEPA did not distinguish between policies, plans, programmes and projects, but generally referred to actions, i.e. no distinction was made between strategic and project levels of decision making. Many countries followed NEPA's example and established provisions for environmental assessment, although typically these only aimed at projects and not at PPPs.

When the actual term 'strategic environmental assessment' was coined in 1989 in the UK, an understanding of the concept was derived from that of project based EIA[2]. The principles of SEA and EIA were perceived to be the same (Wood, 1997, p5; Lee and Walsh, 1992, p131; United Nations Economic Commission for Europe - UNECE, 1992, p1). This understanding may be illustrated by the US NEPA based process (see Box 1.1; for a further discussion of project EIA, see Glasson et al., 1995).

Before the start of the assessment process, objectives and goals and possible development alternatives are identified. The SEA-process itself starts with the screening stage which determines the need for assessment. It does so by assessing whether impacts[3] of a PPP are potentially in conflict with previously identified objectives and targets. Screening is followed by scoping, conducted for creating the

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[2] The need for environmental assessment of PPPs, however, was stressed much earlier than 1989, e.g. by Lee and Wood, 1978 and O'Riordan and Sewell in 1981.

[3] Throughout this thesis, no distinction is made between the terms 'impacts' and 'effects', as suggested, for example, by Gilpin (1995, p5), as the two terms are frequently used interchangeably and the borders between them are unclear.

terms of reference for assessment (Lee and Hughes, 1995, p4). Scoping allows key environmental issues that are potentially significantly affected by the PPP to be identified and determines the issues to be addressed in the assessment. The assessment report is prepared in order to provide PPP makers with factual information, and comprises the analysis of environmental impacts and consequences (Sadler, 1996, p159). Review is of importance in order to check the quality and adequacy of the assessment report. Due to uncertainties of predictions it is necessary to monitor the actual effects, which include post-PPP analysis and post-auditing (Dipper et al., 1998). Based on the findings of monitoring, action can be taken to mitigate any significant non-predicted impacts (Marr, 1997, p192). Consultation and participation are considered to be of fundamental importance in the assessment process and their use results in one of the potential benefits of SEA (see section 1.2).

Box 1.1: Components of NEPA based assessment

a) Consideration of possibilities for development, e.g. *alternative means* for achieving objectives and goals (additionally, scenarios may help to address uncertainties).

b) *Designing* development *proposals.*

c) Determining whether an assessment is necessary for a particular proposal (*screening*).

d) Deciding on the topics to be covered in SEA (*scoping*).

e) Preparing an *assessment report* (i.e., *inter alia*, describing (a) the proposal and (b) the environment affected by it, assessing the *magnitude* and *significance* of *impacts*).

f) *Reviewing* the assessment report to check its adequacy.

g) *Deciding* on the proposal, using assessment report and opinions expressed about it.

h) *Monitoring* the impacts of the proposal if it is implemented.

Source: adapted from Wood, 1995, p5

More recently, the range of interpretation of SEA has become much wider and the term is also used for other assessment types apart from those based on project-EIA principles. A current, widely used, definition of SEA was given by Thérivel et al. (1992, pp19-20). They described SEA as a formalised, systematic and comprehensive

process that evaluates environmental impacts of PPPs, considers alternatives, includes a written report on the findings of the evaluation and uses these findings in publicly accountable decision-making. Even though this definition does not contradict more traditional approaches, certain EIA process-based principles are not mentioned (for example, screening, scoping and review). More recent definitions describe SEA in a less stringent manner (e.g. Sadler and Verheem, 1996a, p27) and it has also been proposed that the term SEA be used for any form of assessment of the environmental impacts of PPPs (Steer Davies Gleave, 1996, p24). There are now so many different SEA descriptions and interpretations that it was suggested that the

> "lack of knowledge and standardised terminology, both as regards 'SEA' and 'PPPs', often confuses discussion on the issue" (Environment Australia, 1997, chapter 6).

1.1.3 Recent developments

A number of authors have suggested that SEA might need to develop more independently of project EIA (e.g. Niekerk and Voogd, 1996, para. 3; Sadler and Verheem, 1996a, p22; Thérivel and Partidário, 1996b, p53). Furthermore, in line with the findings of empirical research on PPP processes, the need to apply SEA processes in a flexible manner was recognised (see Koernov, 1999). Thus, it was suggested that PPP making might not follow a hierarchical and logical sequence of predetermined steps (Bregha et al., 1990; O'Riordan, 1986; Wildavsky, 1979), but rather a continuous interaction and negotiation process by different parties (Thissen, 1997, p24; Innes, 1994, p41). Higher tiers of PPP making (i.e. those applied early in the planning cycle) in particular were identified as political activities that need to consider and balance the perceptions and interests of individual actors (Gordon et al, 1993, p7). It was, however, recognised that outcomes of decisions are influenced by the information available to PPP makers (Minogue, 1993, p17) and that factual information can influence decision making (Innes, 1994, p31)[4].

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[4] 'Knowledge' has been portrayed as usually not being unbiased, but to be influenced by *ethical,* i.e. *value based* principles. Ethical principles for decision making were described by Finsterbusch (1989, pp17-24).

Many authors have stressed the desirability for SEA processes to be fully integrated into PPP processes (Sadler and Verheem, 1996a, p80; Institute for European Environmental Policy - IEEP, 1994, p5; Thérivel, 1996, p30)[5]. It was also suggested that SEA

> "is only a temporary instrument and is not necessary when environment is fully integrated in economic planning" (Verheyen 1996, p199).

Even though integrative forms of impact assessment were proposed by various authors, for example adaptive environmental management by Holling (1978) or policy assessment by Boothroyd (1994), to date it has remained unclear what form SEA should take if fully integrated into the PPP process. It has also remained unclear whether the potential SEA benefits could still be achieved. Basic SEA principles are therefore usually still portrayed as being NEPA or EIA process based[6] (European Commission - EC, 1997a, p3; Sadler and Verheem, 1996a, p79, p173; Elling and Nielsen, 1996, p8; Lee and Hughes, 1995, p4; University of Manchester, 1995a; UNECE, 1992).

1.1.4 SEA categorisation

Whilst a number of possibilities for the categorisation of SEA have been proposed, to date research has failed to deliver a clearer understanding of how different SEA categories compare. Subsequently, the different forms of SEA categorisation are portrayed.

A common approach for categorising SEA relates to the sector of application, such as transport and spatial/land use. Sectoral categorisation of SEA is frequently undertaken, for example by Goodland, 1997; Sheate, 1995; Pinfield, 1992; Lee and Wood, 1978. To date, it has largely remained unclear what the differences of SEA application for different sectors are.

Another possibility for categorisation of SEA refers to the level in the planning process of its application, i.e. to policies, plans or programmes (PPPs) (Lee and Wood, 1978). In order to distinguish between PPPs, Wood and Djeddour (1992, p6) suggested that

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[5] The World Commission Report, also stressed the importance of 'integrated decision making' (World Commission on Environment and Development, 1987, p313).

[6] Studies in the Netherlands indicated that structured, EIA-based SEAs can be successfully conducted for waste management, electricity supply programmes and land use plans (van Eck, 1996, p8). Case studies from Germany also concluded that EIA-based SEAs can work for the preparation of land use plans (Riehl and Winkler-Kühlken, 1995; Kleffner and Ried, 1995).

> "a policy may [...] be considered as the inspiration and guidance for action, a plan as a set of co-ordinated and timed objectives for the implementation of the policy, and a programme as a set of projects in a particular area."

Referring to local land use plans in Germany, Hübler et al. (1995) distinguished two main stages in environmental assessment. The first stage deals with different development scenarios and can be regarded as being policy oriented. The second stage deals with concrete land use changes and is therefore project oriented. More recently, the European Commission (1999a) referred to network and corridor SEAs in the transport sector. Whilst the former deals with entire transport networks and is more policy oriented, the latter deals with transport corridors and is more project oriented.

As environmental assessment is first and foremost a procedural instrument, SEA can also be categorised according to procedural aspects. The Institute for European Environment Policy (IEEP, 1994), distinguished 'full' EIA-process based SEA from other SEA types. More recently, Gosling (1999) distinguished four SEA types, depending on the degree to which SEA is integrated into the PPP and the stage in the planning cycle of its application. English Nature (1996) distinguished three SEA types according to their integration into the PPP process, namely 'consent related', 'integrated' and 'objectives-led' SEA. Whereas 'consent related' SEA was said to join the PPP process at one particular point, 'integrated' SEA was said to be fully integrated into the PPP process. 'Objectives-led' SEA was seen as an extension of 'integrated' SEA, defining environmental objectives and goals for the PPP.

Following the perception that SEA should be a supporting tool for PPP making for sustainable development (Lawrence, 1997; Lee and Walsh, 1992; Jacobs and Sadler, 1989), impact coverage has become the basis for SEA categorisation. SEA that only considers aspects of the physical environment can thus be distinguished from SEA that considers environmental and socio-economic aspects. Whereas the former is unsuitable for sustainable development assessment, the latter can potentially be developed to become a tool that supports PPP formulation for sustainable development.

SEA categorisation can lead to a more efficient and effective use of SEA. Thus, SEA 'type' specific application rules could be identified, resulting in clearly outlined SEA tasks. Based on a clear set of criteria, chapter 6 therefore categorises the SEAs found in

the three sample regions into policy-SEA, plan-SEA and programme-SEA, each of which fulfils certain distinguishable tasks.

1.1.5 SEA in the European Union

Even though a number of EC documents have stressed the need to apply SEA (EC, 1993a; EC, 1992; see also the EC Habitats Directive, 92/43/EEC), there are currently no formal requirements at the European Union level for member states to conduct SEA. Mandatory provisions for assessing environmental impacts only refer to the project level and were introduced in 1988 following the 'EIA directive' (85/337/EEC)[7] and subsequently amended (97/11/EC). A proposal for a 'Council Directive on the Assessment of the Effects of Certain Plans and Programmes on the Environment' (subsequently referred to as 'SEA directive', see Feldmann, 1998b) that would formalise SEA in the EU was adopted by the European Commission in 1996 (COM (96)511). After a first reading by the European Parliament, an amended proposal was put forward by the Commission in 1999 (COM(99)073). The introduction of the 'SEA directive' has in the past been delayed by opposition from some EU member states, in particular the UK and Germany (Department of the Environment, Transport and the Regions - DETR, 1998e, p14; Knieps and Stein, 1998, p77; Hey, 1996, p22; Institute for European Environmental Policy - IEEP, 1994, p16). After the election of new national governments in both countries in 1997 and 1998, attitudes appear to have become more positive and it is expected that the SEA directive will be implemented in the near future.

Despite the lack of formal EU wide requirements, informal provisions and guidance for taking environmental aspects into account in PPP making are found in many EU countries, mostly at regional and local levels, particularly for land use plans. According to Lee and Hughes (1995, table 3), by 1995 only Luxembourg and Greece did not have any SEA provisions. This was confirmed by a number of other sources (EC, 1998b; Thérivel and Partidário, 1996a; Wood, 1995; Gilpin, 1995; Thérivel et al., 1992).

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[7] The EIA directive of the European Commission (85/337/EEC) was portrayed as having two mains aims (Pro Terra Team, 1995, p8), namely to:

- avoid environmental impacts and to apply the precautionary principle,
- avoid distortion of competition between EU member states.

Furthermore, SEA research studies have been conducted in many countries. Examples of informal SEA practice in the EU include:

- European Commission: a SEA for the European High Speed Train Network was conducted in 1993 (EC, 1993c). In 1999, the EC was preparing a SEA for the Trans-European-Networks (see also EC, 1998a; European Environment Agency, 1998b). Furthermore, environmental appraisal of regional plans is conducted in the context of the structural funds (Bradley, 1998).
- Denmark: an administrative order identifies requirements for environmental assessments of bills and other government proposals (Ministry of Environment and Energy, 1995a and 1995b).
- Germany: the landscape planning systems covers certain elements of SEA (Wagner, 1990) and a number of voluntary SEAs were conducted for local land use plans (Ministerium für Umwelt, Raumordnung und Landwirtschaft, MURL, 1997; Jacoby, 1996). Since 1975, there have also been provisions for assessing impacts of public measures of the Federation (Grundsätze für die Prüfung der Umweltverträglichkeit öffentlicher Maßnahmen des Bundes). Furthermore, it was suggested that there is SEA experience in the transport sector (Wagner, 1994).
- The Netherlands: an environment test (e-test, *milieutoets*) is applied to certain policy guidance and regulations (de Vries and Tonk, 1997; Ministerie van VROM, 1996b; Verheem, 1992). Furthermore, formal project EIA principles are applied in the Netherlands to certain spatial/land use PPPs following the amended Environment Act of 1994 (Ministerie van VROM, 1994a).
- Sweden: informal SEA is conducted for local land use plans (Bonde, 1998; EC, 1997a, p24). More recently, a major transport corridor SEA was undertaken (Vägverket, 1998).
- France: Since 1990, the French government has attempted to introduce SEA (Falque, 1995) and environmental impacts are to some extent considered in land use planning (Ministère de l'Environnement, 1995). Furthermore, an SEA was conducted for the Rhône transport corridor between Lyon and Marseille (Ministère de l'Equipement, 1992).

- UK: a checklist approach ('policy impact matrix') to 'environmental appraisal' is applied to development plans (Thérivel, 1995; Department of the Environment - DoE, 1993). Furthermore, government policies are appraised, following the guide 'policy appraisal and the environment' (DoE, 1991; Department of the Environment, Transport and the Regions - DETR, 1998c). An evaluation of practice up to 1998 was provided by the DETR (1998g).

All EU countries that have some SEA related experience in the transport sector are identified in section 2.1.1.

1.2 Potential benefits from SEA application

A number of potential benefits that should result from SEA application were suggested by Sheate (1996), Lee and Walsh (1992), Thérivel et al. (1992), UNECE (1992) and Wood and Djeddour (1992). These can be described by five main themes which are summarised in Box 1.2 and discussed below. The potential benefits are used for evaluating SEA practice in the three sample regions (see chapter 9).

Box 1.2: Potential benefits from SEA application

(1)Wider consideration of impacts and alternatives.

(2)Pro-active assessment - SEA as a supporting tool for PPP formulation for sustainable development.

(3)Strengthening project EIA - increasing efficiency of tiered decision making.

(4) Systematic and effective consideration of the environment at higher tiers of decision making.

(5) Consultation and participation on SEA related issues.

1.2.1 Benefit 1: Wider consideration of impacts and alternatives

The first potential SEA benefit results from the consideration of a wider range of impacts and alternatives than usually done in project EIA. For transport related assessment, Eriksson (1994, p1) suggested that

> "the strategic approach to environmental assessment is necessary for considering e.g. impacts on the global environment and including intermodal aspects in the development of efficient transport."

Impacts to be considered include indirect and induced impacts (resulting from stimulation of other developments), synergistic impacts (where impacts of several projects may exceed the sum of individual impacts), long range, delayed and global impacts (e.g. greenhouse gas emissions). The SEA scope should therefore be commensurate with the scope of the PPP (Sadler and Verheem, 1996a, p79). General cumulative impacts should also be considered[8] (Sadler and Verheem, 1996a, p32).

The use of SEA allows for the consideration of alternatives that are often not considered at the project level (e.g. alternative sites and modes). The development and comparison of alternative PPPs,

> "allow the decision-maker to determine which PPP is the best option: which achieves the objective(s) at the lowest cost or greatest benefit to the environment or sustainability, or which achieves the best balance between contradictory objectives" (Thérivel, 1996, p33).

An evaluation of the potential impacts of different alternatives, based on clear policy objectives and targets allows the impact significance to be determined. Furthermore, a wider consideration of impacts and alternatives also includes the use of scenarios, allowing ranges of uncertainty to be identified. Finally, SEA is able to widen the range of impacts and alternatives by dealing with small scale projects or non-project actions, for which no project EIAs are conducted (Lee and Walsh, 1992, p129).

1.2.2 Benefit 2: Pro-active assessment - SEA as a supporting tool for PPP formulation for sustainable development[9]

The second potential SEA benefit results from its application as a pro-active tool in PPP making that, in line with demands of the precautionary principle, addresses the causes of environmental impacts rather than simply treating the symptoms of

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[8] Burris and Canter (1997) suggested that up to date, assessments usually do not properly assess cumulative impacts.

[9] Sustainable development is a philosophical concept and open to interpretation. In the context of this dissertation, the different interpretations of the concept are not further discussed. The meaning of sustainable development has been widely discussed, for example by the EC, 1997b; Franks, 1996; Goodland, 1995; Dalal-Clayton et al, 1994; Ekins, 1992; Daly, 1991, Daly and Cobb, 1990. Sustainable development was made known to a broader audience, particularly through the 'World Conservation Strategy' and 'Caring for Earth - a Strategy for Sustainable Living' of the International Union for Conservation of Nature and Natural Resources (IUCN) et al (1980 and 1991). Furthermore, the 'World Commission Report' (World Commission on Environment and Development, 1987) was an important document that helped to raise awareness of sustainable development world-wide.

environmental deterioration (Sadler and Verheem, 1996b, p55). SEA may thus enhance the credibility and acceptability of decisions (Goodland and Tillman, 1995, chapter 3.0) and structure and shape PPP processes (Abaza, 1996, p218; Riehl and Winkler-Kühlken, 1995, p3). Being pro-active, SEA should start as early in the PPP process as possible (Thérivel, 1996, p183) and accompany the whole PPP process. Being able to potentially meet certain procedural requirements, SEA is now widely considered an appropriate tool for supporting PPP formulation for sustainable development (Ministry of Environment and Energy, 1995b, p3; Mikesell, 1994; Lee and Walsh, 1992, p128; Rees, 1988, p273). The European Commission (1996a, p88) suggested that:

> "Environmental Impact Assessments (EIAs) [comprising project EIA and SEA of PPPs] are a key instrument in the implementation of the Fifth Action Programme[10] at both EU and member state level"

In order to support PPP formulation for sustainable development, SEA needs to be pro-active and consider economic, environmental and social aspects (Gardner, 1989, 41)[11]. In this context, Lawrence (1997, p23) stated that sustainability can give EIA (and SEA) a clear sense of direction, provided that it is defined sufficiently, i.e. aims and objectives are clear (EC, 1997a, Box 12). Clear sustainability objectives and terms of reference are important in order to ensure

> "that the PPP achieves those objectives, to test whether the PPP's objectives are in line with those of higher-level PPPs, or to implement the PPP effectively" (Thérivel, 1996, p31)

There are substantive and procedural requirements of PPP formulation for sustainable development. Substantive requirements include the consideration of environmental and socio-economic aspects. Procedural requirements can be met by a NEPA (i.e. project-EIA) based process (Box 1.1). SEA in support of sustainable development should be fully integrated into the PPP process and objectives-led (English Nature,1992; Sheate, 1992). Figure 1.1 shows the integration of SEA into a simplified PPP process in support of sustainable development.

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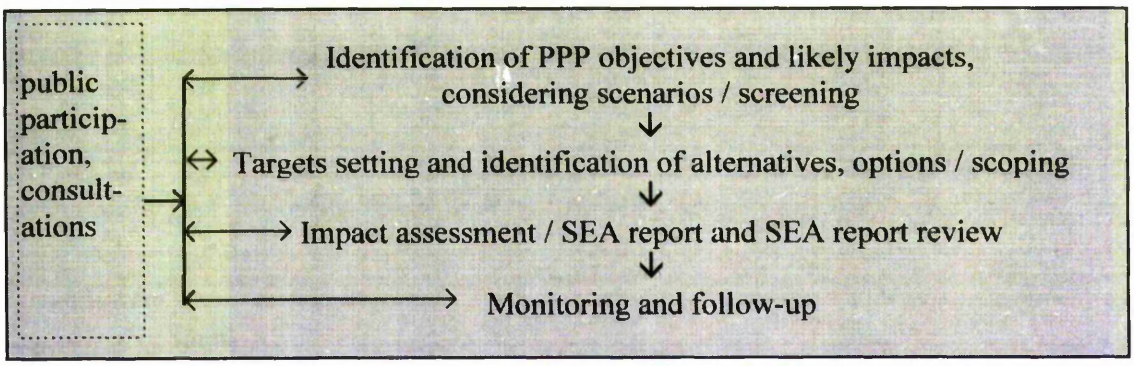
[10] The Fifth Environmental Action Programme (EC, 1993a) is the sustainable development strategy of the European Commission.

[11] On the need, the feasibility and applicability of the integration of economic, environmental and social aspects see University of Manchester (1998), Canadian Environment Assessment Agency (1995), Sadler and Jacobs (1989), Jakimchuk (1989), McNeely (1989); Cornford et al. (1985).

Figure 1.1: Integrated PPP/SEA procedure in support of sustainable development



1.2.3 Benefit 3: Strengthening project EIA - increasing efficiency of tiered decision making

The third potential benefit of SEA results from the strengthening of project EIA. SEA is needed, as project EIA currently starts too late within a tiered decision making system to consider the full range of alternatives and impacts. SEA can increase efficiency of tiered decision making by shortening and simplifying, or even making project EIAs redundant altogether (European Conference of Ministers of Transport - ECMT, 1998, p16). In this context

> "it is essential to recognise that a tiered approach to [environmental assessment] requires the assessment at a particular decision making level to address only those matters and at that level of detail which are appropriate to it." (Sheate, 1992, p178)

This can lead to an acceleration of subsequent projects, and to time and cost savings (EC, 1997a, p33; Commissie voor de Mer, 1996, p31; Bass and Herson, 1993, p47)[12]. Streamlining of SEA/EIA processes therefore means addressing the issues appropriate to the decision making level. Whilst strategic choices for considering alternatives are numerous at higher (more policy oriented) tiers of decision making, they are small at lower (more project oriented) tiers. Operational choices, on the other hand, are numerous at lower tiers and small at higher tiers (Niekerk and Arts, 1996, p7). Streamlining SEA/EIA also means that SEA should propose mitigation for reducing

[12] The possibility to vertically integrate PPPs with the project level was said to depend on the type of PPP. Thus, it is easiest when dealing with PPPs that initiate or fix projects (Sadler, 1996, p155).

residual impacts of a PPP after alternatives have been assessed and a decision for a best option/alternative has been made. If significant impacts cannot be mitigated, compensation should be outlined.

1.2.4 Benefit 4: Systematic and effective consideration of the environment at higher tiers of decision making

The fourth potential benefit of SEA is the systematic consideration of the environment at policy, plan and programme levels of decision making. Wood (1995, p74) suggested that

> "it is important, in the interests of certainty, that the specified system is adhered to, and that accepted procedures are not changed arbitrarily"

Clear provisions and requirements (i.e. policy, law, regulations and guidelines) lead to environmental considerations being built consistently into all levels of decision making (Environment Australia, 1997, chapter 6) and bring certainty into SEA systems (Partidário, 1996, p52). They show commitment towards SEA and are needed in order to apply SEA effectively (Sadler, 1996, p165). In this context, it was suggested that if SEA is well founded and based on the application of clear SEA principles, the greater appears to be the likelihood of its relevance to decision making (Sadler, 1996, p156).

In the interest of a systematic consideration of the environment, it was suggested that initiating agencies need to be made accountable, possibly through external mechanisms (Partidário, 1996, p51; Sadler and Verheem, 1996a, p76) which can increase the credibility of decision making. A review of the SEA report (possibly external) is needed in order to check the adequacy of information collected during the SEA process and to identify uncertainties and contradictions, leading to enhanced accountability and enforceability. Where provisions for independent quality review are in place, they are

> "generally regarded as adding significantly to the level of quality, objectivity, and influence of the SEA process" (Sadler, 1996, p160)

SEA report review can be conducted by various bodies, including independent external bodies with appropriate expertise, environment authorities, the public and expert committees. PPP makers should provide a record of the decision making process which should include a statement on how a decision was reached and a description of how SEA results were used (UNECE, 1992, p8).

1.2.5 Benefit 5: Consultation and participation on SEA related issues

The fifth potential benefit results from consultation and public participation on SEA related issues[13]. The public, NGOs and other institutions should be consulted as early as possible, in order to identify possible problems at the beginning of the planning process. Delays of actions due to public opposition may thus be prevented (Sheate, 1994). Public reaction towards a PPP depends largely on the possibility to clearly locate impacts. Thus, if impacts can be clearly located, public opposition is often strong. If, however, a clear location of the impacts is not possible, public opposition is usually weak. This has been described as the NIMBY (Not In My Backyard)-phenomenon (Voogd, 1996; see also Popper, 1981).

Public involvement has been described as the 'litmus test' of the utility and effectiveness of SEA which can lead to increased public acceptance of PPPs (Sadler, 1994, p11; Wood, 1995, p73). Sadler (1996, p153) stated that

> "public involvement brings valuable information into the SEA and increases the credibility of the plan finally accepted"

Consultation and public involvement should take place at several stages in the planning process, at least at the initiation and the review stage of SEA.

SEA application should result in the previously described SEA benefits. In order to decide whether this is in fact happening, criteria need to be defined that are able to describe these benefits. SEA principles that can be used to describe potential SEA benefits have been introduced in the SEA literature. They are introduced in section 2.4.4.

1.3 SEA effectiveness

The term 'effectiveness' describes whether something works as intended and meets the purpose for which it is designed (Sadler, 1995, p6). To date, experience with evaluating effectiveness has been limited to project EIA (Commissie voor de Mer, 1996; EC, 1994a; Lee and Colley, 1992). SEA effectiveness, or performance, may be described in terms of substantive issues, i.e. by its ability to help achieve established objectives. This

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[13] The important role of public involvement in decision making was stressed by many authors, in a SEA and EIA specific as well as in a general way, in particular in communicative planning theory (see, for example Finsterbusch, 1989; Habermas, 1979).

is done in chapters 8 and 9 of this thesis, which examine the role of SEA in considering sustainability aspects and identify the extent to which current assessments result in the potential SEA benefits. Effectiveness may also be described in procedural terms, i.e. by the choice of 'fit for purpose' processes (Sadler, 1996, p165) and by the ability to meet certain procedural provisions[14] and principles (Sadler and Verheem, 1996a, p19). Chapter 6 of this thesis determines the extent to which SEA procedural stages are covered (identified in section 3.1.1). It was suggested that clear provisions and requirements are needed (Sadler, 1996, p39) in order to ensure a high SEA effectiveness. An effective environmental assessment process requires an approach that considers environmental aspects at all tiers of decision making (EC, 1997a, p28).

A high degree of organisational support and positive attitudes towards SEA are important building blocks for an effective SEA system. In this context, Elling (1998, p14) suggested that fundamentally, constraints for SEA are not legal, but political. Competent practitioners and a supportive political culture (Sadler, 1996, p39) determine abilities to deliver substantive effectiveness (ability to help achieve established objectives) and procedural effectiveness (ability to meet procedural provisions and principles) at least cost in the minimum time possible. SEA cannot be expected to work effectively if PPP makers resist or circumvent it (Sadler, 1996, p41). An underlying assumption is that attitudes of PPP makers towards SEA are more positive if its application is thought to be beneficial. Opinions of PPP makers on the quality and influence of current SEA as well as attitudes towards formalised SEA are therefore identified in chapter 7 of this thesis.

Finally, appropriate methodologies are a precondition for effective SEA (Sadler and Verheem, 1996a, p117) and the extent to which methods and techniques are currently used in SEA reports is determined in chapter 6. 'Costs' and 'benefits' might be used to describe effectiveness (Wood, 1995, chapter 18), i.e. high costs and long SEA preparation times should be associated with high benefits (Sadler, 1996, p39). SEA preparation times are identified in chapter 6.

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[14] Even though the widespread practice of evaluating EIA/SEA effectiveness in procedural terms has been criticised (Swensen, 1997), the importance of decision making procedures for successful policy making has been stressed by social science. Thus, interactive models that underline the role of processes are said to reflect actual decision making better than more substantive related, scientific models that do not allow for flexibility (Innes, 1994, p35).

1.4 Choice of research sector

This section justifies the choice of transport for research. In this context, transport growth in the European Union and associated environmental problems are highlighted. Furthermore, factors responsible for transport growth are presented. Finally, the need to examine transport as well as spatial/land use PPPs in this research is explained.

1.4.1 Transport growth in the European Union

For a number of decades, transport related use of resources and pollution has continued to grow rapidly throughout the European Union as a consequence of a general growth in transport volumes. Between 1970 and 1990, the average annual growth rate of passenger transport (measured in passenger kilometres) in the European Union was 3.1% (a total growth of more than 85%). Average annual growth rates of goods transport were 2.3% during the same period. Between 1970 and 1990, in the EU, private car use and air transport grew faster than potentially more 'environmentally friendly' modes, such as rail and waterway transport. Car kilometres as a share of total passenger transport rose from 76.1% to 79.0% and doubled in absolute terms. Goods-kilometres by road also more than doubled in absolute terms. Air transport almost quadrupled between 1970 and 1990, and its share of total passenger transport rose from 2.2% to 5.6% (EC, 1993b, pp6-8).

1.4.2 Environmental problems associated with transport growth

According to the European Commission (EC, 1993b, p10), atmospheric pollution from road transport increased between 1970 and 1990 for a number of emissions, such as carbon dioxide (CO_2) +76%, nitrous oxide (NOx) +68%, particulates +106% and hydrocarbon emissions (HC) +41%. Road transport energy consumption in the EU increased by 103% between 1970 and 1990, an average of 3.8% per annum. Air transport energy consumption increased by about 93%, an average of 3.6% per annum (EC, 1993b, p9).

Noise pollution has been demonstrated a serious transport problem in the EU (European Environment Agency, 1998a and 1995)[15]. 10% to 20% of the inhabitants in Western Europe suffer from an exceedance of maximum acceptable noise levels of 65 dB(A) (Organisation of Economic Co-operation and Development, OECD, 1991). In the Netherlands, it is estimated that road transport contributes to almost 90% of total noise nuisances. In Germany, 60% and 25% of the population, respectively, considers itself to be disturbed and seriously disturbed by road noise (Whitelegg, 1993, p73).

Emissions of CO_2, the most important man-made greenhouse gas (Intergovernmental Panel on Climate Change - IPCC, 1992, 1990) are directly related to energy use and therefore to transport volumes. Transport contributed to 25.5% of all CO_2 emissions in 1990 (EC, 1991, annex 3)[16] in the EU and the European Commission (1996a, p32) stated that

> "the expected substantial growth in CO_2 emissions [in the transport sector] will undermine the EU's CO_2 strategy more than any other sector."

Transport related CO_2 emissions are predicted to grow and exceed CO_2 emissions forecasts in other sectors (EC, 1996a, p26).[17] Transport is therefore portrayed as the biggest unresolved problem of regional and local CO_2 reduction policies (Enquête-Kommission, 1994a, p321; see also International Energy Agency, 1993).

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[15] For comprehensive reviews on impacts of transport on the environment see:

- On general transport impacts: Royal Commission on Environmental Pollution (1997; 1995), Transport Research Laboratory (1995), European Environment Agency (1995), Organisation of Economic Co-operation and Development - OECD (1995a), Enquête-Kommission (1994a; 1994b; 1994c), Koch (1989).
- On road transport: Whitelegg (1993).
- On road and rail transport: Test (1991).
- On rail transport: Carpenter (1994).
- On air transport: World Wide Fund for Nature - WWF (1991).

[16] This figure only takes fuel related emissions of motor vehicles into account. Teufel et al. (1995, p9) estimate emissions coming from the whole life cycle of a motor vehicle. Taking the example of Germany, they state that road transport alone would account for as much as 31.6% of all CO_2 emissions if the whole life cycle of a motor vehicle was considered. The official figure of 18.1% only considers emissions from vehicle use.

[17] In a 'business as usual' scenario, an increase of energy consumption and CO_2 output by the transport sector by 24.6% between 1990 and 2000 was predicted (EC, 1993b, p10).

The use of catalytic converters will lead to future reductions of total NOx, HC and CO emissions in absolute terms in the European Union. However, in certain regions (e.g. city areas), severe air problems in connection with these pollutants will persist, due to increasing transport. For this reason, ozone and CO_2 emissions will continue to be a particular problem (EC, 1996b, p26).

1.4.3 Reasons for transport growth

The main factor responsible for increasing energy consumption and pollution has been a general increase in distances travelled.[18] Whilst average journey times have stayed approximately constant during recent decades for daily passenger transport, distances travelled have increased substantially. Petersen and Schallaböck (1995, pp67-68) showed that the time used for transport activities and the number of trips per day had hardly changed for 'generations', at 1 hour and 3 trips per day, respectively. Distances travelled, however, increased from 2km 30 - 40 years ago, to 10 - 15km in the 1990s. These effects are closely related to changing infrastructure patterns, sub-urbanisation and urban sprawl, which have led to a further increase in transport demand (Enquête-Kommission, 1994c; Kenworthy and Newman, 1989). Transport has also increased substantially due to economic growth and changing market habits (Hanna and Mogridge, 1992) and geographical concentration for certain activities (Böge, 1993). In addition, new infrastructure may be the cause for induced traffic (Goodwin and Parkhurst, 1996, p1), i.e. traffic that is generated in addition to existing traffic.

1.4.4 The need to consider transport and spatial/land use PPPs

Transport as well as spatial/land use PPPs, potentially have an impact on transport generation and ultimately on transport volumes. Both PPP types are closely related to each other and the need for their integration has been repeatedly stressed (EC, 1997b,

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[18]Technical improvements in vehicle design leading to lower energy consumption and lower CO_2 emissions have so far been offset by the production of more, bigger and heavier motor vehicles. In the case of Germany, average fuel consumption per car has remained at about 10litres per 100km since the 1960s, whereas the number of cars has more than doubled (Spiegel Spezial, 1995). In the UK, average fuel consumption has only decreased slightly from about 10 litres per 100 km to about 9 litres per 100 km (Royal Commission on Environmental Pollution, 1995, p135).

objectives 7 and 10; DoE, 1994; Royal Commission of Environmental Pollution, 1995, paragraph 9.1). It was suggested that integrating land use planning and transport was a key mechanism for achieving environmental objectives (DETR, 1998b; 1997b). Furthermore, the co-ordination between PPPs of both sectors was said to be of importance in order to minimise any unnecessary increase in travel and transport use"[19] (EC, 1993b, p17; see also Enquête-Kommission, 1994a, pp282-284). It was therefore decided to examine both transport and spatial/land use PPPs in this research[20]. Subsequent chapters generally refer to these PPPs as belonging to the transport sector and the spatial/land use sector.

1.5 SEA research

1.5.1 Previous SEA research

In order to advance general SEA theory, there is a need to review SEA case studies (see e.g. Canter, 1996, p94; EC, 1994a, pp18-19). To date, however, there has been little systematic comparative research on SEA on an international scale to provide a sufficient basis on which to determine overall good SEA practice. Consequently, understanding of how SEAs from different systems compare has remained poor. Those studies that have attempted to compare SEA practice from different systems and countries relied on a limited number of case studies and applied only a few evaluation criteria (Partidário, 1997; EC, 1997a; EC, 1996c). More recently, a comprehensive package to review the quality of SEA reports for land use plans from two countries was developed and applied to SEA of local land use PPPs in the UK and Sweden (Lee et al., 1999; Bonde, 1998).

Some systematic research on SEA was conducted in the context of distinct national SEA systems, and typically these included SEA for spatial/land use PPPs[21]. In a UK

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[19] The '10 recommendations of Monte Pellegrino' of the OECD ministers of transport (OECD, 1995b) included the recommendation that "strategic environmental [...] assesment, for both national land use planning and transport management, should be co-ordinated as much as possible "

[20] Chapter 8 will show that local land use PPPs indeed consider transport specific targets to quite a large extent.

[21] Systematic comparative research on project EIA has been more widespread, for example:

- For EIA quality: Marr (1997); Glasson et al. (1996); Lee et al. (1994); Lee and Dancey (1993).
- For other aspects of EIA application: Papoulias and Nelson (1996); Wood (1995), Cupei (1994); Tarling (1991).

context, systematic research on environmental appraisal practice was conducted by Curran et al. (1998), Counsell (1998), Marsh (1997) and Thérivel (1995).

Non-systematic international comparative research on SEA has been more frequent. However, only a limited number of case studies have been mentioned or discussed in the literature, some of which have been reviewed on a number of occasions (EC, 1999a; ECMT, 1998; EC, 1997a; EC, 1996c; Steer Davies Gleave, 1996; Thérivel and Partidário, 1996a; Sadler and Verheem, 1996a; EC, 1994b; OECD, 1994). In addition, it has usually remained unclear why certain cases were chosen, i.e. what criteria were used for selection. Workshops and conferences have been of particular importance for an exchange of international SEA experience (International Association for Impact Assessment - IAIA, 1999; Kleinschmidt and Wagner, 1998; EC, 1998b; DETR, 1998e; IAIA, 1998; MURL, 1997; North Atlantic Treaty Organisation - NATO, 1997; IAIA, 1997; NATO, 1996; IAIA, 1996).

1.5.2 Research needs

In order to obtain a better knowledge of the extent to which SEA is currently applied and to establish a better understanding of how assessments of different SEA systems compare, there is a need for systematic trans-national SEA research. Subsequently, SEA research needs are identified, following in parts Kleinschmidt and Wagner (1998), Sadler and Verheem (1996a) and the EC (1994a).

The extent of SEA application in the EU remains unknown and it was suggested that there are only about 50 to 200 reported SEAs in the European Union (EC, 1994b). It was also suggested that

> "extensive investigations, utilising computerised literature and Internet searches as well as professional person to person contacts, highlighted a disparity between the perception that the practice of SEA is widespread and evidence to support this assertion" (Steer Davies Gleeve, 1996, p23)

Even though there are possibilities for categorising SEA (see section 1.1.4), differences between categories have not been determined. Whereas the need to identify good SEA practice was widely stressed, in practice, this has not been achieved. The main reason has been a general lack of international research as well as a lack of development of common evaluation criteria that would make a comparison possible.

The need for a supportive political and administrative culture for effectively conducting SEA has been repeatedly stressed. Whilst attitudes of national governments in EU member states towards SEA are known to some extent through the negotiation process for the EC 'SEA directive' (section 1.1.5), opinions and attitudes of regional and local PPP makers have largely remained unidentified.

In order to obtain a clearer picture of current SEA practice, systematic research that includes different countries and regions is required. As most SEA application in the EU is currently informal, this research needs to include any assessment of the environmental impacts of a PPP. To categorise SEA and to identify different SEA types, clear comparative criteria need to be designed. An analysis of whether current SEA application results in potential benefits and the identification of differences and similarities of different SEA types and categories can potentially help PPP makers to make informed SEA choices. Finally, an examination of the extent to which sustainability aspects are considered in PPPs that involve SEA preparation and PPPs that do not, can help to understand the current role of SEA.

1.6 Research aim, questions and objectives

This research is based on one main research aim, presented in Box 1.3:

Box 1.3: Research aim

To undertake a systematic comparative analysis of SEA for transport infrastructure related PPPs in three EU countries; to explain the observed patterns and to suggest improvements to SEA practice.

Following the research needs laid out in section 1.5.2, four main SEA research questions are formulated. These are presented in Box 1.4.

Box 1.4: Research questions

(1) What is the extent of SEA application, and is it possible to classify SEA types based on current practice?

(2) What are PPP makers' opinions on current SEA, and attitudes towards formalised SEA?

(3) What is the role of SEA in considering sustainability objectives, targets and measures?

(4) To what extent do assessments result in the five potential SEA benefits?

In order to meet the research aim and to answer the research questions, six objectives are formulated, presented in Box 1.5. In order to achieve the objectives, an analytical framework needs to be developed . This is further explained in chapters 2 and 3.

Box 1.5: Research objectives

(1)To establish the context of SEA application and to systematically identify and describe transport infrastructure related PPPs in three EU regions.

(2)To identify SEA application and to classify SEA types, based on sectoral and procedural characteristics, the level of their application in the planning cycle, impact coverage and other methodological characteristics.

(3)To identify opinions of PPP makers about current SEA practice and their attitudes towards the application of formalised SEA.

(4)To identify whether SEA application leads to a better consideration of sustainability objectives, targets and measures.

(5)To determine the extent to which SEA results in the potential SEA benefits.

(6)To summarise and interpret SEA research results.

1.7 Structure of thesis

The thesis is organised in four main parts. Part I provides the background, and consists of three chapters, this introduction, the research methodology and the analytical framework for comparing SEA practice. The introduction provides the theoretical

background to SEA and explains why transport was chosen for research. The methodology chapter presents the problems faced when undertaking comparative research on SEA. Furthermore, SEA context criteria are identified and data collection and survey methods are explained. The analytical framework, developed for comparing SEA application, indicates the comparative criteria used in the analysis for meeting research objectives (2) to (6).

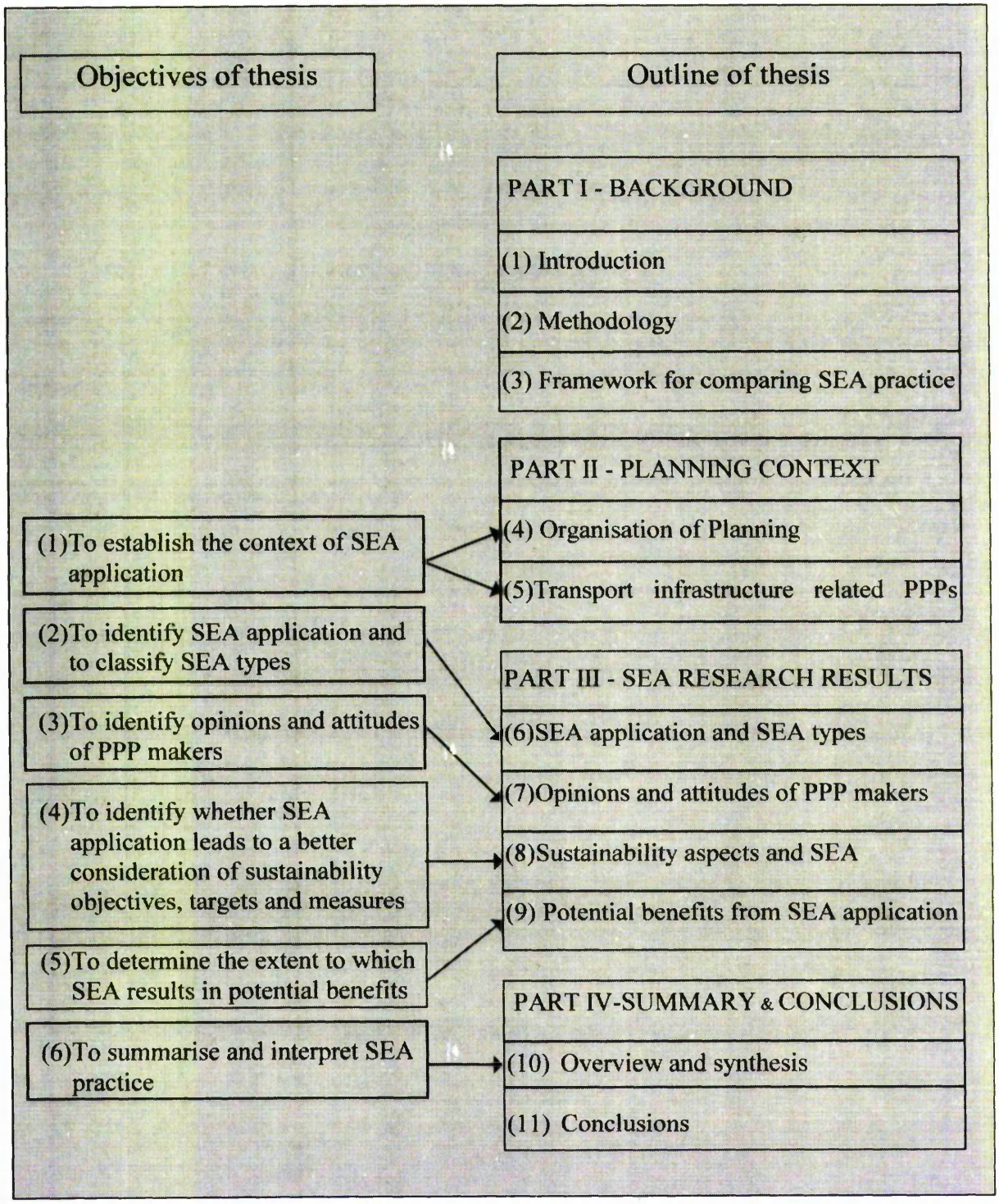
Part II consists of two chapters that establish the planning context in the three sample regions and identify and portray transport infrastructure related PPPs to be used in further analysis. A set of context 'variables' is derived, used for explaining similarities and differences in SEA practice.

Part III consists of four chapters, presenting the results of the analytical research. The extent of SEA application is established and SEA types are identified. Procedural characteristics, impact coverage and other methodological issues (methods and techniques) are explained in further detail. Opinions and attitudes of PPP makers on current SEA and towards formalised SEA are presented. The consideration of sustainability aspects in transport infrastructure related PPPs and the role of SEA are analysed. Finally, the extent to which current assessment practice results in the potential SEA benefits is determined.

Part IV consists of two chapters. An overview and synthesis of the results are provided. Conclusions are drawn and suggestions are made for improving current practice.

Figure 1.2 depicts the research objectives and relates them to the outline of this thesis.

Figure 1.2: Objectives and outline of thesis



2 Methodology

Chapter 2 sets out the research methodology. Section 2.1 describes the choice of the sample regions. All EU countries that would have been suitable for research are identified and the three sample regions are portrayed. This is followed by section 2.2, identifying the problems of trans-national research on SEA. Section 2.3 explains how the context for SEA application was established and section 2.4 presents the design of the analytical framework for comparing SEA practice in the three sample regions. This is followed by section 2.5, explaining the data collection, presenting the response rates and describing data evaluation.

2.1 Choice of sample regions

This section firstly identifies those EU countries that would have been suitable for research on SEA for transport infrastructure related PPPs. Secondly, the three sample regions finally included in the research are described.

2.1.1 Identification of suitable countries for research

The original intention was to examine national transport PPPs in all EU member states. Initial contacts were made with national transport ministries and experts from all EU member states (March to June 1996).[1] From this exercise, it was concluded that SEA experience at the national level was only limited. Furthermore, it became clear that there might only be limited access to documentation and data[2]. It was therefore decided to limit the number of countries and to consider all administrative levels of decision making.

Lee and Hughes (1995, Table 3) stated that informal SEAs were conducted in most EU member states for land use plans. Judging from case study reviews, SEA practice for

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[1] Names and addresses were found in EIA Centre Leaflet 1 (University of Manchester, 1995b).

[2] An example of limited access to data was given by e.g. the national Roads Programme in the UK (DoT, 1994) for which environmental appraisals of all proposed schemes were carried out internally. In 1997, it was not possible to externally gain access to the results. More recently, the appraisal framework for the schemes included was made public (Price, 1998).

transport PPPs (any kind of written transport document at a tier prior to the project approval stage) appeared to be more limited.

In order to identify suitable countries for research, experts and authorities were contacted and existing documents were examined. The following questions were asked:

(1) Is there a national transport PPP?

(2) Are there any regional transport PPPs?

(3) Are environmental impacts for transport PPPs assessed or considered?

(4) Is formal SEA carried out for transport PPPs?

Table 2.1 summarises the results and lists the main sources of information. Respondents did not always answer all four questions - some simply replied that there was no SEA experience at all for transport PPPs. Countries with some experience of formal or informal SEA for transport infrastructure PPPs in the EU in 1996 therefore included Austria, Denmark, Finland, France, Germany, the Netherlands, Portugal, Sweden and the UK.

Only some of the above listed countries were suitable for inclusion in this research. For example, although Portugal and Finland had some experience with SEA application in the transport sector, this was limited in comparison to other EU member states. In Austria, there were plans to improve the consideration of the environment in transport PPPs, particularly in regard to the national transport plan. Practice, however, was still rather limited. SEA experience in the transport sector in France appeared to be very much 'big project' related (Ministère de l'Équipement, du Logement et des Transport, 1992) and SEA practice in the transport sector was not widespread. Five countries remained that appeared to be best suited for research, namely Denmark, Germany, Sweden, the Netherlands and the UK.

Williams (1986, p329) suggested to restrict comparative studies to no more than two or three study areas. It was therefore decided to only include three countries, namely the UK, the Netherlands and Germany. This choice was partly governed by the author having a good knowledge of the three national languages. Another reason for the choice was the existence of SEA practice in transport (described above) and spatial/land use planning in the three sample regions (see section 1.1.5).

Table 2.1: SEA for transport PPPs in EU member states[3]

Country	Existence of SEA for transport PPPs	Main sources of information (+ date when obtained)
Austria	A future national infrastructure plan will include SEA elements; some experience with environmental evaluation exists at lower administrative levels	Ernst Lung, Federal Ministry of Transport (31/07/96); transport ministries of all Austrian *Länder* had also been contacted
Belgium	There is no experience with SEA for regional transport plans and no national transport plan is prepared	Mr. Wouters, Brussels Regional Administration (10/10/96)
Denmark	SEA for the national transport plan was conducted; there is also some experience at lower administrative levels of decision making	Kasper Ovesen, National Ministry of Transport (31/07/96)
Finland	The SEA for the 'Nordic Triangle' was Finland's first SEA. The national transport plan also considers environmental aspects	EC, 1997a, p19; Mr. Veli, VTT (05/02/97)
France	There is no SEA experience with transport plans and programmes, but some environmental evaluations were undertaken for regional road plans. It is intended to prepare a national transport plan	Philippe Lequenne, EIA Centre Angers (29/05/96)
Germany	An environmental evaluation for the national infrastructure plan is conducted; furthermore, environmental evaluations are undertaken for *Länder*, regional and local transport plans.	Transport ministries of all German *Länder* were contacted; further information was obtained at a conference 'SEA and transport systems' in Hamm (UVP-Zentrum, 1996)
Greece	There is no SEA experience in Greece in any transport related fields	Maria Psaltaki, EIA Centre Athens (18/06/96)
Ireland	There is no SEA experience with transport PPPs in Ireland	Sarah MacCann, EIA Centre Dublin (27/06/96)
Italy	There is no SEA experience with transport PPPs in Italy	Paolo Schmidt di Friedberg, EIA Centre Milan (19/06/96)
The Netherlands	Environmental evaluations for the national transport plan and most other transport plans at the regional and local level have been conducted	Rob Verheem; EIA Commission Utrecht (19/09/96)
Portugal	There is no experience with formal SEA for transport PPPs in Portugal; however, environmental aspects are considered in transport planning to some extent	Paulo Pinho, University of Porto (29/05/96)
Spain	There is no experience with SEA of transport PPPs in Spain	Santiago Gonzalez Alonso, University of Madrid (21/06/96)
Sweden	Environmental evaluation is conducted for the national transport plan and other transport plans at lower administrative levels of decision making	Staffan Widlert, SIKA (27/07/96)
UK	There are plans for a future national integrated transport plan that will consider environmental impacts; there is also environmental evaluation of transport policies and programmes (TPPs)	Riki Thérivel, Oxford Brookes University (24/06/96)

Countries with some SEA related experience in the transport sector

[3] there was no reply from Luxembourg.

2.1.2 Identification of the three sample regions

It was decided that sample regions should be administrative regions around metropolitan areas (or 'city regions') with at least one million inhabitants. Furthermore, sample regions should only have one regional level of decision making[4].

In the Netherlands, only the region around the Regional Body of Amsterdam (ROA, *Regionaal Orgaan Amsterdam*), namely the *provincie* (province) of Noord-Holland met the selection criteria. Noord-Holland is part of the Randstad, which has a voluntary planning body (RoRo: *Randstad Overleg Ruimtelijke Ordening*) of four *provincies*, namely Noord and Zuid Holland, Utrecht and Flevoland.

In Germany, it was decided to include a region from the 'new' Länder (former East Germany). The main reason was planning horizons for local land use plans (*FNPs*), which on average are between 15 and 20 years. Furthermore, once established, land use plans tend to be 'adjusted' rather than re-drafted. Therefore, whereas in former West Germany, land use plans often date back to the 1970s, regions in former East Germany generally have more recently prepared land use plans. Only one region met the selection criteria, namely the planning region of Brandenburg-Berlin (EVR, *engerer Verflechtungsraum*), a recently established planning region with one planning authority (*Gemeinsame Landesplanung, GL*).

In England, metropolitan areas with more than 1 million inhabitants include Greater London, the West Midlands (Birmingham), Greater Manchester, Merseyside (Liverpool), West Yorkshire (Leeds), South Yorkshire (Sheffield) and Tyne and Wear (Newcastle). It was decided to look at the region around Greater Manchester, North West England, as the adjoining counties of Lancashire and Cheshire appeared to have considered environmental aspects well (Marsh, 1997; Davoudi et al., 1996). In England, to date, regional levels of decision making have been confined to a voluntary co-

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[4] This research covers administrative regions as opposed to functional regions, which often comprise several administrative regions and may stretch across national borders, e.g. Randstad Holland and Lille area in France and Belgium (further examples are presented by Gemaca, 1996). For a further discussion of the EU regions, see Jones et al. (1995).

operation of counties and districts within regional associations. In order to obtain the regional picture and also to have roughly comparable regions, it was decided to look only at those counties in North West England that adjoin Greater Manchester. These include Lancashire, Cheshire, Merseyside and Greater Manchester, but exclude Cumbria.

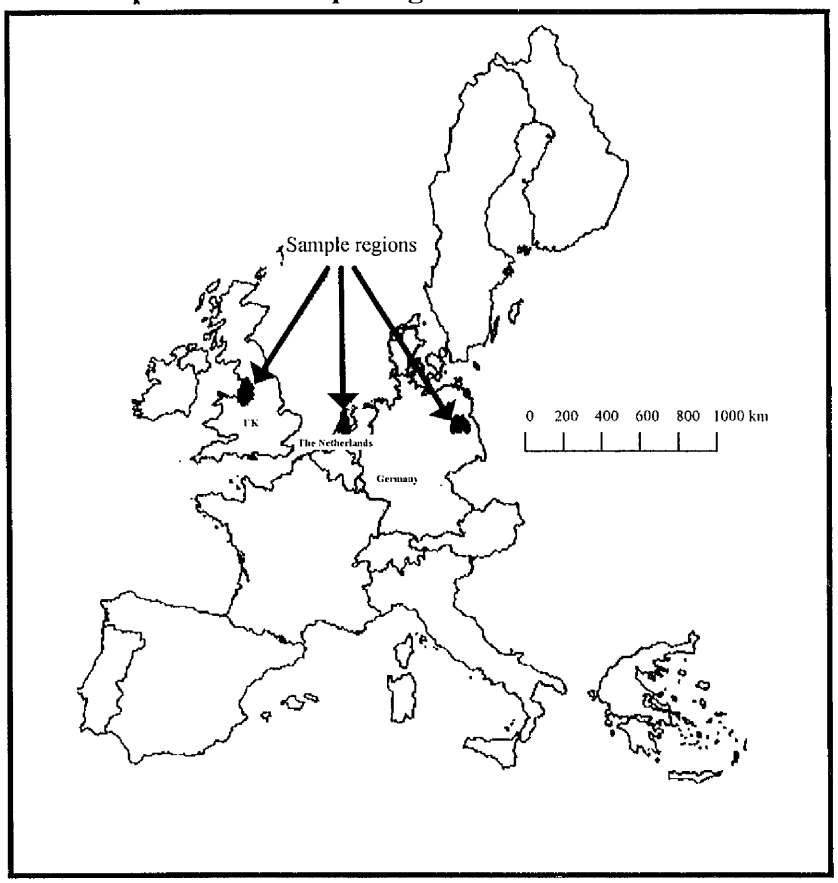
Table 2.2 presents area and population sizes of the chosen sample regions. Map 2.1 shows the location of the sample regions in a EU context. Map 2.2 shows the sample regions in direct comparison with each other, including boundaries of local administrative areas. The combined population of the three regions is 3.5% of the total EU population and the combined area size is 0.5% of the total EU area.

Table 2.2: Baseline data on the three sample regions

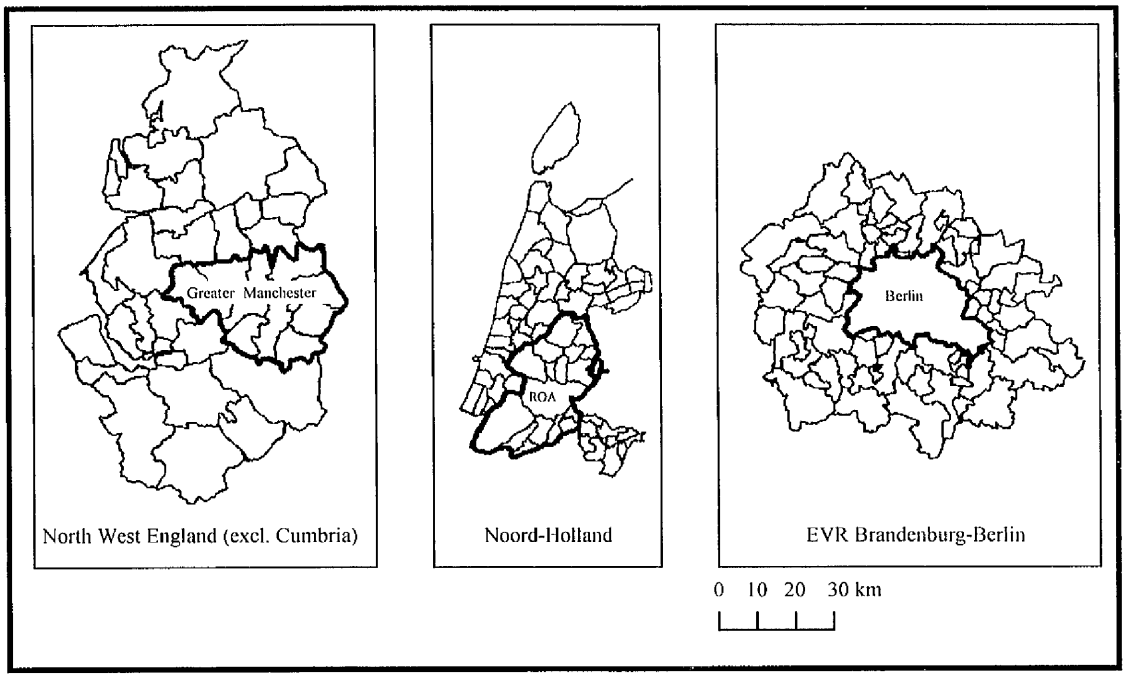
	North West England (excl. Cumbria)	Noord-Holland	EVR Brandenburg-Berlin
Area size (in km²)	7,331	2,667	5,368
% total national geographical area	3.0%	6.4%	1.5%
Population (in M)	6.4	2.5	4.3
% total national population	10.7%	16.2%	5.2%
Population density in the region	873 inhabitants/ km²	937 inhabitants/ km²	792 inhabitants/ km²
Biggest 'city region'	Greater Manchester (10 districts)	Regionaal Organ Amsterdam (ROA) (16 municipalities)	City of Berlin (1 city)
■ population (in M)	2.5	1.3	3.5
■ area size (in km²)	1,285	811	889

Sources: Fischer Weltalmanach (1994); Ministerium für Umwelt, Naturschutz und Raumordnung (1995b); North West Regional Association (1994); Regionaal Orgaan Amsterdam (1993); Provincie Noord-Holland (1994).

Map 2.1: The sample regions in a EU context



Map 2.2: The sample regions and administrative boundaries of authorities responsible for local land use PPPs



2.2 Problems in trans-national comparative research on SEA

Planning practice can be improved as a result of the stimulus provided by trans-national studies (Williams, 1986, p25). There are, however, also a number of problems that can arise when conducting trans-national research on SEA, which are discussed below.

Data availability

Data availability in different countries might not be the same (Marr, 1997, pp13-15) and PPPs might not always be directly comparable (Flynn, 1993, p62). Thus, transport and spatial planning systems were not organised in the same way within the three sample regions. In the UK, there were fewer administrative levels of decision making than in the Netherlands and in Germany. Instead of comparing specific decision making levels (which might lead to an only partial coverage of SEA practice), this research therefore established a cumulative view of a cross-section of PPPs, covering all administrative levels.

Common basis for comparison

Even though knowledge of practice in one country might encourage innovation in another country (Masser, 1984, p151), different planning traditions and political, institutional and cultural circumstances might require adaptation to different environments. Thus, it might not be possible to transfer practice from one country to another, as

> "the danger of proposing change in practice in the light of experience abroad is that practice may be dependent for its success upon a chain of circumstances which does not apply at home" (Booth, 1986, p1)

The chains of circumstances depend, in particular, on political and organisational structures in a country. The context of SEA application therefore needs to be highlighted. Once differences are explained, proposals for improving practice can be made. Chapters 4 and 5 were therefore prepared, portraying the planning context in the three sample regions and identifying all relevant transport infrastructure related PPPs.

Data collection

Before the start of the data collection, is was unclear whether the information to be obtained would be appropriate for quantitative analysis. Interviews were therefore

conducted for a cross-section of PPPs, covering all administrative levels in the three sample regions. Interviews provided for flexibility to react, for example, to any misunderstandings and to add any other questions, if necessary (Annex 7 shows seven examples for how the interview results were summarised). In order to include all authorities responsible for the preparation of transport infrastructure related PPPs in the three sample regions, a postal questionnaire was sent to all remaining (mostly local) authorities. These needed to include easily intelligible questions as there was less flexibility than within interviews. Not all interview questions were included in the postal questionnaire in order to ensure a high response rate. Further problems arose particularly for postal questionnaire results regarding a different understanding of 'qualitative' and 'quantitative' sustainability targets[5] and an apparently unclear understanding of the SEA procedural stages in the three sample regions. In the final analysis of the postal questionnaire results, no distinction was therefore made between quantitative and qualitative targets and the replies on SEA procedural stages needed to be partly discarded.

Language problems

The use of different languages are a potential problem when comparing practice in different European Union countries. For example, transferability of certain terms and expressions might be difficult. Translations might not be easily achieved and certain terms could have different meanings in different countries. In this context, two examples are presented, using the terms 'SEA' and 'sustainability'. Whereas the English term SEA currently affords a variety of different interpretations, the frequently used German and Dutch equivalents '*Plan- und Programm-UVP*' (EIA of plans and programmes) and '*strategische mer*' (strategic EIA) are EIA procedural based.

Sustainability is translated into Dutch as '*duurzamheid*' as well as '*leefbarheid*'. Whilst the first term describes long term sustainability (i.e. potential impacts on climate change), the second term is used to describe more short term sustainability (for example, in terms of accessibility). In German, two terms are mostly used to describe

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[5] Some authorities, for example, considered building restrictions around roads (to prevent noise nuisance) as quantitative targets. Furthermore, in EVR Brandenburg-Berlin, it is indicated that compensation measures that need to be implemented according to the Brandenburg Environment Protection Act (*Brandenburgisches Naturschutzgesetz*) were regarded as quantitative targets.

sustainable development, namely '*Nachhaltigkeit*' and '*Zukunftsfähigkeit*'. Both appear to be used in the same way. In order to overcome problems connected with language, original as well as translated terminology were presented in interviews and questionnaires. Furthermore, an attempt was made to explain those terms and notions that might not be clearly intelligible.

Identification of PPPs and SEAs to be included in research

The identification of the relevant transport infrastructure related PPPs (i.e. transport PPPs and spatial/land use PPPs) to be included in research was complicated, as:

- a large number of PPPs were found to be relevant for transport infrastructure related planning,
- responsibilities for transport infrastructure were not always clearly defined and often intertwined at different administrative levels of PPP making (e.g. national, regional, sub-regional and local levels).

A final decision on the PPPs to be included in the research was therefore only made after having conducted preliminary interviews with experts and decision makers. Included in the final data collection were those PPPs that were known to consider environmental impacts and those PPPs that were, according to PPP makers, of particular importance for transport planning.

SEAs identification needed to be done carefully, as other terminology than SEA was used and none of the assessments included in this research were 'officially' called SEA. SEA was particularly difficult to recognise in those cases where it was fully integrated into the main PPP documentation. In other cases, it was integrated into an overall assessment, which also addressed socio-economic impacts. The problem of deciding what assessments to include in the research was overcome by considering any type of assessment of the environmental impacts of a PPP.

2.3 Establishing the context for SEA application

In order to identify and to analyse SEA practice systematically and to explain differences and similarities, the context for SEA application needed to be established. The general features of the transport and spatial/land use planning systems therefore needed to be explained. Furthermore, the relevant transport infrastructure related PPPs

needed to be identified. Context variables were designed that enabled explanation of the observed patterns. Three sub-sections subsequently explain how these tasks were met.

2.3.1 Planning systems and their context

Chapter 4 considers the organisation of planning in the three sample regions, describing the planning systems and their context, based particularly on government and other relevant publications. Firstly, political and administrative structures are portrayed and other general features are described. Planning approaches and the organisation of transport and spatial/land use planning in the three regions are explained. Furthermore, the main planning instruments and relevant legislation and guidance are identified.

2.3.2 Identification of transport infrastructure related PPPs

Chapter 5 identifies and describes the transport infrastructure related PPPs included in further comparative SEA analysis. All PPPs that were said to be related to transport infrastructure planning were identified in interviews with PPP makers and categorised into transport, spatial/land use and sustainability/environmental PPPs. PPPs to be included in detailed analysis included either PPPs that were known to consider environmental impacts or PPPs that were said to be of particular importance for transport planning. The final selection was based on contacts with all authorities responsible for transport and spatial/land use PPPs in the three sample regions.

PPPs were classified according to the stage of application in the planning cycle (see also Lee and Walsh, 1992, p136; Thérivel and Partidário, 1996a, p5). As differences between stages were not always clear, PPPs were classified into 'policy oriented PPPs' and 'project oriented PPPs'. Policy oriented PPPs were regarded as providing more general, non-site specific information and focusing on development options, scenarios and intermodal alternatives. Project oriented PPPs were regarded as providing more site specific information and possibly listing specific projects. A further distinction of PPPs became possible through SEA classification into policy-SEA, plan-SEA and programme-SEA (section 6.2).

2.3.3 PPP context variables

Context variables were designed to be used in statistical analysis for explaining the

observed SEA patterns. Variables include 'PPP relevance', 'PPP accountability', 'PPP intermodality', and 'PPP procedural coverage'. Chapter 5 considers the PPP context criteria for a set of PPPs, representing all administrative levels of decision making. All variables obtained evaluation scores according to whether they were 'fully met', 'partly met' or 'not met at all'. PPP context variables are further explained below.

PPP relevance

The 'PPP relevance' was determined, referring to the legislative status (statutory/non-statutory) and provisions (mandatory/non-mandatory). Furthermore, whether the PPP was binding on further planning decisions was identified. Box 2.1 lists the three aspects that were used to describe 'PPP relevance'. It was thought to be highest if the PPP was statutory, mandatory and binding on subsequent planning. Case specific reasons for classifying PPPs as 'quasi-statutory', 'quasi-mandatory' or 'quasi-binding' are provided in section 5.2.

Box 2.1: Context variable 'PPP relevance'

- Legislative status (statutory/non-statutory).
- • Relevance for subsequent planning (binding/non-binding).
- Relevance for subsequent planning (binding/non-binding).

PPP accountability

'PPP accountability' is based on criteria that describe external inputs in the PPP process. These include public participation and external consultation. Furthermore, whether the PPP decision making body was not the approving body, whether an elected body (i.e. parliament) was involved in PPP preparation and whether a PPP report review was conducted by an independent body were identified. PPP accountability aspects are presented in Box 2.2.

The first aspect 'PPP approving body not the preparation body' was fully met if the approving body was not involved in PPP preparation at all. 'Full' external consultation and participation meant that all statutory and non-statutory bodies as well as the general public were able to participate. The aspect 'elected body involved' obtained the highest score if the elected body either approved the PPP or was able to intervene if there was

disagreement on any issues. The aspect 'PPP review by an external body', finally obtained the highest score if an independent body was involved, solely for the purpose of reviewing the PPP report. The reasons for any of the five aspects only obtaining moderate scores are provided in section 5.2.

Box 2.2: Context variable 'PPP accountability'

- Decision making body not the PPP approving body.
- External consultation.
- Public participation.
- Elected body involved.
- PPP review by an external body.

PPP intermodality

The 'intermodality' of the PPP was identified using three criteria, including whether one or several transport modes were considered, whether objectives were considered for only one or for several sectors and whether only infrastructure or infrastructure and transport service were considered. PPP intermodality aspects are presented in Box 2.3.

The first aspect 'one or several transport modes considered' obtained the highest score if several transport modes (e.g. road, rail, waterways) were considered. The second aspect obtained the highest score if there were explicit PPP objectives, apart from those referring to transport and spatial/land use planning. The aspect 'only transport infrastructure or transport infrastructure and public transport service considered' obtained the highest score if public transport service was explicitly dealt with in the PPP. The reasons for any of the three aspects only obtaining moderate scores are provided in section 5.4.

Box 2.3: Context variable 'PPP intermodality'

- One or several transport modes considered.
- PPP objectives for one or for several sectors.
- Only transport infrastructure or transport infrastructure and public transport service considered.

Procedural coverage

The 'PPP procedure' was examined not only to explain the observed SEA patterns, but also to decide whether formal SEA could be easily integrated into existing procedures. Therefore, whether PPP procedures covered procedural stages, similar to those of an SEA process in support of sustainable development identified in Figure 1.1 was determined. Box 2.4 shows the PPP procedural stages.

The 'before the start of the PPP process' stage was fully met if a PPP specific document was prepared that established clear objectives and targets for the PPP. The 'initial stage' of the PPP process, i.e. the identification of the PPP scope, was fully met if external bodies and the general public were involved and the outcome of the scoping exercise was documented. The 'preparation of the main PPP documentation stage' obtained the highest score if public PPP documentation was prepared. The 'review stage' needed to involve an independent body that was not the PPP approving body in order to obtain the highest score. 'Full' consultation and public participation needed to be open and involve a wide range of statutory/non-statutory bodies and the general public. 'Full' PPP specific monitoring involved the preparation of monitoring reports. The reasons for any of the stages only obtaining moderate scores are provided in section 5.5.

Box 2.4: Context variable 'PPP procedure'

- Before the start of the PPP process; identification of objectives and targets.
- Initial stage of the PPP process; identification of the scope of the PPP.
- The preparation of the main PPP documentation.
- The review stage at which the quality of the PPP report is reviewed.
- Consultation of external bodies, possibly before the start of the PPP process, at the start of the PPP process and at the review stage.
- Public participation, possibly before the start of the PPP process, at the start of the PPP process and at the review stage.
- PPP specific monitoring.

2.4 Designing a framework for comparing SEA practice

A framework for comparing SEA practice in a consistent and coherent manner was designed in order to be able to answer the research questions (section 1.6). A common set of comparative criteria needed to be developed and important aspects of SEA practice needed to be isolated from the general PPP context, as

> "context and phenomenon are often entwined to an extent that the boundaries of the unit of study are unclear" (Yin, 1982, p84)

Following the research questions and objectives, the analytical framework for comparing SEA practice consists of four main parts. These are presented in Box 2.5.

Box 2.5: Design of analytical framework for comparing SEA practice

(1)Development of criteria for classifying SEA types and of SEA variables to be used in statistical analysis (procedural stages, impact coverage, other methodological characteristics and SEA preparation times).

(2)Development of criteria for identifying opinions and attitudes of PPP makers.

(3)Development of criteria allowing to determine the role of SEA in considering sustainability aspects within PPPs.

(4)Development of criteria allowing to determine the extent to which assessments result in potential SEA benefits.

The main ingredients to the four parts of the analytical framework are presented below. A more detailed description of the criteria used to evaluate the different aspects of the framework is presented separately from this methodology in chapter 3.

2.4.1 SEA type classification

The classification of SEA types is based on the sectoral coverage, the level of application in the planning cycle, procedural characteristics, impact coverage and other methodological characteristics. Two sectors were included in the analysis, namely transport and spatial/land use. Regarding the level of application in the planning cycle, reference is made to policy oriented PPPs and project oriented PPPs (see section 2.3.2). Procedural characteristics, impact coverage and other methodological characteristics

were not only used to describe SEA types, but also served as SEA variables in statistical analysis with the other SEA aspects examined in chapters 7 to 9. These three aspects are further described in section 3.1, as follows:

- Procedural aspects of SEA application were analysed based on the SEA procedure in support of sustainable development laid out in Figure 1.1. Furthermore, whether SEA involved integrated and objectives-led procedures was determined.
- Impact coverage criteria were identified, based on the assumption that SEA is a supporting tool for sustainable development. Environmental, as well as socio-economic, aspects were therefore considered. The EC 'SEA directive' proposal (COM(96)511 and COM(99)073) was used to identify the environmental criteria. As the 'SEA directive' proposal only requires three rather general socio-economic criteria to be assessed, namely 'human beings', 'material assets' and 'cultural heritage', a more comprehensive list of socio-economic aspects was identified, following Leistritz (1995) and Glasson (1995a).
- Other methodological aspects include SEA methods and techniques. Methods and techniques to be used in SEA were identified following the EC (1997a), Sheate (1996), Steer Davies Gleave (1996), Sadler and Verheem (1996a), Thérivel and Partidário (1996a) and Wood and Djeddour (1992).

Chapter 6 presents the findings of the empirical research.

2.4.2 Opinions and attitudes of PPP makers

Several questions were used in order to identify opinions of PPP makers on current SEA practice and attitudes towards formalised SEA. This was achieved without being able to refer to any previous experience. Attitudes on the introduction of formal SEA were examined only recently by Devuyst et al. (1998) for Belgium. Section 3.2 presents the questions used to identify opinions and attitudes of PPP makers in the three sample regions. Chapter 7 presents the empirical findings of research.

2.4.3 Sustainability aspects and the role of SEA

SEA may address social, natural and economic aspects in an integrated manner (Lawrence, 1997; Thérivel and Partidário, 1996b, p53) and therefore function as a 'sustainability analysis' or 'sustainability test' (Sadler and Verheem, 1996a, p36). Procedural requirements were introduced by the procedural framework in support of sustainable development introduced in Figure 1.1. Regarding substantive requirements, the sustainable development strategy of the European Commission, the Fifth Environmental Action Programme (EC, 1993a), was identified as suitable for comparing practice in the European Union[6], combining objectives, targets and proposals for measures. As the Fifth Environmental Action Programme does not mention socio-economic aspects, this research only compares the extent to which environmental sustainability aspects were considered in PPPs with SEA, and PPPs without SEAs. Section 3.3 describes the evaluation criteria used and chapter 8 presents the findings of the empirical research.

Whether the objectives, targets and options formulated in the Fifth Action Programme can be regarded to be sufficient for achieving 'sustainable development' is not discussed here. In this context, reference is made to other work that can serve as the basis for an evaluation, namely Milieudefensie (1996), Wuppertal Institut (1995), Friends of the Earth (1995), Milieudefensie (1992) and Karas (1991)[7]. This thesis also does not discuss the effectiveness of measures for achieving sustainability objectives and targets, which is done, for example, by Acutt and Dodgson (1996). Goodwin and Parkhurst (1996), ECMT (1995; 1993), Rommerskirchen (1993) and Schallaböck (1991).

2.4.4 Potential SEA benefits

The extent to which assessments resulted in the potential SEA benefits, presented in section 1.2, was determined using SEA principles. Box 2.6 presents these principles,

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[6] International comparative studies (for non-EU countries) could be based on international conventions, such as Agenda 21 (United Nations Conference on Environment and Development-UNCED, 1992a), the Climate Change Convention (UNCED, 1992b), the Convention on Biological Diversity (UNCED, 1992c) as well as the conventions on long range transboundary air pollution (UNECE, 1994; 1991; 1988; 1985).

[7] Suggestions on how sustainable development can be measured were made by Reed (1996), Pearce (1993), Rees and Wackernagel (1992). For possibilities on how to implement sustainable development at the local level see Gibbs et al. (1996), Ferrary (1995), Mitlin and Satterthwaite (1994) and Jacobs (1991).

distinguishing between framework and procedural principles. Criteria needed to be identified that describe the SEA principles. This is done in section 3.2. Furthermore, criteria were also to be identified that would need to be met if the EC 'SEA directive' proposal (COM(96)511 and COM(99)073) was implemented. Empirical research results are presented in chapter 9.

Box 2.6: SEA principles

(a) SEA framework principles

- There should be clear provisions for SEA.
- There should be clear requirements for SEA.
- Initiating agencies should be accountable for SEA.
- The assessment should join the PPP formulation process as early as possible.
- A tiered SEA/EIA system is desirable for efficient implementation.
- The scope of the SEA must be commensurate with the scope of the PPP.
- PPP objectives should be clarified and terms of reference, environmental objectives and standards (environmental *indicators* are helpful) need to be defined in order to evaluate the significance of environmental impacts.
- SEA should be used in a pro-active way.
- Sustainable development should be achieved; SEA becomes more effective and efficient if there is environmental policy and/or sustainability strategies.

(b): SEA process based principles

- There should be a simple screening procedure (taking into account policy objectives and targets).
- There should be scoping (specifying impacts, alternatives and scenarios regarding environmental and other factors.
- There should be a report/documentation (assessing, evaluating and comparing impacts, alternatives and scenarios regarding the environment and other factors and proposing mitigation).
- There should be SEA report review (possibly external).
- There should be effective incorporation of SEA results in PPP making.
- There should be monitoring and follow-up.
- There should be consultations and public participation.

Sources: Section 1.2; see also Sadler and Verheem (1996a, p79) and Partidário (1996b, pp40-45); process based principles are similar to those introduced by Tonk and Verheem (1998, p5).

2.4.5 Summarising and interpreting SEA practice and theory

The results of the empirical research are summarised in chapter 10 for the three main presentation aspects (i.e. the region, SEA type and sector) and for the individual SEAs for the cross-section of PPPs. Overall results are presented for seven comparative SEA aspects, including:

- SEA procedural coverage.
- SEA methods and techniques.
- SEA impact coverage.
- Opinions of PPP makers.
- Attitudes of PPP makers.
- Sustainability aspects.
- Potential SEA benefits.

The degree of association for all examined aspects as well as for the SEA preparation times were identified, using statistical analysis (see section 2.5.3). Best practice SEAs were identified and those SEAs that were previously reviewed by different authors were regarded in somewhat more detail.

The results of the empirical research were interpreted, referring to five statements that were thought to reflect current (theoretical) understanding of SEA (set out in chapter 1), including:

(1)'SEA experience world-wide is only limited' (see section 1.5.2).

(2)'SEA should develop more independently of project EIA' (see section 1.1.3).

(3)'SEA ensures that sustainable development is considered in PPP making' (see sections 1.1.4 and 1.2).

(4) 'A tiered approach should ensure that a particular decision making level only addresses those matters and at that level of detail which are appropriate to it' (see section 1.2).

(5)'SEA that is well founded and based on the application of clear SEA principles is most likely to be influential in PPP making' (see section 1.2).

Finally, the likely extent of SEA application in the three sample regions after the introduction of a 'SEA directive' is portrayed.

2.5 Data Collection

Research aim, questions and objectives determined the data collection strategy. Empirical information for all parts of the analytical framework needed to be systematically collected for all types of transport infrastructure related PPPs in the three sample regions in order to identify all formal/informal SEAs. Subsequently, data collection methods are identified and response rates in the three sample regions are presented. Furthermore, the data evaluation is explained.

2.5.1 Methods of data collection

Data collection was carried out as follows:

(a) Preliminary interviews were conducted and existing documentation was studied in order to identify the transport infrastructure related PPPs to be included in research. Furthermore, a pilot survey was conducted to test and improve the interview protocol.

(b) 'Structured interviews' (see Yin, 1994, p80) were conducted with key personnel for all existing types of transport infrastructure related PPPs and SEAs. In this context, the main documentation was studied first in order to obtain a basic understanding of the issues. It was decided to conduct interviews for the same number of PPPs in each region in order to have a good basis for a direct (regional based) comparison of the results. Preliminary interviews and existing documentation revealed that interviews on 12 PPPs in each region would allow the whole range of transport infrastructure related PPPs at all administrative levels to be covered (see Annex 3).

(c) Questionnaires were sent out by mail to all those remaining authorities in the three regions that were not interviewed (178, mainly local, authorities) (see Annex 3).

Preliminary interviews and pilot survey

Preliminary interviews were conducted between September and December 1996 with a selection of PPP makers in the three sample regions. Subsequently, a 'data collecting protocol' was designed for structured interviews and a pilot interview survey was

conducted with SEA/planning experts. The results of the pilot survey led to an improvement of the interview data collecting protocol. Several issues, particularly regarding SEA methods and PPP objectives were added. Key personnel to be interviewed were identified through initial visits and telephone contacts. At this point, the research project was also explained and a request for co-operation was made.

Interviews

Interviews were conducted between April 1997 and July 1998. The interview protocol was partially completed before interviews were conducted, based on an analysis of the main PPP/SEA documentation. This procedure made the interviews shorter and easier to conduct, as there was a clear understanding of each particular PPP/SEA. After initial contacts were made, it became obvious that interviews in the Netherlands could be conducted mostly in English with Dutch used for explaining unclear terminology. All interviews in Germany were conducted in German and all interviews in England were conducted in English. Interviewees are presented in Annex 2. The following types of questions were addressed in the interviews:

1) Questions relating to the PPP (status, procedure, bodies involved, substantive issues, guidance, public participation and consultation).
2) Questions relating to the consideration of sustainability objectives, targets and options within the PPP.
3) Questions relating to SEA practice (status, procedure, bodies involved, coverage, guidance, SEA-report, public participation).
4) Questions relating to opinions and attitudes on SEA.
5) Questions relating to the co-ordination between different kinds of plans/tiers of plans.

Each interview on average took between 1.5 to 2 hours. The notes taken during the interview were analysed and summarised in tabular form (examples for seven good practice SEAs are presented in Annex 7). A copy of the summarised interview protocol was later sent to each interviewee for verification. A reminder letter was sent to those authorities that did not return the summarised interview protocol. Confirmation of interview results was received by the end of August 1998.

Postal questionnaire

All remaining (mostly local) authorities that were not interviewed were sent a postal questionnaire[8]. This was designed on the basis of the results of preliminary interviews and on the results of a pilot questionnaire survey with a selection of authorities. In order to secure a high response rate, questionnaires were kept as short as possible. Therefore, questionnaires only addressed some aspects from the interviews, for example, there were no questions on the general PPP context. Postal questionnaire results are used in two parts of the thesis, namely for identifying attitudes and opinions of PPP makers and for determining the extent to which sustainability issues were considered. Questionnaires were prepared in English, German and Dutch and were sent to all 34 boroughs/districts in *North West England*, to all 68 local authorities in *Noord-Holland* and to all 65 local authorities in *Brandenburg-Berlin*. Furthermore, in *Brandenburg-Berlin*, questionnaires were send to four *Regionen* (regions) and seven *Kreise* (counties). In total, 178 questionnaires were sent out. The same questions were asked in all three regions except those that were related to the specific type of plan and its status. Questionnaires were sent out at the beginning of October 1997 for return by mid-November 1997. A reminder letter was sent to all non-responding authorities. Final responses to questionnaires were received by the end of January 1998. Some of the non-responding authorities were contacted by phone in order to determine the reasons for not responding.

2.5.2 Response rates and reasons for differences

All contacted authorities were willing to participate in interviews (i.e. participation rate of 100%). The overall response rate of postal questionnaire participants was 55% (97 out of 178). 78 of the 97 returned questionnaires were properly completed and could be used for further analysis. Thus, the adjusted overall response rate is 44%. Response rates by region are presented in Table 2.3.

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[8] Local authorities contact addresses were found in Provincie Noord-Holland (1994) and in the UK Municipal Year Book and Public Services Directory (1996). In EVR Brandenburg-Berlin, a list of addresses was obtained by the Common Land Planning Authority (Gemeinsame Landesplanung, GL).

Table 2.3: Postal questionnaire response rates

	number of questionnaires sent out	number of questionnaires returned	adjusted response rates
North West England	34	30 (88%)	27 (79%)
Noord-Holland	68	30 (44%)	22 (32%)
EVR Brandenburg-Berlin	76, of which: • *Gemeinden*: 65 • *Kreise*: 7 • *Regionen*: 4	37 (49%) of which: • *Gemeinden*: 29 of 65 (45%) • *Kreise*: 6 of 7 (86%) • *Regionen*: 2 of 4 (50%)	29 (38%) of which: • *Gemeinden*: 23 of 65 (35%) • *Kreise*: 4 of 7 (57%) • *Regionen*: 2 of 4 (50%)

Response rates in the three regions differed. Adjusted response rates for local authorities in Noord-Holland and EVR Brandenburg-Berlin (*Gemeinden*) were 32% and 35%, but 79% in North West England. Total numbers of completed postal questionnaires in the three regions, however, were similar, i.e. 27 in North West England, 22 in Noord-Holland and 23 in EVR Brandenburg-Berlin.

Lower rates in Noord-Holland and EVR Brandenburg-Berlin appeared to be partly related to smaller administration areas with smaller authorities (i.e. less staff). Sizes and populations of administrative areas are presented in Table 2.4.

Table 2.4: Administrative structure, area and population sizes of sample regions

	North West England (excl. Cumbria)	Noord-Holland	EVR Brandenburg-Berlin
Administrative Structure	4 counties, 37 boroughs/ districts	part of voluntary co-operating body of Randstad (RoRo), 70 *gemeenten* (municipalities)	2 *Länder*, 5 (part-) *Regionen* (regions), 8 (part-) *Kreise* (counties), 66 *Amtsgemeinden* (municipalities)
average size of local administrative level (excluding biggest 'city region') ■ population	133,607 (27 local authorities)	22,167 (54 local authorities)	11,826 (66 local authorities)
■ area size (in km²)	215.93	34.37	67.88

In EVR Brandenburg-Berlin, response rates of municipalities (*Gemeinden*) with more than 10,000 inhabitants were higher (61%) than response rates of municipalities with less than 10,000 inhabitants (26%). Response rates of authorities that administered only one municipality were also higher (52%) than those authorities that administered more than one municipality (only 20%). Of the six known local authorities that were unable to complete the questionnaire, five administered more than one municipality. Those authorities that did not complete questionnaires provided different reasons. Most of them said that plan preparation was not far enough advanced. Some also said their municipality was not large enough and claimed that data would be irrelevant for the research. Furthermore, the concept of sustainable development was not well known at the local level in EVR Brandenburg-Berlin, leaving authorities unable to complete questionnaires.

All the responding authorities in Noord-Holland said their local PPPs involved no assessment of environmental impacts. This appeared to be an important reason for authorities not completing questionnaires. Thus, PPP makers thought that results would be irrelevant for research.

2.5.3 Data evaluation

Data evaluation in this thesis is threefold and consists of:

(1)the description of the main results

(2)the statistical analysis of the results

(3)the explanation of the results

Research results were described, using tables and figures. In order to identify the appropriate instruments for statistical analysis, the data/variable set was tested for normal distribution (skewness and kurtosis) and for equal/unequal variances. It was found that variances were usually unequal and that data sets were usually not normally distributed. Non-parametric tests were therefore applied for determining differences and associations between different variables. The Mann-Whitney U test was used to examine differences and Spearman's rank-order correlation test was used to examine possible associations (Cramer, 1998, pp70-71).

Results are presented in terms of significance levels of under 0.05 ($P<.05$) and of under 0.01 ($P<.01$). Differences were examined for three main presentation aspects, including the region, the SEA type and the sector. Furthermore, where appropriate, differences between PPPs with SEA and without SEA were examined. Associations were examined between PPP context variables ('PPP relevance', 'PPP accountability', 'PPP intermodality' and 'PPP procedure', see section 2.3.3 and chapter 5), SEA variables ('SEA procedure', 'SEA impact range', 'SEA methods and techniques', 'SEA preparation times', see section 2.4.1 and chapter 6) and four other SEA aspects, examined in chapters 7 to 9, namely 'opinions of PPP makers', 'attitudes of PPP makers', 'sustainability aspects' and 'potential SEA benefits'.

The observed patterns were explained, using the results of statistical analysis. Furthermore, results were also interpreted, in terms of the characteristics of the different planning systems in the three sample regions.

3 Framework for comparing SEA practice

Chapter 3 develops the analytical framework for comparing SEA practice, based on section 2.4 and is divided into four sections. Section 3.1 presents the aspects used to classify SEA types. Subsequently, section 3.2 sets up the questions that were used to identify opinions and attitudes of PPP makers. This is followed by section 3.3, which identifies sustainability aspects, following the EC Fifth Environmental Action Programme. Finally, section 3.4 identifies criteria that describe the potential SEA benefits.

Throughout this chapter, boxes are used whenever comparative criteria are introduced. Evaluation of the criteria is described in the main text.

3.1 Criteria for classifying SEA Types

Five aspects were used to classify SEA types (following section 1.1.4) in order to meet research objective 2 'to identify SEA application and to classify SEA types'. Aspects include sectoral coverage, the level of application in the planning cycle, procedural and methodological characteristics and impact coverage. The five aspects are listed in Box 3.1. The aspects '**sectoral coverage**' and '**level of application in the planning cycle**' are sufficiently clear and need no further explanation. Evaluation criteria, however, need to be identified for aspects (3) to (5), procedural characteristics, impact coverage and methodological characteristics. This is done below. Chapter 6 presents the results of the empirical research.

Box 3.1: Aspects for the classification of SEA

(1)Sectoral coverage; classifying SEAs according to the sector to which they apply:

- Transport PPPs.
- Spatial/land use PPPs.

(2)Level of application in the planning cycle; distinguishing between SEAs that are applied:

- Early in the planning cycle (policy oriented).
- Late in the planning cycle (project oriented).

(3)Procedural characteristics, referring to:

- The extent to which SEA procedural stages were covered.
- The integration of SEA into the PPP.

(4)Impact coverage, distinguishing between SEAs that address:

- Environmental impacts.
- Environmental and socio-economic impacts.

(5)Other methodological characteristics, classifying SEAs according to the use of:

- Methods.
- Techniques.

3.1.1 Procedural characteristics

Section 1.1.3 identified basic SEA principles to follow project EIA procedural stages (see also Box 1.1 and Figure 1.1). Furthermore, good practice SEA was said to be fully integrated and applied at all major stages in the PPP process and to be used to identify objectives for the PPP (Section 1.2, benefit 2).

In order to determine the extent to which procedural stages were covered in the examined SEAs, Box 3.2 is presented. Procedural stages are further explained below. Whether SEA stages were fully integrated into the PPP procedure was also established. As it was not always possible to clearly decide whether a certain SEA stage was covered, evaluation was done as follows:

- Highest score (3): Stage conducted in a SEA specific manner with SEA specific documentation, possibly with external involvement.

- High score (2): Stage following guidance and legislation (rather mechanistic without SEA specific flexibility).
- Moderate score (1): Stage for which non-SEA specific documents appeared to have been of some relevance.
- Lowest score (0): Stage not conducted in SEA.

Box 3.2: SEA procedural stages

- Prior to the PPP process (i.e. the identification of objectives and targets and screening).
- Initial stage of SEA (scoping).
- During PPP formulation/before end of PPP formulation (SEA report preparation).
- SEA report review.
- SEA specific monitoring and follow-up.
- External participation and consultation (general public and statutory and non-statutory bodies).

Prior to the PPP process

The 'prior to the PPP process' stage identifies environmental and sustainability objectives and targets. Based on these, a decision is made whether SEA is necessary. Screening should be a formalised provision (UNECE, 1992, p7) and can either take place as a public process (discretionary approach to screening) or simply be based on checklists (Sadler, 1996, p158). Mixed approaches to screening are also possible. The highest evaluation score was given if a SEA specific objectives setting document was prepared, possibly with external involvement.

Initial stage (scoping)

The initial stage of SEA consists of scoping, which should identify the physical limits (impact scope) and regional limits (geographical scope) of SEA (EC, 1997a, p37) and establish the terms of reference for SEA. It should also identify what potential impacts and alternative actions are to be addressed and what methods and techniques are to be used. Scoping should involve consultation with other bodies (agencies, NGOs) and the public. The results of the scoping exercise should be published (Marr, 1997, p180;

Sadler, 1995, p18; UNECE, 1992, p7). A somewhat reduced form of scoping can rely on checklists, provided, for example, by legislation or guidance. The highest evaluation score was reached if an SEA specific scoping documentation was prepared and statutory/non statutory bodies and the general public were involved.

During PPP formulation

During PPP formulation, the SEA report should be prepared, documenting the findings of the assessment exercise and giving a clear picture of the expected impacts. If the SEA report is prepared after the PPP process, SEA cannot be applied effectively. Sometimes, SEA documentation is fully integrated into the main planning documentation or can have the form of only a paragraph or a page (Sadler and Verheem, 1996a, p115). The highest evaluation score was given, if an SEA document was prepared during the PPP process in the form of a separate document.

SEA review

A review of the SEA documentation is essential in order to ensure that quality is adequate. The review should establish whether the SEA report addressed the issues raised in the scoping report, considered all relevant alternatives and whether it is clearly laid out (EC, 1999a, section 8.1). If the review is done by an external body, for example an EIA commission or an environment authority, accountability increases. Review results should be published before a final decision is reached (University of Manchester, 1995a, p5). The review may also involve public participation (Partidário, 1996b, p52). A further possibility is judicial review (frequently applied in the USA, but rarely in the EU). The highest evaluation scores were obtained if review was done by an external and independent body, which was neither involved in PPP, nor in SEA preparation.

Monitoring and follow-up

Monitoring and follow-up are needed in order to check whether SEA predictions were correct (Marr, 1997, pp192-193). Furthermore, they ensure that mitigation and compensation proposed in SEA is implemented. Monitoring should be a formal provision with specific requirements and might include post-PPP analysis and post-auditing (Dipper et al., 1998). In order to be effective, monitoring should focus on a selection of particular impacts. The highest evaluation score was achieved if there were explicit requirements

to conduct SEA specific monitoring and a monitoring report was prepared.

External participation and consultation

External participation and consultation are core elements of the SEA process, including statutory and non-statutory bodies as well as the general public. There are different forms of participation and consultation. Following Sadler and Verheem (1996a, p83), the passive form of participation is simple information (public reporting). Active participation provides opportunities to respond and to comment on the issues involved in SEA. It is characterised by varying degrees of working interaction and may involve questionnaires and surveys, community advisory committees, workshops and public inquiries. Mediation and other consensus-based negotiation processes are other forms of participation that have recently received increasing attention (UVP-Gesellschaft, 1999). In order to be effective, the decision maker should respond to the issues raised in the participation and consultation process (UNECE, 1992, p8). Highest evaluation scores meant consultation and participation was open and not restricted to selected bodies.

3.1.2 Impact coverage

Environmental and socio-economic criteria are introduced in order to determine impact coverage of SEA. Following section 2.4.1, environmental criteria were based on the requirements of the EC 'SEA directive' proposal (COM(96)510 and COM(99)073) and socio-economic criteria were based on Leistritz (1995) and Glasson (1995a). Box 3.3 lists seven types of environmental impacts used in analysis. They include impacts on the living environment, such as flora and fauna, as well as the non-living environment, such as water, soils and air, and more indirectly, climate. Furthermore, landscape and cultural heritage impacts are identified.

Box 3.3: Environmental impact criteria for consideration in SEA

(1)Impacts on fauna.

(2)Impacts on flora.

(3)Impacts on soil.

(4)Impacts on water.

(5)Air (including noise) pollution impacts.

(6)Impacts on climate.

(7)Impacts on landscape and cultural heritage.

Source: Adapted from the EC 'SEA directive', COM(96)511 and COM (99)073

Box 3.4 lists seven types of socio-economic impacts and fourteen more detailed components that were used for determining the extent to which socio-economic impacts were assessed.

Box 3.4: Socio-economic impact criteria for consideration in SEA

(1) Economic impacts

- Changes in employment (local and non-local).
- Business activity (type of business and changes in business activities).
- Business earnings.

(2) Demographic impacts

- Changes in size, distribution and composition of population.

(3) Housing

- Public and private housing.
- House prices.
- Homelessness, other housirg related problems.

(4) Public service impacts:

- Changes in the demand for, and availability of public services and facilities.

(5) Fiscal impacts

- Changes in revenues and costs in local government jurisdictions (exclusively public sector costs and revenues).

(6) Income impacts

- Changes of personal incomes.

(7) Social impacts

- Changes in patterns of interactions and formal and informal relationships resulting from interactions.
- Integration / alienation (race, age).
- Social problems (unemployment, crime).
- Lifestyles (families, single persons).

Source: adapted from Leistritz (1995) and Glasson (1995a)

In order to evaluate the criteria listed in boxes 3.3 and 3.4, five categories were distinguished, namely:

- Impacts that were directly quantitatively assessed.
- Impacts that were directly qualitatively assessed.
- Impacts that were not directly, but indirectly assessed.
- Impacts that were not assessed, but for which requirements and limits were specified or assumptions made, either in the SEA or in the PPP.
- Impacts not assessed.

As there was no evidence that quantitative impact assessment was more effective than qualitative or indirect assessment, all three aspects were weighted equally. Section 6.5 presents the results for regional, SEA type and sectoral differences. Furthermore, the extent to which SEA combines socio-economic and environmental impacts is identified.

3.1.3 Other methodological characteristics

The use of appropriate methods and techniques in the SEA report is important for effective SEA application (section 1.3). It is, however, difficult to identify appropriate SEA methods and techniques, as experience is still limited (EC, 1997a, p52; Sadler and Verheem, 1996a, p108). The choice of SEA methods and techniques depends on the nature of the PPP that is to be assessed. Thus, the selection of methods employed in SEA depends on a combination of factors, including (following Sadler, 1996, p159):

- 'Level of generality' of a proposal (whereas project oriented PPPs focus more on site specific information in a project related manner, policy oriented PPPs focus more on general issues).
- Nature of the issues to be assessed (i.e. sectors and impacts).
- Scope, magnitude and potential significance of impacts (depend on stated policy objectives and the sensitivity of the environment).
- Requirements of decision making (i.e. stages of PPP formulation).
- Time and resources available.

Appropriate methods and techniques are identified in section 6.6 for the different SEA types (section 6.2). If none of the SEAs representing a certain SEA type considered a particular method/technique, it was thought to be unlikely that this technique was appropriate to the SEA type. The determination of the extent to which methods and techniques were used, was based on these findings.

The two terms 'methods' and 'techniques' are frequently used interchangeably. In this study, however, the term 'method' is used when referring to major SEA report tasks that include e.g. 'the consideration of alternatives' or 'mitigation', and the term 'technique' is used when referring to more specific tools, such as 'matrices' and 'checklists'.

Box 3.5 introduces the methods and techniques examined in this research[1]. Methods were derived from activities essential to SEA report preparation (Environment Australia, 1997, chapter 6; Tromans and Roger-Machart, 1997, p993). Different case studies were used to identify the assessment techniques of transport infrastructure related PPPs, including ECMT (1998), EC (1997a), Steer Davies Gleave (1996) and Thérivel and Partidário (1996a)[2]. Empirical research results are presented in chapter 6. The use of methods and techniques was evaluated in terms of simple 'yes' or 'no' answers. Methods and techniques in SEA reports are explained further below.

Box 3.5: Methods and techniques in SEA reports

Methods

(1)Impact prediction.

(2)Evaluation of impacts.

(3)Consideration of alternatives.

(4)Consideration of scenarios.

(5)Mitigation and compensation.

Techniques

(1)Field research.

(2)Simulation.

(3)Mapping and overlay techniques.

(4)Matrices.

(5)Checklists.

(6)Workshops.

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[1] Cost benefit analysis (CBA) and multi criteria analysis (MCA) are not regarded here as techniques, but rather as a specific SEA approach (see section 6.2). For a discussion of CBA in environmental assessment see Hundloe et al., 1990.

[2] Network methodologies, programme budgeting and life cycle analysis (considered suitable in SEA application by Minogue, 1993, p15; Sadler and Verheem, 1996a, p154) were not used in any SEA.

SEA methods

(1) Impact prediction

Impact prediction is a core element of the SEA report. It addresses aspects of the physical environment (i.e. pollution and ecological impacts) and may also address socio-economic impacts, including impacts on natural resources (Gilpin, 1995, p5). The impacts considered in SEA should be based on scoping, but may also be based on legislation, guidance or ad-hoc impact prediction. As will be shown in chapter 6, a few SEAs did not actually assess environmental impacts, but provided land suitability maps, thus acting as instruments of the precautionary principle.

(2) Evaluation of impacts

Impact significance needs to be evaluated in terms of previously stated objectives and targets. These can either be based on policy objectives and targets, or be determined by sensitivities of the receiving environment (EC, 1997a, p39). The evaluation of impacts can be a difficult task, in particular if there is high uncertainty.

(3) Consideration of alternatives

The consideration of alternatives is of great importance in order for SEA to have different options to choose from. Alternatives should be broadly defined, including those that are most favourable to the environment (Commissie voor de Mer, 1996, p30). Whereas intramodal alternatives concentrate on different sites and locations to accommodate a certain activity, intermodal alternatives compare different activities. The final SEA documentation should clearly state what alternatives were considered during the SEA process.

(4) Consideration of scenarios

The consideration of scenarios in SEA helps to identify ranges of uncertainties in impact prediction. Scenarios can be based on, for example, highest and lowest expected levels of economic, demographic or transport developments (Tonk and Verheem, 1998, p5).

(5) Mitigation and compensation

SEA can formulate standard and generic mitigation measures (Wood and Djeddour, 1992, p7). Whereas the former always apply to a certain activity (for example the purification of road surface water), the latter are case specific (for example choosing the best location for a new bypass). Those impacts that remain significant after mitigation need to be compensated. The SEA report should indicate the mitigation and compensation likely to be needed, taking different scenarios and alternatives into account.

SEA techniques

(1) Field research

The term 'field research' is used here for data collection, filling gaps in existing data, specifically undertaken for SEA. Field research may include the collection of site specific information on e.g. soils, biodiversity, water, climate, etc. (Handbuch der Umweltverträglichkeitsprüfung, 1990, parts 2010-3100). It may also include the collection of SEA specific data for determining development scenarios and transport demand.

(2) Simulation

Simulation is another technique, suitable for SEA (ECMT, 1998, p19), considering different economic and demographic scenarios. Ranges of the different development options may be determined. Simulation can either be conducted in a quantitative mathematical way or be based on qualitative analysis, relying on expert opinions.

(3) Mapping and overlay techniques

Mapping and overlay techniques can provide a clear geographical picture of the receiving environment and identify site specific impacts. In order to apply overlay techniques, site specific detailed knowledge of environmental attributes is needed (Ottersbach, 1996). Mapping techniques involve Geographical Information Systems (GIS).

(4) Matrices

Matrices are basic tools for SEA that support systematic assessment. Matrices display causes (activities) of impacts in relation to the effects on the environment. They can be used for the identification of possible impact, as well as for the evaluation of impacts. Simple interaction matrices are particularly useful in communicating impact information in summary form (Canter, 1996, p58).

(5) Checklists

Checklists are basic tools for SEA that may take the form of simple listings of environmental aspects, using 'yes', 'no' or 'unknown' answers (Schaenam, 1976; Wathern, 1988). Checklist criteria are often derived from legislation or identified in scoping.

(6) Workshops

Workshops are particularly useful for addressing questions that involve the development of new and innovative ideas (Wood and Djeddour, 1992, p13). Ideally, workshops should involve external experts. Workshops can be used to identify SEA report ingredients and to check the adequacy of the SEA report.

3.2 Opinions and attitudes of PPP makers

Questions were determined in order to meet research objective 3, 'to identify opinions of PPP makers about current SEA practice and their attitudes towards the application of formalised SEA'. Information on a cross-section of PPPs was collected in interviews with PPP makers at all decision making levels and postal questionnaires were used to collect information on local land use PPPs. Positive replies resulted in high evaluation scores and negative replies resulted in low evaluation scores. Box 3.6 presents the questions asked in interviews, which are subsequently explained. Chapter 7 presents the results of the empirical research.

Box 3.6 Questions on opinions and attitudes of PPP makers

(1) Opinions on current assessment

- How influential do you think the SEA was in PPP preparation?
- In your opinion, what is the quality of the SEA?

(2) Attitudes towards formalised SEA

- Do you think integration of formal SEA into the PPP process is possible?
- Do you think formal SEA could delay PPP preparation?
- Do you think formal SEA would be able to accelerate project preparation?
- Do you think formal SEA would lead to a better consideration of environmental impacts?

3.2.1 Opinions on current SEA

How influential do you think the SEA was in PPP preparation?

In order to be effective, the PPP process needs to take the results of the SEA documentation into account (Lee and Hughes, 1995, p69). The relevance of SEA within the PPP process was said to be related to its overall success in modifying decisions in an environmentally positive manner (Sadler, 1996, p156). A great influence is therefore related to a high effectiveness. In order to determine the influence of SEA in the PPP process, PPP makers were asked whether the SEA was 'very influential', 'reasonably influential', 'marginally influential' or 'not influential at all'.

In your opinion, what is the quality of the SEA?

If the information provided is of good quality, SEA is better able to improve the quality of decisions (Partidário, 1996b, p40). SEA effectiveness could therefore be improved. In order to evaluate PPP makers opinions on the quality of SEA, possible replies were 'very good', 'reasonably good', 'fair' or 'poor'.

3.2.2 Attitudes towards formal EIA principles based SEA

For the questions on attitudes towards formalised SEA, PPP makers were given the choice to reply with 'no' or 'yes'. Additional replies in between 'yes' and 'no' were left to the PPP makers and evaluated and classified later (see sections 7.3.1 to 7.3.4).

Do you think an integration of formal SEA into the PPP process is possible?

Bureaucratic responsiveness towards SEA is an important factor for SEA effectiveness (Sadler, 1996, p9). Furthermore, insufficient integration with decision making was identified as a basic and structural problem of project environmental assessments (Marr, 1997, p5). If PPP makers do not consider the integration of formal SEA possible, implementation is going to be more difficult than if an integration was considered possible.

Do you think formal SEA could delay PPP preparation?

Attitudes of PPP makers towards formal SEA are thought to be more positive if SEA is considered not to delay the PPP process. SEA was identified as a tool that can help to cut down objections of the public, which was thought to potentially lead to fewer delays in PPP making (EC, 1997a, p52). Referring to German wind farms, Thérivel and Partidário (1996a, p186) observed that SEA may lead to a reduction in the duration of the authorisation process.

Do you think formal SEA would be able to accelerate project preparation?

Attitudes of PPP makers towards formal SEA were thought to be more positive if SEA was expected to lead to an acceleration of project preparation (ECMT, 1998, p16). This is potentially achieved, if aspects that are addressed in SEA are not dealt with again at the project level. Project EIA could be simplified or even made unnecessary altogether. If PPP makers considered SEA capable of accelerating project preparation, they were thought to be more supportive of formal SEA.

Do you think formal SEA would lead to a better consideration of environmental impacts?

An important role of SEA is to reduce the environmental harm associated with PPPs. Attitudes of PPP makers were therefore expected to be more positive if formal SEA was thought to improve decision making in terms of a better consideration of the environmental impacts (Sadler, 1996, p165).

3.3 SEA as a supporting tool for sustainable development

The sustainable development strategy of the European Commission, the Fifth Environmental Action Programme (EC, 1993a), was used as the overall policy framework, defining sustainability objectives, targets and measures for action (see section 2.4.3). This was done in order to meet research objective 4 'to identify whether SEA application leads to a better consideration of sustainability objectives, targets and options' in PPPs. Chapter 8 presents the outcome of the empirical research. In order to evaluate sustainability aspects, scores were allocated to objectives, targets and measures, according to whether these were 'explicitly', 'implicitly' or 'not at all considered'. The potential impact of SEA was determined by comparing the scores of PPPs with SEA and PPPs without SEA.

Box 3.7 integrates substantive sustainability issues into a planning framework for sustainable development, following Figure 1.1[3]. The framework is used as a sustainability checklist for transport infrastructure related PPPs.

Annex 6 of the thesis compares EU and national targets in the three sample regions (DoE, 1994; Ministerie van VROM, 1994b, 1989a; Bundesministerium für Umwelt, BMU, 1994). Only in the Netherlands were requirements for the transport sector further specified and were national targets stricter than EU targets. In Germany, national targets were usually stricter than EU targets, except noise levels. In the UK, however, a number of EU targets were stricter than national targets. These include carbon dioxide (CO_2), nitrous oxides (NOx), sulphur dioxide (SO_2) and noise levels.

Postal questionnaires only included part of the objectives, targets and measures listed in Box 3.7, namely those that were identified in preliminary interviews to be of particular importance. These included four objectives, namely 'climate change', 'air quality', 'nature and biodiversity', 'urban environment'. Furthermore, they included two targets, namely 'emission targets' and 'land use targets'. Regarding sustainability measures, authorities were asked about the kinds of measures taken in order to meet the environmental sustainability objectives and targets.

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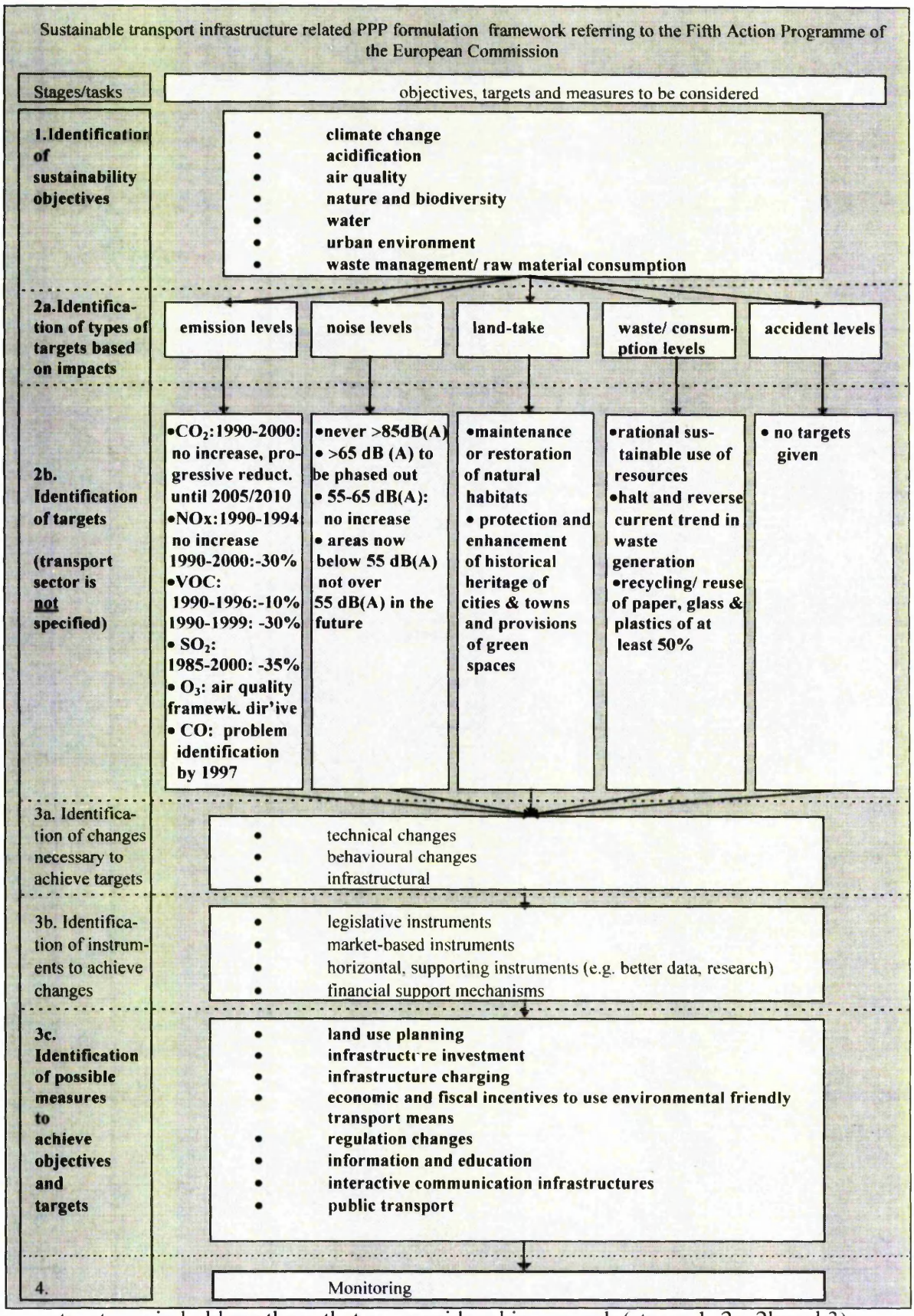
[3]Box 3.7 indicates that procedural requirements for PPP making for sustainable development are interwoven with substantive requirements, i.e. objectives, targets and measures are related to certain stages in the SEA process

Box 3.7: Framework for comparing the consideration of sustainability aspects



note: stages in bold are those that are considered in research (stages 1, 2a, 2b and 3)

3.4 Potential SEA benefits

This section relates the potential SEA benefits (see Section 1.2) to SEA principles, introduced in Box 2.6. Furthermore, criteria are identified that describe the SEA principles. This is done in order to meet research objective 5 'to determine the extent to which SEA results in the potential SEA benefits'.

Evaluation criteria are directly derived from chapters 1 and 2. Furthermore, criteria were chosen that PPP makers could easily reply to. Box 3.8 presents the chosen criteria, referring to the five potential SEA benefits. All criteria used to describe the potential SEA benefits were discussed in previous sections of this thesis and are therefore not further explained. Potential SEA benefit scores can be compared with other PPP and SEA aspects in statistical analysis in order to decide which of the aspects are of particular importance for successful SEA.

For the overall evaluation, possible answers to criteria were 'yes', 'no' or 'partly'/'qualitatively'/'reasonably'/'indirectly'/'implicitly'. Each answer was weighted, allowing differences between regions and SEA types to be analysed; ('yes' equals 2, 'partly' equals 1 and 'no' equals 0). Scores were added up and related to the possible maximum score of a particular benefit. For a qualitative description of the results, four evaluation classes were distinguished:

(a) Under 25% of the total score.

(b) 25% to under 50% of the total score.

(c) 50% to under 75% of the total score.

(d) 75% to under 100% of the total score.

(e) 100%.

Chapter 9 presents the outcome of the empirical research. A detailed evaluation of the criteria is presented in Annex 4.

Box 3.8: SEA benefits, principles and evaluation criteria

SEA Benefit	SEA Principle (a): framework principle (b): procedural principle	SEA Evaluation criterion
Wider consideration of impacts and alternatives	(a): SEA scope be commensurate with scope of PPP	• does SEA address the same issues as the PPP at the same geographical scale?
	(b): impact prediction	• are environmental impacts assessed? • are impacts of CO_2 emissions/energy consumption considered? • are impacts on transport generation considered? • are general cumulative impacts of the whole PPP assessed?
	(b): evaluation of impacts	• is the significance of impacts regarding environmental objectives and targets evaluated?
	(b): specification of alternatives	• is the zero alternative considered? • are intermodal/intramodal alternatives considered?
	(b): specification of scenarios	• are scenarios considered?
Pro-active assessment - SEA as a supporting tool for PPP formulation for sustainable development	(a): application of SEA as early as possible	• did SEA start before/at beginning, during or after the PPP process? • when were environmental issues first considered?
	(a): clear objectives and terms of reference/ environmental standards	• are environmental objectives considered? • are economic objectives considered? • are social objectives considered? • are transport specific objectives considered? • are environmental/traffic reduction standards considered?
	(a): pro-active, structuring process that also considers socio-economic impacts	• is there a predetermined, formal PPP process? • does SEA structure or run parallel to a structured PPP process? • are socio-economic impacts assessed?
	(a): sustainable development should be supported	• is sustainable development considered? • are sustainable development strategies considered?
	(b): screening	• is there a documented process with consultation or a simple checklist approach?
	(b): scoping	• is there a documented process with consultation or a simple checklist approach?
	(b): SEA report	• is there a separate assessment report or is an assessment report integrated into PPP?
	(b): monitoring and follow-up	• is any monitoring and follow-up provided? (e.g. auditing, research)

Box 3.8 (continued)

SEA Benefit	SEA Principle (a): framework principle (b): procedural principle	SEA Evaluation criterion
Strengthening project EIA-increasing efficiency of tiered decision making	(a): tiered SEA/EIA system	• do SEA and EIA assess different issues (are different environmental impacts considered)? • does SEA lead to an acceleration of project EIAs? • does SEA substitute (parts of) project EIA?
	(b): mitigation	• is mitigation provided for potentially remaining impacts at the SEA level?
Systematic consideration of the environment at higher tiers	(a): clear provisions	• what is the status of the SEA (statutory or non-statutory)? • what is the status of the PPP (statutory or non-statutory)?
	(a): clear requirements	• is there any guidance for SEA (official, research or other studies)? • is there any guidance for the PPP (official, research or other studies)?
	(a): accountability of initiating agencies	• is the SEA initiating body not the approving body? • is the PPP initiating body not the approving body?
	(b): SEA results effectively considered in PPP making	• how are SEA results considered in decision making?
	(b): review	• is there an outside review of SEA?
Consultation and participation on SEA related issues	(b): consultation and participation process	• is there consultation of external bodies for the SEA? • is there consultation of external bodies for the PPP? • is there public participation or consultation for the SEA? • is there public participation or consultation for the PPP? • is there public reporting of the results for the SEA? • is there public reporting of the results for the PPP?

3.5 Requirements of the EC 'SEA directive' proposal

Those SEA principles that will need to be met if the 'SEA directive' proposal was implemented, are identified in Box 3.9. Based on this evaluation, the extent to which existing SEAs fulfil the 'SEA directive' proposal's requirements were determined (see section 9.8).

The 'SEA directive' proposal only aims at PPPs that include information on the type, size and location of projects and set up the framework for subsequent approvals (Feldmann, 1998b, p108). Examples for those PPPs that are likely to be subject to formal SEA requirements were listed in the explanatory memorandum. They include the following PPPs in the three sample regions (COM (96)511).

England:

- Structure plans and unitary development plans part one
- Local plan and unitary development plan (UDP) part two

The Netherlands:

- VINEX
- Streekplannen
- Structuurplannen

Germany:

- Landesraumordnungsprogramme/pläne;
- Landesentwicklungsprogramme/pläne
- Regionalprogramme/pläne
- Flächennutzungspläne

As will be shown in chapter 6, most of these PPPs currently involve the preparation of informal SEA. Exceptions include the regional plans (*streekplannen*) in the Netherlands, which involve the preparation of formal big-project-SEA/EIA (however, not for the whole plan, but only for 'big projects') and the *Länder* spatial plans and programmes (*Landesraumordnungsprogramme und -pläne*) as well as the development plans and programmes (*Landesentwicklungspläne und -programme*) in Germany which do not involve SEA preparation at all. Chapter 10 will show that the SEA directive

requirements would probably cover a larger number of PPPs in Germany and England than in the Netherlands.

Box 3.9: Requirements of the EC 'SEA directive' proposal

SEA Principle (see also Box 2.6)	EC 'SEA directive' requirements	where mentioned
SEA scope be commensurate with scope of PPP	✗	✗
impact prediction of environmental and other impacts	✓	Article 1, Annex (e)
evaluation of significance	⇔	Article 5
specification of alternatives	✓	Annex (b)
scenarios	✗	✗
application of SEA as early as possible	⇔	Recital 1
clear objectives and terms of reference/ environmental standards	✗	✗
pro-active, structuring process that also considers socio-economic impacts	✗	✗
sustainable development should be supported	✓	Recital 2
screening	⇔	Article 4b
scoping	✗	✗
SEA report	✓	Article 2 (e)
monitoring and follow-up	✗	✗
tiered SEA/EIA system	✗	✗
mitigation	✓	Annex (b)
clear provisions	✓	whole directive
clear requirements	⇔	whole directive
accountability of initiating agencies	✗	✗
SEA results effectively considered in final decision	✓	Recital 14
review[1]	⇔	Recital 11(a)
consultation and participation process[2]	✓	Recital 12

✓ = yes, direct requirement; ⇔ = indirect requirement; ✗ = no requirement

(1) Judicial review is explicitly *excluded* (Art. 10). However, the Århus convention, signed by all EU member states, opens the possibility for litigation to the general public and NGOs. To date, the consequences of the convention have remained unclear.

(2) These include public participation, consultation of external bodies and the final reporting of the SEA results.

PART II

–

Planning Context

Introduction to part II

Part II of the thesis includes chapters 4 and 5 and deals with the organisation of planning and the transport infrastructure related PPPs in the three sample regions.

Chapter 4 outlines the organisation of transport and spatial/land use planning within its political and administrative context. Furthermore, the main planning instruments and associated legislation and guidance are presented.

Chapter 5 identifies the 36 PPPs that are the basis for the analysis of SEA case studies in the remaining chapters of this thesis. The 36 PPPs (cross-section of PPPs) are further portrayed in terms of four context variables, namely 'PPP relevance', 'PPP accountability', 'PPP intermodality' and 'PPP procedure'.

4 Organisation of Planning

Chapter 4 deals with the organisation of transport and spatial/land use planning in the three sample regions and addresses the first part of research objective 1 'to establish the context of SEA application [...]'. It is divided into four main sections. Section 4.1 describes the overall political and administrative context for transport and spatial/land use planning in the three regions. This is followed by section 4.2, which portrays the general features of the planning systems. Subsequently, section 4.3 identifies the main planning instruments and section 4.4 lists the associated legislation and guidance. Section 4.5 finally portrays cross-regional characteristics.

4.1 Political and administrative context

This section describes the general political and administrative context for transport and spatial/land use planning in the three sample regions. Furthermore, spatial administrative organisation is portrayed.

4.1.1 North West England

The UK is a unitary state with no written constitution. All power derives from legislation that is enacted in parliament and administered by central and local governments (DoE, 1989, p36). There are democratically elected bodies at either two levels (in unitary districts) or three levels (in counties), namely:

- The national level: House of Lords and House of Commons with central government.
- The county level: elected councillors.
- The shire district level or unitary district level (local level): elected councillors.

Whilst transport PPPs are prepared at national and county levels (local level transport PPPs are combined for counties and metropolitan areas), spatial/land use PPPs are prepared at county and local levels. In addition, central government provides guidance for the preparation of spatial/land use PPPs for county and local authorities, in the form of planning policy guidance (PPG) and regional planning guidance (RPG). Guidance on the preparation of local transport PPPs is provided by annual government circulars.

Following the Local Government Act in 1974, up until 1986, all of England and Wales had a two-tier administrative system with 39 counties and 264 districts (Cullingworth and Nadin, 1994, p28). On 1 April 1986, metropolitan county councils were abolished and 68 unitary authorities were created instead with a single-tier system of PPP making (i.e. unitary authorities). The number of unitary authorities has increased since then with districts outside of metropolitan areas also obtaining unitary status.

The region of North West England consists of three counties (Cumbria, Lancashire and Cheshire), 19 unitary authorities and 24 local district authorities. Unitary authorities not only include those of the metropolitan areas of Greater Manchester and Merseyside (10 and five districts, respectively) but also Warrington and Halton, formerly districts within Cheshire, as well as Blackpool and Blackburn, formerly districts within Lancashire. These districts obtained unitary authority status in April 1998. Regional development agencies (RDAs) in the eight English regions were established in 1998 in order to strengthen the regional level (DETR, 1998b), dealing with regional-specific development issues.

4.1.2 Noord-Holland

The Netherlands is a decentralised unitary state with a written constitution (*grondwet*). All executive power is centralised in the national government. There are democratically elected bodies at three levels (Ministerie van VROM, 1996a):

- The national level with first and second chamber of parliament (*De Staten-Generaal*) and central government (*de regering*).
- The provincial (*provincie*) level with the Provincial Council (*Provinciale Staten*) and Provincial Executive (*Gedeputeerde Staten*).
- The local level with the Municipal Council (*Gemeenteraad*) and the Municipal Executive (*College van Burgemeester en Wethouders*).

In addition, following the skeleton law 'changing administration' (*kaderwet bestuur in verandering,* 1994), the regional level (i.e. the level between provincial and local levels) also plays a role in decision making in the form of BoN areas (BoN = *besturen*

op niveau-regio - 'administration at the regional level'). BoN areas are administered by municipalities and provinces. Transport as well as spatial/land use PPPs are prepared at all levels of democratically elected bodies. Furthermore, they are prepared at the regional (BoN area) level.

There are 12 provinces (*provincies*), 633 municipalities (*gemeenten*) and seven regional BoN areas in the Netherlands[1]. In 1997, two BoN areas were designated 'city'-provinces (*stadsprovincies*), namely Eindhoven (SRE) and Rotterdam (SRR) (Volkskrant, 1997). The Regional Body of Amsterdam (ROA) is a BoN area that has not been designated a city *provincie*, yet.

The *provincie* of Noord-Holland consists of 70 local authorities of which 16 are organised within ROA. Regional and transport planning in ROA is carried out by a group of five officials of sub-regions, which comprise Amsterdam, Waterland, Zaanstreek, Amstelland and Meerlanden.

4.1.3 EVR Brandenburg-Berlin

Germany is a federal state with a written constitution (*Grundgesetz*). Executive power is shared by the Federation and the states (*Länder*). There are democratically elected bodies at four levels, namely:

- The national level with the Federal Parliament (*Bundesregierung)* and government (*Bundestag*).
- The *Länder* level with *Länder* parliaments (*Landtage*) and governments (*Landesregierungen)*.
- The county (*Kreis*) and city (*kreisfreie Stadt*) level with parliaments (*Kreis- und Stadttage*) and executives (*Bürgermeister*).
- The local level (*Gemeinden/Stadtteile*) with local parliaments (*Gemeinde- und Stadtteilvertretungen*) and executives (*Bürgermeister*).

[1] BoN areas include the Regionaal Orgaan Amsterdam (ROA), Stadsregio Rotterdam (SRR), Stadsgewest Haaglanden, Bestur Regio Utrecht (BRU), Knooppunt Arnhem-Nijmegen (KAN), Stadsregio Eindhoven (SRE) and Regio Twente.

Transport and spatial/land use PPPs are prepared at all administrative levels with democratically elected bodies. In addition, regional administration is formed by co-operating *Kreise* and cities (*kreisfreie Städte*).

Germany consists of 16 Länder, 426 counties (*Kreise*) and 117 'self-administering' cities. Furthermore, there are over 16,000 municipalities (*Gemeinden*)(Fischer Weltalmanach, 1994). Several municipalities may be administered by only one authority (*Amt*).

The functional planning region (*engerer Verflechtungsraum, EVR*) Brandenburg-Berlin consists of two Länder (Berlin and Brandenburg), one 'self-administering' city (Potsdam), five regions (*Regionen*) and eight counties (*Kreise).* 274 municipalities (*Gemeinden*) are administered by 65 authorities (*Ämter*)[2]. The functional planning region is embedded in an overall planning co-operation of both Länder, which is intended to lead to a common *Land* administration.

4.2 Planning systems

This section portrays general features of the planning systems in the three sample regions. Spatial/land use planning is described in a general way, covering all administrative levels. Furthermore, transport planning of national transport infrastructure is portrayed. Local transport planning in the three regions is usually integrated with local land use planning. In the Netherlands and Germany, the *provincies* and the *Länder* administer their own transport networks. However, compared with the national level, provincie and Land transport networks are small.

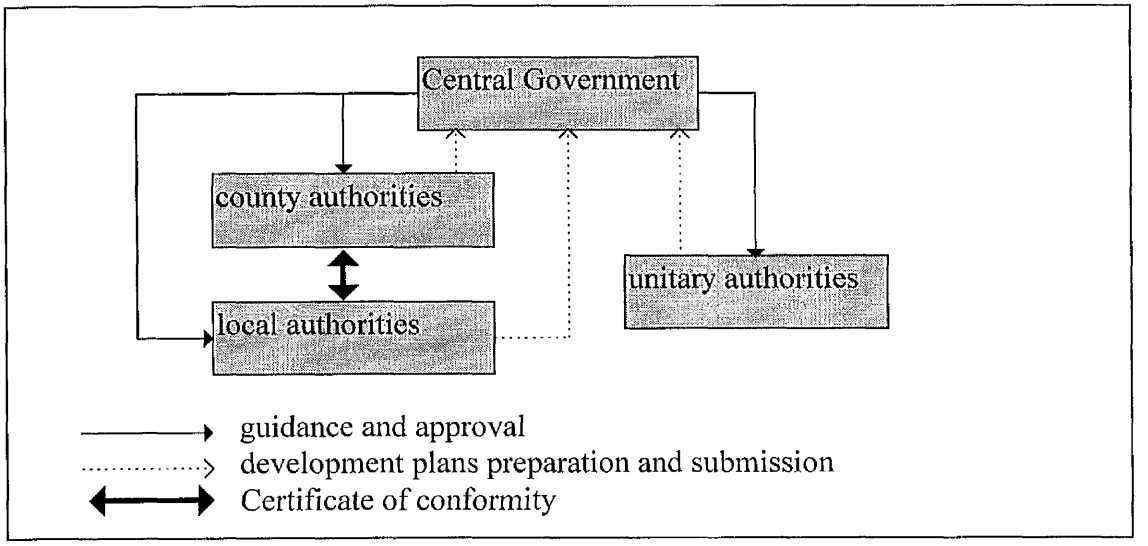
[2] EVR Brandenburg-Berlin covers parts of other regions (*Regionen*) and counties (*Kreise*), as well.

4.2.1 North West England

Spatial/land use planning

Spatial/land use planning in England and Wales is centrally guided and controlled by national government. Figure 4.1 shows the planning system in a simplified manner. Spatial/land use planning takes place within the central government dominated development plan system. Whilst lower administrative levels are responsible for the preparation of development plans, central government provides guidance and approves the plans. Since the election of the Labour government in 1997, devolution of certain decision making powers from national to regional and local levels has been pursued (see DETR, 1998b and DETR, 1998f).

Figure 4.1: Spatial/land use planning system in England and Wales



The Department of the Environment, Transport and the Regions (DETR, before 1997 Department of the Environment, DoE and Department of Transport, DoT) has the main responsibility for planning in England and there are eight regional offices for day-to-day executive action (planning inspectorate agencies). All spatial/land use PPPs are prepared by county, unitary or local authorities and anyone refused planning permission may appeal to the Secretary of State (SoS) of the Department of the Environment, Transport and the Regions (DoE, 1989, p34). Appeals are dealt with by government planning inspectors.

National policy is provided in the form of guidance for the substantive content of development plans, to which local planning authorities are not legally bound (Davoudi et al, 1996, p422). However, national government reviews all policy statements of local authorities and can seize responsibility for preparing development plans.

Transport infrastructure planning

Transport infrastructure in the UK is administered as follows:

- National Motorways, Trunk and Slip Roads: since 1997 the Department of the Environment, Transport and the Regions (DETR, before 1997 the Department of Transport, DoT) and highway agencies[3].
- Principal roads and classified as well as unclassified roads: County councils' engineering services and highway agencies[4].
- Railways: The railway system is privatised, the infrastructure is managed by Railtrack, services are provided by privatised companies[5].
- Canals and other waterways: varying responsibilities.
- Airports: privatised, varying responsibilities.

National transport planning is conducted by central government. This includes mainly trunk roads planning[6], as public transport has been privatised since 1985. Figure 4.2 shows the trunk road planning process in a simplified manner. The National Trunk Roads Programme is project oriented, and it is unclear how the projects included in the plan relate to overall transport policy.

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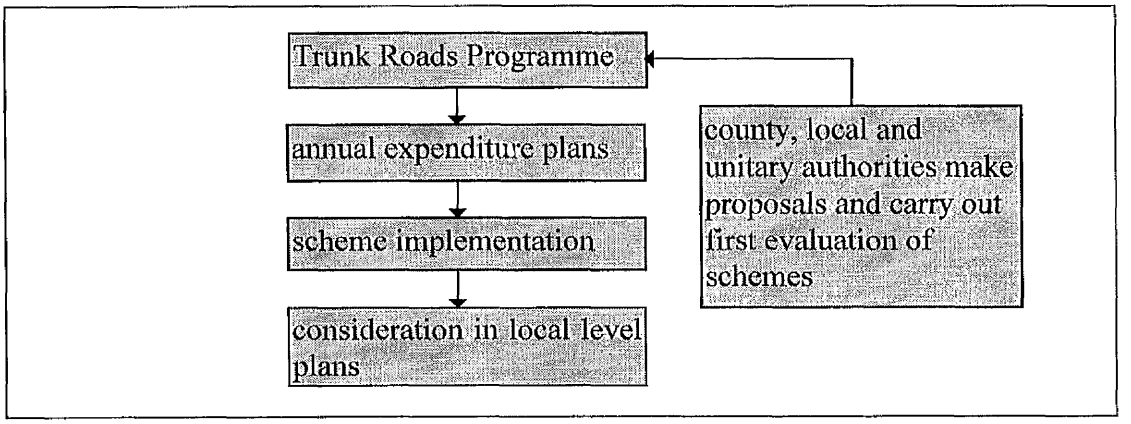
[3] An important strategic road transport document of the 1980s was the White Paper '*Roads for prosperity*' (DoT, 1989), which announced a doubling of the trunk roads programme and defined basic objectives for the Trunk Roads Programme. The 1998 review of the Trunk Roads Programme, however, reduced the number of schemes originally proposed considerably (DETR, 1998d).

[4] De facto, central government is a major player in all transport infrastructure decisions, as it provides the financial means for many of the transport infrastructure measures.

[5] To date, Railtrack has, however, obtained national government funding.

[6] Over the past few years, central government has started to address the transport system in a more holistic way, in particular through consultation papers and draft guidance. These include the 1996 white paper 'Transport - The way forward' (by the former conservative government) and consultation papers by the current Labour Government, e.g. 'Developing an Integrated Transport Policy' (DETR, 1997a), 'A New Deal for Transport' (DETR, 1998h).

Figure 4.2: Trunk roads planning process in England



Project proposals are made by local authorities and central government. Those proposals meeting previously defined objectives are included in the national Trunk Roads Programme. If a road scheme appears in the annual expenditure plans, a clear intention for implementation is formulated.

4.2.2 Noord-Holland

Spatial/land use planning

Consensus-building was described as an essential element of the planning system in the Netherlands[7]. Planning therefore often involves interactive and open procedures, which provide an opportunity for widespread consultation and participation. Whilst, traditionally municipalities have much autonomy and can participate in policy formulation of higher tiers (i.e. 'vertical administrative integration' of planning), policy made at higher tiers needs to be taken into account by lower tiers when devising their PPPs[8]. Furthermore, public participation takes place at all administrative levels of decision making. The Dutch planning system could therefore be described as being 'society consensus-led, quasi top-down'.

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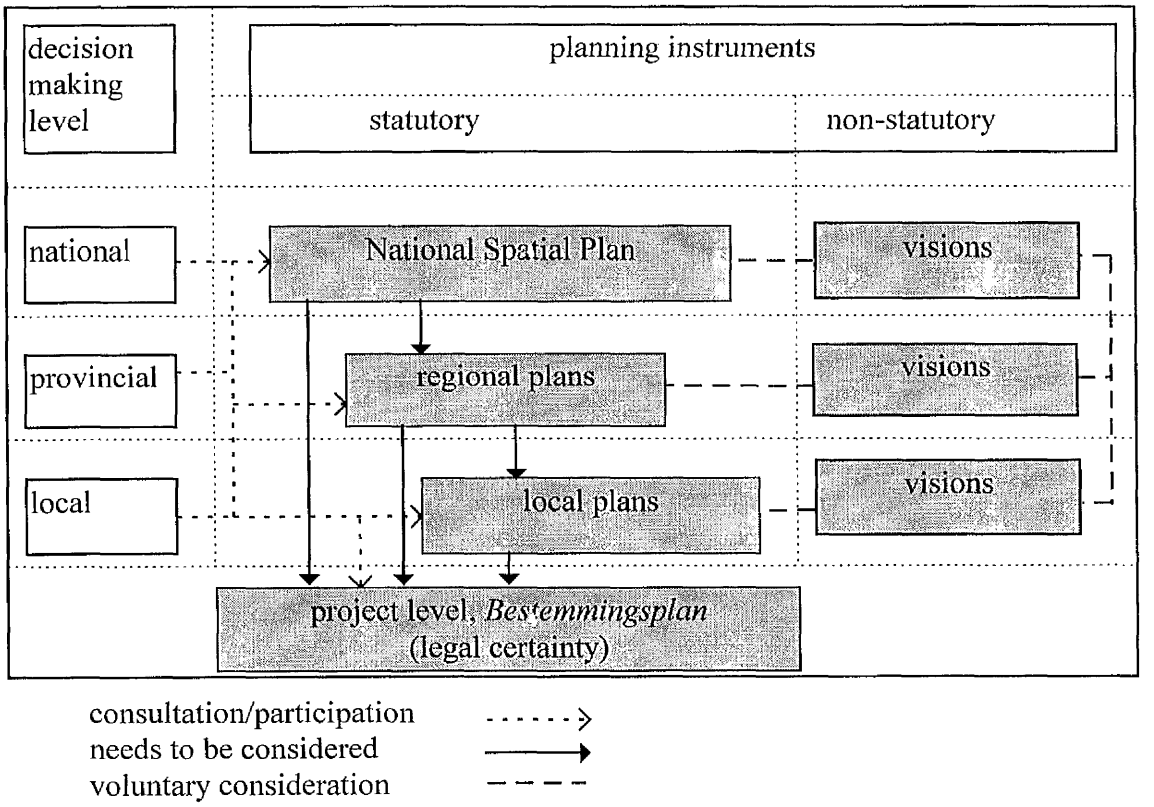
[7] The Dutch society is often described as a consensual society (EC, 1999c, p21; see also Van der Heiden et al., 1991).

[8] The costs of servicing the low-lying lands in the Netherlands are often too high for developments to be commercially feasible. Central government therefore frequently provides the necessary funding for developments and municipalities service the lands (EC, 1999b, p28)

Figure 4.3 portrays the organisation of spatial/land use planning in a simplified manner. PPPs are prepared at all decision making levels. The national government delegates authority to provincial and municipal governments through legislation and legal instruments that are enacted by the national parliament (DoE, 1989, p339). Current spatial/land use planning in the Netherlands uses 'traditional' statutory instruments and, increasingly also more non-statutory 'extra legal' instruments (visions, *visies*) at all administrative levels (EC, 1999c, p20). Visions put a higher emphasis on the integration of planning issues and compare the likely effects of different development scenarios. There is widespread participation and consultation[9].

The only PPPs that municipalities are legally required to prepare are statutory local plans, *bestemmingsplannen* (Ministerie van VROM, 1996a, p5). These are small-scale plans (covering only parts of a municipality) that provide legal certainty. So-called *globale bestemmingsplannen* may also cover an entire urban district.

Figure 4.3: Spatial/land use planning in The Netherlands



[9] The extra-legal visions (*visies*) are strongly influenced by the concept of communicative, or collaborative planning (Voogd and Woltjer, forthcoming).

Transport infrastructure planning

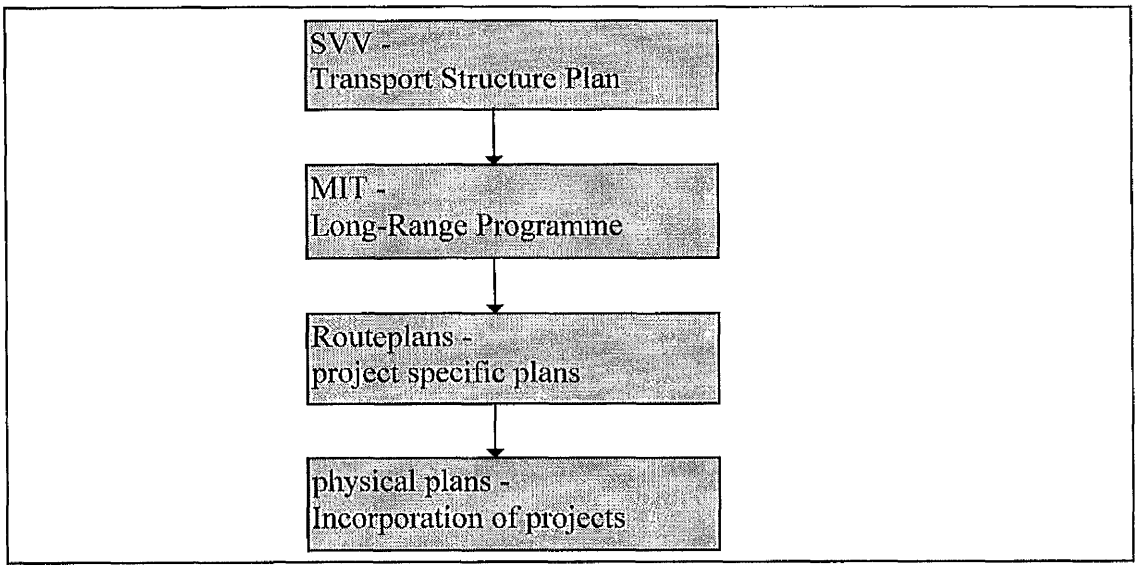
Transport infrastructure in the Netherlands is administered as follows:

- National Roads (*Rijkswegen*): Ministry of Transport and Water Management (*Ministerie van Verkeer en Waterstaat*, *MVW*, through provincial branches, in Noord Holland *Rijkswaterstaat Directie Noord Holland*).
- Provincial Roads: *provincies* (e.g. *Provincie* Noord-Holland).
- Other roads: municipalities (and regions, e.g. ROA).
- National railways: *Nationale Spoorwegen* (*NS*), infrastructure through Ministry of Transport and Water Management (*Ministerie voor Verkeer en Waterstaat*, *MVW*).
- Other railways: local or regional administration or private.
- Canals and rivers: varying responsibilities.
- Airports: National Ministry of Transport and Water Management (*Ministerie van Verkeer en Waterstaat, MVW*).

Figure 4.4 shows the planning process of national transport infrastructure (adapted from Niekerk and Voogd, 1996). The main steps of decision making are presented, starting with the national transport structure plan (*SVV, structuurschema verkeer en vervoer*) which outlines general policy and suggests possible projects[10]. This is followed by the long-range infrastructure and transport programme (*MIT, Meerjarenprogramma Infrastructuur en Transport*) and the route determination procedure (*Routeplan*, following the route alignment act, *tracéwet*). Finally, projects are incorporated into physical plans.

[10] The connection between the policies introduced in the SVVII and the projects appearing in the MIT, however, remains largely unclear.

Figure 4.4: National transport infrastructure planning process in the Netherlands



Source: adapted from Niekerk and Voogd, 1996

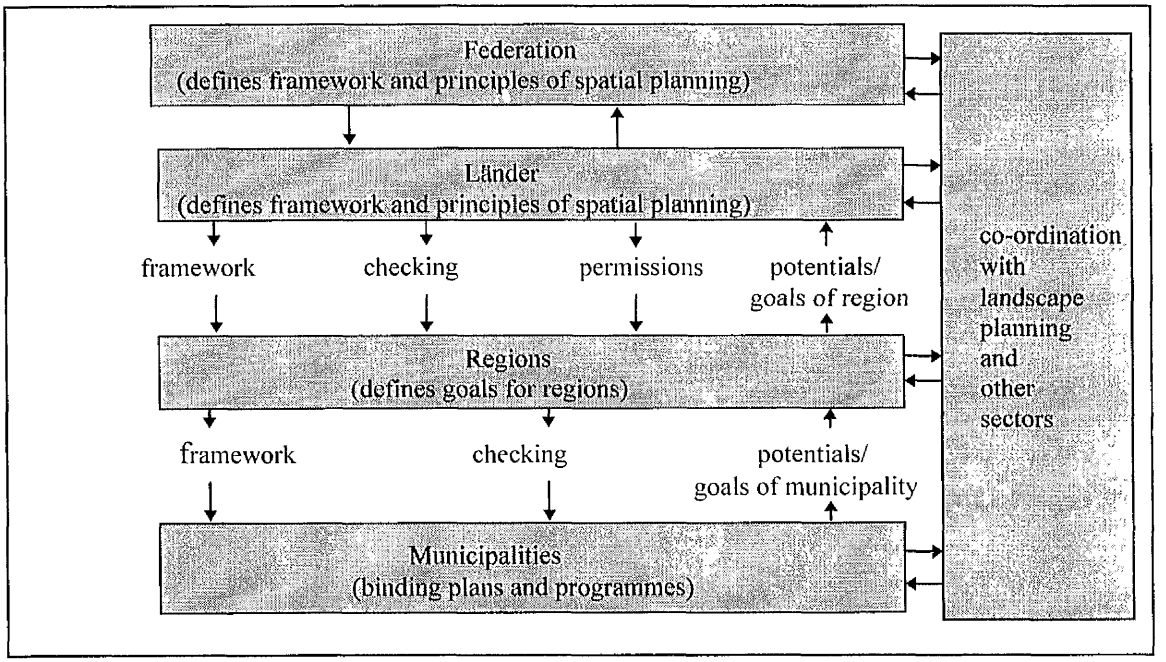
4.2.3 EVR Brandenburg-Berlin

Spatial/land use planning

The counter-current principle (*'Gegenstromprinzip'*) is often portrayed to be an important feature of the spatial/land use planning system in Germany (see, for example, EC, 1999c), according to which planning is neither organised in a strictly top-down, nor bottom-up manner. Instead, higher tiers of decision making provide planning frameworks that are developed under consideration of the input of lower decision making levels. Furthermore, decisions made at lower levels are checked by higher tier authorities. Public participation takes place mainly at the local level and the planning system could be described as having a 'public administration consensus-led, counter-current approach'.

Figure 4.5 illustrates the spatial planning system in Germany (following Bundesministerium für Raumordnung, Bauwesen und Städtebau, 1996, p9). It shows that planning is co-ordinated with the landscape planning system and with the planning instruments of other sectors. Landscape planning is intended to ensure that environmental aspects are considered in planning. It works as an instrument of the precautionary principle. It is further explained at the end of this section.

Figure 4.5 Spatial/land use planning in Germany



Source: adapted from Bundesministerium für Raumordnung, Bauwesen und Städtebau, 1996, p48 (translated by the author)

Transport infrastructure planning

Transport infrastructure in Germany is administered as follows:

- National Roads (*Bundesautobahnen* and *Bundesstraßen*): Federal Ministry of Transport, *Bundesverkehrsministerium* (maintenance through regional branches).
- *Länder* Roads (*Landstraßen*): *Länder* ministries of transport.
- Other roads (*Kreisstraßen* and *Gemeindestraßen*): *Kreise* and *kreisfreie Städte* (self-administering municipalities).
- National railways: *Deutsche Bahn* (*DB*, privatised), infrastructure administered by national ministry of transport.
- Other railways: either local or regional administration or private.
- Canals and rivers: Federal Ministry of Transport (*Bundesverkehrs-ministerium*).
- Airports: privatised.

Transport infrastructure planning is conducted by the bodies listed above. Compared with the other two regions, the *Länder* road networks in Germany are more extensive

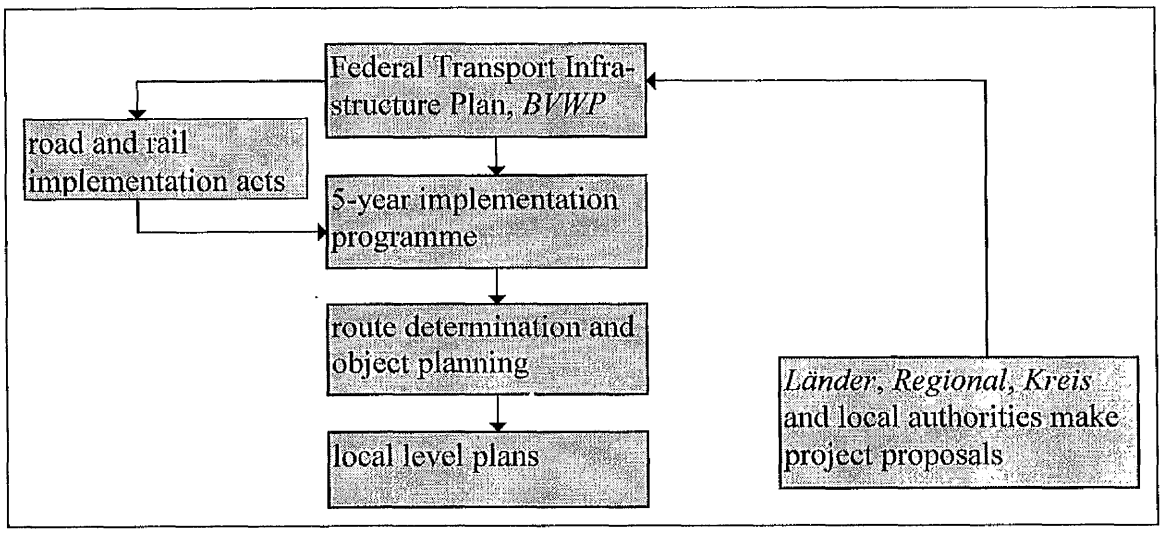
than comparable *provincie* road networks in the Netherlands (there are no similar regional transport networks in the UK).

Figure 4.6 portrays the organisation of federal transport infrastructure planning. At the beginning of the PPP process, proposals from lower tier road planning bodies and other authorities of all decision making levels are collected. These are examined and ranked in the Federal Transport Infrastructure Plan (*Bundesverkehrswegeplan, BVWP*). Three classes of project proposals are distinguished:

- Priority projects that had appeared in the former Federal Transport Infrastructure Plan.
- Newly proposed priority projects.
- Other projects.

The Federal Transport Infrastructure Plan obtains binding status through the development of the federal trunk roads and railways extension acts (*Straßen- und Schienenwegeausbaugesetze*). The 5-year implementation programme lists those projects that are going to receive funding over a five year period. Finally, object planning is conducted and projects are included in local plans. The federal transport infrastructure planning process is clearly project oriented and the connection with overall transport policy remains unclear.

Figure 4.6: Federal transport infrastructure planning process in Germany



Landscape planning

Landscape planning (*Landschaftsplanung*) is intended to act as an instrument of the precautionary principle and is closely connected with the spatial/land use planning system[11]. Both systems are integrated and regulated by paragraph 5 of the 'Federal Nature Protection Act' *(Bundesnaturschutzgesetz)* and the 'State Nature Protection Laws' *(Naturschutzgesetze der Länder)*. Landscape planning is organised along the same lines as spatial/land use planning and other planning sectors, such as transportation planning. 'Integrated landscape plans and programmes' (*Landschaftspläne und -programme*) define development goals from an environmental point of view for spatial/land use planning. Landscape planning aims at determining the capacity of natural resources and their limits and provides guidance for assessing the environmental impacts of projects and proposes compensation measures. Landscape planning attempts to make the scenic landscape and the natural ecosystem the basis for all land use considerations (Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit, 1993, p7). Table 4.1 shows that every step in the spatial/land use planning hierarchy can be related to different landscape planning steps.

Table 4.1: Landscape planning and spatial planning in Germany

Planning level	Spatial/land use Planning	Landscape Planning	Scale of maps
Land	*Land* Spatial Development Plan *(Landesentwicklungs-plan/-programm)*	Landscape Programme (*Landschaftsprogramm*)	1:500,000 to 1:200,000
Region	Regional Plan (*regionales Raumordnungskonzept*)	Landscape Framework Plan *(Landschafts-rahmenplan)*	1:50,000 to 1:25,000
Kreis	*Kreis*-development plan (*Kreisentwicklungsplan*)		
Community, City	Landuse Plan (*Flächennut-zungsplan, FNP*, §1, BauGB)	Landscape Plan (*Landschaftsplan*)	1:10,000 to 1:5,000
City District	e.g. city district plan (*Bereichsentwicklungsplan)*		around 1:3,000
Part of the Community	Master Plan (B-Plan, §1, BauGB)	Open Space Master Plan (*Grünordnungsplan*)	1:2,500 to 1:1,000

Source: adapted from Bundesumweltministerium für Umwelt, Naturschutz und Reaktorsicherheit, 1993, p7

[11] The objective of the precautionary principle is to avoid or to minimise any pollution or damage before it arises. Environmental policy should not only be reactive, but anticipatory; that is to say, not only averting dangers and repairing damages, but also preventing them at source (Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit, 1992, p74).

4.3 Planning instruments

This section identifies the main transport and spatial/land use planning instruments in the three sample regions. All administrative levels of decision making and statutory as well as non-statutory instruments are covered.

4.3.1 North West England

At the national level, the *Trunk Roads Programme* is the most important transport infrastructure PPP. The only national document that currently considers all modes of transport are the annually reviewed *government expenditure plans* which include national roads, rail infrastructure, central government support to local authorities and the Civil Aviation Authority and London Transport. Furthermore, the Department of the Environment, Transport and the Regions (DETR) is working on an integrated transport strategy (DETR, 1997b). Trunk road planning is not integrated into the development control system, a situation that has been repeatedly criticised (see the Royal Commission on Environmental Pollution, 1995, paragraph 9.50). Railtrack (the company responsible for UK rail infrastructure) prepares annual management statements on the rail infrastructure network. There is neither a national spatial PPP for the UK as a whole, nor are there any spatial PPPs for England, Scotland, Wales and Northern Ireland as separate entities.

Transport policies and programmes (TPPs; since the beginning of 1999, TPPs are called 'local transport plans') are prepared annually for county and metropolitan wide areas. They

> "enable the government to assess local authorities proposed programmes of capital expenditure on roads and parking and to decide the way in which annual capital guidelines supplementary credit approvals and transport supplementary grant should be distributed among authorities" (Cullingworth and Nadin, 1994, p230)

In 1994/95, for the first time, TPP bids were encouraged to cover both road and public transport investment proposals. In contrast to development plans, TPPs are neither statutory documents, nor are they subject to any formal inquiry procedures. They can,

however, be regarded as quasi-mandatory instruments, as no government funding can be allocated without their preparation. Furthermore, central government publishes annual circulars on their preparation. Districts of former metropolitan counties have started preparing common TPP documents in 1996. These documents are generally referred to as 'packages'. In addition to the annual TPPs, authorities have started preparing transport strategies that broadly outline transport policy for counties and districts.

Whilst there is currently no statutory regional planning system, the regional level has become the focus of central government attention. Currently, regional planning guidance (RPG) is prepared, which is based broadly on advice given by groups of local authorities. At the county level, statutory structure plans are prepared. These are policy statements that deal with strategic land use matters (DoE, 1989, pp56-57). At the local level, statutory *unitary development plans (UDPs)* and in the shire districts, statutory *local plans* are prepared. County and local level PPPs are commonly referred to as development plans, which

> "are prepared to assist in the regulation of the spatial distribution of activities and environments within a prescribed geographical area" (Wood, 1988, p10)

All land use planning decisions have to be in accordance with these documents, unless material considerations indicate otherwise (Planning and Compensation Act 1991, section 54a). Local plans prepared by *district and borough councils* as well as by *national park authorities* set out detailed policies and specific proposals for the development and use of land. Table 4.2 provides a schematic view of the main transport and spatial/land use planning instruments at all administrative levels in England.

Table 4.2: Transport and spatial/land use planning instruments in England

Administrative Level	Status	Spatial/land use planning instrument	Transport planning instrument
National	statutory		
	non-statutory	• planning policy guidance (PPG)	• Trunk Roads Programme • other strategies and policy statements (DETR, 1997b, Railtrack annual statements)
Regional	statutory		
	non-statutory	• regional planning guidance (RPG)	• regional transport strategies
County	statutory	• structure plans	• quasi-statutory: combined transport policies and programmes (TPPs)* - packages and strategies
	non-statutory		• transport strategies
District	statutory	• unitary development plans (UDPs) and local plans	
	non-statutory	• different plans (e.g. plans for parts of a municipality)	• transport strategies for parts of districts

* whilst TPPs (local transport plans) are prepared by local authorities, *de facto*, through combination they become instruments of the county level

4.3.2 Noord-Holland

There is one statutory PPP for each of spatial/land use and transport planning at the national level of decision making, namely the Transport Structure Plan (*structuurschema verkeer en vervoer*, *SVV*) and the national Spatial Planning Document (*nota ruimtelijke ordening*). The National Environmental Policy Plan (*NMP- nationaal milieubeleidsplan*) is also of importance, as the Transport Structure Plan, The National Spatial Plan and *NMP* have the same underlying environmental objectives. In 1998, a long term spatial development vision (*perspectievennota Nederland 2030,* started by *discussienota Nederland* in July 1997) was developed for the whole country (Ministerie van VROM, 1998a).

Current planning is based on the Second Transport Structure Plan (*SVVII*), the Fourth Spatial Planning Note (*VINEX*) and the Second Environmental Policy Plan (*NMPII*). *VINEX* was amended in 1997 by *VINEX* review. A third National Environmental Policy Plan was published in 1998 (*NMPIII*, Ministerie van VROM, 1998b). Furthermore, in 1998, the Dutch government underlined its intention to combine spatial planning, transport and the environment in an *integrated national strategy* for which the PPP

formulation process was to be started at the beginning of 2000. The formal PPP formulation process for a third Transport Structure Plan was started in 1999.

At the provincial level, statutory regional plans *(streekplannen)* are prepared for several parts of the *provincie*. Furthermore, non-statutory visions (*visies*) are prepared for entire provincial areas. Non-statutory inter-provincial co-operation is conducted by the four Randstad provincies that include transport as well as spatial/land use planning. Regarding provincial transport planning, from 1989 to 1995, integrated regional transport strategies were prepared for transport regions (*vervoerregios*). These covered all transport modes as well as general transport themes, i.e. cycling, parking, security, public transport, roads and goods transport in a regional context. Transport regions were created following requirements formulated in the Second Transport Structure Plan, *SVVII*. They were abolished by the national government in 1995. However, following the *VERDI* agreement,[12] the Transport Planning Act (*planwet verkeer en vervoer*) was implemented, according to which *provincies* as well as municipalities need to prepare integrated transport plans (*RVVPs, regionaale verkeers- en vervoersplannen*). These *RVVPs* implement national policy at the provincial level and formulate specific provincial requirements.

At the local administrative level, statutory structure plans *(structuurplannen)* may be prepared. These provide a broad outline for the future land use of a municipality. Neighbouring municipalities may draw up joint 'structure plans'. However, there are no mandatory requirements for the preparation of local/regional 'structure plans' and non-statutory spatial/land use planning instruments have recently obtained more importance in the Dutch planning system. Non-statutory spatial/land use PPPs include strategic outlook plans or visions (*structuurvisies, toekomstvisies* and *ontwikkelingsvisies*). It is assumed that these plans are more dynamic than traditional regulated plans and that they "should help to overcome problems of the traditional regulated plans" (interview for the *Ontwikkelingsvisie* Noord Holland).

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[12] The VERDI agreement (*verkeer en vervoer: regionaal, decentraal, integraal*) was signed by the national Ministry of Transport and Water Management (MVW), the Ministry of Internal Affairs, the Interprovincial Administrative Committee (IPO) and the Association of Dutch Municipalities (VNG) on 29 March 1996. In 1996/7, all financial support of the national government for non-national infrastructure went to provincial authorities. In 1998 this practice was changed and financial support now goes to both, *provincies* as well as municipalities.

Furthermore, at the local level, the only mandatory land use plans, the *bestemmingsplannen* are prepared, which provide legal certainty. The city of Amsterdam has a special status within the planning system of the Netherlands. Urban districts *(Stadsdelen)* prepare their own 'local plans' (*bestemmingsplannen*) that are reviewed by the city on the basis of Amsterdam's 'structure plan' (*structuurplan*). Amsterdam's 'structure plan' therefore has a stronger status than other structure plans in the country.

According to the Transport Planning Act (*planwet verkeer en vervoer,* 1998), local authorities will need to prepare formal local transport plans. Non-statutory plans at the local level have already been prepared in the past (see, for example, Physical Planning Department, 1993). Table 4.3 presents a schematic view on planning instruments that were of importance with respect to transport and spatial/land use planning at all administrative levels in the Netherlands.

Table 4.3: Transport and spatial/land use planning instruments in the Netherlands

Administrative Level	Status	Spatial/Land Use Plans	Transport Plans
National	statutory	Spatial Planning Document (*VINEX*)	Transport Structure Plan (*SVV*)
	non-statutory	Development Vision (*ontwikkelingsvisie*)	different PPPs, e.g. rail strategy
Interprovincial co-operation	non-statutory	Urbanisation Vision of 4 Randstad Provinces (*IPVR*) (formulating own policies)	Interprovincial Investment Scheme (*RISI*)
Provincial	statutory	regional plans (*Streekplannen*)	
	non-statutory	development visions (*Ontwikkelingsvisies*)	transport visions (*visies*)
Regional	statutory	structure plans (*structuurplannen*)	transport plans (*verkeers- en vervoersplannen*)
	non-statutory	visions (*visies*)	
Local (intermunicipal co-operation possible)	statutory	structure plans (*structuurplannen*)	transport plans (*verkeers- en vervoersplannen*)
	non-statutory	visions (*visies*)	
'Sub'-local	statutory	local land use plans (*bestemmingsplannen*)	implementation programmes (*uitvoeringsprogrammas*)
	non-statutory	different plans (e.g. quality plans, development plans)	transport PPPs for parts of cities

4.3.3 EVR Brandenburg-Berlin

At the national level, the Federal Transport Infrastructure Plan *(Bundesverkehrswegeplan, BVWP)* sets forth the need for adjustments and the extension of the national trunk roads and motorway system, the railway system and the waterways system. Long-term investment objectives for transport infrastructure are determined and general objectives for the airports are formulated. Binding status is obtained through parliamentary implementation acts. Similar to the situation in England, in Germany, national transport infrastructure planning stands outside the national planning control system. Regarding spatial/land use planning at the national level, a Spatial Action Framework (*Raumordnungspolitischer Handlungsrahmen*) is prepared by the Conference of the Ministers of Federal States (*Ministerkonferenz für Raumordnung*, MKRO). It is based on the Spatial Orientation Framework (*Raumordnungspolitischer Orientierungsrahmen*), prepared by the Federal Ministry of Spatial Planning (*Bundesministerium für Raumordnung, Bauwesen und Städtebau*, since 1999 Ministry for Transport, Construction and Dwellings, *Bundesministerium für Verkehr, Bau und Wohnungswesen*).

At the *Länder* level, spatial development plans or programmes (*Landesentwicklungspläne, -programme*) are prepared. Furthermore, *Länder* road extension PPPs are prepared. County (*Kreis-*) authorities prepare development plans (*Kreisentwicklungspläne*) and regional planning bodies (consisting of *Kreise* and *kreisfreie Städte*) are responsible for the definition of spatial goals in regional programmes *(regionale Raumordnungsprogramme*). At the regional level, the main planning instruments are the regional plans (*Regionalpläne*). Non-statutory integrated *Länder* transport PPPs are sometimes prepared as well as other non-statutory PPPs, for example regional railway PPPs.

The 'Construction Lead Planning' system (*Bauleitplanung*) identifies the tasks of local land use planning. It consists of two instruments, namely preparatory land use plans (*Flächennutzungspläne, FNPs*) and master plans (*Bebauungspläne, B-Pläne*). Master plans are the main land use instruments of project implementation and are prepared for small areas within municipalities (*Gemeinden*). They are guided by the preparatory land

use plans (*FNPs*) that are prepared by the municipalities. In larger municipalities, non-statutory strategic transport PPPs may also be prepared. Furthermore, in large cities, city district development plans are often prepared. These translate the city land use plan (*FNP*) to the city district. Table 4.4 provides a schematic view on PPPs that are of importance with respect to transport and spatial/land use planning at all administrative levels in Germany.

Table 4.4: Transport and spatial/land use planning instruments in Germany

Administrative level	Status	Spatial Plans	Transport Plans
National	statutory		• Transport Infrastructure Plan (*Bundesverkehrswegeplan*)
	non-statutory	• Spatial Orientation Framework (*Raumordnungspolitischer Orientierungsrahmen*)	
Land (State)	statutory	• *Land* development plans (*Landesentwicklungspläne*) • *Land* development programmes (*Landesentwicklungsprogramme*)	• road development PPPs (*Landesstraßenentwicklungspläne*)
	non-statutory		• integrated transport PPPs (*Integrierte Verkehrspläne*)
Regional	statutory	• regional plans (*Regionalpläne*)	
	non-statutory		• specific transport PPPs (e.g. regional railway PPPs)
Kreis (county)	statutory		
	non-statutory	• development concepts (*Kreisentwicklungskonzeptionen*)	
Local (intermunicipal co-operation possible)	statutory	• local land use plans (*Flächennutzungspläne*)	• public transport plans (*ÖPNV-Pläne*) after 1996
	non-statutory	• city district development plans (*Bereichsentwicklungspläne*)(larger municipalities)	• integrated transport PPPs (*Integrierte Verkehrspläne*) (larger municipalities)
'Sub'-local	statutory	• land use plans (*Bebauungspläne*)	
	non-statutory		• different documentation that only covers parts of municipalities (e.g. parking concepts)

4.4 Legislation and guidance

This section identifies important legislation and guidance for the transport and spatial/land use planning systems in the three sample regions, as previously described.

4.4.1 North West England

Planning in England follows the Town and Country Planning Act 1990, amended by the Planning and Compensation Act 1991. Furthermore, the Town and Country Planning Regulations of 14 March 1999 are of importance. The Local Government Act of 1985 determines those development plans that need to be prepared by local authorities. Regarding transport planning, the transport acts are of particular importance. The main acts which were said to have a bearing on county and local level TPPs were:

- Highways Act 1980.
- Transport Act 1985 (with respect to public transport).
- Environment Act 1995 (with respect to air quality).
- Land Compensation Act 1973.
- Road Traffic Reduction Act 1997.
- Local Authority (Capital Finance, Approved Investments) Regulations 1995.

Central government releases planning policy guidance notes (PPGs) that are to be used by local authorities when preparing development plans. PPG 1 identifies general policy and principles. PPG 12 provides guidance for the preparation of development plans and PPG 13 provides guidance for transport planning. Additional planning guidance is provided by 19 other PPGs, among which some are of particular importance for transport, such as PPG 3 (Housing), PPG 4 (Industrial and Commercial Development), PPG 6 (Town Centres and Retailing), PPG 7 (Countryside and Rural Economy), PPG 17 (Sport and Recreation) and PPG 21 (Tourism).

At present, strategic policies on spatial/land use and related planning matters at the regional level are expressed in the form of Regional Planning Guidance (RPG), issued by the Secretary of State (SoS) of the Department of the Environment, Transport and the Regions (DETR). RPG is prepared for each government office area and English

regions have established (non-statutory) 'regional planning conferences' which have had

> "an important function in developing policies and providing advice for the Secretary of State to consider in preparing regional planning guidance" (Royal Commission on Environmental Pollution, 1995, paragraph 13.26)

The RPG system sets out strategic policies and guidance for land use and development (DETR, 1997c). In North West England, RPG 13 replaced the regional planning guidance note for Greater Manchester (RPG 4). However, as there are currently no overall strategic documents prepared for metropolitan areas, RPG 4 is still of importance for e.g. housing development figures.

The DETR publishes transport policies and programmes circulars annually, based on which TPPs and package bids are prepared. The TPPs included in this research refer to either local authority circulars 2/95 (those prepared in 1996) or 2/96 (those prepared in 1997).

4.4.2 Noord-Holland

The organisation of spatial/land use planning, as well as national transport planning in the Netherlands is based upon the 'Spatial Planning Act' with the latest amendment of 06.02.1997 (*wet op de ruimtelijke ordening*). Furthermore, at provincial and local levels, the 'General Administrative Act' (*algemeene wet bestuursrecht*, last amended 1998) defines procedures for statutory regional plans (*streekplannen*) and statutory local land use PPPs in the form of structure plans (*structuurplannen*). The skeleton law 'Changing Administration' (*kaderwet bestuur in verandering*, 1994) describes the tasks of the regional administrative level. Spatial/land use planning policy of provinces and municipalities as well as transport planning at the regional level is supervised by national government. Since 1 January 1998, transport planning is conducted according to the Transport Planning Act (*planwet verkeer en vervoer*, 1998), defining planning tasks for the national, provincial and local levels.

Guidance is primarily provided by laws (such as the 'Spatial Planning Act' and the 'General Administrative Act') as well as by other PPPs. There are no planning guidance notes as such. Notes (*notas*) that are released at all administrative levels of decision

making, illustrate government policy to be followed by lower tiers of decision making. *Notas* that were either mentioned during interviews or in mail questionnaires include:

- *Nota Samenwerken an Bereikbarheid* ('Working Together Towards Greater Accessibility', Ministerie van Verkeer en Waterstaat, 1996a).
- *Nota transport in balans* (TiB, 'Transport in Balance', Ministerie van Verkeer en Waterstaat, 1996b).
- *Nota locatiebeleid* ('Location Policy', Ministerie van VROM, 1991).
- *Provinciale nota locatiebeleid* ('Provincial Note Location Policy', Provincie Noord-Holland, 1993).
- *Nota ruimte voor regios* ('Space for Regions', Ministerie van Economische Zaken, 1995).
- *Relatienota natuurontwikkeling op landbauwgrond* ('Nature Development on Agriculture Areas', Provincie Noord-Holland, 1992).
- *Derde nota waterhuisvesting* (NW3) ('Third Note Water Management', Ministerie van VROM, 1989b).

4.4.3 EVR Brandenburg-Berlin

Up until 1998, spatial/land use planning in Germany had been based on the Spatial Planning Act *(Raumordnungsgesetz, ROG)* and the Construction Statute Book (*Baugesetzbuch*). In 1998, a new Spatial Planning and Construction Act (*Bau- und Raumordnungsgesetz, BauROG,* 1998) was implemented by the Federal Parliament (*Bundestag*) and the parliament of the *Länder* (*Bundesrat*), amending the former two acts.

In general, spatial planning is the responsibility of the Länder and the Federal Government has only a co-ordinating role. The *Federal Government* prepares a Spatial Development Framework (*Raumordnungspolitischer Orientierungsrahmen*), which is the basis for a Spatial Action Framework *(Raumordnungspolitischer Handlungsrahmen)* to be agreed upon by the planning conference of the *Länder* ministries. Of particular importance for national transport planning are the road and rail extension acts (*Fernstraßenausbaugesetz, Schienenwegeausbaugesetz*) following the Federal Transport Infrastructure Plan (*Bundesverkehrswegeplan, BVWP).*

In the former East Germany, the planning system has radically changed during the past nine years, following unification. A number of traditional planning instruments were

simplified in order to speed up planning for extending transport infrastructure. Examples for amended legislation include the Transport Infrastructure Planning Acceleration Act (*Verkehrswegeplanungsbeschleunigungsgesetz*, 1991) and the Act of Simplification of the Provisions for and Investment in New Residential Areas (*Investitionserleichterungs- und Wohnbaulandgesetz* , 1993).

In Berlin and Brandenburg, the Land Planning Convention (*Gesetz zum Landesplanungsvertrag, LPlV*, 1995) defines the tasks of spatial planning. The Regional Planning Act (*Gesetz zur Einführung der Regionalplanung und der Braunkohle- und Sanierungsplanung, RegBkPlG,* 1993) is the basis for regional planning in the *Land* Brandenburg. *Länder*, regional and county (*Kreis*) PPPs are usually prepared according to *Länder* legislation. Following the introduction of the Public Transport Regionalisation Act (*Regionalisierungsgesetz,* 1993), public transport plans should be prepared at regional levels after 1996. Brandenburg's Road Act (*Brandenburger Straßengesetz, BrbStrG*) of 1992 (last amended 1995) defines requirements for transport infrastructure planning in the *Land* Brandenburg. In Berlin, the Federal Construction Implementation Act (*AGBauGB*) translates the requirements of the Federal Construction Act (*BauGB*) to the local level.

4.5 Cross-regional characteristics

Table 4.5 compares the main features of the transport and spatial/land use planning systems in England, The Netherlands and Germany, as described in the previous sections. The general planning approach, the main administrative levels of PPP making and the main planning instruments are presented.

National transport planning was centrally managed by the national transport ministries in a rather top-down manner in the three regions. Spatial/land use planning involved all administrative levels of decision making and was more complex. In England, a centrally guided plan-making approach was followed. In the Netherlands, a society consensus-led quasi top-down approach was applied and in Germany, a public administration, consensus-led, counter-current approach was followed.

National governments in the UK and the Netherlands were found to have had a stronger status regarding spatial planning than the federal government in Germany, where spatial

planning was mainly the responsibility of the *Länder*. Other differences include the number of administrative levels. Thus, whilst there were five administrative levels in EVR Brandenburg-Berlin, this number decreased to four levels in Noord-Holland and to three levels in North West England. Currently, in North West England, a fourth decision making level is set up, the regional level. Whilst both the Netherlands and Germany prepared spatial as well as transport PPPs at most decision making levels, in England, spatial/land use PPPs were prepared only at local and county levels. In England, central government was involved in spatial planning through planning guidance to local authorities (PPGs and RPGs).

Table 4.5: Main features of transport and spatial/land use planning

Features \ Regions	North West England	Noord-Holland	EVR Brandenburg-Berlin
Transport planning approach	Whilst proposals for transport infrastructure projects are made by different bodies at all administrative levels, national transport infrastructure planning is organised in a top-down manner of decision making.		
Spatial/land use planning approach	centrally guided, local plan making	society consensus-led, quasi top down approach	public administration, consensus-led, counter-current approach
main administrative levels of PPP making	• national • county (and region) • local	• national • *provincie* (and interprovincial co-operation) • *Regio* • *Gemeente/ Stadsdeel*	• Federal • *Land* • *Region* • *Kreis/kreisfreie Stadt* • *Gemeinde/ Stadtteil*
spatial/land use planning, main planning instruments	• guidance • structure plans at county levels • local plans at local level or unitary development plans at district levels	• national spatial plan (*VINEX*) • interprovincial vision (*IPVR*) • provincial vision (*visie*) • regional provincial plans (*streekplannen*) • Regional PPPs (*structuurschets, structuurplan*) • local plan (*structuurplan, visie*) • 'sub'-local plan (*bestemmingsplan*)	• federal spatial frame-works (*Raumordnungs-politischer Orientie-rungs- und Handlungsrahmen*) • land development programme and -plan (*LEPro, LEP*) • regional plan (*Regionalplan*) • Kreis Development Plan (*Entwicklungsplan*) • preparatory land use plan (*FNP*) • district plan
transport planning, main planning instruments	• Road development plan (national integrated transport plan currently being developed) • regional transport strategies • package bids, TPPs and underlying strategies	• national transport plan (*SVV*) + programme • provincial (formerly regional) transport plans (*VVPs*)	• Federal Transport Infrastructure Plan (*BVWP*) + Programme • Länder road plans and integrated transport plans • city transport plans

5 Transport infrastructure related PPPs

Chapter 5 identifies and analyses the PPPs to be included in the further analysis. The second part of research objective 1 '[...] to systematically identify transport and spatial/land use PPPs in three EU regions' is addressed. Following sections 2.3.2 and 2.3.3, this chapter is divided into six sections. Section 5.1 lists all PPPs that interviewed authorities said were related to transport infrastructure planning in the three sample regions. It then identifies the PPPs to be included in further analysis. Sections 5.2 to 5.6 identify overall scores for each PPP for the four context variables, including 'PPP relevance' (section 5.2), 'PPP accountability' (section 5.3), 'PPP inter-modality' (section 5.4) and 'PPP procedure' (section 5.5). Section 5.6, finally, summarises cross-regional characteristics. In chapter 5, the following symbols are used for evaluating PPP criteria:

✓ = criterion met

⇔ = criterion partially met

× = criterion not met

Overall PPP variable scores are expressed by the following set of symbols:

■ = 100%

● = 75% to under 100%

⊙ = 50% to under 75%

○ = 25% to under 50%

▫ = 0% to under 25%

5.1 Selection of PPPs

This section is divided into two sub-sections. Section 5.1.1 presents all PPPs that were identified to be of importance for transport infrastructure planning by authorities at all administrative levels. Section 5.1.2 identifies the PPPs included in the analysis of SEA in the subsequent chapters.

5.1.1 All PPPs in the three sample regions

Figures 5.1 to 5.3 show the PPPs that authorities in the three sample regions identified as being relevant for transport infrastructure planning. They also indicate the PPPs included in further analysis. They are summarised in section 5.1.2 and are further exam-

ined in the remainder of this chapter. The associated Tables 5.1 to 5.3 list full PPP terminology and translations. PPPs mainly include transport, spatial/land use and environment/sustainability PPPs. Some PPPs of other sectors, however, were also said to be of importance. These include, in particular, economic and agriculture PPPs.

A large number of PPPs in the three regions were said to have been of relevance, underlining the complex character of transport infrastructure planning. The smallest number of PPPs was identified in North West England, reflecting a somewhat simpler planning system (see chapter 4).

Whilst both Noord-Holland and EVR Brandenburg-Berlin authorities mentioned considerably more types of spatial/land use PPPs than transport PPPs, in North West England there were no clear differences between the two sectors. Generally, comparatively few statutory transport PPPs and transport legislation/guidance were mentioned by authorities in the three regions.

In Noord-Holland, the Second Transport Infrastructure Plan (*SVVII*) and in EVR Brandenburg-Berlin the Federal Transport Infrastructure Plan (*BVWP*) were of particular importance for PPP making at all decision making levels. These two national PPPs define objectives and provide guidance on transport related issues for all other tiers of decision making.

Regarding sustainability/environmental PPPs in North West England, the focus of attention was clearly on non-statutory strategies, in particular on local agenda 21s[1]. In the other two regions, the focus was on statutory PPPs, namely landscape plans and programmes (*Landschaftspläne und -programme*) in EVR Brandenburg-Berlin and environmental policy plans (*milieubeleidsplannen*) in Noord-Holland.

[1] Postal survey results indicate that 50% of all local authorities in North West England, 17% in Noord-Holland and 4% in EVR Brandenburg-Berlin were aware of local agenda 21

Figure 5.1: Transport infrastructure related policies, plans and programmes in North West England

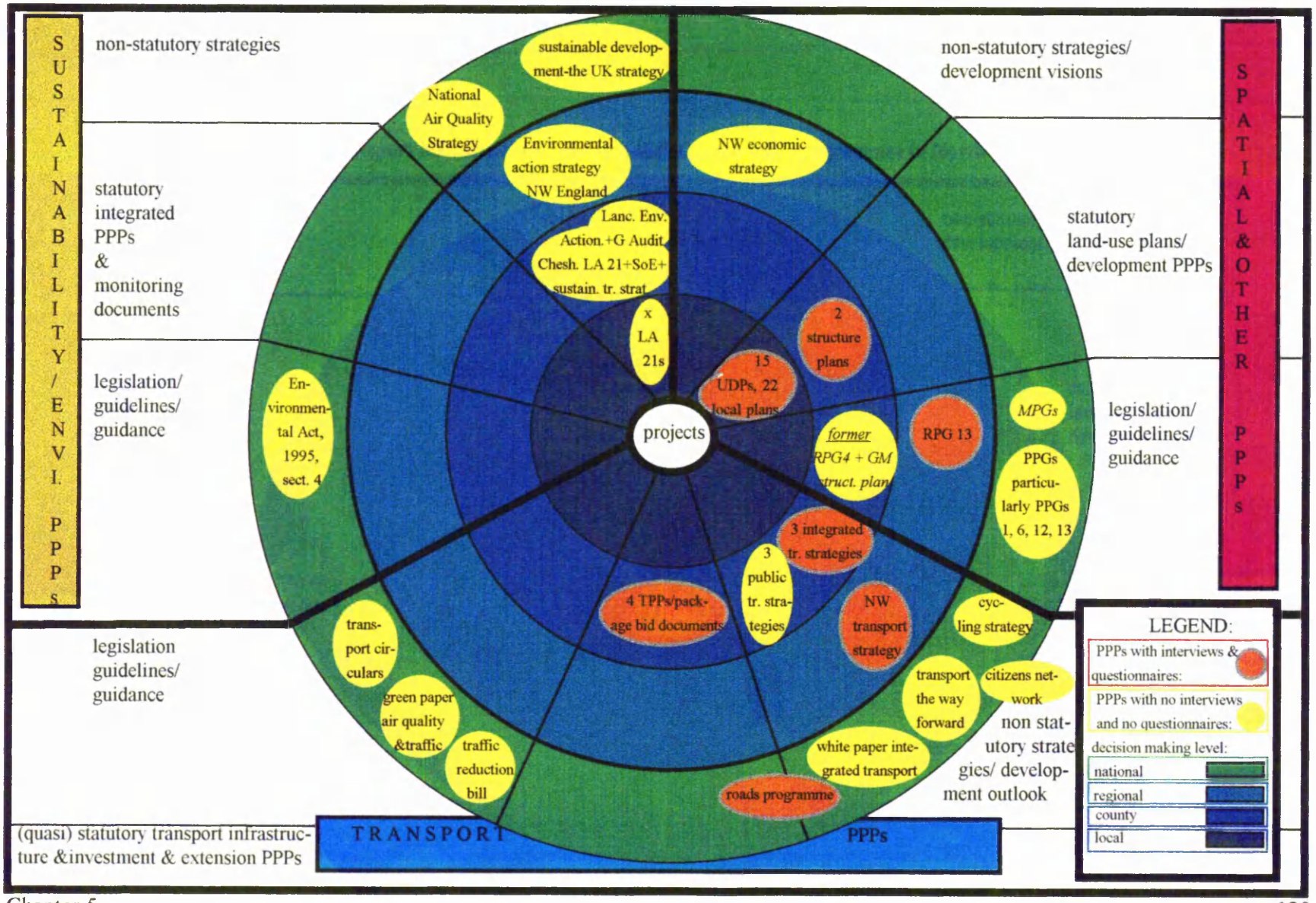

Table 5.1: Transport infrastructure related policies, plans and programmes in North West England

Sustainability/ environmental PPPs			Transport PPPs			Spatial/ land use PPPs		
non-statutory strategies	statutory integrated ppps & monitoring documents	legislation/non-statutory guidelines/guidance	legislation/non-statutory guidelines/guidance	statutory investment plans/ programmes	non-statutory strategies/ development outlook	legislation/non-statutory guidelines/ guidance	statutory land-use plans/ development ppps	non-statutory strategies/ development visions
• Sustainable development - UK strategy • Env. Action Strategy NW England: Environmental Action Strategy North West England • Lanc. Env. Action + G. Audit: Lancashire Environmental Action + Green Audit • Chesh. LA21 + SoE+ sustain. tr. strat. : Cheshire Local Agenda 21 + State of the Environment Report + Sustainable Transport Strategy • x LA21s: x local Agenda 21s		• National Air Quality Strategy • Environmental Act, 1995, Section 4	• Transport circulars: DETR guidance for TPPs and Package Bids • Traffic Reduction Bill • White Paper Integrated Transport	• 4 TPPs/package bid documents • Roads Programme	• Green Paper Air Quality and Traffic • 3 public transport strategies • 3 integrated transport strategies • NW Transport Strategy: North West England Transport Strategy • Cycling Strategy • Citizens Network (European Commission) • Transport- The way Forward	• Former RPG 4 + GM Struct. Plan: former Regional Planning Guidance 4 and Greater Manchester Structure Plan • RPG 13: Regional Planning Guidance 13 • PPGs (planning policy guidance), particularly PPGs 1, 6, 12, 13 • MPGs: Minerals Planning Guidance	• 2 Structure Plans • 15 UDPs (unitary development plans) • 22 local plans	• NW Economic Strategy: North West England Economic Strategy

Figure 5.2: Transport infrastructure related policies, plans and programmes in the *provincie* Noord-Holland

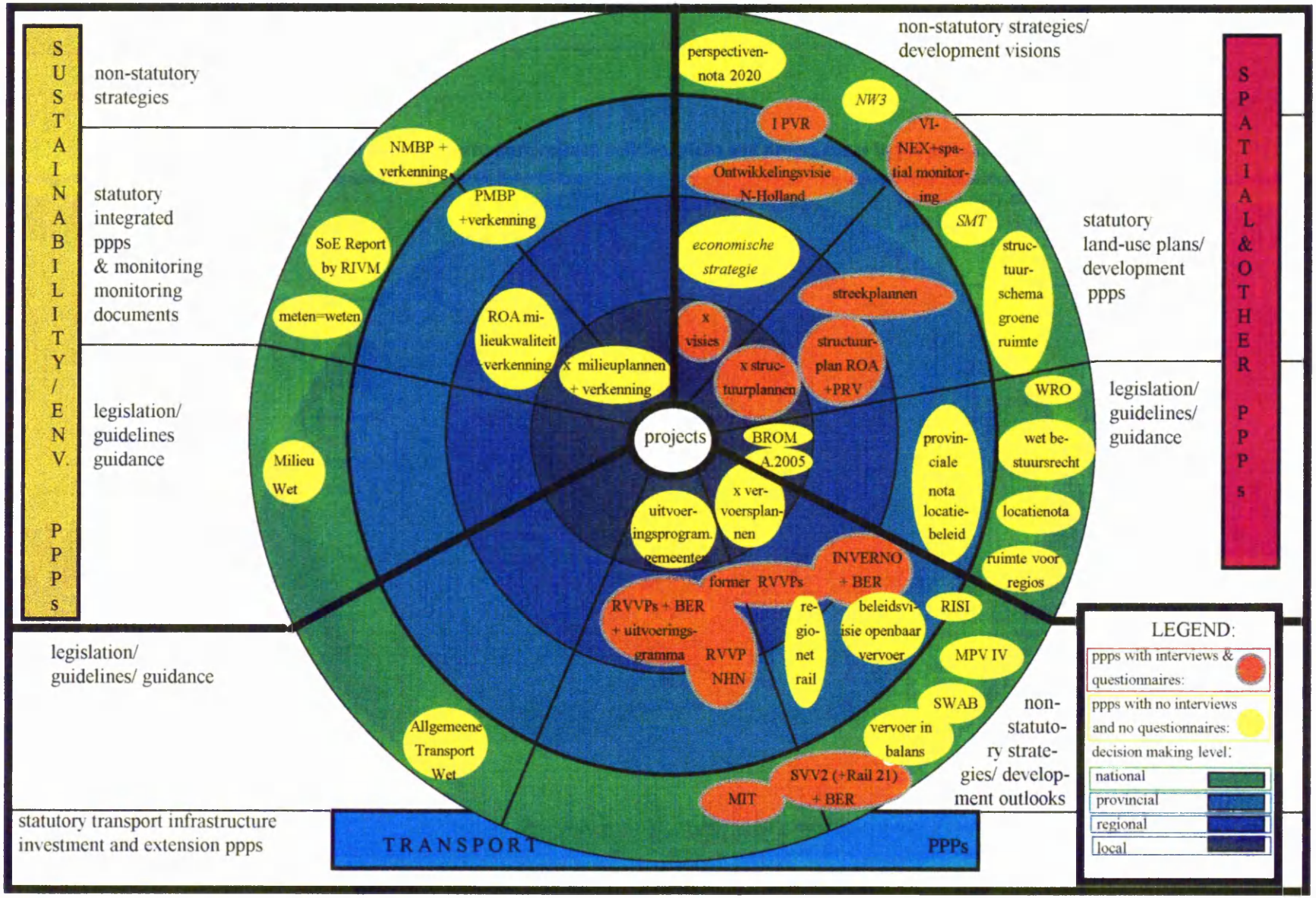

Table 5.2: Transport infrastructure related policies, plans and programmes in Noord-Holland

Sustainability/ environmental PPPs			Transport PPPs			Spatial/ land use PPPs		
non-statutory strategies	statutory integrated ppps & monitoring documents	legislation/non-statutory guide-lines/guidance	legislation/non-statutory guide-lines/guidance	statutory investment plans/ programmes	non-statutory strate-gies/ development outlook	legislation/non-statutory guidelines/ guidance	statutory land-use plans/ development ppps	non-statutory strate-gies/ development visions
	• NMBP + verk-enning: National Environmental Policy Plan + Environmental Monitoring • PMBP + verk-enning: Provin-cial Environ-mental Policy Plan + En-vironmental Monitoring • ROA milieu-kwaliteit + ver-kenning: ROA Environmental Policy Plan + Environmental Monitoring • Milieuplannen + verkenning: mu-nicipal environ-mental plans + environmental monitoring			• SVV 2 (+ Rail 21) + BER: Sec-ond Transport Structure Plan (+ Rail Strategy 21) + Policy Effect Report • MIT: Multi-year Programme Transport Infra-structure • RVVP NHN: Regional Trans-port Plan Noord-Holland Noord • RVVP ROA + uitvoeringspro-gramma + BER: Regional Trans-port Plan ROA + 2- year Pro-gramme + Policy Effect Report • Former RVVPs: regional trans-port plans of Haarlem/IJmond and Gooi en Vechtstreek • Uitvoeringspr. gemeenten: mu-nicipal pro-grammes for transport infra-structure	• MPV IV: Fourth National Safety Programme • RISI: Randstad Investment Scheme Trans-port Infrastruc-ture • SWAB: Note Working To-wards Greater Accessibility • Vervoer in balans: Note Transport in Balance • Beleidsvisie openbaar ver-voer: Policy Vi-sion Public Transport • Regionet rail: Note Regional Railway Net-work • INVERNO + BER: Transport Study of the Northern Part of the Randstad + Policy Effect Report • Vervoersplan-nen: municipal transport plans	• WRO: Spatial Planning Act • Wet be-stuursrecht: Administrative Management Act • Locatienota: Note Location Policy • Ruimte voor regios: Note Space for Re-gions • Provinciale nota locatiebeleid: Provincial Note Location Policy • BROM: Policy Note Spatial Or-ganisation and the Environment • A. 2005: Note Amsterdam To-wards 2005	• Structuurschema groene ruimte: Structure Plan Green Spaces • SMT: Structure Plan Military Areas • VINEX + spatial monitoring: Na-tional Spatial plan + spatial monitoring • 5 streekplannen: 5 regional plans • Structuurplan ROA + PRV: ROA's Structure Plan and Pro-gramme Spatial Renewal • Structuurplan-nen: Municipal Structure Plans	• NW3: Third Note Water Management • Perspectivennota 2020: Strategic Development Outlook 2020 • IPVR: Interpro-vincial Urbani-sation Vision of the Randstad • Ontwikkelings-visie N-Holland: Strategic Devel-opment Outlook Noord Holland • Economische strategie: Eco-nomic Strategy • Ontwikkelings-visies: Munici-pal Strategic Development Outlooks

Figure 5.3: Transport infrastructure related policies, plans and programmes in EVR Brandenburg-Berlin

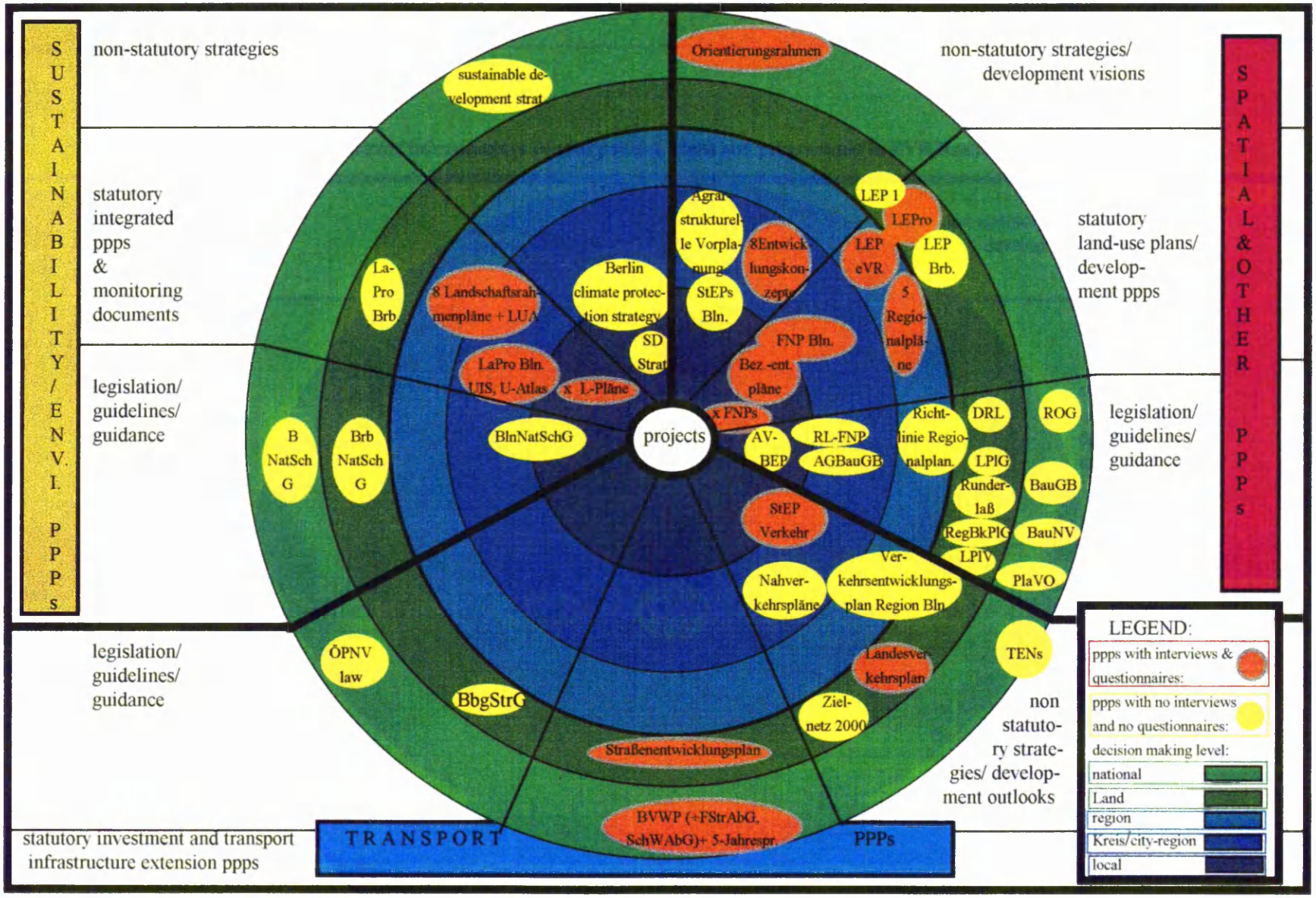

Table 5.3: Transport infrastructure related policies, plans and programmes in EVR Brandenburg-Berlin

Sustainability/ environmental PPPs			Transport PPPs			Spatial/ land use PPPs		
non-statutory strategies	statutory integrated ppps & monitoring documents	legislation/non-statutory guidelines/guidance	legislation/non-statutory guidelines/guidance	statutory investment plans/ programmes	non-statutory strategies/ development outlook	legislation/non-statutory guidelines/ guidance	statutory land-use plans/ development ppps	non-statutory strategies/ development visions
• Bln. Climate protection strategy: Berliner Klimaschutzstrategie	• LaPro Brb.: Landscape Programme Brandenburg • 8 Landschaftsrahmenpläne: 8 landscape framework plans • LaPro Bln.: Landscape Programme Berlin • x L-Pläne: x landscape plans	• BNatSchG: Federal Environmental Protection Act • BrbNatSchG: Brandenburg Environmental Protection Act • BlnNatSchG: Berlin Environmental Protection Act	• ÖPNV law: Local Public Transport Act (*Regionalisierungsgesetz*)	• BVWP (+FStrAbG, SchWAbG) + 5-Jahresprogramm: Federal Transport Infrastructure Plan (+ extension acts for trunk roads and railways) + 5-year programme • Straßenentwicklungsplan: Road Development Plan	• TENs: Trans-European Networks • Zielnetz 2000: Railway Network Development Outlook 2000 • Landesverkehrsplan: Integrated Transport Plan • Verkehrsentwicklungsplan Region Bln.: Transport Development plan for the Berlin Region • Nahverkehrspläne: local public transport plans • StEP Verkehr: City Development Plan - Transport	• ROG: Spatial Planning Act • BauGB: Construction Statute Book • BauNV: Construction Land-use Decree • PlaVO: Mapping Guidance Decree • DRL: Presentation Guideline • LPIG: Land Planning Act • Runderlaß: Intervention Rule Decree • RegBkPlG: Decree for Introduction of Regional Planning • LPIV: Land Planning Treaty • Richtlinie Regionalplan.: Guidance for Regional Planning • AGBauGB: Berlin Construction Statute Book • RL-FNP: Guidance for Land-use Planning • AV-BEP: City District Planning Implementation Ordinance	• LEPro: Land Development Programme • LEP1: Land Development Plan 1 • LEP Brb.: Land Development Plan for Brandenburg • LEPeVR: Land Development Plan Berlin-Brandenburg planning region • 5 Regionalpläne: 5 regional plans • FNP Berlin: Land Use Plan Berlin • Bez.-ent.pläne: district development plans • 66 FNPs: 66 land-use plans	• Orientierungsrahmen: Federal Spatial Orientation Framework • Agrarstrukturelle Vorplanung: preliminary planning agriculture • 8 Entwicklungskonzeptionen: 8 development concepts • StEPs Bln.: city development plans Berlin

5.1.2 PPPs included in the further analysis

Table 5.4 lists the PPPs that are included in the further analysis, as identified in Figures 5.1 to 5.3. The number in brackets, listed with a particular PPP refers to the list of the 'main PPP/SEA source documentation used in analysis' at the end of the thesis after the general references. All PPPs are analysed in further detail in terms of the four PPP context variables (see chapter 2) in the subsequent sections of chapter 5. The choice of the 36 PPPs was guided by two main aspects. Firstly, those PPPs were included that were known to have an assessment of environmental impacts undertaken. Secondly, PPPs were included that decision makers identified to be of great importance for transport planning. In order to be able to compare observed patterns between the three regions, four decision making levels were distinguished, which also include the regional level in North West England. In EVR Brandenburg-Berlin, the *Länder* and regional levels were combined (see Table 4.4). Decision making levels include:

- National level.
- *Land*/*Provincie*/sample regional level.
- City regional/*Kreis*/county level.
- Local level.

In addition to the 36 PPPs for the cross-section of all administrative levels discussed and analysed in this chapter (based on interview results), local land use PPPs were also regarded (based on postal questionnaire results). This allowed differences between the local level and higher tiers to be determined.

Table 5.4: Transport infrastructure related PPPs selected for analysis

administrative level \ region		North West England	Noord-Holland	EVR Brandenburg-Berlin
national	transport	◆Trunk Roads Programme **[8]**	◆Second Transport Structure Plan (*SVVII*) **[6][7]**+ Infrastructure & Transport Programme 1997-2000 **[8]**	◆Federal Transport Infrastructure Plan (*BVWP*) + Five year Extension Plan **[5]-[9][17]**
	spatial		◆National Spatial Plan (*VINEX*) + *VINEX* review **[9]-[11]**	◆Federal Spatial Planning Orientation Framework + Action Framework (*Raumordnungspolitischer Orientierungsrahmen + Handlungsrahmen, ROP-Orient*) **[4][16]**
Land/provincial/ regional	transport	◆ NW Transport Strategy **[21]**	◆INVERNO Transport Plan (*RVVP*) **[12]** ◆*RVVP* Noord-Holland Noord **[28]**	◆Länder Roads Development Plan (*Landesstraßenbedarfsplan*, **[14]** ◆Provincial Integrated Transport Outline (*Integrierter Verkehrsplan, IVP*)**[15]**
	spatial	◆RPG 13, Regional Planning Guidance for the North-West **[9][20]**	◆Regional Plans Waterland, NH-Noord, Gooi en Vechtstreek (*Streekplannen*) **[13]-[17]** ◆ Development Vision of Noord-Holland (*Ontwikkelingsvisie*) **[18]** ◆ Interprovincial urbanisation vision (*Interprovinciale Verstedelingsvisie op de Randstad, IPVR*) **[24]-[26]**	◆Land Development Programme Brandenburg-Berlin eV (*Landesentwicklungsprogramm, LEPro*)**[11]** ◆Land development plan Brandenburg-Berlin eV (*Landesentwicklungsplan, LEPeV*)**[10]** ◆ Regional Plan Havelland-Fläming (*Regionalplan*) **[18]**
'city-region'/ *Kreis*/ county	transport	◆ Greater Manchester Transport Package**[10]** ◆ Lancashire TPP **[15][16]** ◆ Cheshire TPP **[5][6]** ◆ Merseyside Package Bid **[18][19]**	◆ROA transport plan (*RVVP*) + Regional Programme 95-97 **[19]-[21]** ◆*RVVP* Haarlem-IJmond **[27][5]**	◆Urban Development Plan Transport Berlin (*Stadtentwicklungsplan Verkehr, StEP*) **[19][20]**
	spatial	◆ Oldham Unitary Development Plan (UDP) **[22]** ◆ Salford UDP **[23]** ◆ Lancashire Structure Plan **[11]** -**[14][17]** ◆ Cheshire Structure Plan **[1]-[4][7]**	◆ Structure Plan ROA (*Structuurplan*) **[22][23]**	◆ Land Use Plan Berlin (*FNP* Berlin) **[21]-[23]** ◆ County Development Plan Havelland (*Entwicklungskonzeption*, **[12][13]**
local	Only spatial/ land use PPPs are relevant	◆ Warrington Local Plan **[24]**	◆Structure Plan Amsterdam (*Structuurplan*) **[1]-[3]** ◆ Future Vision Hilversum (*Toekomstsvisie*) **[4]**	◆ Land Use Plan Ketzin (*FNP*)**[1][2]** ◆Development Plan Charlottenburg (*Bereichsentwicklungsplan*)**[3]**

note: bold numbers in brackets refer to documentation listed after the References

Table 5.5 indicates whether a PPP was policy or project oriented, following section 2.3.2. This distinction is of importance for the identification of SEA types in section 6.2.

It was found that the policy or project orientation of a PPP was not dependent on the tier, i.e. higher tier PPPs were not necessarily policy oriented and lower tier PPPs were not necessarily project oriented. The Federal Transport Infrastructure Plan (*BVWP*), for example, consists of a compilation of projects and does not attempt to identify an optimal mix of policies and projects in order to achieve stated policy objectives. Dutch regional transport PPPs, on the other hand, are typical examples of policy oriented PPPs, comparing impacts of different policy options (considering cumulative impacts and intermodal alternatives) in order to identify those measures that achieve stated policy aims.

Policy oriented PPPs in North West England frequently had a different character from policy oriented PPPs in EVR Brandenburg-Berlin and Noord-Holland. Thus, in North West England, policy oriented PPPs included statutory PPPs (i.e. structure plans and UDPs), dealing with concrete policies, such as greenbelt conservation or city area development. In Noord-Holland and EVR Brandenburg-Berlin, on the other hand, policy oriented PPPs tended to focus more on strategic, less concrete policy options, such as urban sprawl compared with urban concentration.

5.2 'PPP Relevance'

This section identifies scores for the context variable 'PPP relevance' for each of the 36 individual PPPs, following section 2.3.3. 'PPP relevance' includes the legislative status (statutory/non-statutory), provisions (mandatory/non-mandatory) and the relevance for subsequent planning (binding/non-binding) of a PPP. Resulting variable scores were used for explaining the SEA patterns in parts III and IV of this thesis.

Table 5.5: Policy and project oriented PPPs

Sector	Regions and examples
Project oriented PPPs	
Transport	(a) English PPPs • Cheshire TPP • Lancashire TPP • Greater Manchester Package Bid • Merseyside Package Bid • North West England Transport Strategy • Trunk Roads Programme (b) Dutch PPPs no examples (c) German PPPs • Federal Transport Infrastructure Plan (*BVWP*) • Road Plan (*Landesstraßenbedarfsplan*) Brandenburg
Spatial/ land use	(a) English PPPs • Warrington Local Plan (b) Dutch PPPs • National Spatial Plan (*VINEX*) review • Structure Plan (*structuurplan*) Amsterdam • Structure Plan (*structuurplan*) ROA • Regional Plans (*streekplannen*) Noord-Holland (c) German PPPs • Development Plan (*LEP*) EVR Brandenburg-Berlin • Land Use Plan (*FNP*) Berlin • Land Use Plan (*FNP*) Ketzin • District Development Plan (*Bereichsentwicklungsplan*) Charlottenburg
Policy oriented PPPs	
Transport	(a) English PPPs underlying strategies for TPPs and package bids (b) Dutch PPPs • Second Transport Structure Plan (*SVVII*) • *RVVP* INVERNO • *RVVP* Noord-Holland-Noord • *RVVP* ROA • *RVVP* Haalem-IJmond (c) German PPPs • Integrated Transport Plan (*StEP*) Berlin • Integrated Transport Plan (*IVP*) Brandenburg
Spatial/ land use	(a) English PPPs • Regional Planning Guidance North West England • Lancashire Structure Plan • Cheshire Structure Plan • UDP Salford • UDP Oldham (b) Dutch PPPs • Vision (*visie*) Noord-Holland • Urbanisation Vision (IPVR) Randstad • Vision (*visie*) Hilversum (c) German PPPs • Federal Spatial Orientation Framework (*ROPOrient*) • Land Development Programme (*LEPro*) Brandenburg • Regional Plan (*Regionalplan*) Havelland-Fläming • Concept (*Kreisentwicklungskonzeption*) Havelland

5.2.1 North West England

Table 5.6 presents the scores obtained by the individual PPPs for the context variable 'PPP relevance'. Statutory development plans obtained the highest scores (100%). Lowest scores (under 25%) were obtained by the non-statutory North West Transport Strategy and the Regional Planning Guidance, RPG 13.

Table 5.6: 'PPP relevance' in North West England

Variable criteria / PPP	statutory/non-statutory	mandatory/non-mandatory	binding/non-binding	overall variable score
Trunk Roads Programme	✓	✓	⇔	●
North West Transport Strategy	×	×	×	▫
Regional Planning Guidance RPG 13	×	⇔	⇔	○
Lancashire Structure Plan	✓	✓	✓	■
Cheshire Structure Plan	✓	✓	✓	■
Lancashire TPP	⇔	⇔	✓	⊙
Cheshire TPP	⇔	⇔	✓	⊙
Merseyside Package Bid	⇔	⇔	✓	⊙
Greater Manchester Package Bid	⇔	⇔	✓	⊙
Warrington Local Plan	✓	✓	✓	■
Oldham Unitary Development Plan	✓	✓	✓	■
Salford Unitary Development Plan	✓	✓	✓	■

Variable criteria: ✓ = yes (2); ⇔ = partially/ not clearly determined (1); × = no (0)

Overall variable scores: ■ = 100%; ● = 75% to <100%; ⊙ = 50% to <75%; ○ = 25% to <50%; ▫ = <25%

Six PPPs were statutory, including the development plans (structure plans, UDPs, local plans) and the national Trunk Roads Programme. Whilst all regional PPPs were non-statutory, the package bids and TPPs were said to be 'quasi statutory', as they needed to be prepared in order to secure government funding, following annual government circulars (see section 4.3.1). The preparation of all statutory PPPs was mandatory. The Regional Planning Guidance (RPG 13) was considered to be quasi-mandatory, as central government asked for RPGs to be prepared for all English regions.

Most of the PPPs were directly binding on further planning (i.e. authorities had to take them into account in any further spatial/land use related decisions), except the three

PPPs above the county level, namely the Trunk Roads Programme, the Regional Planning Guidance, RPG 13 and the North West Transport Strategy. Whilst the former two needed to be at least recognised in subsequent planning decisions, the North West Transport Strategy was a compendium of schemes that were either implemented through other PPPs or only non binding proposals.

5.2.2 Noord-Holland

Table 5.7 shows the criteria and overall variable scores for the context variable 'PPP relevance' in Noord-Holland. Highest scores (100%) were achieved for the more 'traditional' statutory PPPs, i.e. the national transport and spatial PPPs, structure plans (*structuurplannen*) and regional plans (*streekplannen*). The lowest scores (under 25%) were achieved for the 'new' planning instruments, the spatial/land use visions (*visies*).

Table 5.7: 'PPP relevance' in Noord-Holland

PPP \ Variable criteria	statutory/non-statutory	mandatory/non-mandatory	binding/non-binding	overall variable score
Second Transport Structure Plan (*SVVII*)	✓	✓	✓	■
National Spatial Plan (*VINEX*) review	✓	✓	✓	■
Interprovincial Urbanisation Vision Randstad (*IPVR*)	×	×	⇔	▫
Development Vision (*Ontwikkelingsvisie*) Noord Holland	×	×	⇔	▫
Regional Plans (*Streekplannen*) (5 for *provincie*)	✓	✓	✓	■
Integrated Transport Vision Randstad North (*INVERNO*)	⇔	⇔	⇔	⊙
Transport Plan (*RVVP*) Noord-Holland-Noord	✓	✓	⇔	●
Structure Plan (*Structuurplan*) ROA	✓	⇔	✓	●
Transport Plan (*RVVP*) ROA	✓	✓	⇔	●
Structure Plan (*Structuurplan*) Amsterdam	✓	✓	✓	■
Future Vision (*Toekomstvisie*) Hilversum	×	×	⇔	▫
Transport Plan (*RVVP*) Haarlem-IJmond	✓	✓	⇔	●

Variable criteria: ✓ = yes (2); ⇔ = partially/ not clearly determined (1); × = no (0)

Overall variable scores: ■ = 100%; ● = 75% to <100%; ⊙ = 50% to <75%; ○ = 25% to <50%; ▫ = <25%

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Most PPPs in Noord-Holland were statutory, except the three spatial visions (*visies*) Noord-Holland, IPVR and Hilversum. The Integrated Transport Plan for the northern part of the Randstad (*INVERNO*) was not statutory at the time of its preparation. It obtained, however, statutory status later, after the VERDI agreement in 1996 (see section 4.3.2). Most of the PPPs that were statutory were also mandatory, except the structure plans (*structuurplannen*), which only needed to be prepared in case of significant changes in land use demands (only eight local *structuurplannen* were identified in Noord-Holland). All regional transport PPPs became binding through multi-year implementation programmes, which listed and ranked projects[2]. Whilst the three spatial/land use visions (*visies*) Noord-Holland, IPVR and Hilversum were only partially binding for further planning, all other spatial/land use PPPs had to be acknowledged by authorities in further spatial/land use related decisions.

5.2.3 EVR Brandenburg-Berlin

Table 5.8 shows the criteria and overall variable scores for the context variable 'PPP relevance' in EVR Brandenburg-Berlin. Highest scores (100%) were obtained for a range of PPPs, including the Federal Transport Infrastructure Plan (*BVWP*), the Land Development Plan EVR Brandenburg-Berlin (*LEPeV*), the Regional Plan (*Regionalplan*) Havelland, The Land Road Development Plan (*Landesstraßenbedarfsplan*) Brandenburg and the land use plans (*FNPs*). Only the two non-statutory PPPs, the Federal Spatial Orientation Framework (*ROPOrient*) and the Integrated Transport Plan (*IVP*) Brandenburg obtained very low scores (under 25%).

Most PPPs in EVR Brandenburg-Berlin were statutory, except the Spatial Orientation Framework (*Raumordnungspolitischer Orientierungsrahmen*) and the Integrated Transport Plan (*IVP*) Brandenburg. Most statutory PPPs were also mandatory, with the exception of the Development Concept (*Kreisentwicklungskonzeption*) Havelland and the Land Use Plan (*FNP*) Ketzin[3]. Only six PPPs were directly binding on further planning, all of which were statutory.

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[2] The connection between PPPs and implementation programmes in the regional transport PPPs, however, often remained unclear.

[3] Similar to the Dutch structure plans (*structuurplannen*), German land use plans (*FNPs*) only have to be prepared in case the specific local circumstances require it. In effect, in contrast to Noord-Holland, in EVR Brandenburg-Berlin most municipalities did prepare *FNPs*.

Table 5.8: 'PPP relevance' in EVR Brandenburg-Berlin

PPP \ Variable criteria	statutory/non-statutory	mandatory/ non-mandatory	binding/non-binding	overall variable score
Federal Transport Infrastructure Plan (*BVWP*)	✓	✓	✓	■
Spatial Orientation Framework (*RopOrient*)	×	⇔	×	▫
Land Development Programme (*LEPro*)	✓	✓	⇔	●
Land Development Plan EVR Brandenburg-Berlin (*LEPeV*)	✓	✓	✓	■
Regional Plan (*Regionalplan*) Havelland-Fläming	✓	✓	✓	■
Development Concept (*Kreisentwicklungskonzeption*) Havelland	✓	⇔	×	⊙
Road Development Plan (*Landesstrassenbedarfsplan*) Brandenburg	✓	✓	✓	■
Integrated Transport Plan (IVP) Brandenburg	×	×	×	▫
Land Use Plan (*FNP*) Berlin	✓	✓	✓	■
City Development Plan (*StEP*) Transport Berlin	✓	✓	×	⊙
City District Development Plan (*Bereichsentwicklungsplan*) Charlottenburg	✓	✓	×	⊙
Land Use Plan (*FNP*) Ketzin	✓	⇔	✓	●

Variable criteria: ✓ = yes (2); ⇔ = partially/ not clearly determined (1); × = no (0)

Overall variable scores: ■ = 100%; ● = 75% to <100%; ⊙ = 50% to <75%; ○ = 25% to <50%; ▫ = <25%

5.3 'PPP Accountability'

This section identifies individual overall scores for the context variable 'PPP accountability' for each individual PPP, as identified in section 2.3.3. PPP accountability is determined by the following five criteria:

- Approving body not preparation body.
- External consultation.
- Public participation.
- Involvement of an elected body.
- Review by an external body.

Resulting variable scores were used for explaining the SEA patterns in parts III and IV of this thesis.

5.3.1 North West England

Table 5.9 shows the criteria and overall variable scores for the context variable 'PPP accountability'. Highest scores (100%) were obtained by the statutory development plans. Lowest scores were obtained by the National Trunk Roads Programme and the North West Transport Strategy.

Table 5.9: 'PPP accountability' in North West England

Variable criteria / PPP	approving not preparation body	external consultation	public participation	elected body involved	review by independent body	overall variable score
Trunk Roads Programme	×	⇔	×	✓	⇔	○
North West Transport Strategy	⇔	✓	×	×	⇔	○
Regional Planning Guidance RPG 13	✓	✓	×	×	⇔	⊙
Lancashire Structure Plan	✓	✓	✓	✓	✓	■
Cheshire Structure Plan	✓	✓	✓	✓	✓	■
Lancashire TPP	✓	✓	×	✓	⇔	⊙
Cheshire TPP	✓	✓	×	✓	⇔	⊙
Merseyside Package Bid	✓	✓	×	✓	⇔	⊙
Greater Manchester Package Bid	✓	✓	×	✓	⇔	⊙
Warrington Local Plan	✓	✓	✓	✓	✓	■
Oldham Unitary Development Plan	✓	✓	✓	✓	✓	■
Salford Unitary Development Plan	✓	✓	✓	✓	✓	■

Variable criteria: ✓ = yes (2); ⇔ = partially/ not clearly determined (1); × = no (0)

Overall variable scores: ■ = 100%; ● = 75% to <100%; ⊙ = 50% to <75%; ○ = 25% to <50%; ▫ = <25%

Most PPP preparation bodies in North West England were not the approving bodies, except for the national Trunk Roads Programme, which was prepared and approved by the Department of Transport (DoT, since 1997 Department of the Environment, Transport and the Regions - DETR). The North West Transport Strategy was jointly prepared by county councils and the North West Regional Association. It was approved by the North West Regional Government Office. All other PPPs were prepared by county, unitary and district authorities and were approved by Central Government.

All PPPs involved external consultation. In the case of the Trunk Roads Programme, however, only a selected number of external bodies were contacted by the Department of Transport. It therefore did not obtain the highest score. Public participation was only conducted for statutory development plans, i.e. for structure plans, local plans and UDPs. Elected bodies were directly involved in the preparation of most PPPs, except in those of the North West Transport Strategy and RPG 13. All development plans also involved PPP review by an independent body, namely central government.

5.3.2 Noord-Holland

Table 5.10 shows the overall scores for the context variable 'PPP accountability' in Noord-Holland. Highest scores were achieved by the statutory structure plans (*structuurplannen*). Low scores (50% to 75%) were achieved by the spatial/land use visions (*visies*). Furthermore, low scores were also obtained by two regional transport plans which did not involve public participation, and by the Second Transport Structure Plan (*SVVII*), for which approving and preparation bodies were identical.

Table 5.10: 'PPP accountability' in Noord-Holland

Variable criteria / PPP	approving not prepa-ration body	external consultation	public part-icipation	elected body in-volved	review by independent body	overall variable score
Second Transport Structure Plan (*SVVII*)	×	✓	✓	✓	⇔	⊙
National Spatial Plan (*VINEX*) review	×	✓	✓	✓	✓	●
Interprovincial Urban-isation Vision (*IPVR*)	✓	⇔	×	✓	⇔	⊙
Development Vision Noord-Holland	×	✓	✓	✓	⇔	⊙
Regional Plans (*Streekplannen*)	×	✓	✓	✓	✓	●
Transport Plan Rand-stad Noord, *INVERNO*	✓	✓	×	✓	⇔	⊙
Transport Plan, *RVVP* Noord-Holland-Noord	✓	✓	×	✓	⇔	⊙
Structure Plan (*Structuurplan*) ROA	✓	✓	✓	✓	✓	■
Transport Plan (*RVVP*) ROA	✓	✓	⇔	✓	⇔	●
Structure Plan (*Struc-tuurplan*) A'dam	✓	✓	✓	✓	✓	■
Future Vision (*Toe-komstvisie*) Hilversum	×	✓	✓	✓	⇔	⊙
Transport Plan, *RVVP* Haarlem-IJmond	✓	✓	✓	✓	⇔	●

Variable criteria: ✓ = yes (2); ⇔ = partially/ not clearly determined (1); × = no (0)

Overall variable scores: ■ = 100%; ● = 75% to <100%; ⊙ = 50% to <75%; ○ = 25% to <50%; ▫ = <25%

Preparation for all PPPs involved consultation with external bodies. On the Inter-Provincial Urbanisation Vision (*IPVR*) however, only the ministries of the participating *provincies* were consulted. Most PPP preparation procedures involved public participation, except those for the regional transport plans INVERNO and *RVVP* Noord-Holland-Noord and the Interprovincial Urbanisation Vision (*IPVR*) Randstad. All PPPs involved the participation of elected bodies. All PPP documents were indirectly reviewed through general public participation and expert consultation. PPP review by an independent body was only conducted for the statutory structure plans (*structuurplannen*), regional plans (*streekplannen*) and the National Spatial Plan (*VINEX*) review.

5.3.3 EVR Brandenburg-Berlin

Table 5.11 shows the overall variable scores for the context variable 'PPP accountability' in EVR Brandenburg-Berlin. The highest score was achieved by the Land Use Plan (*FNP*) Ketzin (100%). Lowest scores (25% to 50%) were achieved by the national PPPs and the *Land* Transport PPPs, *IVP* Brandenburg and the Road Development Plan (*Landesstraßenbedarfsplan*) Brandenburg. On average, 'PPP accountability' was found to be higher at the local level than at higher levels of decision making.

Only two PPPs were approved by a body other than the preparation body, namely the Regional Plan (*Regionalplan*) Havelland-Fläming and the Land Use Plan (*FNP*) Ketzin. All PPP processes involved external consultation. In the preparation processes for the national level PPPs and the *Länder* transport PPPs, however, only national ministries were consulted. Public participation was conducted only for local level plans and for the *Kreis* Development Concept (*Kreisentwicklungskonzeption*) Havelland. In the case of the *Land* Development Programme (*Landesentwicklungsprogramm, LEPro*), the general public was informed on the outcome of the PPP process.

Elected bodies were involved in the preparation processes of all PPPs. For the *Land* Development Plan (*Landesentwicklungsplan, LEPeV*) EVR Brandenburg-Berlin, the Regional Plan (*Regionalplan*) Havelland-Fläming and the *Land* Brandenburg transport PPPs, parliaments acknowledged their preparation, but were not actively involved in PPP approval. Review of PPP documentation took place to a certain extent (rather indirectly) for all PPPs through external consultation. A 'full' review by an independent

body took place for local level PPPs and for all spatial PPPs apart from the Spatial Orientation Framework (*Raumordnungspolitischer Orientierungsrahmen*).

Table 5.11: 'PPP accountability' in EVR Brandenburg-Berlin

Variable criteria / PPP	approving not preparation body	external consultation	public participation	elected body involved	review by independent body	overall variable score
Federal Transport Infrastructure Plan (*BVWP*)	×	⇔	×	✓	⇔	○
Spatial Orientation Framework (*RopOrient*)	×	⇔	×	✓	⇔	○
Land Development Programme (*LEPro*)	⇔	✓	⇔	✓	✓	●
Land Development Plan EVR Brandenburg (*LEPeV*)	×	✓	×	⇔	✓	⊙
Regional Plan (*Regionalplan*) Havelland-Fläming	✓	✓	×	⇔	✓	⊙
Development Concept (*Kreisentw.-konzeption*) Havell.	×	✓	✓	✓	✓	●
Road Development Plan (*Landesstrassenbedarfsplan*) Brb	×	⇔	×	⇔	⇔	○
Integrated Transport Plan (IVP) Brandenburg	×	⇔	×	⇔	⇔	○
Land Use Plan (*FNP*) Berlin	×	✓	✓	✓	✓	●
City Development Plan (*StEP*) Transport Berlin	×	✓	✓	✓	✓	●
District Develoment Plan (*Bereichsplan*) Charlottenburg	×	✓	✓	✓	✓	●
Land Use Plan (*FNPs*) Ketzin	✓	✓	✓	✓	✓	■

Variable criteria: ✓ = yes (2); ⇔ = partially/ not clearly determined (1); × = no (0)

Overall variable scores: ■ = 100%; ● = 75% to <100%; ⊙ = 50% to <75%; ○ = 25% to <50%; ▫ = <25%

5.4 'PPP intermodality'

This section identifies individual PPP scores for the context variable 'PPP intermodality' as identified in section 2.3.3. Three criteria are considered, including:

- Only transport infrastructure or transport infrastructure and public transport service considered.
- Only one transport mode or several transport modes considered.
- Objectives for only one sector or for several sectors considered.

The overall variable scores were used in statistical analysis in order to explain the SEA patterns observed in parts III and IV of this thesis.

5.4.1 North West England

Table 5.12 shows criteria and overall variable scores for the context variable 'PPP inter-modality'. Highest scores (75% to 100%) were obtained by the transport PPPs at local and county levels, the TPPs and package bids.

Table 5.12: 'PPP intermodality' in North West England

PPP \ Variable criteria	public transport service	several transport modes	objectives for several sectors	overall variable score
Trunk Roads Programme	×	×	✓	○
North West Transport Strategy	✓	✓	⇔	●
Regional Planning Guidance RPG 13	×	✓	✓	⊙
Lancashire Structure Plan	×	✓	✓	⊙
Cheshire Structure Plan	×	✓	✓	⊙
TPP Lancashire	✓	✓	⇔	●
Cheshire TPP	✓	✓	⇔	●
Merseyside Package Bid	✓	✓	⇔	●
Greater Manchester Package Bid	✓	✓	⇔	●
Warrington Local Plan	×	✓	✓	⊙
Oldham Unitary Development Plan	×	✓	✓	⊙
Salford Unitary Development Plan	×	✓	✓	⊙

variable criteria: ✓ = yes (2); ⇔ = partially/ not clearly determined (1); × = no (0)

Overall variable scores: ■ = 100%; ● = 75% to <100%; ⊙ = 50% to <75%; ○ = 25% to <50%; ▫ = <25%

The lowest score (25% to 50%) was obtained by the Trunk Roads Programme. All PPPs considered transport infrastructure. Public transport service, however, was only considered in the TPPs/package bids and the North West Transport Strategy. All PPPs

in North West England considered more than only one transport mode, with the exception of the national Trunk Roads Programme. Whilst all PPPs were said to consider several sectors, the TPPs, package bids and the North West Transport Strategy considered sectors apart from transport only implicitly, referring to statutory development plans.

5.4.2 Noord-Holland

Table 5.13 shows the scores obtained by the individual PPPs for the context variable 'PPP intermodality'. Whilst all PPPs considered transport infrastructure, public transport service was only considered in the regional transport plans (*RVVPs*). All transport and spatial/land use PPPs considered several transport modes. Furthermore, most PPPs had objectives for several sectors, except the non-statutory spatial/land use visions (*visies*), which were prepared in order to identify policy objectives for subsequent planning.

Table 5.13: 'PPP intermodality' in Noord-Holland

Variable criteria / PPP	infrastructure and service	several transport modes	objectives for several sectors	overall variable score
Second Transport Structure Plan (*SVVII*)	⇔	✓	✓	●
National Spatial Planning Note (*VINEX*) review	×	✓	✓	⊙
Interprovincial Urbanisation Vision Randstad (*IPVR*)	×	✓	×	○
Development Vision (*Ontwikkelingsvisie*) Noord Holland	×	✓	×	○
Regional Plans (*Streekplannen*) (5 for *provincie*)	×	✓	✓	⊙
Integrated Transport Vision Randstad North (*INVERNO*)	✓	✓	✓	■
Transport Plan (*RVVP*) Noord-Holland-Noord	✓	✓	✓	■
Structure Plan (*Structuurplan*) ROA	×	✓	✓	⊙
Transport Plan (*RVVP*) ROA	✓	✓	✓	■
Structure Plan (*Structuurplan*) Amsterdam	×	✓	✓	⊙
Future Vision (*Toekomstvisie*) Hilversum	×	✓	×	○
Transport Plan (*RVVP*) Haarlem-IJmond	✓	✓	✓	■

Variable criteria: ✓ = yes (2); ⇔ = partially/ not clearly determined (1); × = no (0)

Overall variable scores: ■ = 100%; ● = 75% to <100%; ⊙ = 50% to <75%; ○ = 25% to <50%; ▫ = <25%

5.4.3 EVR Brandenburg-Berlin

Table 5.14 shows the scores obtained by the PPPs for the context variable 'PPP intermodality' in EVR Brandenburg-Berlin. Highest scores (100%) were achieved by three spatial/land use PPPs at regional and *Kreis* levels. Furthermore, highest scores were achieved by the integrated transport PPPs, *IVP* Brandenburg and *StEP* Berlin. Low scores (under 25% and 25% to 50%), were achieved by the two transport PPPs that considered the national transport system and the road system in the *Land* Brandenburg, namely the Federal Transport Infrastructure Plan (*BVWP*) and the Road Development Plan (*Landesstraßenbedarfsplan*) Brandenburg.

Table 5.14: 'PPP intermodality' in EVR Brandenburg-Berlin

Variable criteria / PPP	infrastructure and service	several transport modes	objectives for several sectors	overall variable score
Federal Transport Infrastructure Plan (*BVWP*)	×	✓	×	○
Spatial Orientation Framework (*RopOrient*)	×	✓	✓	⊙
Land Development Programme (*LEPro*)	✓	✓	✓	■
Land Development Plan EVR (*LEPeV*)	×	✓	✓	⊙
Regional Plan (*Regionalplan*) Havelland-Fläming	✓	✓	✓	■
Development Concept (*Kreisentwicklungskonzeption*) Havelland	✓	✓	✓	■
Road Development Plan (*Landessttrassenbedarfsplan*) Brb	×	×	×	▫
Integrated Transport Plan (IVP) Brandenburg	✓	✓	✓	■
Local Land Use Plan (*FNP*) Berlin	×	✓	✓	⊙
City Development Plan (*StEP*) Transport Berlin	✓	✓	✓	■
City District Development Plan (*Bereichsplan*) Charlottenburg	×	✓	✓	⊙
Local Land Use Plans (*FNPs*) Ketzin	×	✓	✓	⊙

Variable criteria: ✓ = yes (2); ⇔ = partially/ not clearly determined (1); × = no (0)

Overall variable scores: ■ = 100%; ● = 75% to <100%; ⊙ = 50% to <75%; ○ = 25% to <50%; ▫ = <25%

Whilst all PPP considered transport infrastructure, public transport service was considered in only five PPPs, namely the integrated transport PPPs, *IVP* Brandenburg and *StEP* Berlin, the Land Development Programme (*LEPro*) Brandenburg, the Regional

Plan (*Regionalplan*) Havelland-Fläming and the *Kreis* Development Concept (*Kreisentwicklungskonzept*) Havelland. All PPPs in EVR Brandenburg-Berlin considered several transport modes, except the Road Development Plan (*Landesstraßenbedarfsplan*) Brandenburg, which only considered *Länder* roads. Furthermore, all PPPs had objectives for several sectors, except the Federal Transport Infrastructure Plan (*BVWP*) and the Road Development Plan (*Landesstraßenbedarfsplan*) Brandenburg, both of which only had economical-led transport objectives.

5.5 'PPP procedure'

This section identifies the extent to which the individual PPPs covered the procedural stages, as identified in Box 2.4 (i.e. objective setting, initial stage, documentation, review, public participation, consultation and monitoring). Besides the identification of 'PPP procedure' variable scores, this exercise also allowed the extent to which current PPP procedures are suitable for SEA integration to be determined.

5.5.1 North West England

Table 5.15 shows the procedural stages covered by the PPPs in North West England. On average, formal procedures covered stages more fully than informal procedures (67% compared with 39%). Furthermore, statutory PPPs covered stages more fully than non-statutory PPPs (70% compared with 58%). Formal procedures of the development plans followed those laid out in PPG 12. TPPs and package bids were prepared, according to annual guidance notes.

Table 5.15: Stages of PPP formulation procedures in North West England

PPP / Stage	Trunk Roads Pro-gramme	North West Transport Strategy	Regional Planning Guidance, RPG 13	Lancashire Structure Plan	Cheshire Structure Plan	Lancashire TPP	Cheshire TPP	Mersey-side Pack-age Bid	Greater Man-chester Package Bid	Warring-ton Local Plan	Oldham UDP	Salford UDP	Overall variable score
Objective setting	×	⇔	⇔	⇔	⇔	⇔	✓	✓	✓	×	×	×	○
Initial Stage	×	⇔	⇔	⇔	⇔	⇔	⇔	⇔	⇔	⇔	⇔	⇔	○
Document-ation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	■
Review	×	⇔	⇔	✓	✓	⇔	⇔	⇔	⇔	✓	✓	✓	⊙
Public Par-ticipation	×	×	×	✓	✓	×	×	⇔	×	✓	✓	✓	○
Consult-ation	⇔	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	●
Monitoring	⇔	×	⇔	⇔	⇔	⇔	⇔	⇔	⇔	⇔	⇔	⇔	○
Overall PPP score	○	⊙	⊙	●	●	⊙	⊙	⊙	⊙	⊙	⊙	⊙	

variable criteria:

× = stage not conducted (0)

⇔ = stage partly conducted (1)

✓ = stage fully conducted (2)

= formal procedure

= informal procedure

overall variable scores:

■ = 100%

● = 75% to <100%

⊙ = 50% to <75%

○ = 25% to <50%

▫ = <25%

Two stages were fully covered in all PPPs, including the preparation of the main documentation and the consultation of external bodies. The Trunk Roads Programme was considered to only involve consultation of external bodies partly, as only a limited number of selected bodies were involved (see section 5.3). Public participation and review by an external body (i.e. not the preparation body) was conducted only for the statutory development plans, namely the structure plans, local plans and UDPs.

At the objective setting stage, a number of PPPs referred to general, non-PPP specific documents. For some of these, however, the influence was not entirely clear, including the Regional Economic Strategy for the North West Transport Strategy, the Lancashire Environment Action Strategy and the Cheshire Local Agenda 21. Monitoring was conducted by most PPPs in an ongoing manner, except for the North West Transport Strategy. However, usually no monitoring-specific documentation was prepared. Statutory development plans covered the procedural stages to the largest extent, followed by the quasi-statutory transport package bids and the TPPs.

5.5.2 Noord-Holland

Table 5.16 shows the stages covered in PPP procedures in Noord-Holland. On average, stages were more fully covered in formal than in informal procedures (83% compared with 62%) and statutory PPPs covered stages more fully than non-statutory PPPs (77% compared with 58%). PPP stages were most fully covered by three statutory spatial/land use PPPs, namely the National Spatial Plan (*VINEX*) review and the structure plans (*structuurplannen*) ROA and Amsterdam. They were least fully covered by the non-statutory Inter-Provincial Urbanisation Vision (*IPVR*).

Three PPP stages were met fully by at least 10 of the 12 PPPs. These include the preparation of PPP documentation (all PPPs), external consultation (all PPPs except the Inter-provincial Urbanisation Vision, *IPVR*, which only involved consultation of provincial ministries) and the review stage (all PPPs, except the Second Transport Structure Plan, *SVVII* and the Inter-Provincial Urbanisation Vision, *IPVR*). There was full public participation in eight of the 12 PPPs. In the case of the Regional Transport Plan (*RVVP*) ROA, public participation only took place after PPP preparation. The regional transport plans (*RVVPs*) Noord-Holland-Noord and *INVERNO* and the Inter-provincial Urbanisation Vision (*IPVR*) did not involve any public participation.

Table 5.16: Stages of PPP formulation procedures in Noord-Holland

PPP / stage	Second Transport Structure Plan, SVVII	National Spatial Plan, VINEX review	Inter-provincial Urbani-sation Vi-sion, IPVR	Spatial Vision, Visie Noord-Holland	Regional Plans, Streek-plannen	Transport Plan INVERNO	Transport Plan, RV-VP Noord-Holland-Noord	Structure Plan, Structuur-plan ROA	Transport Plan, RVVP ROA	Structure Plan, Structuur-plan Am-sterdam	Spatial Vision, Visie Hil-versum	Transport Plan, RVVP Haarlem-IJmond	Overall variable score
Objectives setting	⇔	⇔	×	×	⇔	⇔	⇔	✓	⇔	⇔	×	⇔	○
Initial Stage	✓	⇔	⇔	✓	⇔	⇔	⇔	✓	⇔	✓	✓	⇔	⊙
Document-ation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	■
Review	⇔	✓	⇔	⇔	✓	⇔	⇔	✓	⇔	✓	⇔	⇔	⊙
Public Par-ticipation	✓	✓	×	✓	✓	×	×	✓	⇔	✓	✓	✓	⊙
Consult-ation	✓	✓	⇔	✓	✓	✓	✓	✓	✓	✓	✓	✓	●
Monitoring	✓	✓	×	×	⇔	✓	⇔	⇔	✓	⇔	⇔	⇔	⊙
Overall PPP score	●	●	○	⊙	●	⊙	⊙	●	⊙	●	⊙	⊙	

variable criteria:

× = stage not conducted (0)

⇔ = stage partly conducted (1)

✓ = stage fully conducted (2)

= formal procedure

= informal procedure

overall variable scores:

■ = 100%

● = 75% to <100%

⊙ = 50% to <75%

○ = <50%

▫ = <25%

Statutory 'regional plans' (*streekplannen*) and local 'structure plans' (*structuurplannen*) followed formal PPP procedures according to the 'Spatial Planning Act' (*wet op de ruimtelijke ordening*), articles 4a and 7 as well as the 'General Administrative Act' (*algemene wet bestuursrecht*). The national PPPs, *SVVII* and *VINEX* followed the formal pkb (*plan-kern-beslissing*) procedure according to article 2a of the 'Spatial Planning Act'.

PPP specific monitoring was conducted for the national PPPs and the regional transport plans INVERNO and *RVVP* ROA. A number of PPPs involved general, ongoing monitoring without preparing monitoring-specific documentation. Whilst none of the PPPs covered the objective setting stage fully, most did so partially by referring to environmental policy plans (*milieubeleidsplannen*) and, in the case of the regional transport PPPs to the Second Transport Infrastructure Plan (*SVVII*). No objective setting stage was covered by the three visions (*visies*), as their main task was to define objectives for further planning.

5.5.3 EVR Brandenburg-Berlin

Table 5.17 portrays the stages covered in PPP procedures in EVR Brandenburg-Berlin. On average, formal procedures covered stages more fully than informal procedures (81% as compared with 51% of the total score) and statutory PPPs covered stages more fully than non-statutory PPPs (74% compared with 50% of the total score). The Land Development Plan (*Landesentwicklungsplan*) EVR Brandenburg-Berlin, the Land Development Programme (*Landesentwicklungsprogramm*) Brandenburg and the Regional Plan (*Regionalplan*) Havelland-Fläming followed similar formal procedures. These were laid out in the Land Planning Convention Act (*Landesplanungsvertrag*, *LPlVG*), art. 8, 7, the *Brandenburger Landesplanunggesetz*, *BgbLPlG*), the Regional Planning Act (*Gesetz zur Einführung der Regionalplanung und der Braunkohlen- und Sanierungsplanung*, *RegBkPlG*) and the Federal Construction Act (*Baugesetzbuch*, *BauGB*), paragraph 5 (in Berlin implemented through the Implementation Act to the Federal Construction Act, *AGBauGB*).

Only one stage was fully met by all PPPs, namely the main documentation stage. Two stages were fully met by eight of the 12 PPPs, including the review and consultation stages.

Table 5.17: Stages of PPP formulation procedures in EVR Brandenburg-Berlin

PPP / stage	Federal Transport Infrastructure Plan, BVWP	Federal Spatial Orientation Framework	Land Development Programme, LEPro	Land Development Plan EVR, LEPeV	Regional Plan, Regionalplan Havelland-Fläming	Development Concept, Kreisentwicklungskonzeption Havelland	Road Development Plan, Landesstraßenbedarfsplan Brandenburg	Integrated Transport Plan, IVP Brandenburg	Local Land Use Plan, FNP Berlin	Integrated Transport Plan, StEP Berlin	City District Development Plan, Bereichsentwicklungsplan Charlottenburg	Local Land Use Plan, FNP Ketzin	Overall variable score
Objectives setting	⇔	⇔	⇔	⇔	✓	✓	⇔	⇔	✓	⇔	⇔	✓	⊙
Initial Stage	⇔	⇔	⇔	⇔	⇔	✓	×	✓	✓	✓	✓	✓	⊙
Documentation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	■
Review	⇔	⇔	✓	✓	✓	✓	⇔	⇔	✓	⇔	✓	✓	●
Public Participation	×	×	⇔	×	×	✓	×	×	✓	✓	✓	✓	○
Consultation	⇔	⇔	✓	✓	✓	✓	⇔	⇔	✓	✓	✓	✓	●
Monitoring	⇔	⇔	⇔	⇔	⇔	⇔	⇔	✓	⇔	⇔	⇔	⇔	⊙
overall PPP score	⊙	⊙	⊙	⊙	⊙	●	○	⊙	●	●	●	●	

variable criteria:

× = stage not conducted (0)

⇔ = stage partly conducted (1)

✓ = stage fully conducted (2)

= formal procedure

= informal procedure

overall variable scores:

■ = 100%

● = 75% to <100%

⊙ = 50% to <75%

○ = <50%

▫ = <25%

Public participation was conducted for all local level PPPs and the *Kreis* Development Plan (*Kreisentwicklungskonzeption*) Havelland. In the case of the *Land* Development Programme (*Landesentwicklungsprogramm, LEPro*) Brandenburg, public information meetings were conducted. All other PPPs above the local level did not involve any public participation.

The objective setting stage was fully met through the preparation of landscape plans and programmes in land use plans (*FNPs*) as well as in the Regional Plan (*Regionalplan*) Havelland-Fläming and the *Kreis* Development Concept (*Kreisentwicklungskonzept*) Havelland. Most other PPPs acknowledged objectives set by other PPPs.

5.6 Cross-regional characteristics

Table 5.18 summarises the overall scores for the four PPP context variables per individual PPP in the three sample regions. Whilst the variable 'PPP intermodality' scored similarly in the three regions (between 71% and 72%), differences were observed for the other variables. Thus, scores for the average 'PPP relevance' in Noord-Holland were somewhat smaller than in the other two regions (69% as opposed to 72% and 74%). This is explained by the higher proportion of policy related, non-statutory PPPs in Noord-Holland, in particular the visions (*visies*). The lowest average score for the variable 'PPP accountability' was obtained by EVR Brandenburg-Berlin's PPPs (63% as opposed to 76% and 78% in the other two regions). This was caused by a lack of public participation at levels above the local level. Finally, North West England PPPs on average covered procedural stages less fully than PPPs in the other two regions (62% as opposed to 70% and 71%). This was caused by low scores of national and regional PPPs, which did not involve any public participation at all.

Table 5.18: Overall PPP variable scores

PPP variables / PPPs	Rele-vance	Acount-ability	Inter-modal	Proce-dure
Trunk Roads Programme	●	○	○	○
North West Transport Strategy	▫	⊙	●	⊙
Regional Planning Guidance RPG 13	○	⊙	⊙	⊙
Lancashire Structure Plan	■	■	⊙	●
Cheshire Structure Plan	■	■	⊙	●
Lancashire TPP	⊙	⊙	●	⊙
Cheshire TPP	⊙	⊙	●	⊙
Merseyside Package Bid	⊙	⊙	●	⊙
Greater Manchester Package Bid	⊙	⊙	●	⊙
Warrington Local Plan	■	■	⊙	⊙
Oldham Unitary Development Plan	■	■	⊙	⊙
Salford Unitary Development Plan	■	■	⊙	⊙
Average scores PPPs North West England	74%	76%	71%	63%
Second Transport Structure Plan (*SVVII*)	■	⊙	●	●
National Spatial Plan (*VINEX*) - review	■	●	⊙	●
Interprovincial Urbanisation Vision (*IPVR*)	▫	⊙	○	○
Development Vision (*Ontwikkelingsvisie*) Noord Holland	▫	⊙	○	⊙
Regional Plans (*Streekplannen*)	■	●	⊙	●
Integrated Transport Vision Randstad North (*INVERNO*)	⊙	⊙	■	⊙
Transport Plan (*RVVP*) Noord-Holland-Nord	●	⊙	■	⊙
Structure Plan (*Structuurplan*) ROA	●	■	⊙	●
Transport Plan (*RVVP*) ROA	●	●	■	⊙
Structure Plan (*Structuurplan*) Amsterdam	■	■	⊙	●
Future Vision (*Toekomstvisie*) Hilversum	▫	⊙	○	⊙
Transport Plan (*RVVP*) Haarlem-IJmond	●	●	■	⊙
Average scores PPPs Noord-Holland	69%	78%	71%	72%
Federal Transport Infrastructure Plan (*BVWP*)	■	○	○	⊙
Spatial Orientation Framework (*RopOrient*)	▫	○	⊙	⊙
Land Development Programme (*LEPro*)	⊙	●	■	⊙
Land Development Plan EVR Brb (*LEPeV*)	■	⊙	⊙	⊙
Regional Plan (*Regionalplan*) Havelland-Fläming	■	⊙	■	⊙
Development Concept (*Kreisentwicklungskonzept*) Havelland	⊙	●	■	●
Road Development Plan (*Landesstraßenplan*) Brandenburg	■	○	▫	○
Integrated Transport Plan (IVP) Brandenburg	▫	○	■	⊙
Local Land Use Plan (*FNP*) Berlin	■	●	⊙	●
City Development Plan (*StEP*) Transport Berlin	⊙	●	■	●
District Development Plan (*Bereichsplan*) Charlottenburg	⊙	●	⊙	●
Local Land Use Plans (*FNPs*) Ketzin	●	■	⊙	●
Average scores PPPs EVR Brandenburg-Berlin	72%	63%	72%	71%

■ = 100% (scores 4)
● = 75% to <100% (scores 3)
⊙ = 50% to <75% (scores 2)
○ = 25% to <50% (scores 1)
▫ = 0% to < 25% (scores 0)

Statutory PPPs (74%) and PPPs with formal procedures (77%) covered PPP stages more fully than non-statutory PPPs (55%) and PPPs with informal procedures (51%).

Some PPPs that obtained a high overall score for 'PPP relevance' had a low 'PPP accountability'. Important decisions were therefore taken with comparatively little external input. This is regarded as being problematic and as a consequence, public opposition can be expected to be stronger at the project implementation stage. PPPs include the transport PPPs that list and rank projects, namely the Trunk Roads Programme, the Federal Transport Infrastructure Plan (*BVWP*) and the Road Development Plan (*Landesstraßenbedarfsplan*) Brandenburg.

PART III

–

SEA Research Results

Introduction to part III

Part III of this thesis presents the results of the empirical research on SEA practice in the three sample regions. The findings are based on the examination of existing SEA documentation and on interviews for the core set of 36 PPPs (cross-section of PPPs), representing all administrative levels of decision making (see section 5.1). In addition, postal questionnaire results of the remaining local authorities in the three sample regions are presented. The findings are evaluated, analysed and explained, using figures and tables, as laid out in chapter 2. In this context, reference is usually made to three presentation aspects, namely the three sample regions, the three SEA types (identified in chapter 6) and the two sectors. Furthermore, in some instances results for PPPs with SEA and PPPs without SEA are compared. Statistical analysis was applied in order to determine whether there were any significant differences (Mann-Whitney U test) or association (Spearman's rank-order test) between the PPP context variables, defined in chapter 5 and the SEA variables, defined in chapter 6. Significance levels of $P<.05$ and $P<.01$ are shown. Throughout part III, symbols are used for evaluating SEA criteria:

✓ = criterion fully met

⇔ = criterion met to a reasonable extent

(⇔)= criterion only marginally met

× = criterion not met

Overall scores for the different SEA aspects (e.g. 'SEA procedure' or 'potential SEA benefits') are expressed by the following set of symbols:

■ = SEA meets requirements fully (all criteria obtain highest scores = 100%)

● = SEA meets requirements to a large extent (75% to under 100%)

⊙ = SEA meets requirements to a moderate extent (50% to under 75%)

○ = SEA meets requirements to a poor extent (25% to under 50%)

▫ = SEA meets requirements to a very poor extent (0% to under 25%)

6 SEA practice

Chapter 6 refers to research objective 2 (section 1.6) and 'identifies SEA application and classifies SEA types'. The basic features of SEA practice for transport infrastructure related PPPs in the three sample regions are described, evaluated and analysed. Chapter 6 is divided into eight sections. Section 6.1 determines the extent of SEA application. Section 6.2 classifies SEA types, referring to the planning level, sectoral coverage, procedural and other methodological characteristics and impact coverage (see section 3.1). Section 6.3 identifies the scores of the PPP context variables for the SEA presentation aspects and sections 6.4 to 6.6 analyse and evaluate procedural characteristics, impact coverage and other methodological characteristics in further detail. Section 6.7 shows SEA preparation times and section 6.8 summarises the main results of this chapter.

6.1 Extent of SEA application

25 SEAs (broadly defined as any assessment of the environmental impacts of a PPP) were conducted for the 36 PPPs, representing all transport infrastructure related planning levels (section 5.1). These include seven SEAs in North West England, nine SEAs in Noord-Holland and nine SEAs in EVR Brandenburg-Berlin. Ten SEAs were integrated into the PPP, i.e. there was no separate SEA documentation. Three PPPs involved the preparation of two SEAs, namely the Federal Transport Infrastructure Plan (*BVWP*) (SEA in the form of a cost-benefit-analysis and an ecological risk assessment), the Merseyside Package Bid (SEA in the form of a multi-criteria-analysis and an integrated transport strategy) and the Land Use Plan (*FNP*) Berlin (SEA in the form of a Landscape Programme, *Landschaftsprogramm* and an Ecological Conflict Assessment, *ökologische Konfliktanalyse*). Furthermore, the Landscape Framework Plan (*Landschaftsrahmenplan*) Havelland represents a SEA that was undertaken for two related PPPs, namely the Regional Plan (*Regionalplan*) Havelland-Fläming and the *Kreis* Development Concept (*Kreisentwicklungskonzeption*) Havelland.

Taking postal questionnaire results of all remaining, mainly local authorities in the sample regions into account, an additional number of SEAs was identified, namely:

- 14 environmental appraisals in North West England.

- Four visions (*visie*) and one regional transport plan in Noord Holland.
- 22 landscape plans (*Landschaftspläne*) for local land use plans and two landscape framework plans (*Landschaftsrahmenpläne*) for regional plans (*Regionalpläne*) in EVR Brandenburg-Berlin.

There were also at least eight 'big-project-SEAs/EIAs' for Dutch regional plans (*streekplannen*). These were, however, not included in further analysis, as the plan as a whole was not assessed, but only large scale projects, following the Dutch EIA Decree of 1994. Two recently undertaken SEAs could not be considered, as information became available only after data collection, namely the 'New Approach to Trunk Roads Planning' (Prize, 1998) and the national Spatial Vision of the Netherlands (Ministerie van VROM, 1998a). In addition, two SEA transport research studies were identified (MVA et al., 1999; Ministerium für Wohnungswesen, Städtebau und Verkehr, 1995). In conclusion, this research identified a minimum number of 80 SEAs for transport infrastructure related PPPs in the three sample regions, 23 in North West England, 23 in Noord-Holland and 34 in EVR Brandenburg-Berlin. Annex 1 lists all the SEAs in the three sample regions.

6.2 Types of Strategic Environmental Assessment

6.2.1 Identification of SEA types

SEA can be classified into three types according to the stage of PPP formulation in the planning cycle, sectoral and procedural characteristics, impact coverage and other methodological characteristics (following section 3.1). Using existing terminology (see section 1.1.4), these SEA types are subsequently called policy-, plan-, and programme-SEA. Table 6.1 lists the 25 SEAs for the cross-section of 36 PPPs in terms of the SEA types.

Table 6.1: SEA types and their characteristics in the sample regions

SEA type	PPP formulation level	sectoral coverage	impact coverage	procedural characteristics	other methodological characteristics	examples in sample regions
1. 'Policy-SEA' usually non-mandatory (except the Dutch *SVVII*) (no separate SEA document)	policy oriented	transport PPPs	environmental and socio-economic impacts	integrated into the PPP process, may or may not include public participation; on average, roughly 2/3 of SEA stages are covered	⇒ different transport modes (intermodal alternatives)/development alternatives ⇒ scenarios ⇒ overall cumulative impacts ⇒ general impacts on transport	(a) Dutch transport SEAs/PPPs: • Second Transport Structure Plan, *SVVII* • Transport Plan Northern Wing Randstad, *INVERNO* • Transport Plan, *RVVP* Noord-Holland-Noord • Transport Plan, *RVVP* + environment map (*verkeersmilieukaart*) Haarlem/IJmond • Transport Plan, *RVVP* + environment map ROA (b) German transport SEAs/PPPs: • Integrated Transport Plan, *StEP Verkehr* Berlin • Integrated Transport Plan, *IVP* Brandenburg (c) English transport strategies • Merseyside Package Bid underlying strategy
		spatial/ land use PPPs			⇒ impacts of different development scenarios on future transport infrastructure are mapped	(d) Dutch development visions (SEAs/PPPs): • *Ontwikkelingsvisie* Noord-Holland • *Toekomstvisie* Hilversum
2. 'Plan-SEA' mandatory (German SEAs) or non-mandatory (English and Dutch SEAs) (separate SEA document)	policy or project oriented	spatial/ land use PPPs (potentially also transport)	environmental impacts	SEA is started before or runs parallel to PPP process; assists in formulating environmental objectives; public participation; on average, roughly 2/3 of SEA stages are covered	⇒ spatial alternatives (except environmental appraisals in North West England) ⇒ no scenarios ⇒ no overall cumulative impacts ⇒ usually no impacts on transport	(a) SEAs in the form of landscape plans and programmes, assessing environmental impacts: • Landscape Plan, *Landschaftsplan* Ketzin (b) SEAs in the form of Landscape Plans/Programmes, not assessing environmental impacts: • Landscape Framework Plan, *Landschaftsrahmenplan* Havelland • Landscape Programme, *Landschaftsprogramm* Berlin (c) Environment Matrix, *milieumatrix* Amsterdam
			environmental & increasingly socio-economic impacts	joins the PPP process at one or at several points, usually no public participation; on average, roughly 1/3 of SEA stages are covered		(d) Environmental appraisal in North West England: • Cheshire Structure Plan's Appraisal • Lancashire Structure Plan's Appraisal • Warrington Local Plan's Appraisal • Oldham UDP's Appraisal

Table 6.1 (continued)

SEA type	PPP formulation level	sectoral coverage	impact coverage	procedural characteristics	other methodological characteristics	examples in sample regions
3. 'Programme-SEA' quasi-mandatory (transport SEAs) or non-mandatory (spatial/land use SEAs)	project oriented	transport PPPs	environmental and socio-economic impacts	joins the PPP process at one point, no public participation; on average, roughly 1/4 of all SEA stages are covered	⇒ no alternatives ⇒ no scenarios ⇒ no overall cumulative impacts ⇒ no impacts on transport ⇒ hierarchies of projects are determined through cost-benefit-analysis and multi-criteria-analysis	(a) SEAs in the form of German transport plans (using cost-benefit-analysis) • Federal Transport Infrastructure Plan, *BVWP* • Road Plan, *Landesstraßenbedarfsplan* Brandenburg (b) SEAs in the form of English transport investment plans (using multi-criteria-analysis) • Cheshire TPP • Merseyside Package Bid (c) assessments of projects within PPPs • Federal Transport Infrastructure Plan, *BVWP* Ecological Risk Assessment
(separate SEA document/ project sheets)		spatial/ land use PPPs	environmental impacts *or* environmental and socio-economic impacts	EIA process principles based, joins PPP process at one point, may or may not include public participation, on average, roughly 60% of all SEA stages are covered	⇒ alternatives ⇒ no scenarios ⇒ no overall cumulative effects ⇒ may or may not consider impacts on transport ⇒ hierarchies of projects are determined through cost-benefit-analysis and multi-criteria-analysis	(c) Dutch Spatial Planning PPPs • National Spatial Plan, *VINEX* review (d) German land use plans • Ecological Conflict Assessment (*ökologische Konfliktanalyse*) for *FNP* Berlin

SEA application in policy and project oriented PPPs

Box 6.1 shows the extent of SEA application in policy and project oriented PPPs (as identified in Table 5.5), referring to the cross-section of PPPs. Whilst transport policy PPPs used policy-SEA and transport project PPPs used programme-SEA, the situation for spatial/land use PPPs was more complex. Several SEA types were used, including plan-SEA and policy-SEA for policy oriented spatial/land use PPPs and plan-SEA, programme-SEA and big-project-SEA/EIA for project oriented spatial/land use PPPs.

Box 6.1: Policy and project oriented PPPs and SEA type application in the sample regions

(1)Policy oriented transport PPPs: All seven PPPs (i.e. 100%) involved the preparation of policy-SEA.

(2)Policy oriented spatial/land use PPPs: Seven of the 12 PPPs (i.e. 58%) involved SEA preparation, for five PPPs plan-SEAs were undertaken and for two PPPs policy-SEAs were undertaken.

(3)Project oriented transport PPPs: Four of the eight PPPs (i.e. 50%) involved SEA preparation, all of which were programme-SEAs. In addition, for one PPP an underlying strategy was prepared, which involved policy-SEA.

(4)Project oriented spatial/land use PPPs: Six of the nine PPPs (i.e. 67%) involved SEA preparation, for four PPPs plan-SEAs were undertaken and for two PPPs programme-SEAs were undertaken. Furthermore, big-project-SEAs/EIAs were undertaken for Noord-Holland's regional plans (*streekplannen*).

6.2.2 SEA application at different administrative levels

Table 6.2 shows the extent to which SEA types were applied at different administrative levels in the three sample regions (see also Annex 1). All three SEA types were applied at all decision making levels, i.e. no SEA type is specific to a certain administrative level of decision making. Tiering between different administrative levels took the form of policies that were defined at higher tiers and considered and implemented at lower tiers. Only few SEAs were tiered at a certain administrative level. Examples include the Transport Strategy Merseyside, MerITS (policy-SEA) and the Merseyside Package Bid (programme-SEA). There are also examples where tiering is potentially possible. These

include the provincial spatial/land use Vision (*visie*) Noord-Holland (policy-SEA) with the regional plans (*streekplannen*), currently involving the preparation of big-project-SEA/EIA. Examples also include the Integrated Transport Plan (*IVP*) Brandenburg (policy-SEA) with the Road Development Plan (*Landesstraßenbedarfsplan*) Brandenburg (programme-SEA).

The lack of tiering at the same administrative level is most likely explained by the only recent development and application of policy-SEA. Furthermore, in EVR Brandenburg-Berlin, German unification required a quick installation of the West German planning system in the new *Länder* in order to modernise the transport infrastructure and to achieve equal living conditions[1]. The focus was therefore in particular on the preparation of 'traditional' statutory instruments, required according to national legislation.

Whilst the application of policy-SEA was comparatively widespread in the Netherlands, in both North West England and EVR Brandenburg-Berlin, mostly plan-SEAs were undertaken for 'traditional' statutory PPPs. It is therefore indicated that policy-SEA suits the consensus-led, quasi top-down planning approach (see section 4.2.2) in the Netherlands particularly well. Thus, policy-SEA allows examination of the impacts on certain policy objectives that were identified at higher tiers and involving open discussion of different policy options with widespread consultation and participation.

The predominant use of plan-SEA in North West England and in EVR Brandenburg-Berlin was related to the fact that an open SEA process with widespread consultation and participation was usually only applied at lower administrative tiers. Public administration appeared to be reluctant to consult the public at higher decision making levels and policy-SEA application was therefore rare. In EVR Brandenburg-Berlin, PPP makers often said that the current system of a representative democracy with elected bodies at four decision making levels considered public opinions to a sufficiently large extent (see section 4.1.3). Furthermore, it was said that nothing would be gained from involving the general public in policy decisions at higher tiers. For England, important policy decisions are traditionally taken by central government without involving the public to any large extent (Dalal-Clayton et al, 1994, p29).

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[1] The German Constitution (*Grundgesetz*) formulates the principle of equivalent living conditions for all parts of the country (article 72, paragraph 2(3)).

Table 6.2: SEAs undertaken for transport infrastructure related PPPs at different administrative levels in the three sample regions

Administrative level	Region / Sector / SEA type	North West England		Noord-Holland		EVR Brandenburg - Berlin	
		Transport	Spatial/land use	Transport	Spatial/land use	Transport	Spatial/land use
National	'policy'			✓	«✓»		×
	'plan'	×		×	×	«✓»	
	'programme'	«✓»		×	✓	✓ (2)	
Sample region (including *Provincie/Land*)	'policy'			✓ (2)	«✓»	✓	
	'plan'	«✓»	× (*)	×	×	×	✓(3)
	'programme'	×	×	×	×	✓	×
	'big-project'	×	×	×	«✓(8) »	×	×
City region (including county/*Kreis*)	'policy'	✓		✓ (3)	×	✓	
	'plan'	×	✓ (2)	×	×	×	✓
	'programme'	✓ (2)	×	×	×	×	✓
Local	'policy'			?	✓ (5)	?	
	'plan'		✓ (16)	?	✓	?	✓(23)
	'programme'		×	?	×	?	×

= no PPP prepared

✓ = SEA application (number in brackets refers to the number of SEAs in the sample regions, if more than one)

«✓» = SEA application which is not included in research: big-project SEAs/EIAs for Noord-Holland's regional plans (*streekplannen*), national level SEAs in North West England and Noord-Holland (SEAs accessible only after data collection); research transport SEAs in North West England and in EVR Brandenburg-Berlin

× = no SEA application

? = PPPs to be prepared under new legislation, scope unclear

(*) = DETR (1998a) currently explores the possibility to apply 'sustainability appraisal' to Regional Planning Guidance.

6.3 PPP context variables and SEA presentation aspects

Table 6.3 identifies the scores of the four PPP context variables (defined in sections 5.2 to 5.5) for the sample regions, SEA types and sectors and for PPPs with SEA and without SEA for the cross-section of PPPs. This identification helps to interpret the observed SEA patterns in the subsequent analysis.

Table 6.3: SEA presentation aspects and PPP context variables

Presentation aspect / criteria	Region			SEA type			Sector		SEA	
	North West England	Noord-Holland	EVR Brandenburg-Berlin	Policy-SEA	Plan-SEA	Programme-SEA	Transport	Spatial/ land use	SEA	no SEA
PPP relevance	● (89%)	⊙ (70%)	● (83%)	⊙ (57%)	● (98%)	● (91%)	⊙ (74%)	● (85%)	● (80%)	⊙ (62%)
PPP accountability	● (87%)	● (78%)	⊙ (61%)	⊙ (70%)	● (94%)	⊙ (59%)	⊙ (55%)	● (88%)	⊙ (74%)	⊙ (67%)
PPP intermodality	⊙ (74%)	● (76%)	⊙ (63%)	● (83%)	⊙ (71%)	⊙ (51%)	● (77%)	⊙ (64%)	⊙ (71%)	⊙ (70%)
PPP procedure	⊙ (72%)	⊙ (73%)	⊙ (72%)	⊙ (70%)	● (82%)	⊙ (57%)	⊙ (65%)	● (80%)	⊙ (72%)	⊙ (57%)

Overall evaluation:

■ = met to 100%

● = met from 75% to under 100%

⊙ = met from 50% to under 75%

○ = met from 25% to under 50%

▫ = met from 0% to under 25%

Regions

PPPs with SEA in North West England and EVR Brandenburg-Berlin obtained higher scores on the 'PPP relevance' than the PPPs in Noord-Holland with SEA. This was related to the larger extent of plan-SEA application in North West England and EVR Brandenburg-Berlin and the more extensive use of policy-SEA in Noord-Holland. 'PPP accountability' was smallest in EVR Brandenburg-Berlin, which was particularly caused by a lack of public participation at higher tiers above the local and *Kreis* levels. Whilst EVR Brandenburg-Berlin SEAs obtained low scores for the 'PPP intermodality', Noord-Holland PPPs obtained high scores, mainly due to the larger number of policy-SEAs. The three regions obtained similar scores on the 'PPP procedure'.

SEA types

The 'PPP relevance' was particularly low for policy-SEAs which were undertaken for non-statutory PPPs. It was high for plan-SEAs, which were mostly undertaken for statutory PPPs. The 'PPP accountability' was lowest for programme-SEA, in particular caused by its application to the transport sector, involving no public participation and only limited external consultation. A reluctance of transport PPP makers to involve

third parties in the decision on how to rank proposed projects is therefore indicated, most likely for a fear of NIMBYism (see section 1.2). Programme-SEA obtained the lowest score on the 'PPP-intermodality', as all transport programme-SEAs ranked projects in a unimodal manner, without considering alternatives. As expected, policy-SEA scored highest, having an inherently intermodal character. For the 'PPP procedure', plan-SEA obtained high scores, as the associated PPPs of plan-SEAs were usually statutory instruments with extensive preparation procedures.

Sectors

On average, differences between the two sectors (transport and spatial/land use) were not as large as the differences between the regions and the SEA types. Whilst spatial/land use PPPs obtained slightly higher scores on the 'PPP relevance', the 'PPP accountability' and the 'PPP procedure', transport PPPs obtained slightly higher scores on the 'PPP intermodality'. This was caused by the more extensive and open PPP preparation procedures of spatial/land use PPPs. In particular, project oriented transport PPPs did not involve any public participation or consultation, which is most likely explained by a fear of NIMBYism (see section 1.2).

Differences between PPPs with SEA and PPPs without SEA

Those PPPs involving SEA obtained higher scores on all PPP context variables than PPPs not involving SEA. SEA was applied less to PPPs with a low 'PPP relevance'. This was in particular due to a large number of regional spatial/land use PPPs (including *Land* and *Provincie* levels), which did not involve SEA and only sometimes involved public participation and external consultation.

6.4 Procedural aspects of SEA application

Table 6.4 shows the extent to which SEAs in the sample regions covered procedural stages, following the framework provided in section 3.1.1. A scoring system from 0 (not considered) to 3 (fully considered) was applied. Subsequently, general, regional, SEA type and sectoral specific patterns are analysed.

Table 6.4: Procedural coverage in the 25 SEAs for the cross-section of PPPs

SEA stage / SEA	Prior to the PPP process	SEA initiation	During PPP formulation	Review	Monitoring	Public participation	External consultation	Overall evaluation
Environmental Appraisal Lancashire Structure Plan	(⇔)	(⇔)	✓	✗	(⇔)	✗	✗	○ (29%)
Environmental Appraisal Cheshire Structure Plan	(⇔)	(⇔)	✓	✗	(⇔)	✓	⇔	⊙ (52%)
Transport Plan Cheshire TPP	⇔	(⇔)	✓	⇔	✗	✗	✗	○ (43%)
Merseyside Package Bid	⇔	(⇔)	✓	⇔	✗	✗	✗	○ (43%)
Merseyside Package Bid underlying strategy	✓	✗	✗	⇔	✗	✓	✓	⊙ (52%)
Environmental Appraisal Warrington Local Plan	✗	(⇔)	✓	✗	(⇔)	✗	(⇔)	○ (29%)
Environmental Appraisal Oldham UDP	(⇔)	(⇔)	✓	✗	(⇔)	✓	(⇔)	○ (48%)
Second Transport Structure Plan (*SVVII*)	⇔	✓	✓	(⇔)	✓	✓	✓	● (86%)
National Spatial Plan (*VINEX*) review	⇔	✓	✓	✓	(⇔)	✓	✓	● (86%)
Vision (*visie*) Noord-Holland	✗	✓	✓	(⇔)	✗	✓	✓	⊙ (62%)
Transport Plan (*RVVP*) INVERNO	⇔	⇔	✓	(⇔)	✓	✗	✓	⊙ (67%)
Transport Plan (*RVVP*) Noord-Holland-Noord	⇔	⇔	✓	(⇔)	✗	✗	✓	⊙ (52%)
Transport Plan (*RVVP*) ROA	⇔	⇔	✓	(⇔)	✓	✗	✓	⊙ (52%)
Environment Matrix (*milieumatrix*) A'dam	✗	✗	✗	✗	(⇔)	✗	✗	▫ (5%)
Vision (*visie*) Hilversum	✗	✓	✓	(⇔)	(⇔)	✓	✓	⊙ (67%)
Transport Plan (*RVVP*) Haarlem-IJmond	⇔	⇔	✓	(⇔)	✗	✓	✓	⊙ (67%)
Federal Transport Plan (*BVWP*) ecological risk	✗	✗	✓	✗	(⇔)	✗	(⇔)	▫ (24%)
Federal Transport Plan (*BVWP*)	✗	(⇔)	✓	✗	(⇔)	✗	(⇔)	○ (29%)
Landscape Framework Plan Havelland	✓	✓	✗	✓	(⇔)	✗	✓	⊙ (62%)
Road plan (*Landesstrassenbedarfsplan*) Brandenb.	✗	✗	✓	✗	✗	✗	(⇔)	▫ (19%)
Integrated Transport Plan (*IVP*) Brandenburg	(⇔)	(⇔)	✓	(⇔)	✓	✗	✓	⊙ (57%)
Land Use Plan (*FNP*) Berlin, ecological assessment	✗	✓	✓	✗	(⇔)	✗	✗	○ (33%)
Land Use Plan (*FNP*) Berlin, Landscape Programme	✓	✓	✗	✗	(⇔)	✓	✓	⊙ (62%)
Integrated Transport Plan (*StEP*) Berlin	(⇔)	✓	✓	(⇔)	(⇔)	✓	✓	⊙ (71%)
Land Use Plan (*FNP*) Ketzin, Landscape Plan	✓	(⇔)	✓	✓	(⇔)	✓	✓	● (81%)

policy-SEA plan-SEA programme-SEA

Evaluation of procedural stages (see also section 3.1.1):

✓ = public document prepared/participation and consultation on the basis of a public document (scores 3)

⇔ = non-SEA specific document with a clear impact on SEA/identification of clear SEA objectives (scores 2)

(⇔) = general guidance/documentation with uncertain relationship to SEA/ ongoing monitoring/ review mainly through general consultation/ external consultation only of selected bodies, results not open to public (scores 1)

✗ = no consideration (scores 0)

Overall evaluation (on the basis of criteria scores):

■ = met to 100%

● = met from 75% to under 100%

⊙ = met from 50% to under 75%

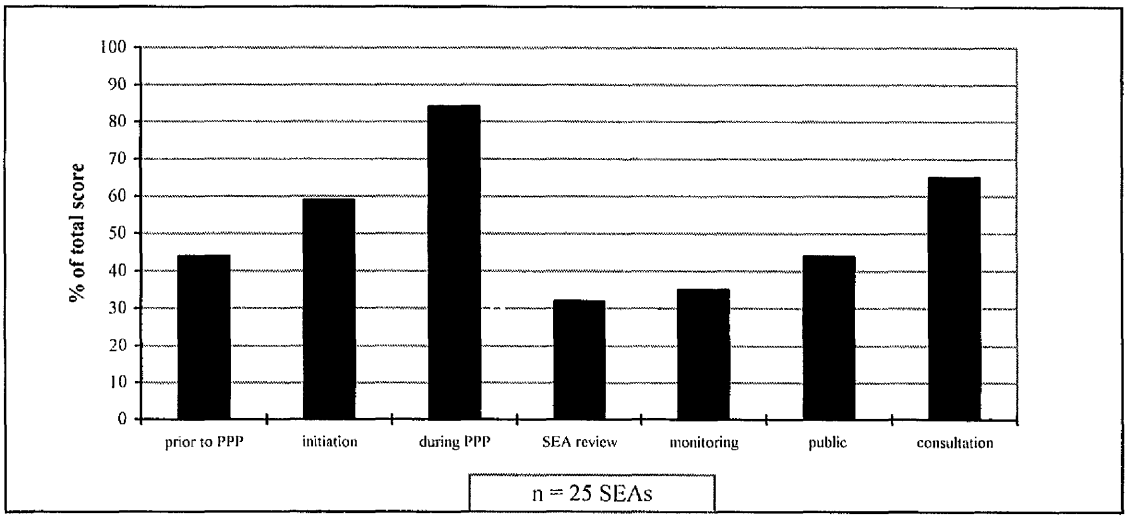
○ = met from 25% to under 50%

▫ = met from 0% to under 25%

6.4.1 General findings

Only three SEA stages obtained over 50% of the overall score of the 25 SEAs, namely the 'initiation stage', the 'during the PPP preparation' stage and the 'external consultation' stage. The lowest overall score was obtained by the 'SEA report review' and 'monitoring' stages. Subsequently, the seven SEA stages are described in further detail.

Figure 6.1: Overall coverage of SEA procedural stages



Prior to the PPP process (screening)

Four SEAs were used to formulate objectives for the associated PPP, including a policy-SEA (the underlying strategy of the Merseyside Package Bid, MerITS) and three plan-SEAs (the landscape plans and programmes, *Landschaftspläne und -programme*). Eight SEAs (seven of which transport PPPs) considered objectives from other PPPs, including either transport strategies or environmental policy plans (*milieubeleidsplannen*) in Noord-Holland.

Initiation of SEA (scoping)

Highest scores at the initiation stage of SEA were obtained by four SEAs in each of Noord-Holland and in EVR Brandenburg-Berlin, all of which involved the preparation of scoping documents that were subject to consultation and public participation. Whilst in Noord-Holland, higher tier SEAs were included (i.e. national and *Provincie* levels), in EVR Brandenburg-Berlin only lower tier SEAs were included (mostly local and *Kreis* levels), thus reflecting the different planning approaches in the two regions, as

outlined in section 4.2. All Dutch integrated transport SEAs/PPPs considered the themes of the Second Transport Structure Plan (*SVVII*). In North West England, all SEAs except for the underlying strategy of the Merseyside Package Bid followed central government guidance, reflecting the centrally guided plan-making approach (DoE, 1993; DoT, 1995). In EVR Brandenburg-Berlin, guidance was also followed by the plan-SEA (*Landschaftsplan*) for the Land Use Plan (*FNP*) Ketzin (Ministerium für Umwelt, Naturschutz und Raumordnung, 1995a) and general research led to a definition of assessment tasks for the Federal Transport Infrastructure Plan (*BVWP*).

During PPP formulation

21 of the 25 SEAs involved the preparation of public documentation during PPP formulation and directly assessed environmental impacts, all of which obtained the highest score for the 'during PPP formulation' stage. The four remaining SEAs included three plan-SEAs and one policy-SEA. For the Environment Matrix (*milieumatrix*) Amsterdam, SEA documentation was prepared only after PPP formulation. For the Landscape Framework Plan (*Landschaftsrahmenplan*) Havelland and the Landscape Programme (*Landschaftsprogramm*) Berlin, SEA documentation was prepared before PPP formulation, defining land suitability and reflecting the precautionary approach to environmental planning, based on the landscape planning system (see section 4.2.3). Finally, the underlying transport strategy for the Merseyside Package Bid was prepared before PPP formulation.

SEA report review

Three SEAs involved SEA report review by an external body, including the programme-SEA for the National Spatial Plan (*VINEX*) review (review by the national EIA Commission) and the plan-SEAs, Landscape Framework Plan (*Landschaftsrahmenplan*) Havelland and Landscape Plan (*Landschaftsplan*) Ketzin (both reviewed by the *Land* Authority for Construction, Building Techniques and Settlements, *LBBW*). North West England TPPs and package bids were reviewed in the process of the plan approval by the Department of the Environment, Transport and the Regions (*DETR*) and the regional integrated transport plans (*RVVPs*) in Noord-Holland were checked by the national Ministry of Transport (*MVW*). Five policy-SEAs were indirectly reviewed through general external consultation.

Monitoring

Monitoring was conducted for only four SEAs, all of which were policy-SEAs. These include the Second Transport Structure Plan (*SVVII*) (monitoring in the form of the national 'to measure is to know' programme, '*meten=weten*'), the Regional Transport Plans (*RVVP*) ROA (regional monitoring), INVERNO (SEA specific monitoring planned) and the Integrated Transport Plan (*IVP*) Brandenburg (SEA specific monitoring planned). Non-SEA specific, general PPP monitoring was more common and was conducted for all statutory land use plans that involved the preparation of plan-SEA and the Federal Transport Infrastructure Plan (*BVWP*) and the National Spatial Plan (*VINEX*) review.

Opportunities for public participation

Public participation was conducted in three SEAs in each of North West England and EVR Brandenburg-Berlin and in five SEAs in Noord-Holland. Whilst there was public participation for SEAs at all administrative levels in Noord-Holland, public participation in SEA in North West England and in EVR Brandenburg-Berlin was confined to the local level and in North West England also the county level[2]. This reflects the different planning approaches in the three regions (see section 4.2). In most cases, public participation in the SEA took place once or twice. Exceptions were the Dutch visions (*visies*), involving public participation at each step of the PPP process (up to four times).

External consultation

External consultation was most comprehensive in Noord-Holland and EVR Brandenburg-Berlin. All SEAs in Noord-Holland, except the Environment Matrix (*milieumatrix*) Amsterdam, involved external consultation. Furthermore, five of the nine SEAs in EVR Brandenburg-Berlin, but only one of the seven SEAs in North West England involved external consultation. In addition, all 23 landscape plans (*Landschaftspläne*) for the local land use plans (*FNPs*) in EVR Brandenburg-Berlin involved external consultation. External consultation in the Environmental Appraisal for

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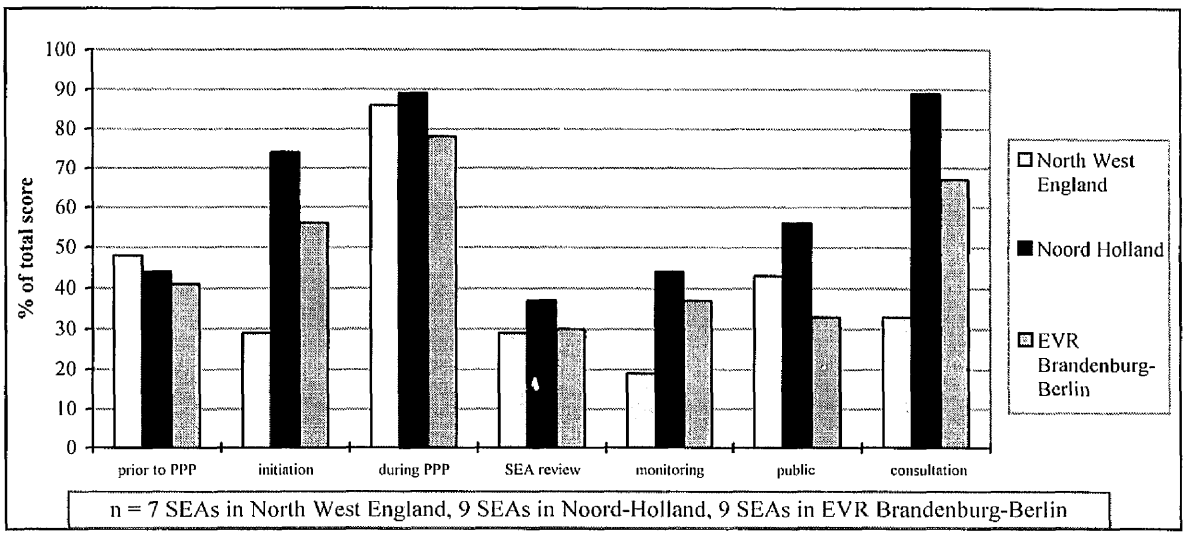
[2] Formal requirements for public participation in plan-SEA were formulated in EVR Brandenburg-Berlin landscape plans (*Landschaftspläne*) for the statutory local land use plans (*FNPs*).

the Cheshire Structure Plan, the Warrington Local Plan and the Oldham UDP was limited to the Department of the Environment (DoE).

6.4.2 Regional comparisons

Figure 6.2 shows the extent to which procedural stages were covered in the three sample regions. Differences were significant for only two stages, namely the 'initiation' and 'external consultation' stages, both of which were significantly more frequently considered in Noord-Holland than in North West England (P<.01). The differences are mainly explained by the larger extent of policy-SEA application in Noord-Holland. SEA type patterns are further examined below.

Figure 6.2: SEA procedural stages considered in the three sample regions

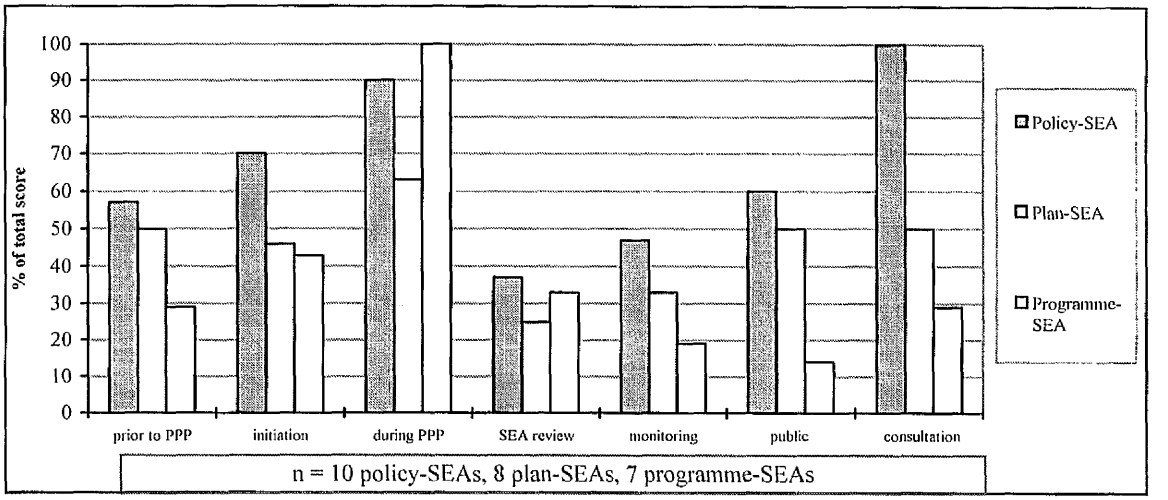


6.4.3 Comparisons between SEA types

Figure 6.3 shows the extent to which procedural stages were considered in the three SEA types. Differences were statistically significant for most stages, except the 'prior to the PPP process' and 'SEA initiation' stages. Procedural stages were usually most extensively covered by policy-SEA and least extensively covered by programme-SEA (P<.05 for 'monitoring' and 'public participation' and P <.01 for 'external consultation'). Exceptions were the 'during the PPP preparation' stage (P<.05 for programme-SEA and plan-SEA) and the 'SEA report review' stage (P<.05 for policy-SEA and plan-SEA). Policy-SEAs covered the SEA stages to the largest extent, as an open and

extensive process was applied, comparing broad policy options. As these usually had no direct consequences for project implementation, PPP makers were more willing to fully include public participation and external consultation.

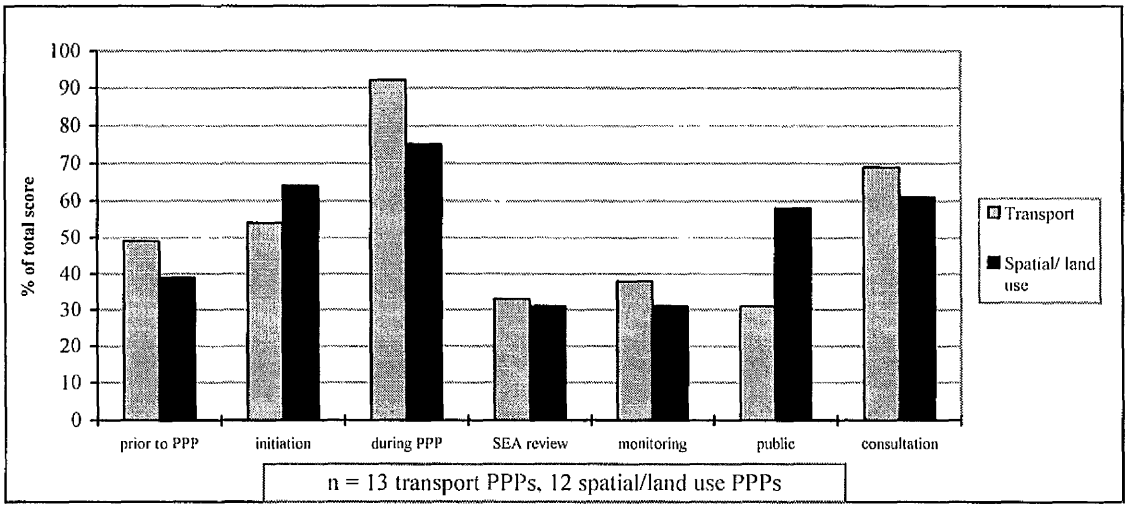
Figure 6.3: SEA procedural stages considered in the three SEA types



6.4.4 Sector-specific comparisons

Figure 6.4 shows the differences between the sectors. Whilst none of the differences were statistically significant, it is indicated that SEA for spatial/land use PPPs involved the general public to a larger extent than SEA for transport PPPs. This was mainly caused by the transport programme-SEA, which did not involve any public participation at all for a fear of NIMBYism, caused by project orientation of the associated PPP.

Figure 6.4: SEA procedural stages considered in the two sectors



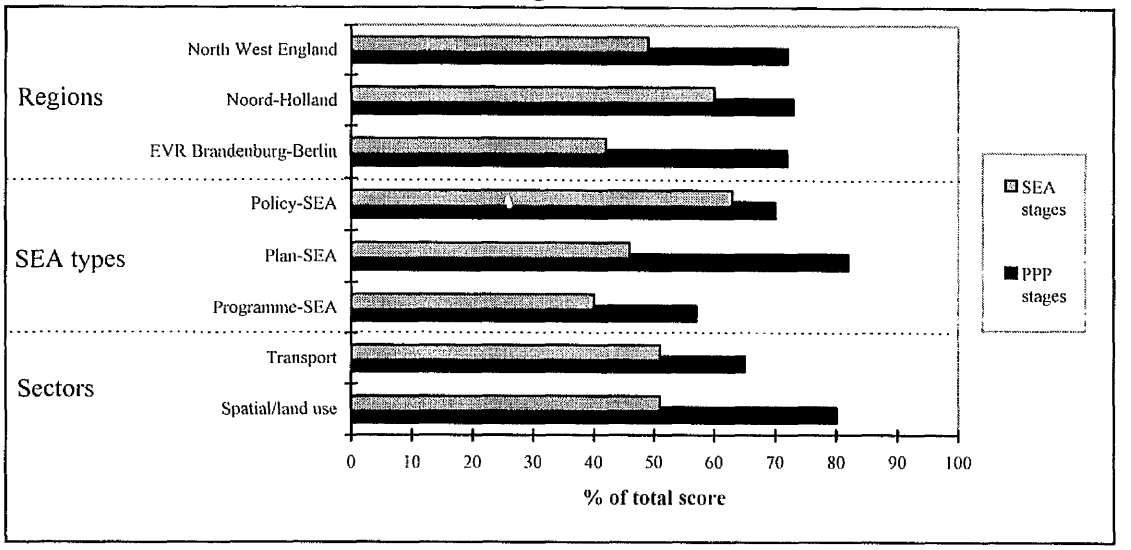
6.4.5 Average scores for the regions, SEA types and sectors on 'SEA procedure'

Figure 6.5 presents the average scores for the coverage of procedural stages in the SEAs for the cross-section of PPPs. Whilst Noord-Holland SEAs and policy-SEAs scored highest, North West England SEAs and programme-SEAs scored lowest. SEAs for transport and spatial/land use PPPs, on average covered stages to the same extent. The extent to which procedural stages were covered was clearly connected with the SEA type. Thus, whilst policy-SEA covered procedural stages to the largest extent, programme-SEA covered SEA stages to the smallest extent ($P<.01$). Main reasons were the integration of policy-SEA into the associated PPP and the non-project oriented character of policy-SEA (i.e. NIMBYism unlikely, see section 1.2). Only one programme-SEA covered procedural stages well, namely the National Spatial Plan (*VINEX*) review, which followed a formal process, according to the Dutch EIA Decree of 1994. The range of SEA procedural stages covered in plan-SEA was comparatively wide and ranged from 81% (Landscape Plan, *Landschaftsplan* Ketzin) to only 5% (Environment Matrix, *milieumatrix* Amsterdam).

A comparison of the extent to which procedural stages were covered in SEA and in the associated PPP shows there is scope for improving practice in all SEA types, regions and sectors, if SEAs were more fully integrated into the PPP process. The scope for improvement was greater for spatial/land use SEAs with formal procedures than for transport SEAs with informal procedures[3]. The scope for improving SEA through a better integration into existing PPP procedures was greater in plan-SEA and programme-SEA than in policy-SEA. Furthermore, it was greater in North West England and EVR Brandenburg-Berlin than in Noord-Holland.

[3] Following Tables 5.15 to 5.17, PPPs with formal procedures covered stages to 71%, those with informal procedures only to 58%.

Figure 6.5: Extent of procedural stages covered in SEA and the associated PPP



The context variable 'PPP intermodality' (see sections 2.3.3 and 5.4) was significantly correlated with the extent to which SEA procedural stages were covered ($P<.05$). This is mainly explained by the policy-SEA type, covering procedural stages well and considering intermodal aspects to the largest extent of all SEA types.

6.5 Impact coverage

Tables 6.5 and 6.6 identify those environmental and socio-economic impacts that were considered in the 25 SEAs for the cross-section of the 36 PPPs. Following section 3.1.2, five categories were distinguished:

(1) Impacts that were directly quantitatively assessed.

(2) Impacts that were directly qualitatively assessed.

(3) Impacts that were indirectly assessed.

(4) Basic requirements, limits or assumptions formulated.

(5) no impacts assessed

Subsequently, the extent of impact coverage is analysed in further detail. Regional, SEA type and sectoral differences are highlighted and explained. Furthermore, the extent to which SEAs combined socio-economic and environmental impacts is determined.

Table 6.5: Types of environmental impacts assessed in SEA

SEA \ environmental impacts	(1) fauna	(2) flora	(3) soil	(4) water	(5) air (+ noise)	(6) climate	(7) landscape & cultural heritage
Environmental Appraisal Lancashire Structure Plan	⇔	⇔	⇔	⇔	⇔	⇔	⇔
Environmental Appraisal Cheshire Structure Plan	⇔	⇔	⇔	⇔	⇔	⇔	⇔
Transport Plan Cheshire TPP	(⇔)	(⇔)	(⇔)	×	⇔	×	(⇔)
Merseyside Package Bid	(⇔)	(⇔)	(⇔)	×	⇔	×	(⇔)
Merseyside Package Bid underlying strategy	×	×	×	×	✓	✓	×
Environmental Appraisal Warrington Local Plan	⇔	⇔	⇔	⇔	⇔	⇔	⇔
Environmental Appraisal Oldham UDP	⇔	⇔	⇔	⇔	⇔	⇔	⇔
Second Transport Structure Plan (*SVVII*)	×	×	×	×	✓	✓	×
National Spatial Plan (*VINEX*) review	✓	✓	✓	✓	✓	✓	✓
Vision (*visie*) Noord-Holland	(⇔)	(⇔)	×	(⇔)	(⇔)	×	(⇔)
Transport Plan (*RVVP*) INVERNO	×	×	×	×	✓	✓	(⇔)
Transport Plan (RVVP) Noord-Holland-Noord	×	×	×	×	✓	✓	×
Transport Plan (RVVP) ROA	×	×	×	×	✓	✓	×
Environment Matrix (*milieumatrix*) A'dam	!	!	!	!	!	×	!
Vision (*visie*) Hilversum	(⇔)	(⇔)	×	×	(⇔)	×	(⇔)
Transport Plan (RVVP) Haarlem-IJmond	×	×	×	×	✓	✓	(⇔)
Federal Transport Plan (*BVWP*) ecological risk	✓	✓	×	✓	(⇔)	×	✓
Federal Transport Plan (*BVWP*)	(⇔)	(⇔)	×	×	⇔	(⇔)	(⇔)
Landscape Framework Plan Havelland	!	!	!	!	!	!	!
Road plan (*Landesstrassenbedarfsplan*) Brandenb.	(⇔)	(⇔)	×	⇔	⇔	×	(⇔)
Integrated Transport Plan (*IVP*) Brandenburg	⇔	⇔	⇔	⇔	✓	✓	⇔
Land Use Plan (*FNP*) Berlin, ecological assessment	✓	✓	✓	✓	⇔	(⇔)	✓
Land Use Plan (*FNP*) Berlin, Landscape Programme	!	!	!	!	!	!	!
Integrated Transport Plan (*StEP*) Berlin	⇔	⇔	⇔	⇔	✓	✓	⇔
Land Use Plan (*FNP*) Ketzin, Landscape Plan	✓	✓	✓	✓	⇔	(⇔)	✓

policy-SEA plan-SEA programme-SEA

✓ = impacts directly assessed in a quantitative manner
⇔ = impacts directly assessed in a qualitative manner
(⇔) = impacts indirectly assessed
! = explicitly stated assumptions, impacts not assessed
× = no consideration

Table 6.6: Types of socio-economic impacts assessed in SEA

socio-economic impacts / SEA	(1) economy	(2) population	(3) housing	(4) public service	(5) fiscal	(6) income	(7) social impacts
Environmental Appraisal Lancashire Structure Plan	!	!	!	×	×	×	!
Environmental Appraisal Cheshire Structure Plan	!	!	!	!	×	×	!
Transport Plan Cheshire TPP	(⇔)	!	×	(⇔)	×	×	(⇔)
Merseyside Package Bid	(⇔)	!	×	(⇔)	×	×	(⇔)
Merseyside Package Bid underlying strategy	(⇔)	!	×	✓	✓	×	(⇔)
Environmental Appraisal Warrington Local Plan	!	!	!	!	×	×	!
Environmental Appraisal Oldham UDP	!	!	!	!	×	×	!
Second Transport Structure Plan (*SVVII*)	(⇔)	!	×	!	✓	×	(⇔)
National Spatial Plan (*VINEX*) review	✓	!	✓	(⇔)	✓	×	✓
Vision (*visie*) Noord-Holland	⇔	!	×	⇔	×	×	⇔
Transport Plan (*RVVP*) INVERNO	(⇔)	!	×	✓	✓	×	✓
Transport Plan (RVVP) Noord-Holland-Noord	(⇔)	!	×	✓	✓	×	✓
Transport Plan (RVVP) ROA	(⇔)	!	×	✓	✓	×	(⇔)
Environment Matrix (*milieumatrix*) A'dam	!	!	!	!	×	×	!
Vision (*visie*) Hilversum	⇔	⇔	(⇔)	⇔	⇔	⇔	⇔
Transport Plan (RVVP) Haarlem-IJmond	(⇔)	!	×	✓	✓	×	✓
Federal Transport Plan (*BVWP*) ecological risk	!	!	×	!	×	×	!
Federal Transport Plan (*BVWP*)	✓	!	×	!	✓	×	⇔
Landscape Framework Plan Havelland	!	!	!	×	×	×	!
Road plan (*Landesstrassenbedarfsplan*) Brandenb.	(⇔)	!	×	×	⇔	×	⇔
Integrated Transport Plan (*IVP*) Brandenburg	(⇔)	!	×	✓	✓	×	✓
Land Use Plan (*FNP*) Berlin, ecological assessment	!	!	!	!	×	×	!
Land Use Plan (*FNP*) Berlin, Landscape Programme	!	!	!	!	×	×	!
Integrated Transport Plan (*StEP*) Berlin	(⇔)	!	×	✓	✓	×	✓
Land Use Plan (*FNP*) Ketzin, Landscape Plan	!	!	!	!	×	×	!

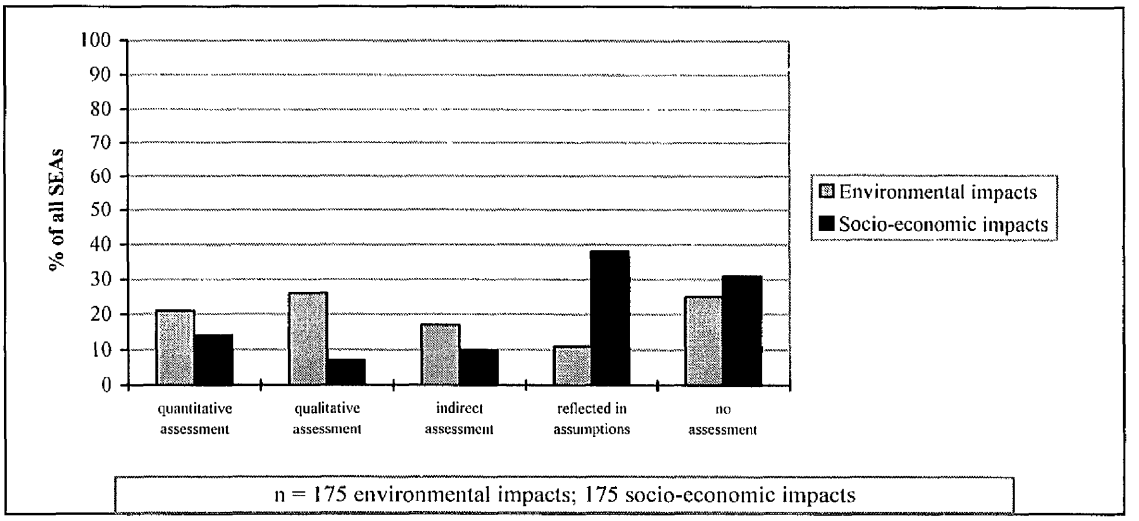
policy-SEA plan-SEA programme-SEA

✓ = impacts directly assessed in a quantitative manner
⇔ = impacts directly assessed in a qualitative manner
(⇔) = impacts indirectly assessed
! = explicitly stated assumptions, impacts not assessed
× = no consideration

6.5.1 General findings

Environmental and socio-economic impacts were assessed in the 25 SEAs to varying extents. Considering all SEAs, environmental impacts were assessed to a greater extent than socio-economic impacts. Three plan-SEAs (including the Environment Matrix, *milieumatrix* Amsterdam, the Landscape Framework Plan, *Landschaftsrahmenplan* Havelland and the Landscape Programme, *Landschaftsprogramm* Berlin) formulated environmental objectives and provided land suitability maps. Socio-economic impacts were assessed in only 15 SEAs, including all 10 policy-SEAs and five of the seven programme-SEAs. None of the plan-SEAs assessed socio-economic impacts. Figure 6.6 illustrates the overall consideration given to environmental and socio-economic impacts.

Figure 6.6: Environmental and socio-economic impacts considered in all SEAs



Whilst 64% of the environmental impacts were assessed, either directly or indirectly, 25% of the environmental impacts were not assessed at all. Regarding socio-economic impacts, only 31% were assessed, either directly or indirectly and 31% were apparently not assessed at all. Whilst only 11% of the environmental impacts were reflected in assumptions or planning goals, this figure rose to 38% of the socio-economic impacts. The large number of socio-economic impacts reflected in assumptions is mainly explained by the fact that PPPs were usually prepared for meeting economic objectives, in particular those spatial/land use PPPs that involved the preparation of plan-SEA.

6.5.2 Impact types

Environmental impact types

Environmental impact types that were considered in a comparatively large number of SEAs include 'air' (all SEAs, 13 of which were reflected in assumptions) and 'landscape and cultural heritage' (21 SEAs, three of which were reflected in assumptions). 'Soil' and 'water' were the two criteria that were considered in the smallest number of SEAs (11 SEAs and 10 SEAs, respectively).

Regional differences were significant for four impact types. 'Soil' was significantly more frequently considered in North West England than in Noord-Holland ($P<.05$). This was caused by the application of plan-SEAs (i.e. environmental appraisals), focusing on location specific impacts. 'Fauna', 'flora' and 'water' were significantly more often considered in EVR Berlin-Brandenburg than in Noord-Holland ($P<.05$ in all three cases), which is also caused by the application of landscape plans and programmes (*Landschaftspläne und -programme*), which systematically considered a wide range of impacts on the living environment (according to the Brandenburg Environment Act, *BbgNatSchG*, and the Environment Act Berlin, *NatSchGB*).

Socio-economic impact types

Socio-economic impact types that were considered in a comparatively large number of SEAs include 'social' impacts (all SEAs/associated PPPs, 10 of which were only reflected in assumptions) and 'public service' impacts (21 SEAs/associated PPPs, 10 of which were only reflected in assumptions). Poorly considered were 'income' and 'housing'.

Transport SEAs considered 'fiscal' ($P<.01$), 'social' ($P<.01$), 'economic' ($P<.05$) and 'public service' ($P<.05$) impacts significantly more frequently than spatial/land use SEAs, which is mainly explained by the possibility of connecting transport infrastructure development and public funding. Whilst all SEAs/associated PPPs made assumptions on future 'population' development, only the vision (*visie*) Hilversum actually predicted impacts of measures on the future 'population' development (demographic impacts). Not surprisingly, assumptions on 'housing' were made in all spatial/land use SEAs/associated PPPs, but in none of the transport SEAs/associated PPPs ($P<.01$).

'Housing' impacts were quantitatively assessed only in the National Spatial Plan (*VINEX*) review and indirectly (through 'population development') in the Vision (*visie*) Hilversum.

6.5.3 Regional comparisons

Figures 6.7 and 6.8 compare the environmental and socio-economic impact contents of SEAs in the three sample regions, including nine SEAs from Noord-Holland, nine SEAs from EVR Brandenburg-Berlin and seven SEAs from North West England.

Figure 6.7: Consideration of environmental impacts in the three sample regions

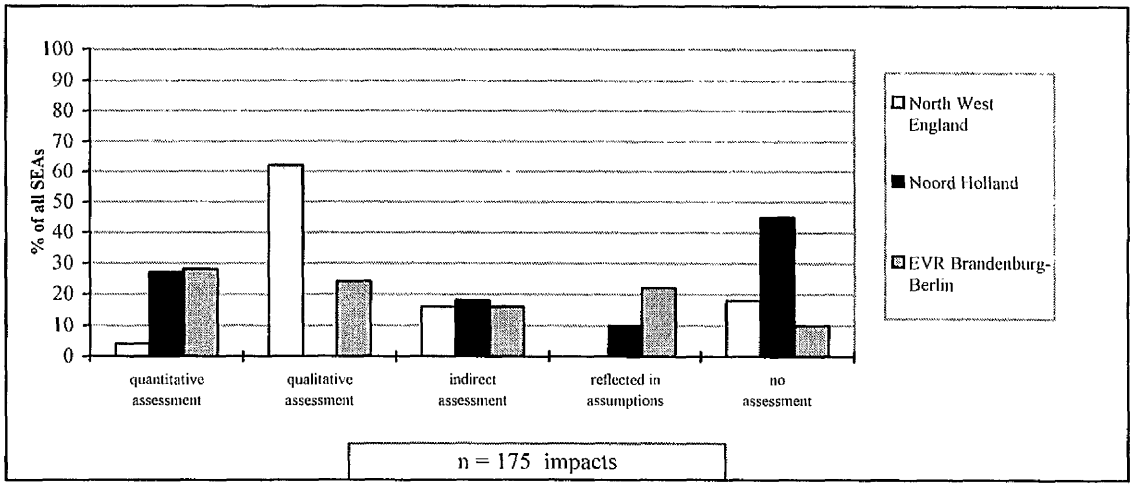
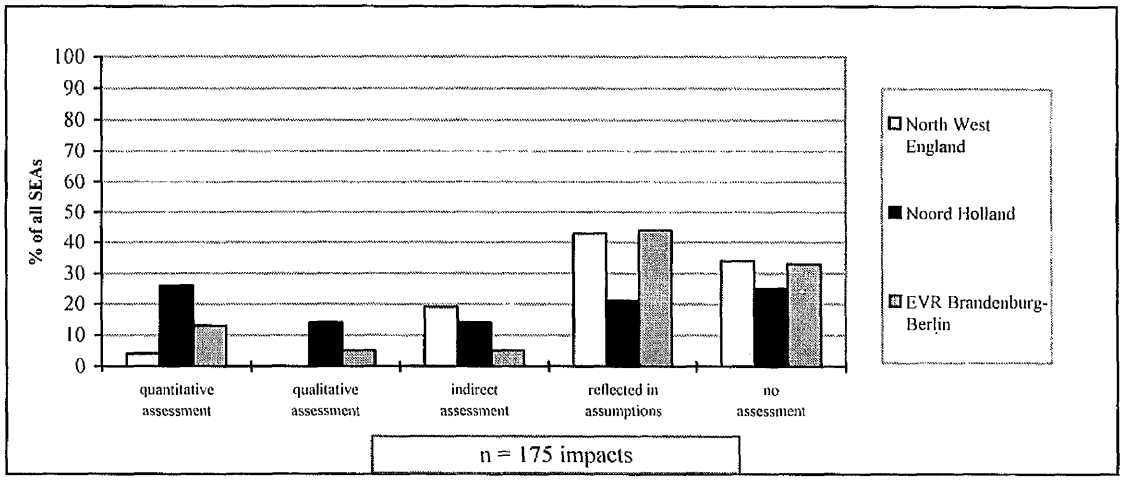


Figure 6.8: Consideration of socio-economic impacts in the three sample regions



Only in Noord-Holland were environmental and socio-economic impacts considered to a similar extent. Both, North West England and EVR Brandenburg-Berlin considered

more environmental than socio-economic impacts. However, a large number of socio-economic impacts were reflected in assumptions of the underlying PPP.

In EVR Brandenburg-Berlin, on aggregate, significantly more environmental impacts were considered than in Noord-Holland (P<.01). This is explained by the more wide-spread use of policy-SEA in Noord-Holland, which focused on the assessment of only few impacts. In EVR Brandenburg-Berlin, on the other hand, the landscape plans and programmes (*Landschaftspläne und -programme*) considered a broad range of purely environmental impacts. Quantitative assessment was more widespread in Noord-Holland and EVR Brandenburg-Berlin than in North West England (P<.05). This was due to the more frequent application of policy-SEA in Noord-Holland and the extensive use of impact maps in EVR Brandenburg-Berlin plan-SEAs. In North West England, environmental impacts were usually assessed only qualitatively, based on the DoE 'Good Practice Guide' (1993) for environmental appraisal of development plans.

6.5.4 Comparisons between SEA types

Figures 6.9 and 6.10 portray the consideration of environmental and socio-economic impacts in the three SEA types, including ten policy-SEAs, eight plan-SEAs and seven programme-SEAs. Policy-SEAs assessed environmental and socio-economic impacts to similar extents. 53% of all possible environmental impacts and 57% of all possible socio-economic impacts were assessed, either directly or indirectly.

Figure 6.9: Consideration of environmental impacts in the three SEA types

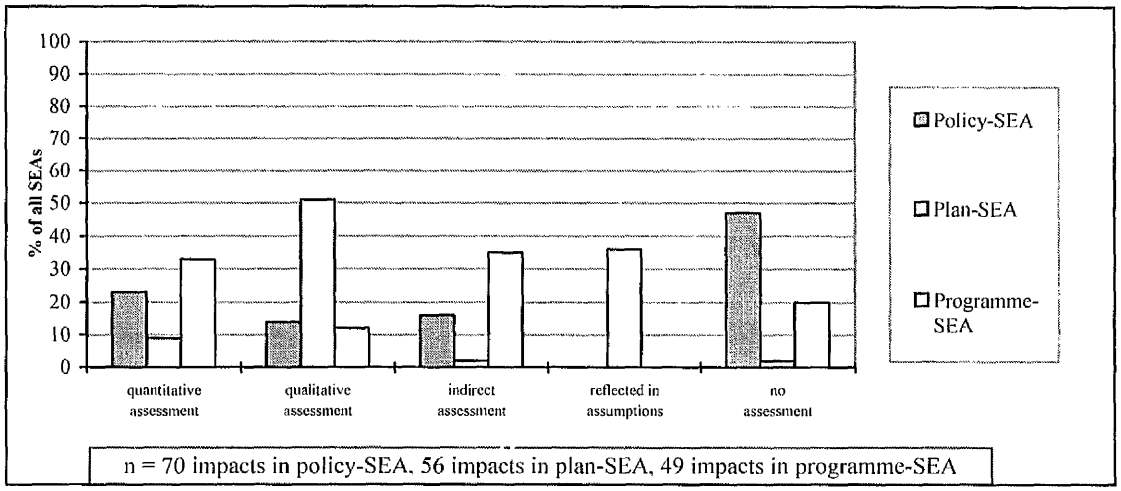
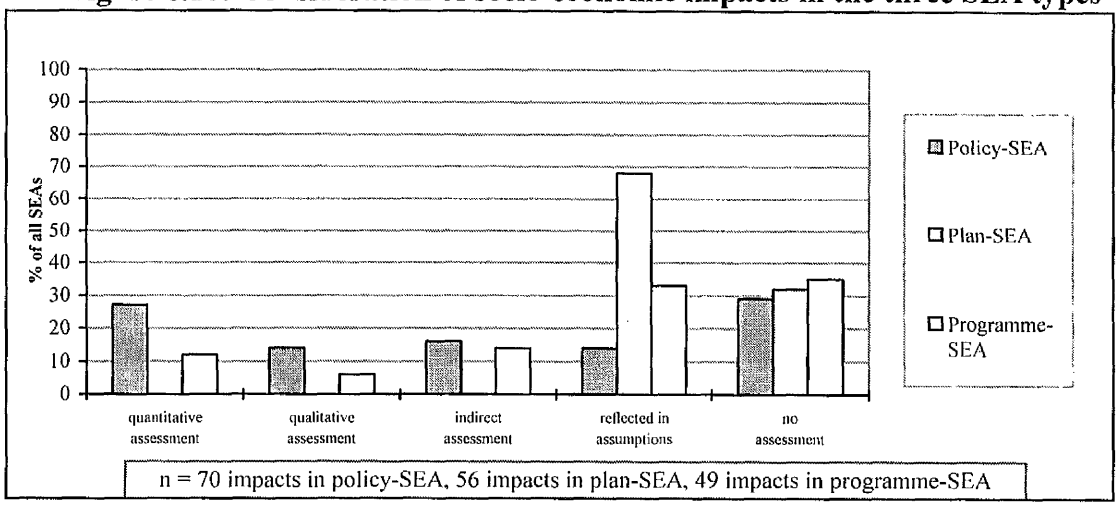


Figure 6.10: Consideration of socio-economic impacts in the three SEA types



Whilst plan-SEA considered significantly more environmental impacts than programme-SEA (P<.01) and policy-SEA (P<.01), it did not assess any socio-economic impacts at all. Socio-economic aspects, however, were frequently reflected in planning assumptions of the associated PPP. Due to environmental appraisals in North West England, plan-SEA considered environmental impacts largely in a qualitative way.

6.5.5 Sector-specific comparisons

Figures 6.11 and 6.12 portray the consideration of environmental and socio-economic impacts in transport and spatial/land use SEA, including 12 spatial/land use SEAs and 13 transport SEAs.

Differences between the two sectors were evident for both environmental and socio-economic impacts. Whilst all transport SEAs assessed some socio-economic impacts quantitatively, only one spatial/land use SEA did so, namely the National Spatial Plan (*VINEX*) review. The Dutch spatial/land use policy-SEAs, the visions (*visies*) Noord Holland and Hilversum qualitatively assessed socio-economic impacts. All other spatial/land use SEAs did not assess any socio-economic impacts at all. Observations are particularly explained by the large extent of plan-SEA application to spatial/land use PPPs and the comparatively widespread use of policy-SEA in transport PPPs.

Figure 6.11: Consideration of environmental impacts in the two sectors

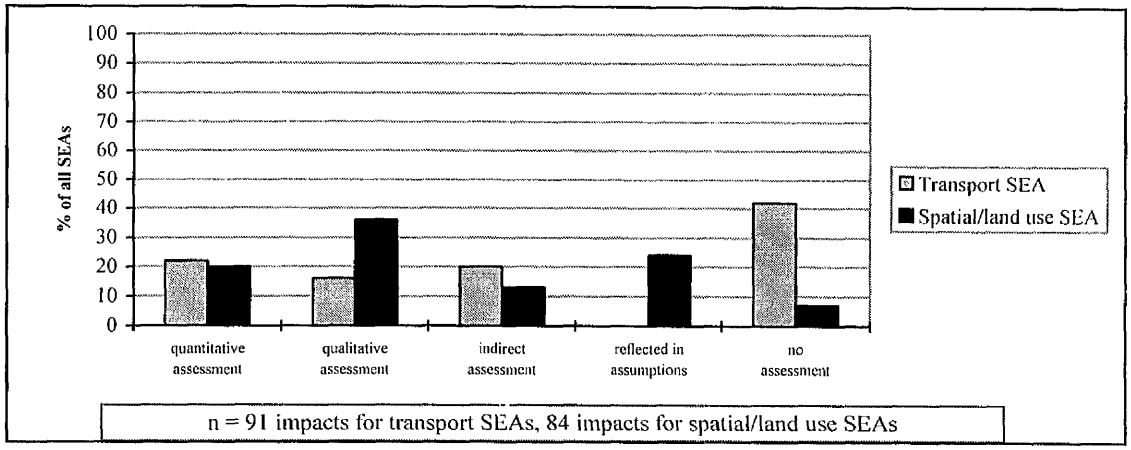
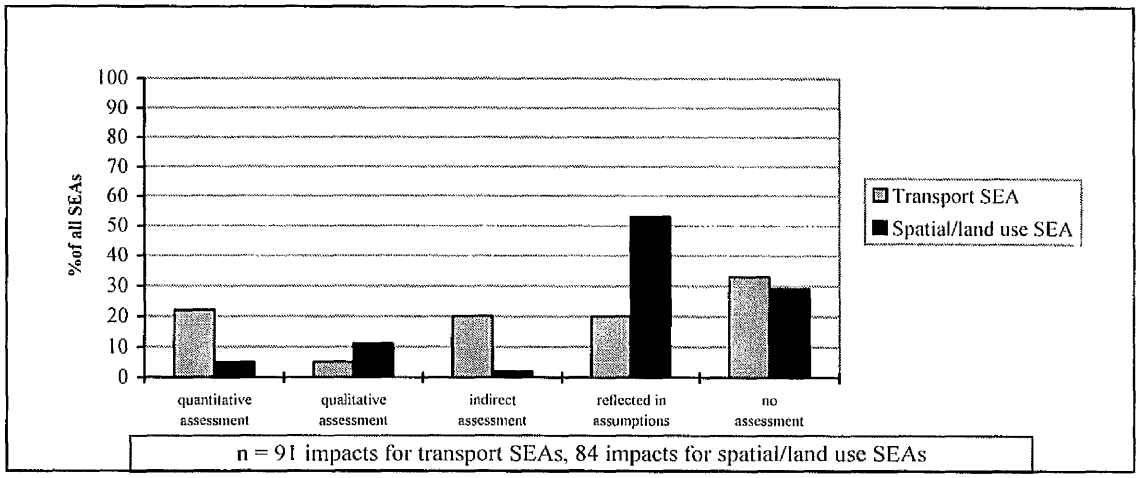


Figure 6.12: Consideration of socio-economic aspects in the two sectors



6.5.6 Combining socio-economic and environmental impacts

Of all SEA types, only programme-SEA combined socio-economic and environmental impacts, using either cost-benefit-analysis (CBA, only in transport-SEAs) or multi-criteria-analysis (MCA, in both transport and spatial/land use SEAs). CBA for German transport plans (Federal Transport Infrastructure Plan, *BVWP* and Land Road Development Plan, *Landesstraßenbedarfsplan* Brandenburg) expressed environmental and socio-economic impacts in monetary terms. The MCA for the Cheshire TPP and the Merseyside Package Bid did so in numerical terms.

The German policy-SEAs, integrated transport PPPs Brandenburg (*IVP*) and Berlin (*StEP*) compared socio-economic and environmental impacts for a wide range of policy measures. Furthermore, the Dutch spatial/land use policy-SEAs, the visions (*visies*), discussed development options in socio-economic terms and provided decision makers with a range of possibilities for development. However, no recommendations were provided, attempting to balance socio-economic and environmental impacts for any of these SEAs. Only the programme-SEA for the National Spatial Plan (*VINEX*) review (which also involved MCA) selected a number of alternatives and gave clear recommendations to the decision maker, taking environmental and socio-economic impacts into account. All other SEAs (apart from those using MCA and CBA for prioritising projects in programme-SEA), left the final overall evaluation to the discretion of the decision maker.

6.5.7 Average scores for the individual SEAs, the regions, SEA types and sectors on 'impact coverage'

This section identifies average scores for the SEA impact coverage, including those impacts that were quantitatively, qualitatively and indirectly assessed. All impacts were weighted equally, as there was no indication at the outset of this research whether quantitative, qualitative and indirect assessment would be more effective[4].

Individual SEAs

Table 6.7 presents the average scores for the individual SEAs. The programme-SEA for the National Spatial Plan (*VINEX*) review obtained the highest score of all SEAs. The second highest score was obtained by three policy-SEAs, namely the vision (*visie*) Hilversum and the integrated transport SEAs/PPPs (*IVP*) Brandenburg and (*StEP*) Berlin, considering both environmental and socio-economic impacts.

Lowest scores were obtained by the three plan-SEAs, not assessing impacts but identifying land suitability, including the Environment Matrix (*milieumatrix*) Amsterdam, the Landscape Framework Plan (*Landschaftsrahmenplan*) Havelland and the Landscape Programme (*Landschaftsprogramm*) Berlin. Low scores were also obtained by the

[4] The results of the subsequent chapters will suggest that quantitative assessment appeared to be most effective.

ecological assessment for the programme-SEA for the Federal Transport Infrastructure Plan (*BVWP*) and the policy-SEA for the Second Transport Structure Plan (*SVVII*). Whilst the former did not assess any socio-economic impacts, the latter considered a small number of both environmental and socio-economic impacts.

Table 6.7: Extent of impacts assessed in SEA

Criteria / PPP	impacts quantitatively assessed: environment/socio-economic	impacts qualitatively assessed: environment/socio-economic	impacts indirectly assessed: environment/ socio-economic	Overall evaluation
Environmental Appraisal for the Lancashire Structure Plan	0/0	7/0	0/0	⦿ (50%)
Environmental Appraisal for the Cheshire Structure Plan	0/0	7/0	0/0	⦿ (50%)
Transport Plan Cheshire TPP	0/0	1/0	4/3	⦿ (57%)
Merseyside Package Bid	0/0	1/0	4/3	⦿ (57%)
Merseyside Package Bid underlying strategy	2/0	0/2	0/2	○ (47%)
Environmental Appraisal for the Warrington Local Plan	0/0	7/0	0/0	⦿ (50%)
Environmental Appraisal for the Oldham UDP	0/0	7/0	0/0	⦿ (50%)
Second Transport Structure Plan (*SVVII*)	2/1	0/0	0/2	○ (36%)
National Spatial Plan (*VINEX*) review	7/4	0/0	0/1	● (86%)
Vision (*visie*) Noord-Holland	0/0	0/3	5/0	⦿ (57%)
Transport Plan (*RVVP*) INVERNO	2/3	0/0	1/1	⦿ (50%)
Transport Plan (*RVVP*) Noord-Holland-Noord	2/3	0/0	0/1	○ (43%)
Transport Plan (*RVVP*) ROA	2/2	0/0	0/2	○ (43%)
Environment Matrix (*milieumatrix*) A'dam	0/0	0/0	0/0	▫ (0%)
Vision (*visie*) Hilversum	0/0	0/6	4/1	● (79%)
Transport Plan (*RVVP*) Haarlem-IJmond	2/3	0/0	1/1	⦿ (50%)
Federal Transport Plan (*BVWP*) ecological risk assessment	4/0	0/0	1/0	○ (36%)
Federal Transport Plan (*BVWP*)	0/2	1/1	4/0	⦿ (57%)
Landscape Framework Plan Havelland	0/0	0/0	0/0	▫ (0%)
Road plan (*Landesstraßenbedarfsplan*) Brandenburg	0/0	2/2	3/0	⦿ (50%)
Integrated Transport Plan (*IVP*) Brandenburg	2/3	5/0	0/1	● (79%)
Land Use Plan (*FNP*) Berlin, ecological assessment	5/0	1/0	1/0	⦿ (50%)
Land Use Plan (*FNP*) Berlin, Landscape Programme	0/0	0/0	0/0	▫ (0%)
Integrated Transport Plan (*StEP*) Berlin	2/3	5/0	0/1	● (79%)
Land Use Plan (*FNP*) Ketzin, Landscape Plan	5/0	1/0	1/0	⦿ (50%)

policy-SEA plan-SEA programme-SEA

Overall evaluation:

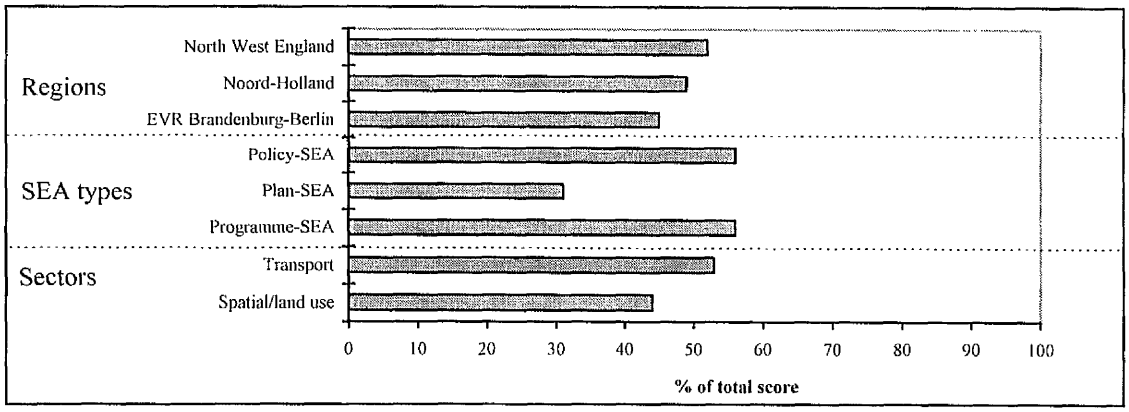
- ■ = 100%
- ● = 75% to under 100%
- ⦿ = 50% to under 75%
- ○ = 25% to under 50%
- ▫ = 0% to under 25%

Regions, SEA types and sectors

Figure 6.13 shows results for the regions, the SEA types and sectors. The lowest average score was achieved by plan-SEA, caused in particular by the failure to assess socio-economic aspects (P<.01 with both other SEA types). Highest scores were achieved by

policy-SEAs and programme-SEAs. Differences between the regions and the sectors were not statistically significant.

Figure 6.13: Overall scores for impact coverage for the regions, SEA types and sectors



The total number of impacts assessed was significantly correlated with the variable 'PPP relevance' (section 2.3.2) (P<.01) in a negative manner, i.e. PPPs with a high relevance assessed only few impacts. This is explained by plan-SEA, which on average had the highest 'PPP relevance', but did not assess any socio-economic impacts (see Table 6.3). There was also significant statistical correlation between the extent to which environmental impacts were assessed in a qualitative way and the time needed for SEA preparation (P<.01), i.e. those SEAs involving quantitative assessment took significantly longer. In addition, the extent to which impacts were quantitatively assessed was correlated with the extent to which SEA procedural stages were covered (P<.05). This is mainly explained by the extensive procedural coverage in policy-SEA, which quantitatively assessed both environmental and socio-economic impacts.

6.6 Other methodological aspects

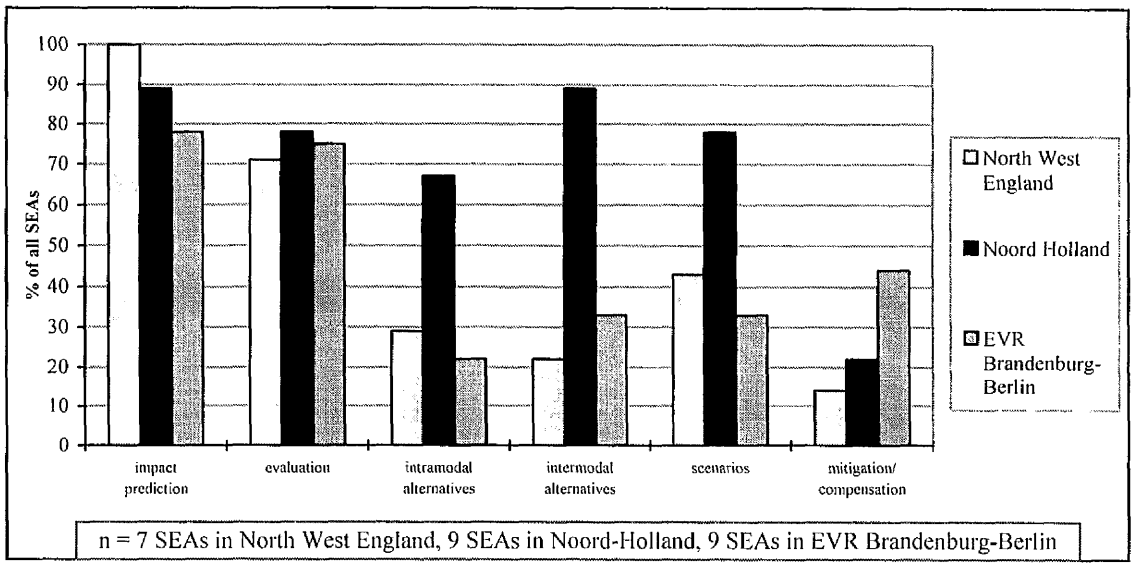
This section explains other methodological aspects of SEA application, including the use of methods and techniques employed in (or for) SEA reports, following the framework provided in section 3.1.3. Observations are presented by region, SEA type and sector.

6.6.1 Methods

Regions

Figure 6.14 shows the extent to which the six methods introduced in section 3.1.3 were used in SEA reports in the three sample regions. 'Impact prediction' and 'impact evaluation' were the methods that were on average most frequently used. Only three plan-SEAs, namely the Environment Matrix (*milieumatrix*) Amsterdam, the Landscape Framework Plan (*Landschaftsrahmenplan*) Havelland and the Landscape Programme (*Landschaftsprogramm*) Berlin did not assess impacts, but identified land suitability. Mainly caused by the large extent of policy-SEA application, Noord-Holland SEAs considered scenarios, intramodal and intermodal alternatives (P<.01) to a larger extent than North West England and EVR Brandenburg-Berlin SEAs.

Figure 6.14: Methods used in SEA documentation for the cross-section of PPPs



SEA types

Table 6.8 identifies the extent of use of SEA methods in the three SEA types. As expected, policy-SEA considered scenarios and intermodal alternatives particularly well (difference with programme-SEA - P<.01) and plan-SEA evaluated impacts to a significantly larger extent than programme-SEA (P <.05). All programme-SEAs compared impact magnitudes for different projects, but none considered scenarios and intermodal alternatives.

Differences in the application of methods within a certain SEA type were most evident for plan-SEA. Whilst German landscape plans and programmes (*Landschaftspläne und -programme*) and the Environment Matrix (*milieumatrix*) Amsterdam focused on setting environmental objectives and identifying land suitability (as instruments of the precautionary principle), English environmental appraisals focused on the qualitative prediction of environmental impacts, mainly using impact matrices.

Table 6.8: Methods in documentation for the SEA types

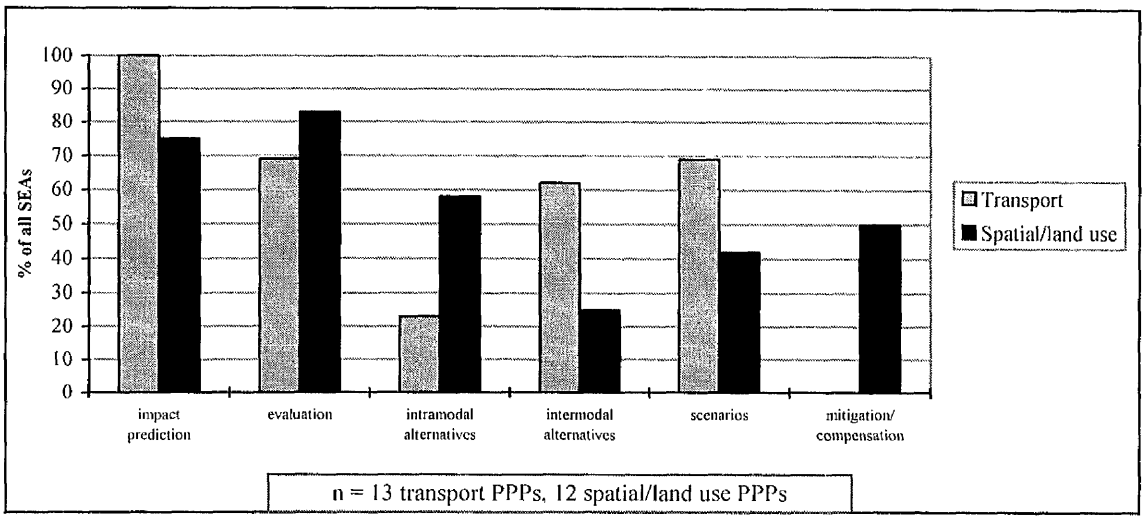
Methods \ SEA Types	policy-SEA	plan-SEA	programme-SEA
mitigation/compensation	✗		
scenarios	✓		✗
intermodal alternatives	✓	✗	✗
intramodal alternatives			
evaluation/objective setting		✓	
impact prediction	✓		✓

✓ method applied in all SEAs
▭ method applied in some of the SEAs
✗ method applied in none or only one of the SEAs

Sectors

Figure 6.15 shows the use of methods in transport and spatial/land use SEAs. Mitigation/compensation measures were only considered in spatial/land use SEAs. Considering the direct link between some transport PPPs (in particular those involving programme-SEA) and public funding, it is surprising that no transport SEAs considered mitigation, as mitigation of impacts involves costs that can differ considerably for different alternatives. Whilst spatial/land use SEAs focused on site (intramodal) alternatives, transport SEAs focused on intermodal alternatives ($P<.01$).

Figure 6.15: Methods used in SEA documentation for the two sectors



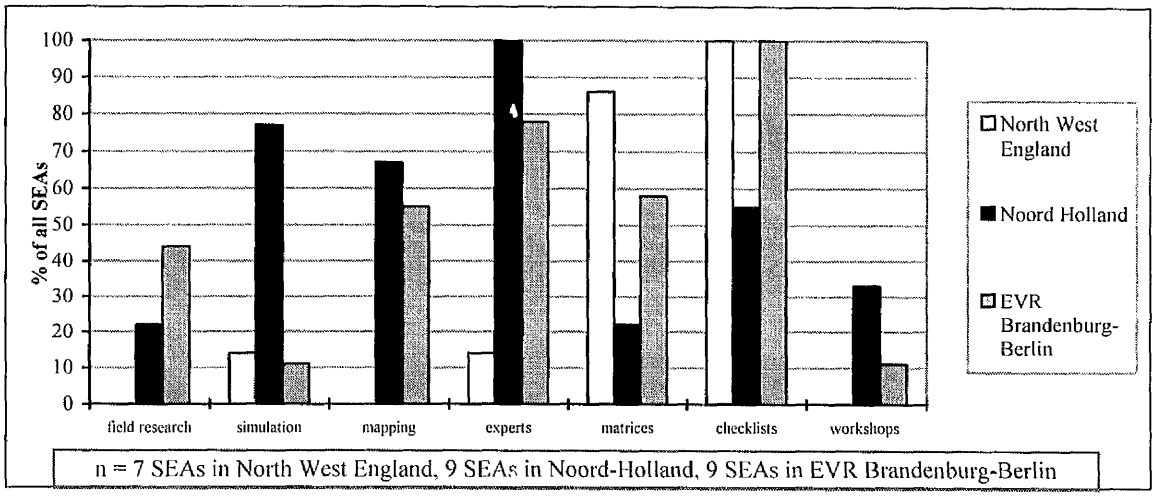
6.6.2 Techniques

Regions

Figure 6.16 shows the techniques used in SEA reports. On average, checklists were most frequently used in the three sample regions. Whilst the range of techniques used in Noord-Holland and EVR Brandenburg-Berlin SEAs was comparatively extensive, in North West England, mainly matrices and checklists were used (following the 'Good Practice Guide', DoE, 1993). Furthermore, SEA preparation times in North West England were considerably shorter than in the other two regions.

Mapping and expert consultation were used significantly less in North West England than in Noord-Holland ($P<.01$) and in EVR Brandenburg-Berlin ($P<.05$). Furthermore, simulation techniques were used to a significantly larger extent in Noord-Holland than in both of the other regions ($P<.01$). This is explained by the more frequent use of policy-SEAs, all applying simulation techniques. Caused by the landscape plans and programmes, field research was most frequently used in EVR Brandenburg-Berlin ($P<.01$).

Figure 6.16: Techniques used in SEA documentation for the cross-section of PPPs



SEA types

Table 6.9 identifies those techniques that were either used in all or in none/only one of the three SEA types. Whilst all policy-SEAs used simulation and expert consultation, none used matrices. Whilst all German and Dutch plan-SEAs included expert consultation and mapping, none of North West England environmental appraisals used these techniques. Field research was consistently applied in German plan-SEAs (landscape plans and programmes). The lack of workshops in programme-SEA preparation is explained by a reluctance of decision makers to accept any external inputs for prioritising transport projects, reflecting a strong status of transport departments within authorities.

Table 6.9: Techniques in documentation for the SEA types

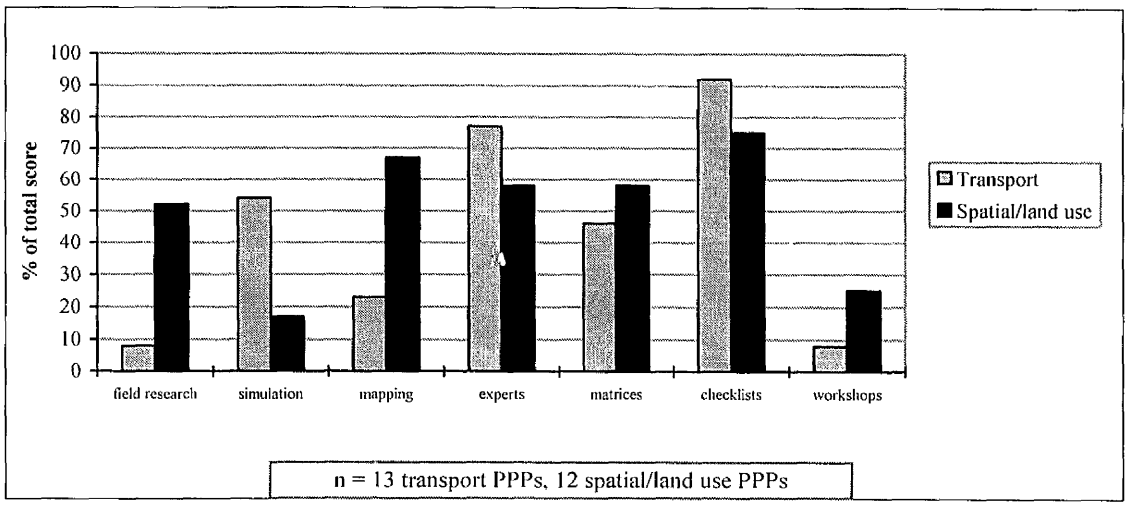
SEA Types / Techniques	policy-SEA	plan-SEA	programme-SEA
field research	×		
simulation	✓	×	×
mapping		(✓)	
expert consultation	✓	(✓)	
matrices		✓	
checklists		✓	✓
workshops			×

✓ method applied in all SEAs
(✓) method applied in all SEAs, except those in North West England
method used in some of the cases
× method applied in none or only one of the SEAs

Sectors

Figure 6.17 shows the techniques used in transport and spatial/land use SEA. Mapping, field research and workshops were applied to a significantly larger extent in spatial/land use SEA than in transport SEA (P<.01), whereas simulation techniques were applied to a significantly larger extent in transport PPPs (P<.01). This is explained by the comparatively large number of policy-SEAs in this sector. Furthermore, mapping was applied in all Dutch and German plan-SEAs for spatial/land use PPPs.

Figure 6.17: Techniques used in SEA documentation for the two sectors



6.6.3 Average scores for the individual SEAs, the regions, SEA types and sectors on the 'other methodological aspects'

Individual SEAs

Table 6.10 identifies overall scores for each of the individual SEAs. The maximum numbers of methods that could possibly have been considered in the three SEA types are five in policy-SEA and plan-SEA and four in programme-SEA (following Figure 6.12). The maximum number of techniques that could have been considered is six in policy-SEA and plan-SEA and five in programme-SEA (following Figure 6.15).

The programme-SEA for the National Spatial Plan (*VINEX*) review obtained the highest score (100%). Furthermore, high scores of over 75% were obtained by the plan-SEAs, Environment Matrix (*milieumatrix*) Amsterdam and Landscape Programme (*Landschaftsprogramm*) Berlin, and the policy-SEAs for the Regional Transport Plan (*RVVP*) Haarlem-IJmond and the Integrated Transport Plan (*StEP*) Berlin.

Table 6.10: Overall evaluation of the use of methods and techniques for all SEAs

PPP \ Criteria	number of methods used*	number of techniques used*	Overall evaluation
Environmental Appraisal for the Lancashire Structure Plan	3 (5)	2 (6)	○ (45%)
Environmental Appraisal for the Cheshire Structure Plan	5 (5)	2 (6)	⊙ (64%)
Transport Plan Cheshire TPP	1 (4)	2 (5)	○ (33%)
Merseyside Package Bid	1 (4)	2 (5)	○ (33%)
Merseyside Package Bid underlying strategy	5 (5)	3 (6)	⊙ (73%)
Environmental Appraisal for the Warrington Local Plan	3 (5)	2 (6)	○ (45%)
Environmental Appraisal for the Oldham UDP	4 (5)	2 (6)	⊙ (55%)
Second Transport Structure Plan (*SVVII*)	5 (5)	2 (6)	⊙ (64%)
National Spatial Plan (*VINEX*) review	4 (4)	5 (5)	■ (100%)
Vision (*visie*) Noord-Holland	4 (5)	4 (6)	⊙ (73%)
Transport Plan (*RVVP*) INVERNO	4 (5)	3 (6)	⊙ (64%)
Transport Plan (*RVVP*) Noord-Holland-Noord	4 (5)	3 (6)	⊙ (64%)
Transport Plan (*RVVP*) ROA	4 (5)	4 (6)	⊙ (73%)
Environment Matrix (*milieumatrix*) A'dam	2 (4)	6 (6)	● (80%)
Vision (*visie*) Hilversum	4 (5)	4 (6)	⊙ (73%)
Transport Plan (*RVVP*) Haarlem-IJmond	5 (5)	4 (6)	● (82%)
Federal Transport Plan (*BVWP*) ecological risk assessment	2 (4)	4 (5)	⊙ (67%)
Federal Transport Plan (*BVWP*)	2 (4)	3 (5)	⊙ (56%)
Landscape Framework Plan Havelland	2 (5)	5 (6)	⊙ (64%)
Road plan (*Landesstraßenbedarfsplan*) Brandenburg	1 (4)	3 (5)	○ (44%)
Integrated Transport Plan (*IVP*) Brandenburg	3 (5)	4 (6)	⊙ (64%)
Land Use Plan (*FNP*) Berlin, ecological assessment	4 (4)	2 (5)	⊙ (67%)
Land Use Plan (*FNP*) Berlin, Landscape Programme	2 (5)	5 (6)	⊙ (64%)
Integrated Transport Plan (*StEP*) Berlin	4 (5)	5 (6)	● (82%)
Land Use Plan (*FNP*) Ketzin, Landscape Plan	4 (5)	5 (6)	● (82%)

*total possible numbers in brackets, see tables 6.8 and 6.9

policy-SEA plan-SEA programme-SEA

Overall evaluation:

■ = 100%

● = 75% to under 100%

⊙ = 50% to under 75%

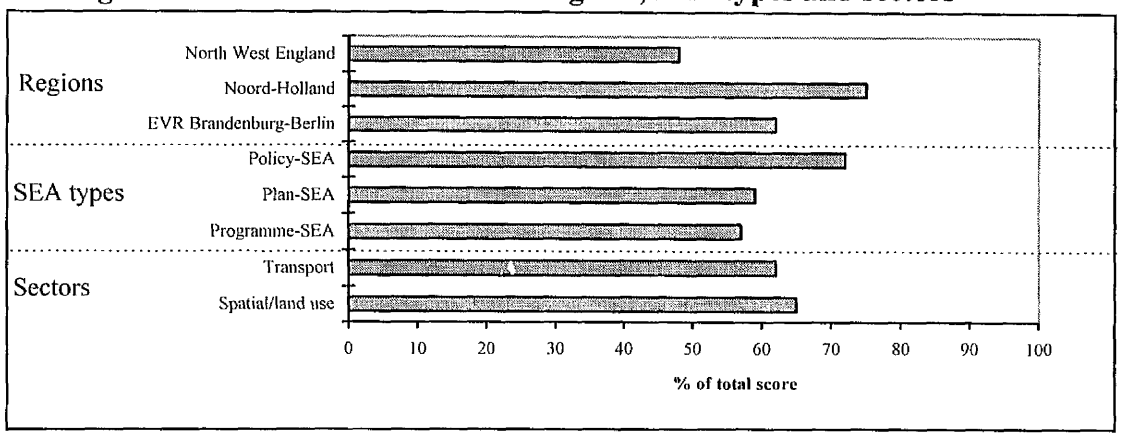
○ = 25% to under 50%

▫ = 0% to under 25%

Regions, SEA types and sectors

Figure 6.18 shows the overall scores for the regions, SEA types and sectors. North West England SEAs obtained significantly lower scores than Noord-Holland SEAs ($P<.01$) and EVR Brandenburg-Berlin SEAs ($P<.05$). This was mainly due to the use of fewer techniques in North West England. There were neither significant differences between the SEA types, nor between the sectors.

Figure 6.18: Overall scores for the regions, SEA types and sectors



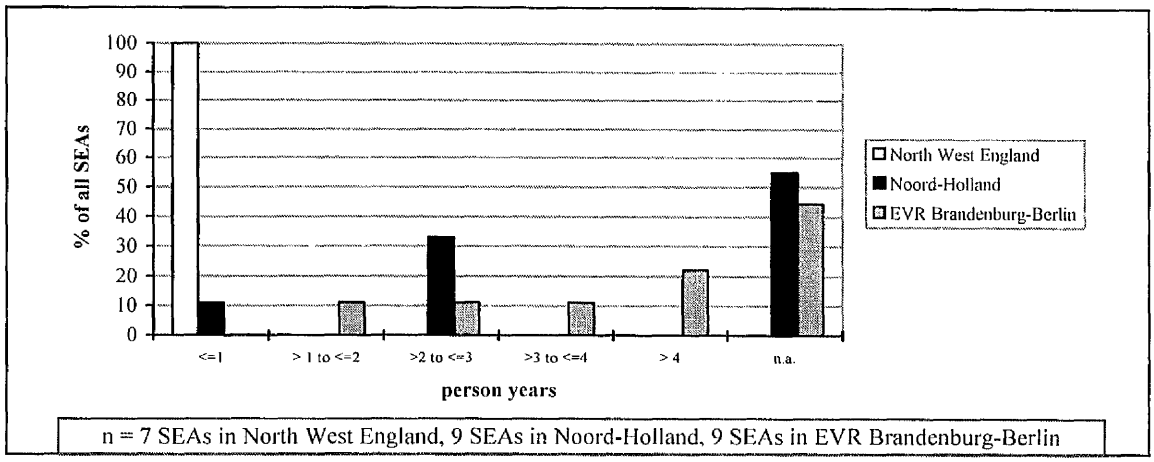
The extent to which methods and techniques were applied was correlated with the extent to which SEA procedural stages were covered (P<.01), thus underlining the importance of a full coverage of SEA procedural stages. Whilst there was no correlation with the average impact range, there was significant correlation of the use of methods and techniques and the extent to which impacts were quantitatively assessed (P<.01).

6.7 SEA preparation times

Figure 6.19 shows the SEA preparation times in the three sample regions (preparation times for the individual SEAs are provided in Table 6.11 in section 6.8). Whilst all SEAs in North West England took less than a person-year to undertake, most of Noord-Holland and EVR Brandenburg-Berlin SEAs took more than a person-year to undertake. The number of authorities that were not able to provide an answer to SEA preparation times was particularly high in Noord-Holland. This was mainly caused by the greater number of policy-SEAs in this region, as authorities were often unable to answer the question if there was no separate SEA documentation. For three of the nine SEAs in EVR Brandenburg-Berlin, preparation times were said to have been more than three person-years, namely the plan-SEA, the Landscape Framework Plan (*Landschaftsrahmenplan*) Havelland, the Landscape Programme (*Landschaftsprogramm*) Berlin (both of which follow formal procedures) and the programme-SEA, the Ecological Conflict Assessment (*ökologische Konfliktanalyse*) for the Land Use Plan (*FNP*) Berlin. For three of the nine PPPs that involved SEA preparation in Noord-Holland, authorities said preparation times were between two and three person years,

namely the integrated transport plans (*RVVPs*) Haarlem-IJmond and ROA and the SEA of the National Spatial Plan (*VINEX*) review.

Figure 6.19: SEA preparation times for the three sample regions



Postal questionnaire results of local authorities on local plan-SEAs in North West England and EVR Brandenburg-Berlin confirmed the above findings. Whilst all authorities in North West England said environmental appraisals took less than a person-year to prepare, 88% of EVR Brandenburg-Berlin authorities said it took clearly longer than a person year to prepare the landscape plans (*Landschaftspläne*).

6.8 Summary

A minimum number of 80 SEAs (broadly defined) were identified in the three sample regions that were classified into three SEA types; policy-SEA, plan-SEA and programme-SEA. Policy-SEA was applied to a comparatively large extent in Noord-Holland, having an open participation process with widespread consultation and participation. In EVR Brandenburg-Berlin and North West England, plan-SEAs were mostly undertaken with no public participation at higher levels of decision making. Programme-SEA was generally applied to a lesser extent than the other two SEA types. The extent to which the different SEA types were applied in the three regions reflected the different planning approaches. Whilst the consensus-led, quasi top-down planning approach in the Netherlands involved public participation at all administrative levels, the centrally guided, local plan making approach in North West England and the public administration consensus-led counter-current approach in EVR Brandenburg-Berlin involved the general public only at lower tiers. Individual scores for SEA procedures, im-

pact coverage and the use of methods and techniques (other methodological aspects) and SEA preparation times are summarised in Table 6.11.

Table 6.11: SEA variables scores

variable / PPP	SEA process	Impact coverage	Other methodological aspects	Preparation times in years
Environmental Appraisal Lancashire Structure Plan	○	⊙	○	<1
Environmental Appraisal Cheshire Structure Plan	○	⊙	⊙	<1
Transport Plan Cheshire TPP	○	⊙	○	<1
Merseyside Package Bid	○	⊙	○	<1
Merseyside Package Bid underlying strategy	⊙	○	⊙	n/a
Environmental Appraisal Warrington Local Plan	○	⊙	○	<1
Environmental Appraisal Oldham UDP	○	⊙	⊙	<1
Second Transport Structure Plan (*SVVII*)	●	○	⊙	n/a
National Spatial Plan (*VINEX*) review	●	●	■	2-3
Vision (*visie*) Noord-Holland	⊙	⊙	⊙	n/a
Transport Plan (*RVVP*) INVERNO	⊙	⊙	⊙	n/a
Transport Plan (RVVP) Noord-Holland-Noord	⊙	○	⊙	<1
Transport Plan (RVVP) ROA	⊙	○	⊙	3-4
Environment Matrix (*milieumatrix*) A'dam	▫	▫	●	n/a
Vision (*visie*) Hilversum	⊙	●	⊙	n/a
Transport Plan (RVVP) Haarlem-IJmond	⊙	⊙	●	3-4
Federal Transport Plan (*B-VWP*) ecological risk	▫	○	⊙	2-3
Federal Transport Plan (*BVWP*)	⊙	⊙	⊙	n/a
Landscape Framework Plan Havelland	⊙	▫	⊙	4-5
Road plan (*Landesstrassenbedarfsplan*) Brandenb.	▫	⊙	○	n/a
Integrated Transport Plan (*IVP*) Brandenburg	⊙	●	⊙	n/a
Land Use Plan (*FNP*) Berlin, ecological assessment	○	⊙	⊙	3-4
Land Use Plan (*FNP*) Berlin, Landscape Programme	⊙	▫	⊙	4-5
Integrated Transport Plan (*StEP*) Berlin	⊙	●	●	n/a
Land Use Plan (*FNP*) Ketzin, Landscape Plan	●	⊙	●	1-2

policy-SEA plan-SEA programme-SEA

Overall evaluation:

■ = 100%

● = 75% to under 100%

⊙ = 50% to under 75%

○ = 25% to under 50%

▫ = 0% to under 25%

The programme-SEA for the National Spatial Plan (*VINEX*) review obtained the highest average score of all SEAs for SEA procedure, impact coverage and the other methodological aspects. Other SEAs that scored comparatively highly include mostly policy-SEAs and the Landscape Plan (*Landschaftsplan*) Ketzin. SEAs that obtained lowest scores include in particular the transport programme-SEAs.

Three plan-SEAs included land suitability maps and defined environmental objectives for the associated PPP, and therefore obtained only low scores on the impact range. These include the Environment Matrix (*milieumatrix*) Amsterdam, the Landscape Framework Plan (*Landschaftsrahmenplan*) Havelland and the Landscape Programme (*Landschaftsprogramm*) Berlin.

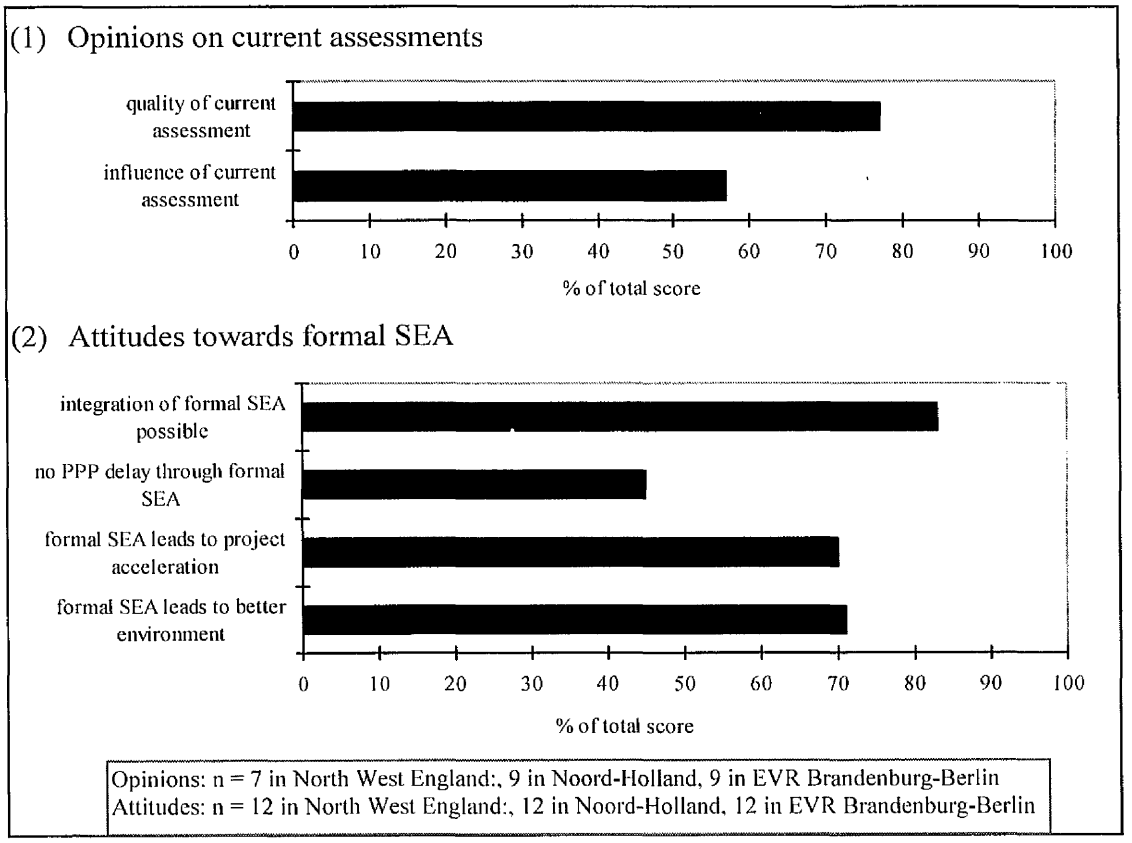
7 Opinions and attitudes of PPP makers

Chapter 7 refers to research objective 3 and identifies 'opinions of PPP makers about current SEA practice and their attitudes towards an application of formalised SEA'. Following section 3.2, results are based on interviews for the cross-section of transport infrastructure related PPPs at all administrative levels and on postal questionnaires for local land use PPPs.

7.1 Overall picture

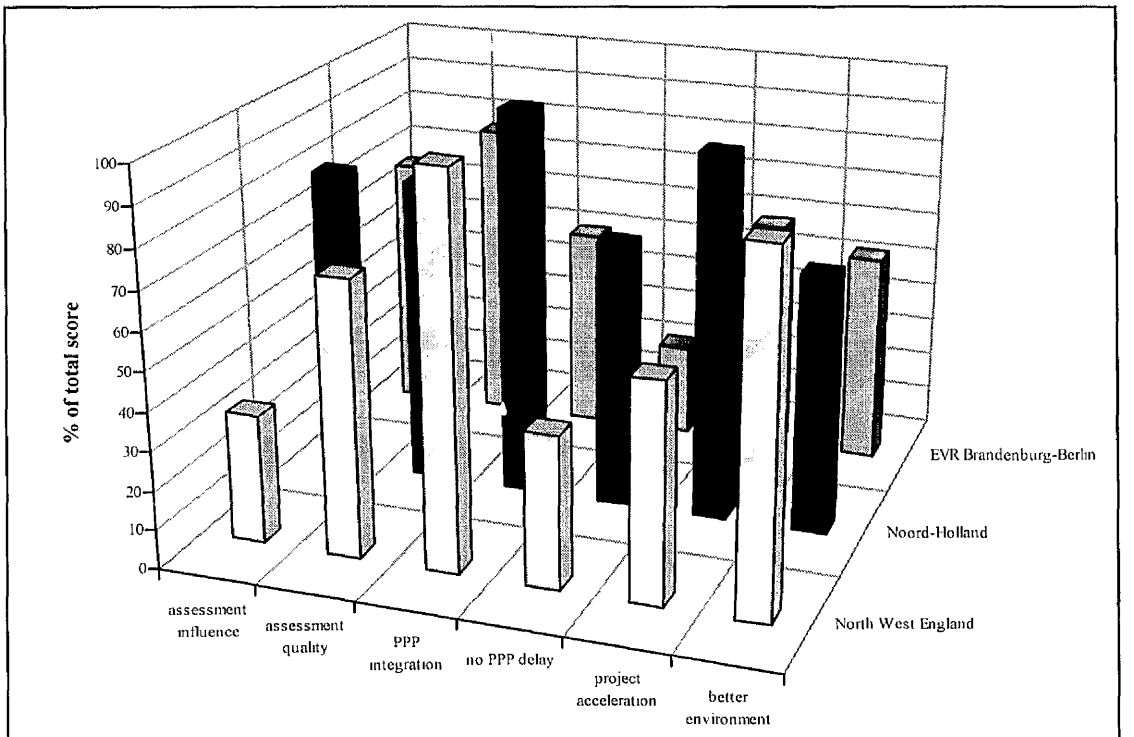
Figure 7.1 shows the average scores for authorities opinions on the quality and the influence of current assessments, and attitudes towards the application of formal SEA, representing a cross-section of PPPs (interview results). Following section 3.2, Figure 7.1 is based on an evaluation, ranking from 0 (most negative) to 3 (most positive).

Figure 7.1: Opinions and attitudes of PPP makers on current SEA and formalised SEA



On the whole, opinions on the influence of current assessments in the PPP process were less positive than the opinions on the quality of the assessments. Most PPP makers thought an integration of formal SEA into the existing PPP process was possible, but also feared that formal SEA would delay the PPP process. A majority of PPP makers thought that formal SEA was able to lead to project acceleration and to a better consideration of the environment in PPP preparation. Figure 7.2 shows the average scores of opinions and attitudes of PPP makers for the three sample regions. Opinions of PPP makers on the influence of SEA in PPP formulation were significantly less positive in North West England than in both EVR Brandenburg-Berlin ($P<.01$) and in Noord-Holland ($P<.01$). Regarding attitudes in the three regions, significantly less PPP makers in EVR Brandenburg-Berlin than in the other two regions thought an integration of formal SEA into the PPP process was possible ($P<.01$). Furthermore, significantly less PPP makers in EVR Brandenburg-Berlin than in Noord-Holland thought formal SEA would accelerate project preparation ($P<.05$) , but rather lead to a delay of the PPP formulation process ($P<.05$). Finally, significantly more PPP makers in North West England than in EVR Brandenburg-Berlin thought that SEA would lead to a better consideration of the environment ($P<.01$).

Figure 7.2: Opinions on current SEA and attitudes towards formalised SEA of authorities representing the cross-section of PPPs by region



Opinions: n = 7 SEAs in North West England: 9 SEAs in Noord-Holland, 9 SEAs in EVR Brandenburg-Berlin
Attitudes: n = 12 PPPs in North West England: 12 PPPs in Noord-Holland, 12 PPPs in EVR Brandenburg-Berlin

Opinions and attitudes of local authorities did not differ as much between the three regions as was observed for the cross-section of PPPs[1]. Whilst opinions on the quality of current assessments were similar in North West England and EVR Brandenburg-Berlin, attitudes towards formalised SEA were slightly better in EVR Brandenburg than in North West England. Differences between the regions, however, were not statistically significant. Local PPP makers in EVR Brandenburg-Berlin had comparatively positive attitudes towards formalised SEA. This was unexpected, as past studies had suggested that attitudes in Germany were generally rather negative (see section 1.1.5). As will be shown later, this is particularly explained by the current application of statutory and mandatory landscape plans (*Landschaftspläne*) to local land use plans (*FNPs*) in the *Land* Brandenburg.

7.2 Opinions on current SEA

This section considers the opinions of PPP makers on current assessments, including their influence in PPP preparation and their overall quality. Results are presented for the three presentation aspects, i.e. the regions, SEA types and sectors.

7.2.1 Influence of SEA in PPP preparation

Cross-section of PPPs

Figure 7.3 shows the responses of interviewed authorities to the question 'how influential do you think the assessment was in PPP preparation?' Views in North West England were significantly more negative than both in Noord-Holland ($P<.05$) and EVR Brandenburg-Berlin ($P<.01$).

Whilst all authorities in North West England said assessments were only marginally influential, most PPP makers in Noord-Holland (61%) said assessments were very influential. All authorities in EVR Brandenburg-Berlin that were able to reply to the question (55%) said assessments were reasonably influential. One SEA in Noord-Holland was conducted after PPP preparation and was therefore said to not have been

[1] Opinions on existing local level SEAs could only be determined for North West England and EVR Brandenburg-Berlin, as information was obtained on only one further assessment at the local level in Noord-Holland (see section 6.1)

influential at all. Most of the authorities that were unable to answer the question undertook policy-SEAs. This is not surprising, as policy-SEA is always fully integrated into the associated PPP. Most of the authorities responsible for the preparation of policy-SEA that were able to answer the question, said SEA was very influential.

Figure 7.3: Views about influence of current SEA in PPP formulation by region

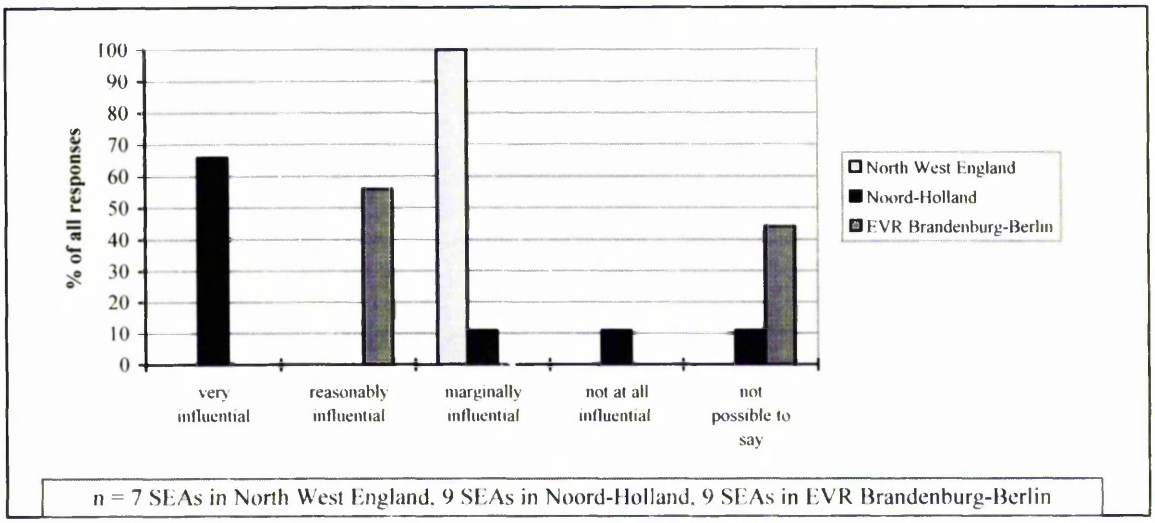
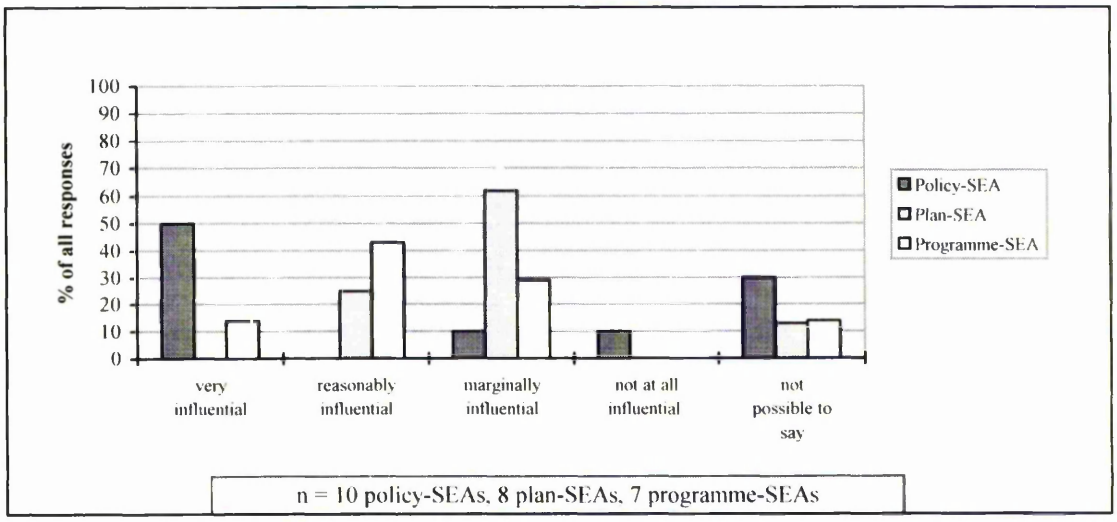


Figure 7.4 shows the replies of the authorities in terms of the three SEA types (including 10 policy-SEAs, eight plan-SEAs and seven programme-SEAs). Whilst policy-SEA and plan-SEA appeared to have been most influential, differences were not statistically significant.

Figure 7.4: Views about influence of current SEA in PPP formulation by SEA type



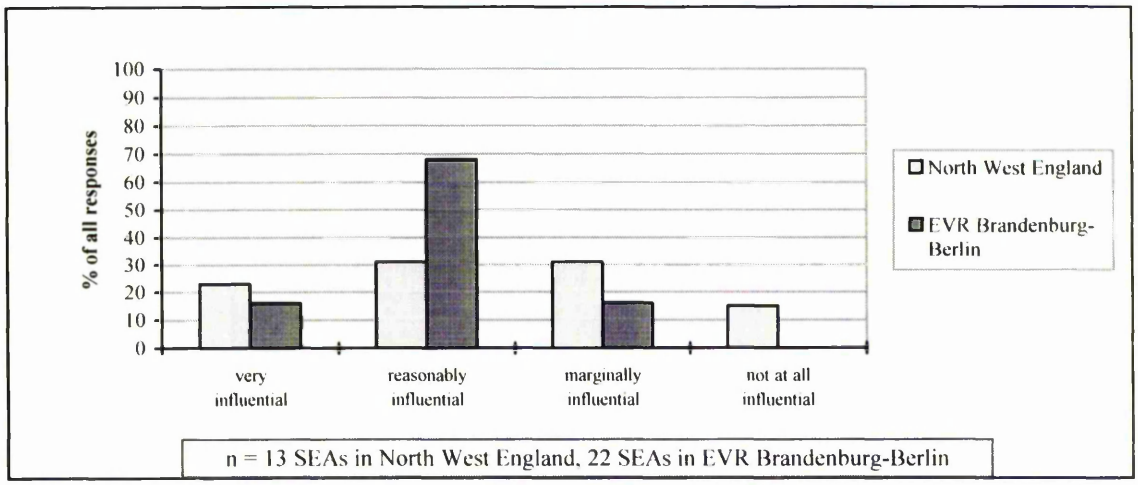
Whilst almost twice as many authorities preparing transport SEAs than authorities preparing spatial/land use SEAs thought that SEAs were either 'very influential' (i.e. policy-SEA) or 'reasonably influential' (i.e programme-SEA), differences were not statistically significant.

It was apparent that the status of the SEA was of some importance for the differences found. Thus, all non-statutory plan-SEAs were said to have been only 'marginally influential' (including the environmental appraisals in North West England and the Environment Matrix, *milieumatrix* Amsterdam). All statutory plan-SEAs on the other hand, were said to have been 'reasonably influential' (landscape plans and programmes, *Landschaftspläne und -programme* in EVR Brandenburg-Berlin). The programme-SEA for the National Spatial Plan (*VINEX*) review followed a formal process, as laid out in the national EIA Decree and was also said to have been 'very influential' in PPP preparation.

Local land use PPPs

Figure 7.5 shows the views of local authorities about the influence of SEA for local land use PPPs (postal questionnaire results). Noord-Holland is not included, as information was obtained for only one SEA at the local level. Whilst opinions in EVR Brandenburg-Berlin were more positive than opinions in North West England, the difference between the two regions was not statistically significant. Observed differences are most likely explained by SEA preparation times and the status of the SEA. Whilst landscape plans (*Landschaftspläne*) in EVR Brandenburg-Berlin were statutory, applying a formalised procedure and, on average, took clearly more than a person-year to prepare, environmental appraisals in North West England were non-statutory, did not follow a formal procedure and, on average, took clearly less than a person-year to prepare.

Figure 7.5: Views of local authorities in North West England and EVR Brandenburg-Berlin on the influence of current SEA in PPP preparation



7.2.2 Quality of SEA

Cross-section of PPPs

Figure 7.6 shows the responses of authorities, representing the cross-section of PPPs to the question 'in your opinion, what is the quality of the assessment?' All PPP makers replying to the question said qualities were either fair, reasonable or very good. None said SEA quality was poor. Differences between the regions were not statistically significant.

Figure 7.6: Views on the quality of current SEA by region

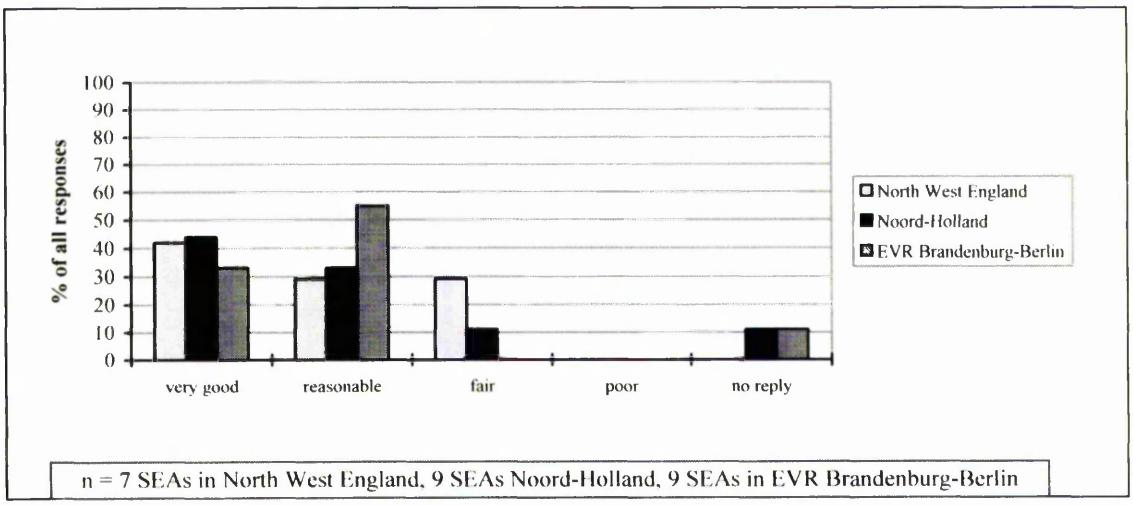


Figure 7.7 shows the replies of the authorities in terms of the three SEA types. Whilst authorities preparing plan-SEAs judged qualities to be somewhat better than authorities preparing policy-SEA and programme-SEA, differences failed to be statistically significant. 20% of the PPP makers preparing policy-SEA were not able to answer the question as they thought it was impossible to distinguish between the SEA and the associated PPP.

Figure 7.7: Views on the quality of current SEA by SEA type

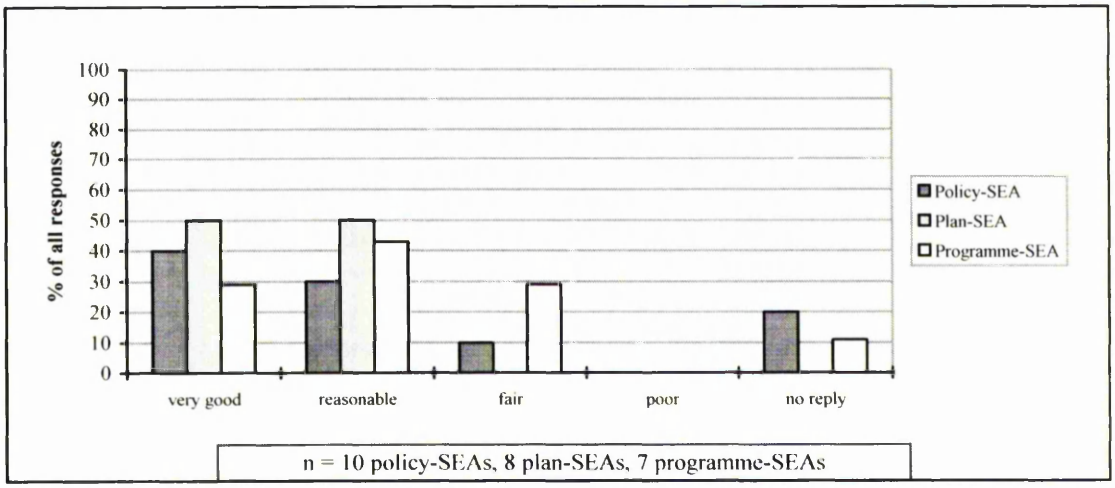
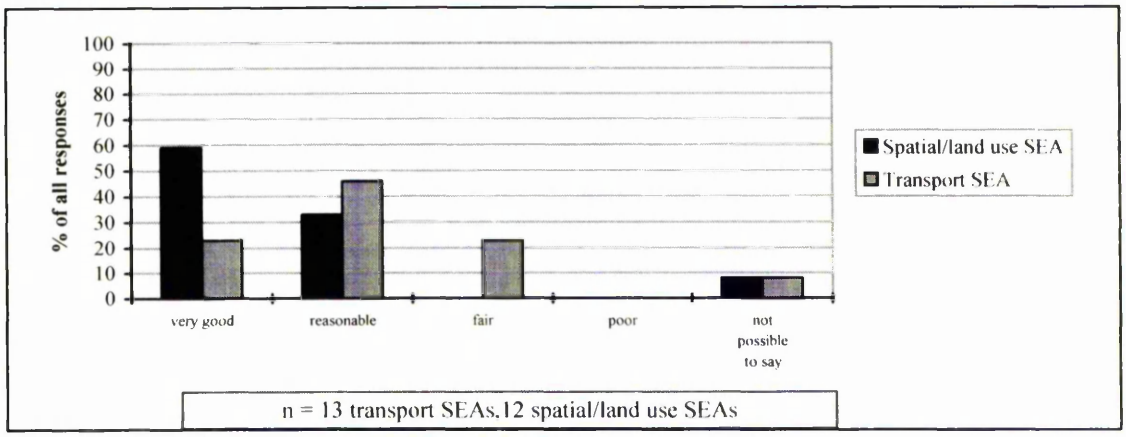


Figure 7.8 presents views about the quality of transport SEAs and spatial/land use SEAs. In contrast to regional and SEA type differences, sectoral differences were found to be statistically significant ($P<.05$). Whilst 59% of the authorities responsible for the preparation of spatial/land use SEAs said they were of 'very good' quality, this figure fell to 23% for transport SEAs. All SEAs that were said to have been of 'fair' quality were transport SEAs. Two procedural stages were of particular importance for the perception of 'good quality' SEAs. These include the initiation stage (scoping) ($P<.01$) and the public participation stage ($P<.05$). Whilst average preparation times of all PPPs were 1.5 to 2.5 years, this figure rose to 2.3 to 3.3 years for those SEAs that were said to have been of 'good quality'.

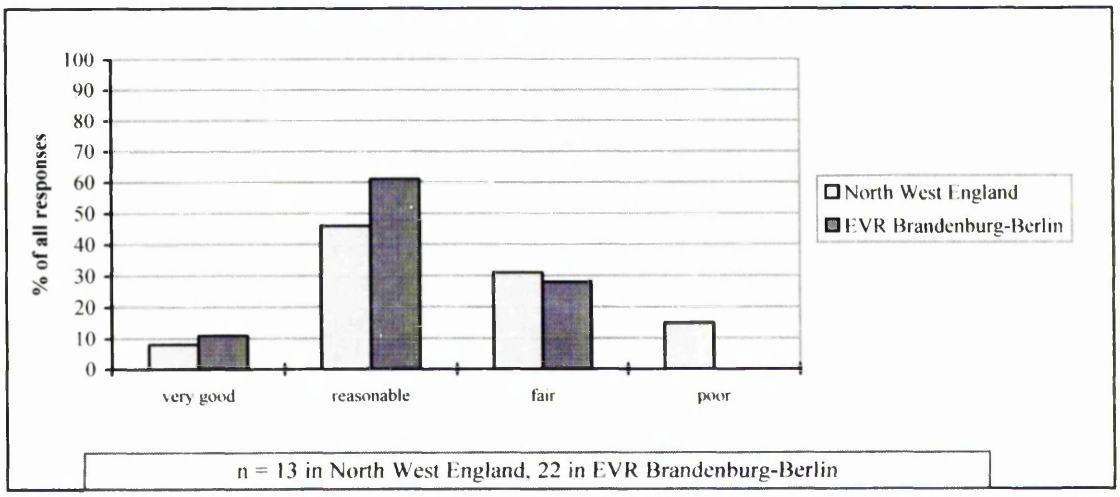
Figure 7.8: Views on the quality of current SEA by sector



Local land use PPPs

Figure 7.9 shows the responses of authorities responsible for the preparation of local land use PPPs (postal questionnaire results). Only North West England and EVR Brandenburg-Berlin were considered, as information on only one local level SEA was obtained in Noord-Holland. Most authorities thought their assessments were of either reasonable or fair quality. Only a few authorities in North West England said their assessments were of poor quality. Whilst EVR Brandenburg-Berlin authorities gave their assessments slightly higher quality scores, differences failed to be statistically significant.

Figure 7.9: Views of local authorities on the quality of current SEA in EVR Brandenburg-Berlin and North West England



7.2.3 Overall evaluation of the opinions of PPP makers

Individual SEAs

Table 7.1 shows the opinions on the quality and the influence of SEA for each individual SEA. An average opinion score is calculated and used in statistical analysis with the PPP context variables (chapter 5), SEA variables (chapter 6) and the other examined SEA aspects (chapters 8 to 9).

Table 7.1: Overall evaluation of opinions on current SEA

PPP \ Criteria	influence in PPP making	quality of SEA	Overall evaluation
Environmental Appraisal Lancashire Structure Plan	(⇔)	✓	⊙ (67%)
Environmental Appraisal Cheshire Structure Plan	(⇔)	⇔	⊙ (50%)
Transport Plan Cheshire TPP	(⇔)	(⇔)	○ (33%)
Merseyside Package Bid	(⇔)	(⇔)	○ (33%)
Merseyside Package Bid underlying strategy	(⇔)	✓	⊙ (67%)
Environmental Appraisal Warrington Local Plan	(⇔)	✓	⊙ (67%)
Environmental Appraisal UDP Oldham	(⇔)	⇔	⊙ (50%)
Second Transport Structure Plan (*SVVII*)	✓	✓	■ (100%)
National Spatial Plan (*VINEX*) review	✓	✓	■ (100%)
Vision (*visie*) Noord-Holland	n/a	n/a	n/a
Transport Plan (*RVVP*) INVERNO	✓	(⇔)	⊙ (67%)
Transport Plan (*RVVP*) Noord-Holland-Noord	×	⇔	○ (33%)
Transport Plan (*RVVP*) ROA	✓	⇔	● (83%)
Environment Matrix (*milieumatrix*) A'dam	(⇔)	⇔	⊙ (50%)
Vision (*visie*) Hilversum	✓	✓	■ (100%)
Transport Plan (*RVVP*) Haarlem-IJmond	✓	✓	■ (100%)
Federal Transport Plan (*BVWP*) ecological risk	⇔	⇔	⊙ (67%)
Federal Transport Plan (*BVWP*)	⇔	⇔	⊙ (67%)
Landscape Framework Plan Havelland	⇔	✓	● (83%)
Road plan (*Landesstraßenbedarfsplan*) Brandenburg	⇔	⇔	⊙ (67%)
Integrated Transport Plan (*IVP*) Brandenburg	n/a	⇔	n/a
Land Use Plan (*FNP*) Berlin, ecological assessment	n/a	✓	n/a
Land Use Plan (*FNP*) Berlin, Landscape Programme	n/a	✓	n/a
Integrated Transport Plan (*StEP*) Berlin	n/a	n/a	n/a
Land Use Plan (*FNP*) Ketzin, Landscape Plan	⇔	⇔	⊙ (67%)

policy-SEA plan-SEA programme-SEA

Evaluation of criteria:

✓ = very influential/ very good quality (scores 3)
⇔ = reasonably influential/ reasonable quality (scores 2)
(⇔) = marginally influential/ fair quality (scores 1)
× = not at all influential/ poor quality (scores 0)
n.a. = no answer

Overall evaluation (on the basis of criteria scores):

■ = met to 100%
● = met from 75% to under 100%
⊙ = met from 50% to under 75%
○ = met from 25% to under 50%
▫ = met from 0% to under 25%

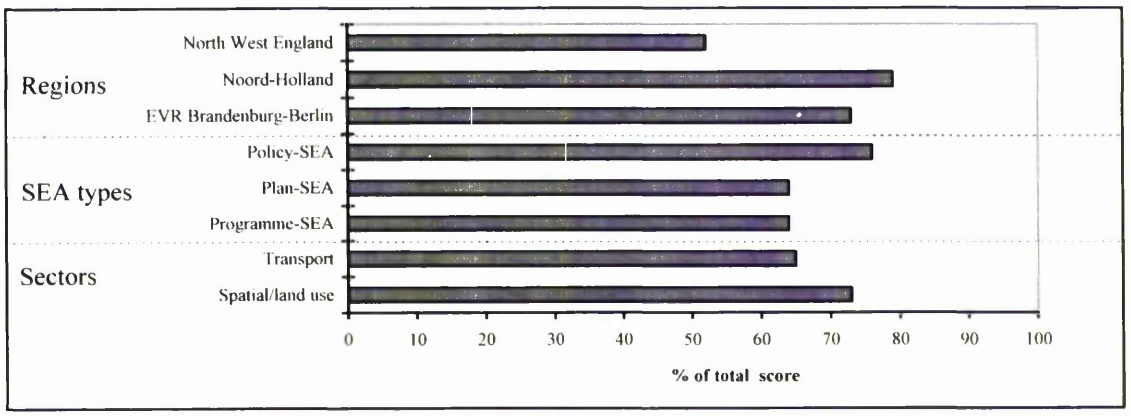
Highest scores for the influence and the quality of SEA were achieved by four SEAs which were all from Noord-Holland. Three of the SEAs that obtained the highest overall scores were policy-SEAs and one was a programme-SEA, namely the National Spatial Plan (*VINEX*) review, which followed a formalised project-EIA procedure, laid out in the Dutch EIA Decree.

Most SEAs obtained moderate scores of between 50% to 75%. The only three SEAs that obtained low scores of under 50% included two transport programme-SEAs from North West England that relied entirely on multi-criteria-analysis. Furthermore, it included a policy-SEA in Noord-Holland of which the responsible authority said SEA was only conducted after the policies in the PPP were decided upon. Concluding, high scores were achieved either in policy-SEA or in SEAs that followed formalised procedures.

Regions, SEA types and sectors

Figure 7.10 shows the overall evaluation for opinions of authorities, representing a cross-section of PPPs, referring to the regions, SEA types and sectors. Noord-Holland SEAs, policy-SEAs and spatial/land use SEAs obtained the highest overall scores. Of all presentation aspects, only regional differences were significant between Noord-Holland and North West England ($P<.05$) and between EVR Brandenburg-Berlin and North West England ($P<.01$).

Figure 7.10: Opinions on current SEAs by region, SEA type and sector



The overall score of PPP makers' opinions was significantly correlated with the time needed for undertaking the SEA ($P<.01$), i.e. the more time and therefore funding was

available to undertake an SEA, the higher was the overall SEA opinion score. There was also significant correlation between PPP makers' opinions and the extent to which methods and techniques were used (P<.01) and the extent to which the SEA procedural stages were covered (P<.01). This is explained particularly by the high opinions of the PPP makers preparing policy-SEA, covering stages comparatively extensively and using a wide variety of methods and techniques. Stages that proved to have been of particular importance for high opinions of PPP makers included scoping (P<.01) and consultation (P<.05). Furthermore, there was also correlation between the opinions of PPP makers and the extent to which mitigation was conducted (P<.05), impact mapping was used (P<.01) and environmental impacts were assessed in a quantitative manner (P<.05).

7.3 Attitudes of PPP makers towards formal SEA

This section considers the attitudes of PPP makers towards formalised SEA, following section 3.2.2. Four aspects are examined including consideration of the integration of formalised SEA into the existing PPP process, delay in PPP preparation, acceleration of project preparation and the better consideration of environmental impacts in the PPP process. Whilst the previous section compared an unequal number of cases in the three regions (seven SEAs in North West England, nine SEAs in Noord-Holland and nine SEAs in EVR Brandenburg-Berlin), this section presents results for an equal number of 12 authorities in each region.

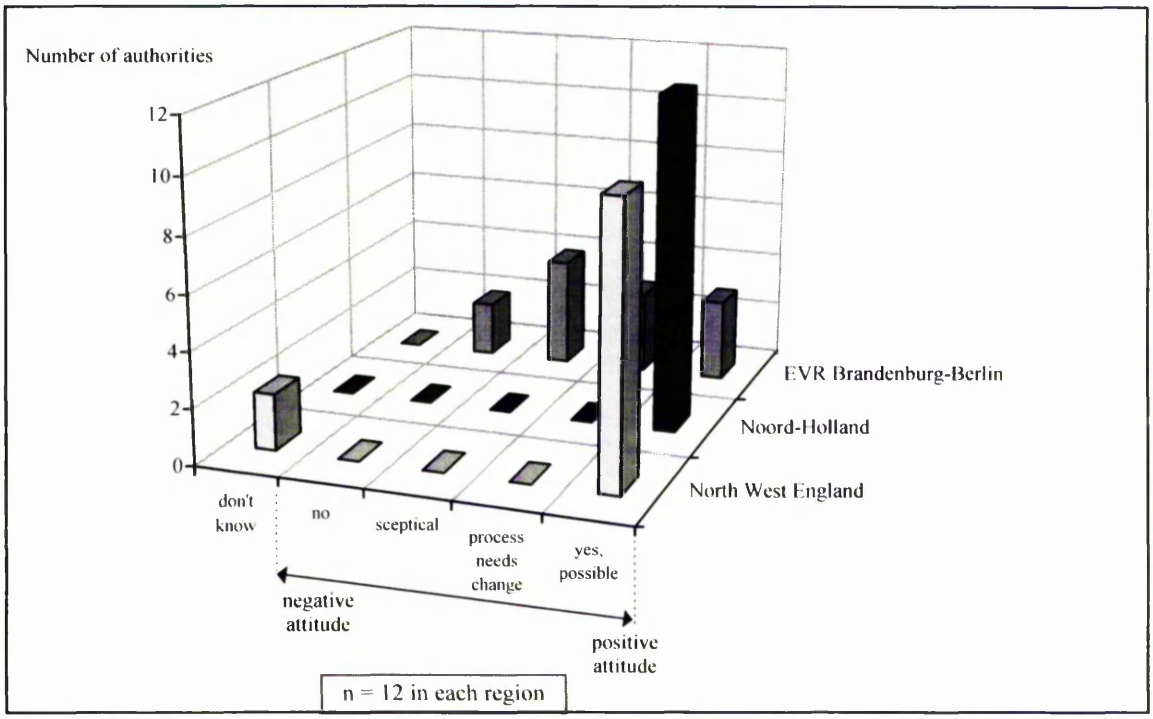
7.3.1 Integration of SEA into the PPP process

Cross-section of PPPs

Figure 7.11 shows the responses of the authorities, representing the cross-section of 36 PPPs to the question 'do you think integration of formal SEA into the PPP process is possible?' It was found that attitudes in EVR Brandenburg-Berlin were significantly more negative than those in North West England (P<.05) and Noord-Holland (P<.01). This is not unexpected, considering the findings of other studies regarding attitudinal problems towards SEA in Germany (see section 1.1.5). Whilst all authorities in Noord-Holland considered integration possible, only eight authorities in North West England

and three authorities in EVR Brandenburg-Berlin felt this to be possible. There were no significant differences between the results for the SEA types and the sectors.

Figure 7.11: Views on the possibility of integrating formal SEA into the PPP process



The only two authorities that did not consider an integration of SEA into the PPP process possible were from EVR Brandenburg-Berlin. Two reasons were provided by the PPP makers. Firstly, in one case, it was said that only a general development outline was prepared and that SEA could therefore not be applied[2]. Secondly, it was claimed that environmental impacts were already well considered and formal SEA was therefore not needed. The introduction of SEA was thought to be rather counter-productive and it was concluded that formal SEA would not improve existing practice.

Some authorities in Noord-Holland responsible for the preparation of regional transport plans considered formal SEA to be able to simplify current practice as only one assessment would need to be undertaken. Furthermore, for the regional plans in Noord-Holland (*streekplannen*), it was claimed that existing assessments started too late and that formal SEA provisions were therefore needed.

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[2] This research, however, also found SEA that was also conducted for general strategies in the form of policy-SEA

Regarding the reasons for not having conducted SEA, one authority responsible for the preparation of a statutory land use plan in Noord-Holland said it attempted to do so, but failed, as environmental objectives and targets were unclear. Furthermore, four authorities in EVR Brandenburg-Berlin were very sceptical whether an integration of SEA into the PPP process was possible at all. Two of the authorities said the PPP preparation process would need to change in order to facilitate SEA application.

There was significant correlation of the view about a possible integration of formal SEA into the PPP process with SEA preparation times ($P<.05$). The correlation coefficient was negative, i.e. longer preparation times were the reason for local authorities to have more negative attitudes towards the possibility of integration of formal SEA into the PPP process.

Local land use PPPs

All authorities responsible for the preparation of local land use PPPs in the three regions thought that, in principle, formalised SEA could be integrated in the PPP process. In order to make a final decision, however, the form of SEA would need to be clarified. In North West England and EVR Brandenburg-Berlin, authorities thought that formal SEA should be built into existing assessment instruments, i.e. environmental appraisal and landscape plans (*Landschaftspläne*). In Noord-Holland, most authorities were convinced that actions proposed in local land use plans would only very rarely have significant impacts to such an extent that SEA would be needed. Consequently, they usually thought that SEA should rather be applied at the level of regional plans (*streekplannen*).

7.3.2 Delay of PPP formulation

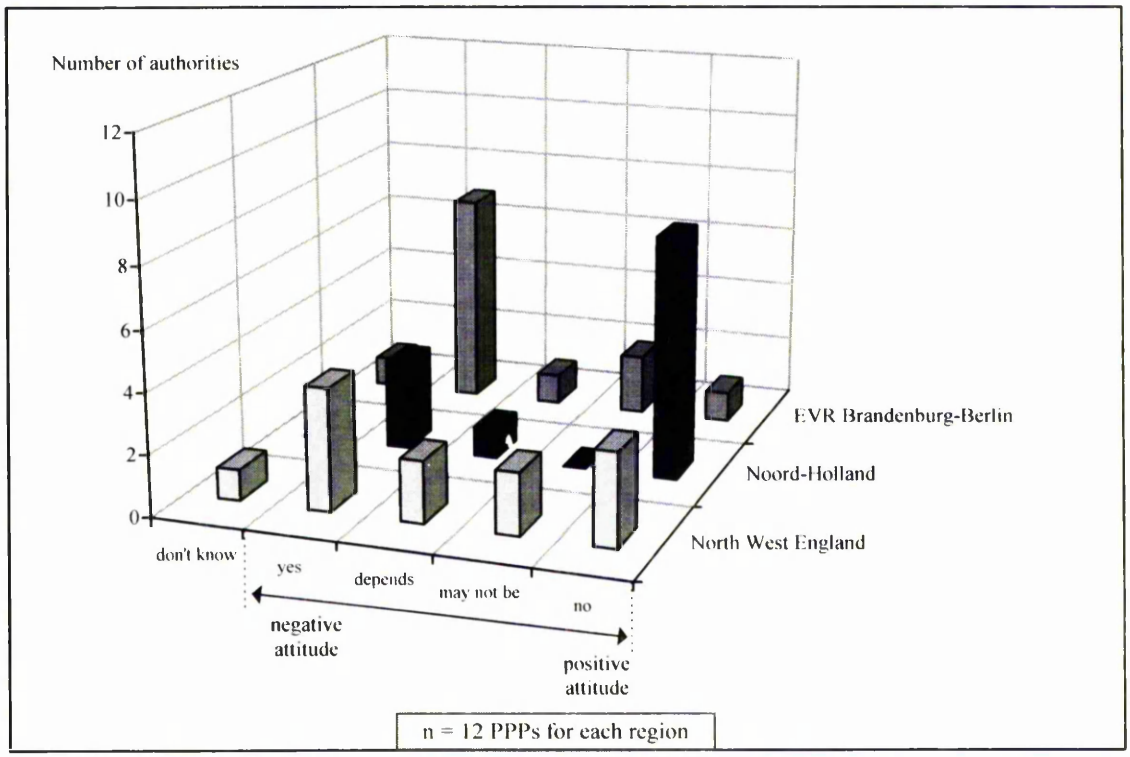
Cross-section of PPPs

Figure 7.12 shows the responses of the authorities representing the cross-section of PPPs to the question 'do you think formal SEA could delay PPP preparation?' Not unexpectedly, perceptions in EVR Brandenburg-Berlin were most negative (significantly less positive than perceptions in Noord-Holland; $P<.05$). Whilst six authorities in EVR Brandenburg-Berlin thought that formal SEA would lead to a delay

of PPP preparation, four authorities in North West England and only three authorities in Noord-Holland thought this could happen.

All EVR Brandenburg-Berlin authorities thought that past experience had proven that the introduction of new planning instruments would delay PPP preparation. Two Dutch authorities argued that the planning system in general was too slow and were sceptical about the introduction of formal SEA. Some authorities in North West England, on the other hand, argued that the benefits might outweigh the problems connected with formal SEA application and that a slight delay would not necessarily be a problem if plan quality was to be improved.

Figure 7.12: Views on a possible delay of PPP preparation through formal SEA



There were no significant differences between the views on possible PPP preparation delays of authorities preparing transport PPPs and of those preparing spatial/land use PPPs. There were significant differences between the attitudes of authorities preparing different SEA types. Those PPP makers using policy-SEA in PPP formulation had significantly better attitudes than those preparing plan-SEAs ($P<.01$) and programme-SEAs ($P<.01$). This is not unexpected, as delays in PPP making due to NIMBYism (see

section 1.2) in policy-SEA is only likely in project oriented SEA. The expectation that SEA would delay PPP preparation was correlated with the context variable 'PPP relevance' (see section 2.3.3). This could be expected, as PPPs with a high relevance included specific projects. The possibility of public opposition to the PPP was therefore increased. The extent to which current assessments covered SEA procedural stages had a positive impact on attitudes of PPP makers, as there was an expectation that existing SEA procedures would need few changes ($P<.05$). In particular, those authorities involving the procedural stages 'external consultation' ($P<.01$) and 'SEA report review' ($P<.05$) did not think formal SEA would be likely to delay PPP preparation.

Local land use PPPs

Attitudes expressed by authorities responsible for the preparation of local land use PPPs differed from those of the cross-section of PPPs. Attitudes were most positive in EVR Brandenburg-Berlin and most negative in Noord-Holland (Figure 7.13). Two main reasons are provided for these differences. Firstly, in EVR Brandenburg-Berlin, there appeared to be a perception that formal SEA would not change existing practice (i.e. Landscape Plans, *Landschaftspläne*) to any great extent. To some extent, this perception is confirmed in section 9.8, which shows that the SEA (Landscape Plan, *Landschaftsplan*) for the local Land Use Plan (*FNP*) Ketzin, met the requirements of the EC 'SEA directive' proposal to the largest extent of any of the examined SEAs. The more negative attitudes of local authorities in Noord-Holland appear to have been related to:

(a) The small size of the geographical areas administered by the local authority.

(b) The planning approach (society consensus-led quasi top-down).

Local authorities in Noord-Holland usually felt that decisions with significant impacts were all made at higher tiers and thought that the environmental implications should be dealt with there. SEA application at the local level was therefore not perceived to be useful[3].

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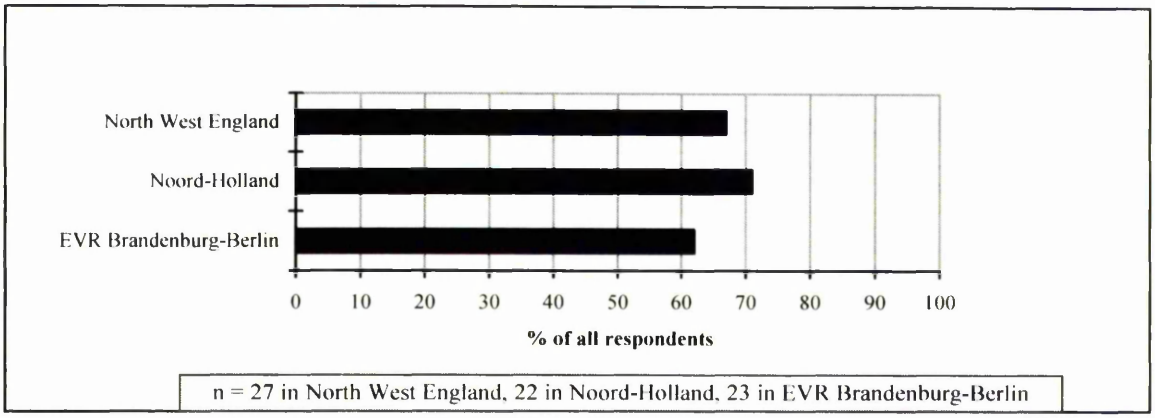
[3]Negative attitudes of local authorities were also observed in Belgium by Devuyst et al (1998, p9). A lack of interest of local authorities in Local Agenda 21 was also observed in the Netherlands (Broere, 1998)

Figure 7.13: Expectations of local authorities for formal SEA to delay PPP preparation



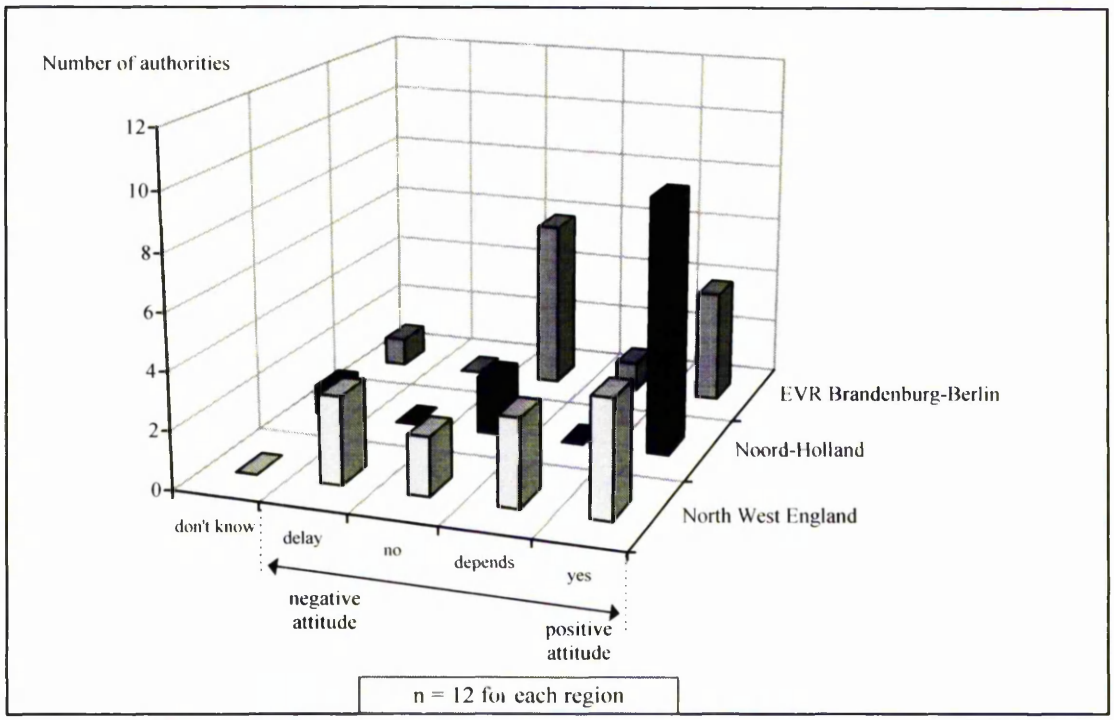
7.3.3 Project acceleration

Cross-section of PPPs

Figure 7.14 shows the responses of interviewed authorities to the question 'do you think formal SEA would be able to accelerate project preparation?'. Attitudes in Noord-Holland were significantly more positive than in EVR Brandenburg-Berlin ($P<.05$). Whilst nine authorities in Noord-Holland thought that project acceleration was possible, this opinion was shared by four authorities in North West England and only three authorities in EVR Brandenburg-Berlin. The only three authorities that explicitly said SEA would lead to a delay of project preparation were from North West England. All three authorities argued that the same people were responsible for PPP and project preparation and that the introduction of an additional planning instrument would increase the work load of local authorities and therefore delay project preparation. One authority responsible for the preparation of a transport SEA said that depending on the transport mode, projects might be delayed or accelerated[4]. The more positive views in Noord-Holland were probably caused by current experience in the Netherlands with the application of 'big-project-SEA/EIA' to the regional plans (*streekplannen*), which substitute for project-EIA and can therefore indeed lead to project acceleration.

[4] This response therefore does not refer to policy-SEA, which does not assess transport modes separately, but integratively

Figure 7.14: Views on the possibility of accelerating project preparation through formal SEA

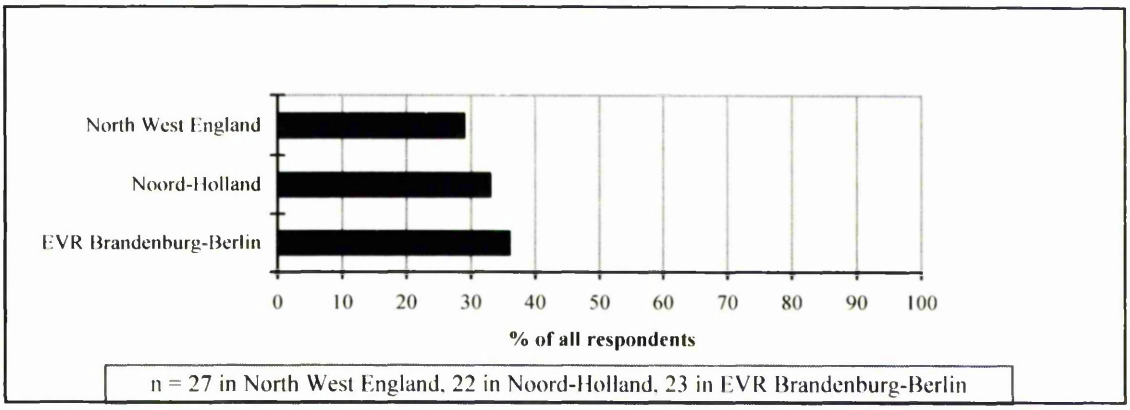


There were no significant differences for transport and spatial/land use SEAs. Furthermore, differences between authorities preparing SEA and authorities not preparing SEA were not significant. Whilst views of the authorities preparing policy-SEA were more positive than those preparing plan-SEAs and programme-SEAs, differences failed to be statistically significant.

Local land use PPPs

Local authorities in the three sample regions had similar perceptions on a possible project acceleration through the use of SEA (Figure 7.15). Thus, only between 29% and 36% of the local authorities thought that SEA might be able to lead to project acceleration. Whilst attitudes were slightly better in EVR Brandenburg-Berlin than in the other two regions, differences were not statistically significant.

Figure 7.15: Views of local authorities on the possibility of accelerating project preparation through formal SEA

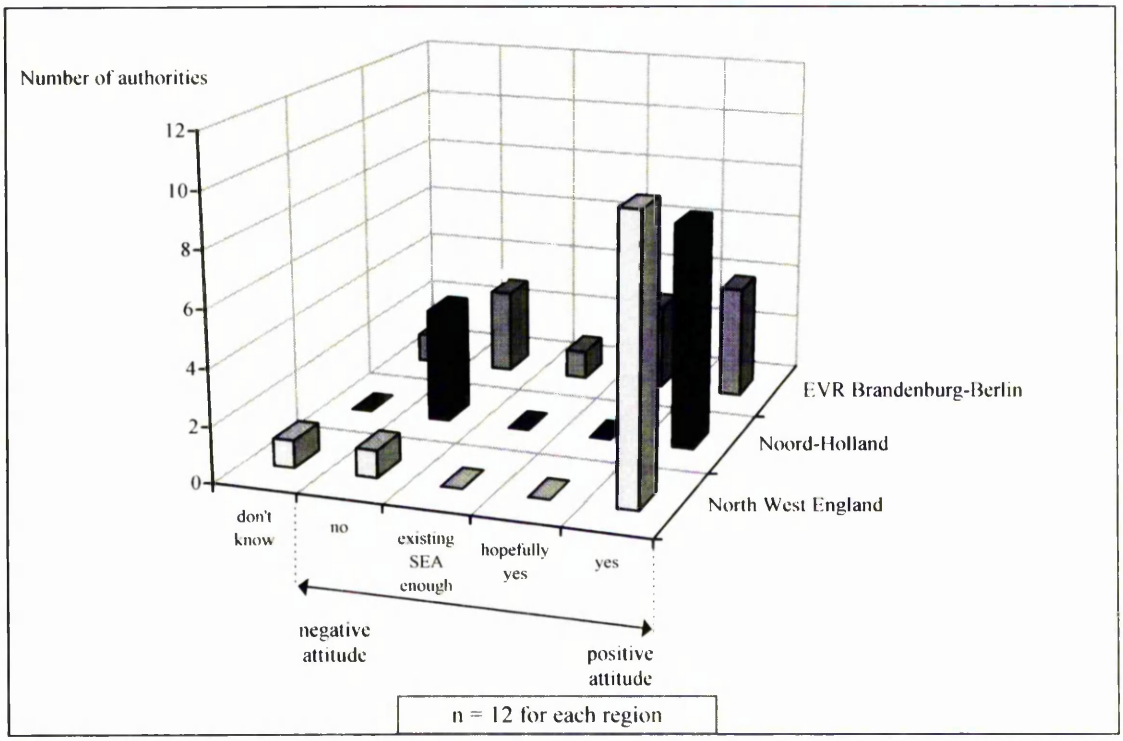


7.3.4 Better consideration of environmental impacts

Cross-section of PPPs

Figure 7.16 shows the responses of interviewed authorities to the question 'do you think formal SEA would lead to a better consideration of environmental impacts?' Whilst perceptions were most positive in North West England, they were most negative in EVR Brandenburg-Berlin ($P<.05$). Three authorities in EVR Brandenburg-Berlin believed that environmental objectives were sufficiently considered and thought that SEA would not have any additional benefits. One authority in Noord-Holland thought that the city regional administrative level was not suitable for SEA application and suggested that suitable levels were national and *provincie* levels. Another authority preparing spatial/land use policy-SEA said that current assessments considered environmental aspects sufficiently. One authority responsible for the preparation of an interprovincial plan said that the consideration of the environment in the National Spatial Plan (*VINEX*) review was sufficient and that SEA was therefore not required at the interprovincial level. Furthermore, one authority in the UK believed that the setting of clear objectives and standards at the regional level would be more important than the application of SEA.

Figure 7.16: Views on the possibility of formal SEA leading to better consideration of environmental concerns



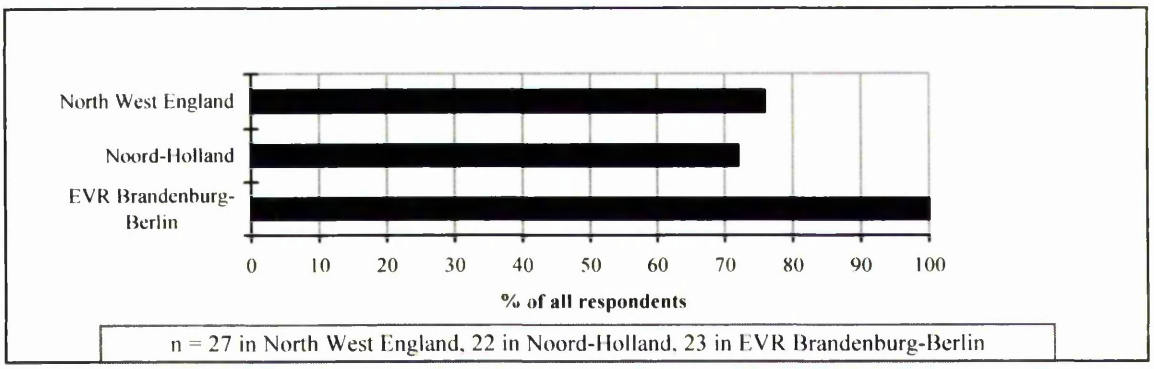
There were no significant differences between the attitudes of PPP makers of spatial/land use and transport SEAs. Whilst authorities preparing policy-SEAs and plan-SEAs had more positive attitudes than those preparing programme-SEAs, differences between the SEA types failed to be statistically significant. There were also no significant differences between the attitudes of PPP makers preparing SEA and those not preparing SEA.

SEA preparation times were significantly correlated with the attitudes of authorities in a negative manner, i.e. longer preparation times meant that attitudes were more negative ($P<.05$). This was in particular explained by the observed patterns in EVR Brandenburg-Berlin. Furthermore, there was a significant statistical correlation with the context variable 'PPP relevance' ($P<.01$)(see section 2.3.3). Attitudes towards formal SEA were most positive amongst decision makers that prepared PPPs with a high relevance. These included in particular those North West England authorities preparing development plans.

Local land use PPPs

Figure 7.17 shows the views of the local authorities in the three sample regions about whether formal SEA would lead to a better consideration of environmental concerns. Local authorities in EVR Brandenburg-Berlin had significantly more positive attitudes than the authorities in North West England (P<.01) and Noord-Holland (P<.01). This most likely reflects the experience with current SEA practice (landscape plans, *Landschaftspläne*), which is generally perceived to be rather positive.

Figure 7.17: Views of local authorities on the possibility of formal SEA leading to a better consideration of environmental concerns



7.3.5 Overall evaluation of the attitudes of PPP makers

Individual PPPs

Table 7.2 shows the results of the attitudes of PPP makers towards formal SEA for each individual PPP. No overall score is calculated for the Merseyside Package Bid and the Federal Spatial Orientation Framework (*ROPOrient*), as only one of the four questions were answered.

Highest attitude scores were obtained for six PPPs in Noord-Holland and one PPP in North West England. Low scores of under 50% were obtained for five PPPs in EVR Brandenburg-Berlin and one in Noord-Holland. Highest scores were either obtained by PPPs involving the preparation of policy-SEA or by PPPs that did not involve any SEA preparation at all. There are no clear patterns for the PPPs that obtained low scores. Further explanations for the observed patterns are provided below.

Table 7.2: Overall evaluation of attitudes towards application of formal SEA

PPP / variables PPPs	Integration	no PPP preparation delay	project acceleration	better environment	Overall evaluation
Trunk Roads Programme	n.a.	(⇔)	⇔	✓	⊙ (67%)
North West Transport Strategy	✓	(⇔)	⇔	×	⊙ (50%)
Regional Planning Guidance RPG 13	✓	✓	✓	✓	■ (100%)
Lancashire Structure Plan	✓	✓	×	✓	● (75%)
Cheshire Structure Plan	✓	×	✓	✓	● (75%)
Lancashire TPP	✓	×	×	✓	⊙ (50%)
Cheshire TPP	✓	×	(⇔)	✓	⊙ (58%)
Merseyside Package Bid	n.a.	n.a.	✓	n.a.	n.a.
Greater Manchester Package Bid	✓	✓	×	✓	● (75%)
Warrington Local Plan	✓	×	✓	✓	● (75%)
Oldham Unitary Development Plan	✓	×	(⇔)	✓	⊙ (58%)
Salford Unitary Development Plan	✓	⇔	⇔	✓	● (83%)
Second Transport Structure Plan (*SVVII*)	✓	✓	✓	✓	■ (100%)
National Spatial Plan (*VINEX*) review	✓	(⇔)	✓	✓	● (83%)
Inter-provincial Urbanisation Vision (*IPVR*)	✓	×	✓	×	⊙ (50%)
Development Vision (*Ontwikkelingsvisie*) N.-Holland	✓	✓	n.a.	×	⊙ (67%)
Regional Plans (*Streekplannen*)	✓	✓	✓	✓	■ (100%)
Integrated Transport Vision Randstad North (*INVERNO*)	✓	✓	✓	✓	■ (100%)
Transport Plan (*RVVP*) Noord-Holland-Nord	✓	✓	✓	✓	■ (100%)
Structure Plan (*Structuurplan*) ROA	✓	✓	✓	✓	■ (100%)
Transport Plan (*RVVP*) ROA	✓	×	⇔	×	○ (42%)
Structure Plan (*Structuurplan*) Amsterdam	✓	×	⇔	✓	⊙ (67%)
Future Vision (*Toekomstvisie*) Hilversum	✓	✓	✓	×	● (75%)
Transport Plan (*RVVP*) Haarlem-IJmond	✓	✓	✓	✓	■ (100%)
Federal Transport Infrastructure Plan (*BVWP*)	(⇔)	×	(⇔)	⇔	○ (33%)
Spatial Orientation Framework (*RopOrient*)	×	n.a.	n.a.	n.a.	n.a.
Land Development Programme (*LEPro*)	⇔	⇔	(⇔)	×	○ (42%)
Land Development Plan EVR Brb (*LEPeV*)	⇔	×	⇔	⇔	⊙ (50%)
Regional Plan (*Regionalplan*) Havelland-Fläming	(⇔)	×	✓	✓	⊙ (58%)
Development Concept (*Kreisentwicklungskonzept*) Hav.	(⇔)	(⇔)	✓	⇔	⊙ (58%)
Road Development Plan (*Landesstraßenplan*) Brb.	✓	×	✓	⇔	⊙ (67%)
Integrated Transport Plan (*IVP*) Brandenburg	✓	⇔	✓	✓	● (92%)
Local Land Use Plan (*FNP*) Berlin	×	×	(⇔)	(⇔)	▫ (17%)
City Development Plan (*StEP*) Transport Berlin	(⇔)	✓	(⇔)	×	○ (42%)
District Development Plan (*Bereichsplan*) Charlot'burg	⇔	×	(⇔)	×	○ (25%)
Local Land Use Plan (*FNP*) Ketzin	✓	×	(⇔)	✓	⊙ (58%)

SEA type 1 SEA type 2 SEA type 3 no SEA

Criteria scores:

✓ = positive (scores 3)

⇔ = hopeful that effect is positive (scores 2)

(⇔) = not sure/ maybe (scores 1)

× = negative (scores 0)

Overall evaluation (on the basis of criteria scores):

■/ □ = 100%

●/ ◐ = 75% to under 100%

⊙/ ◉ = 50% to under 75%

○/ ◯ = 25% to under 50%

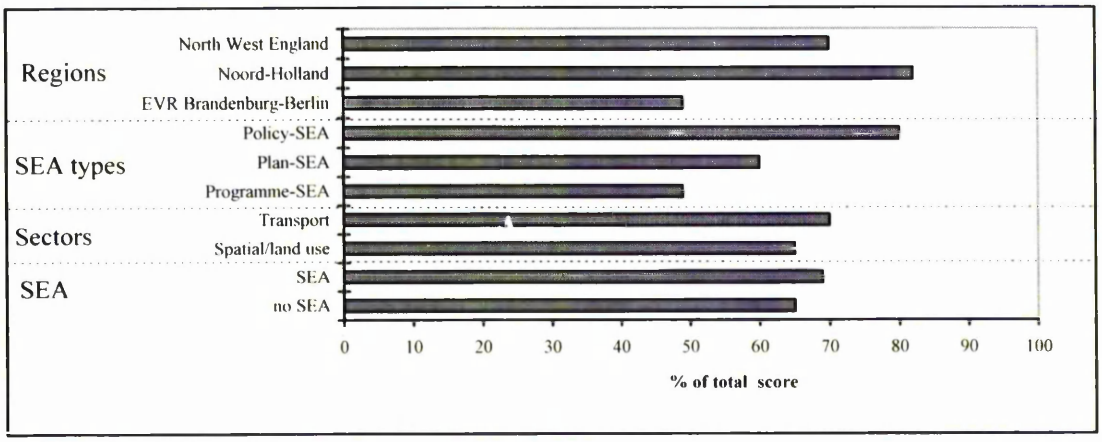
▫/ ▫ = 0% to under 25%

Regions, SEA types, sectors and general SEA application

Figure 7.18 shows the overall scores for the regions, SEA types, sectors and general SEA application. EVR Brandenburg-Berlin authorities had significantly more negative attitudes than the authorities in Noord-Holland (P<.01) and North West England (P<.05). The attitudes of the Noord-Holland authorities were most positive. There were no significant differences between the attitudes of PPP makers preparing SEA and PPP makers not preparing SEA. Attitudes of authorities preparing policy-SEA, however, were significantly more positive than those preparing plan-SEAs (P<.05) and programme-SEA (P<.05). Differences were particularly evident for a possible delay of PPP preparation, caused by the application of formal SEA. Whilst authorities with policy-SEA thought that formal SEA would not delay PPP making, authorities with programme-SEAs had comparatively negative attitudes.

The observed patterns are most likely explained by a more positive experience with SEA in the Netherlands, where big-project-SEA/EIA is currently applied to regional plans (*streekplannen*), substituting for project-EIA. Furthermore, attitudes of authorities responsible for the preparation of policy-SEA were more positive than those of the other SEA types. They are furthest away from project implementation and opposition appears to be less likely, i.e. the likelihood of NIMBYism is reduced (section 1.2).

Figure 7.18: Overall scores for attitudes towards formalised SEA by region, SEA type, sector and PPPs with SEA and without SEA



Local authorities

Postal questionnaire results suggest that attitudes at the local level were most positive in EVR Brandenburg-Berlin and most negative in Noord-Holland (P<.01). This is most

likely explained by the application of current SEA in the form of landscape plans (*Landschaftspläne*) at the local level in EVR Brandenburg-Berlin, which are potentially fulfilling requirements of the EC 'SEA directive' to a large extent (see section 9.8). Expectations are that current practice will not result in too many changes. Negative attitudes at the local level in Noord-Holland are most likely explained by a perception of PPP makers that SEA should not be applied at the local level but at higher tiers, where the 'real' impacts occur.

7.4 Summary

Opinions on the influence of existing SEA in PPP making were significantly more negative in North West England than in Noord-Holland and in EVR Brandenburg-Berlin. This was explained by SEA preparation times, which were usually clearly less than a person-year in North West England and more than a person-year in the other two regions. Furthermore, the status of the SEA appears to have had an impact, as statutory SEAs were said to have been of greater influence than non-statutory SEA. Regarding opinions on the quality of current SEA, whilst there were no significant differences between the three regions, quality of current transport SEAs were said to have been significantly better than those of spatial/land use SEAs.

Local authorities had similar opinions on the quality and influence of SEA in North West England and EVR Brandenburg-Berlin. As only one SEA was undertaken at the local level in Noord-Holland, this region could not be considered.

Opinions were significantly correlated with the extent to which methods and techniques were used, SEA procedural stages were covered and impacts were assessed in a quantitative manner. Furthermore, longer SEA preparation times meant opinions on current SEA were more positive.

Regarding the attitudes towards formal SEA, it was found that whilst a majority of authorities considered an integration of formal SEA possible, there was widespread fear that formal SEA would lead to a delay of PPP preparation. The attitudes of authorities for the cross-section of PPPs were on average most negative in EVR Brandenburg-Berlin and most positive in Noord-Holland. The attitudes of local authorities tended to be different from those of authorities representing a cross-section of PPPs. Whilst they

were most positive in EVR Brandenburg-Berlin, they were most negative in Noord-Holland. This is most likely explained by the experience with local level SEA which is greatest in EVR Brandenburg-Berlin (landscape plans, *Landschaftspläne*) and smallest in Noord-Holland.

Whilst there was no significant correlation between current SEA practice and attitudes towards formalised SEA, attitudes were to some extent correlated with SEA preparation times. Thus, longer preparation times usually were accompanied by more negative attitudes. Authorities undertaking policy-SEAs and authorities undertaking SEA with an extensive coverage of procedural stages tended to have more positive attitudes towards formalised SEA than authorities that did not, because the introduction of formal SEA was not thought to change current practice to any large extent.

8 The consideration of sustainability aspects

Chapter 8 refers to research objective 4 and identifies 'whether SEA application leads to a better consideration of sustainability objectives, targets and measures'. In this context, the framework provided in section 3.3 is used and reference is made to the Fifth Environmental Action Programme of the EC (1993a). Interview results are presented for the cross-section of PPPs at all administrative levels, and postal questionnaire results are presented for local land use PPPs. This chapter is divided into six sections. Section 8.1 provides an overall picture of the extent to which sustainability aspects were considered in the PPPs and the effects of SEA. Sections 8.2 to 8.4 describe and analyse the consideration of sustainability objectives, targets and measures in further detail. Section 8.5 provides an evaluation of the results and identifies an overall sustainability score per PPP. Section 8.6 summarises the results of this chapter.

8.1 Overall picture

This section provides an overall picture on the consideration of sustainability aspects in PPPs and the influence of SEA. Section 8.1.1 presents the results for all PPPs and section 8.1.2 portrays regional characteristics.

8.1.1 All PPPs from the three sample regions

Figure 8.1 shows the consideration of sustainability objectives[1], targets[2] and measures[3] for the cross-section of PPPs in the three sample regions with and without SEA application. Whilst SEA was not able to lead to a better consideration of objectives and targets, the consideration of sustainability measures was significantly better in PPPs with SEA ($P<.05$). Objectives were acknowledged to a comparatively large extent

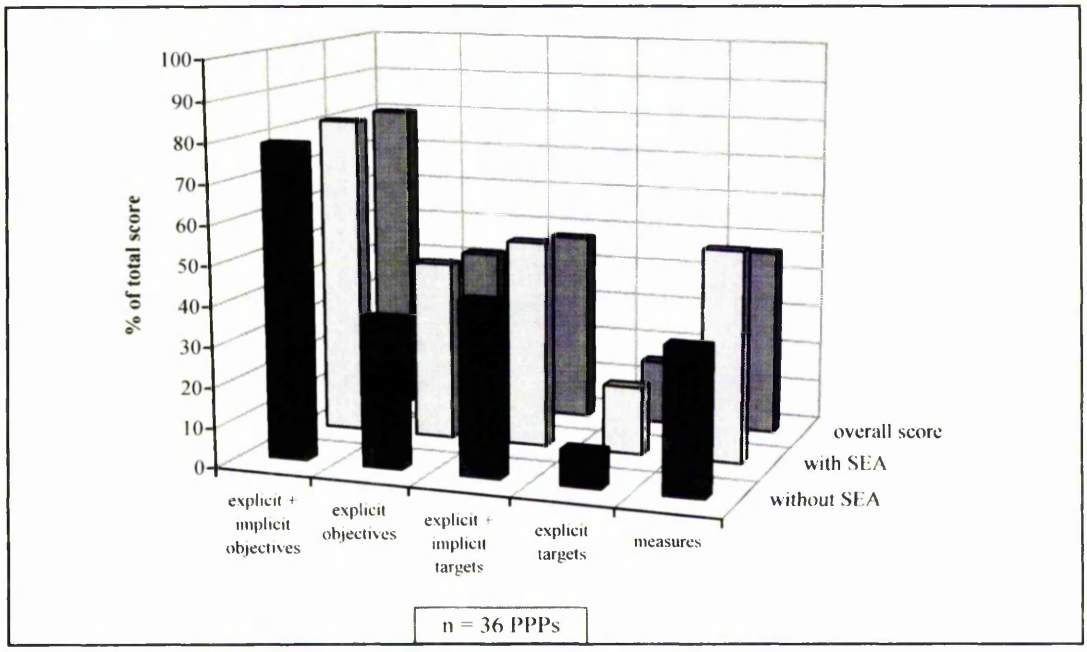
[1] Climate change, acidification, air quality, nature/biodiversity, water, urban environment and waste/raw material consumption.

[2] Emission and noise levels, land-take, waste/consumption and accident levels.

[3] Land use planning, infrastructure investment, infrastructure charging, economic incentives, regulation changes, information and education, interactive communication and public transport.

(80%), either explicitly or implicitly[4]. Targets and measures were considered considerably less (under 50%). Explicit targets were only considered to a small extent.

Figure 8.1: Sustainability aspects in the cross-section of PPPs



Results for local land use PPPs in the three regions differed from the results for the cross-section of PPPs. Thus, SEA preparation led to a significantly better consideration of sustainability objectives[5], targets[6] and measures[7] ($P<.01$) (see Figure 8.2). Objectives, targets and measures were not considered to the same extent in the PPPs. Whilst objectives were considered to the largest extent, measures were considered to the smallest extent. In order to meet the principles of sustainable development, PPP formulation processes should, however, have considered sustainability objectives, targets and measures equally (see Figure 1.1).

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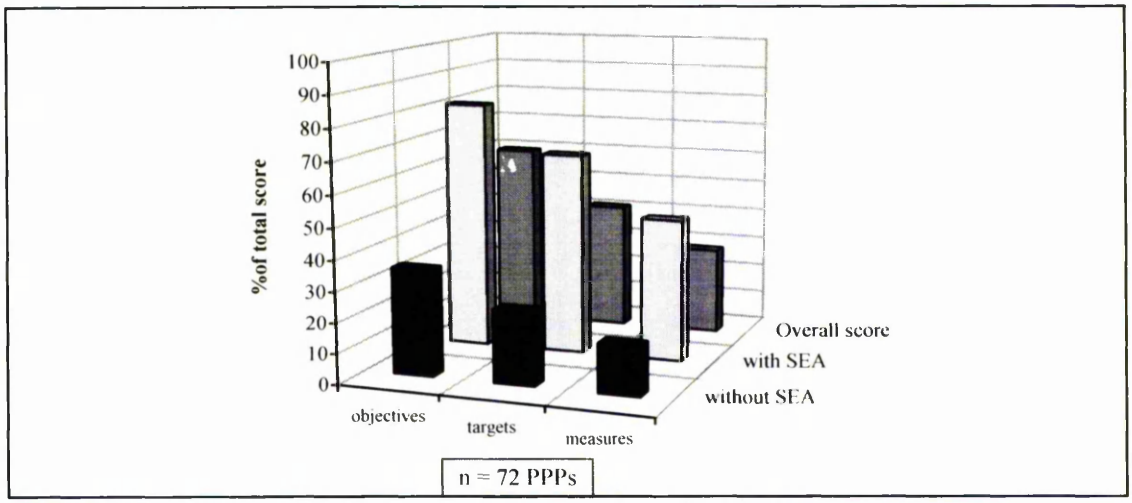
[4] Implicit objectives and targets are those that were not explicitly referred to in a clear and quantifiable manner, but that, according to PPP makers, were still acknowledged when preparing the PPP.

[5] Climate change, air quality, nature and biodiversity and the urban environment.

[6] Emission and land use targets.

[7] Any measures proposed by local authorities to meet the four objectives.

Figure 8.2: Sustainability aspects in local land use PPPs with and without SEA



8.1.2 Regional patterns

Figure 8.3 shows the extent to which sustainability objectives, targets and measures were explicitly considered within the cross-section of PPPs in the three sample regions (following interview results). Noord-Holland PPPs obtained the highest regional scores for all three sustainability aspects. Explicit targets were considered to a significantly larger extent in Noord-Holland than in EVR Brandenburg-Berlin ($P<.05$).

Figure 8.3: Explicit objectives, explicit targets and measures for the regions

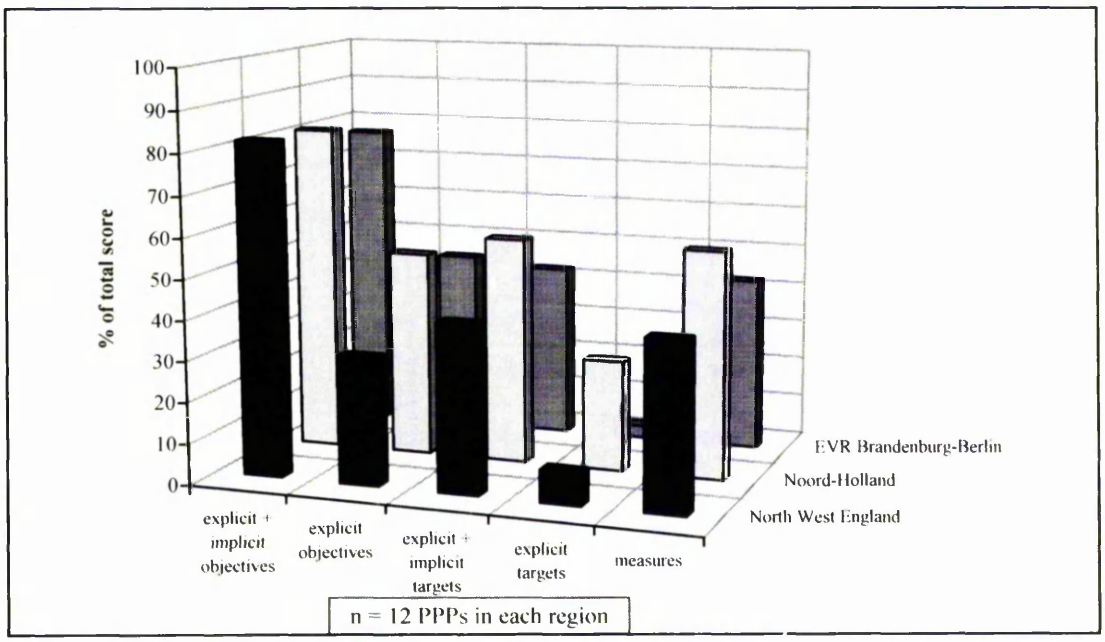
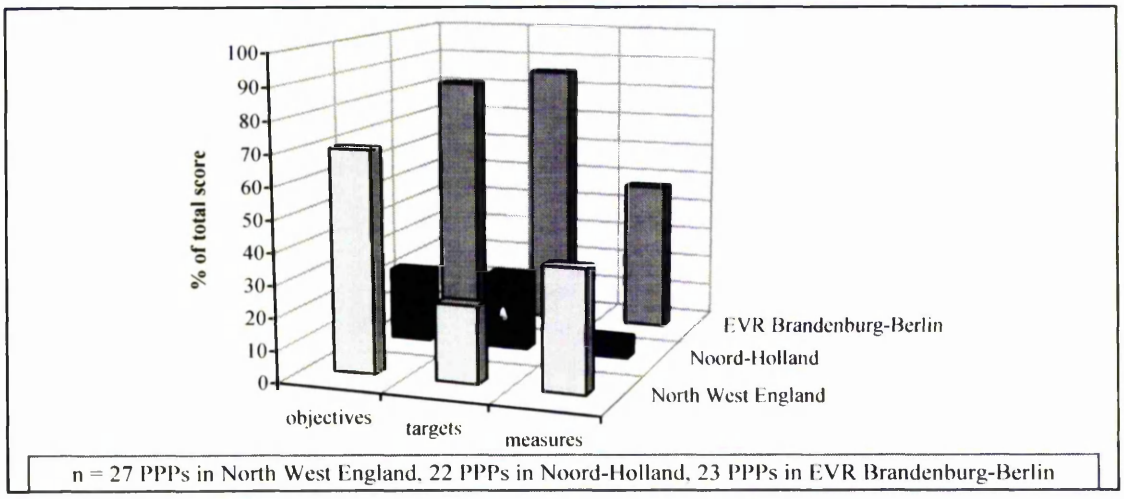


Figure 8.4 shows the extent to which objectives, targets and measures were considered in local land use PPPs. In contrast to the cross-section of PPPs, the largest numbers of

objectives, targets and measures were proposed in EVR Brandenburg-Berlin and the smallest numbers in Noord-Holland. EVR Brandenburg-Berlin PPPs considered all three sustainability aspects to a significantly larger extent than Noord-Holland PPPs (P<.01) and targets to a significantly larger extent than North West England PPPs (P<.01). North West England PPPs, on the other hand, considered explicit objectives and measures to a significantly larger extent than Noord-Holland PPPs (P<.01).

Figure 8.4: Objectives, targets and measures in all local land use PPPs



Subsequent sections discuss the consideration of sustainability objectives, targets and measures in further detail. The results are presented in general terms and for PPPs with SEA and PPPs without SEA. Furthermore, results for three presentation aspects are portrayed; the regions, SEA types and sectors.

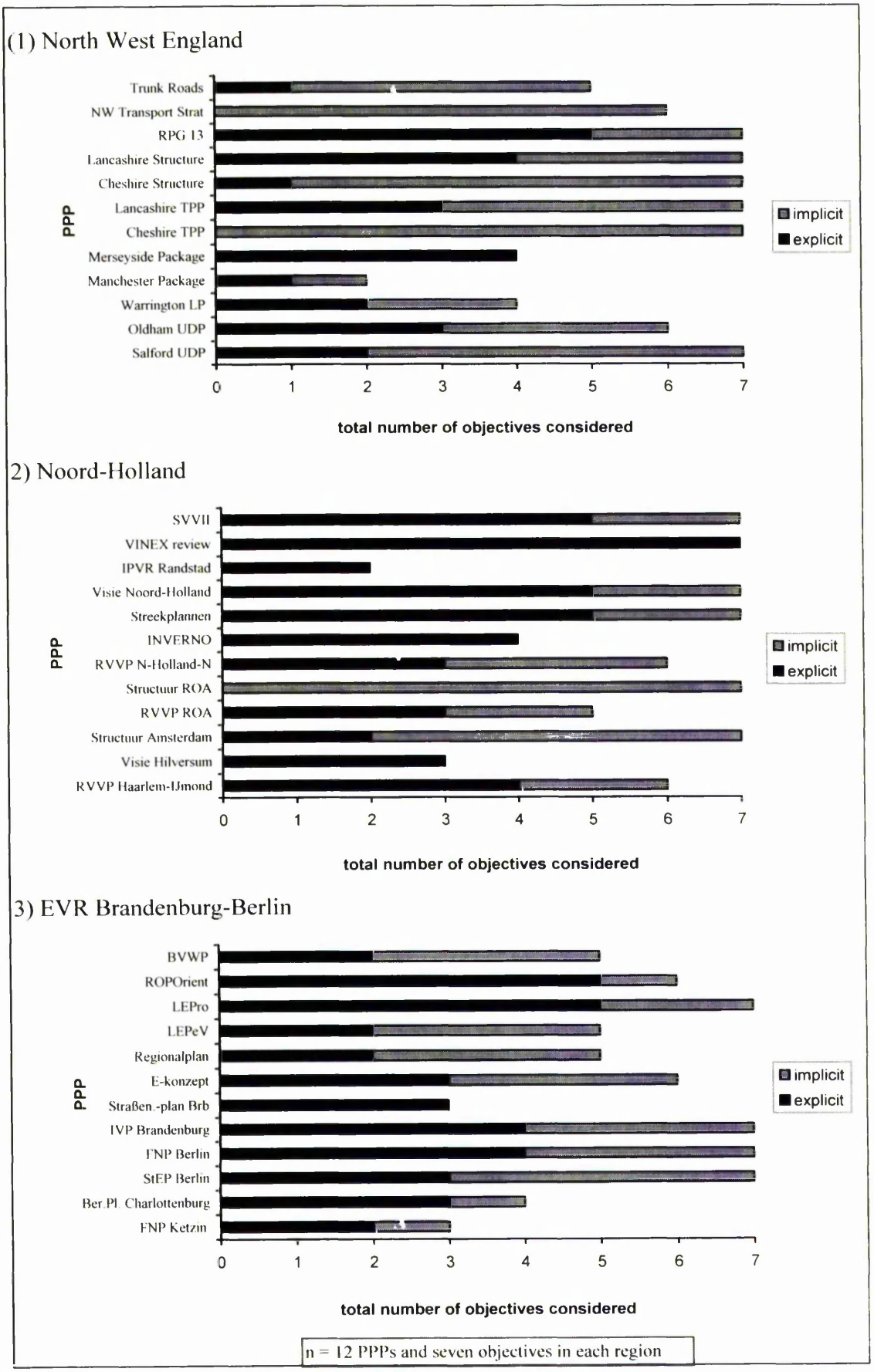
8.2 Sustainability objectives

This section describes, analyses and discusses the consideration of sustainability objectives in transport infrastructure related PPPs and the role of SEA in the three sample regions. It firstly deals with the cross-section of PPPs (interview results). Secondly, results for local land use PPPs are presented (postal questionnaire results).

8.2.1 Cross-section of PPPs

Figure 8.5 shows the total number of objectives considered in each of the PPPs. 16 PPPs considered all objectives, either explicitly or implicitly and only the National Spatial Plan (*VINEX*) review considered all seven objectives explicitly.

Figure 8.5: Total number of sustainability objectives for the PPPs



Explicit objectives were considered to the largest extent in Noord-Holland PPPs (3.6 per PPP) and to a large extent in EVR Brandenburg-Berlin (3.2 per PPP). They were considered to the smallest extent in North West England (2.2 per PPP). Three PPPs did not consider any explicit objectives at all, namely the North West Transport Strategy, the Cheshire TPP and the Structure Plan (*Structuurplan*) ROA. Of these three PPPs, only the Cheshire TPP involved SEA preparation. The extent to which objectives were explicitly considered in PPPs was significantly correlated with two of the SEA variables, including the extent to which procedural stages were covered in SEA ($P<.05$) and the extent to which impacts were assessed in a quantitative manner ($P<.05$).

Figure 8.6 shows the extent to which individual sustainability objectives were either explicitly considered, or not considered at all in the three sample regions. For those PPPs that were not included in either category, PPP makers said that objectives were implicitly considered. 'Nature/biodiversity' and the 'urban environment' were the objectives that were considered to the largest extent in the three regions and 'waste/raw material consumption' was comparatively poorly considered. Noord-Holland PPPs considered 'climate change' ($P<.05$) and 'acidification' ($P<.01$) to a significantly larger extent than North West England PPPs. 'Acidification' was also considered to a considerably larger extent in Noord-Holland than in EVR Brandenburg-Berlin ($P<.01$). The extensive consideration of these two objectives in Noord-Holland is explained by the comparatively large number of transport policy-SEAs, taking a more global perspective on impacts. 'Water' was considered to a significantly larger extent in EVR Brandenburg-Berlin PPPs than in North West England PPPs ($P<.05$). This was caused by the obligatory consideration of 'water' in EVR Brandenburg-Berlin, landscape plans (*Landschaftspläne*).

Figure 8.6: The consideration of sustainability objectives in the three sample regions

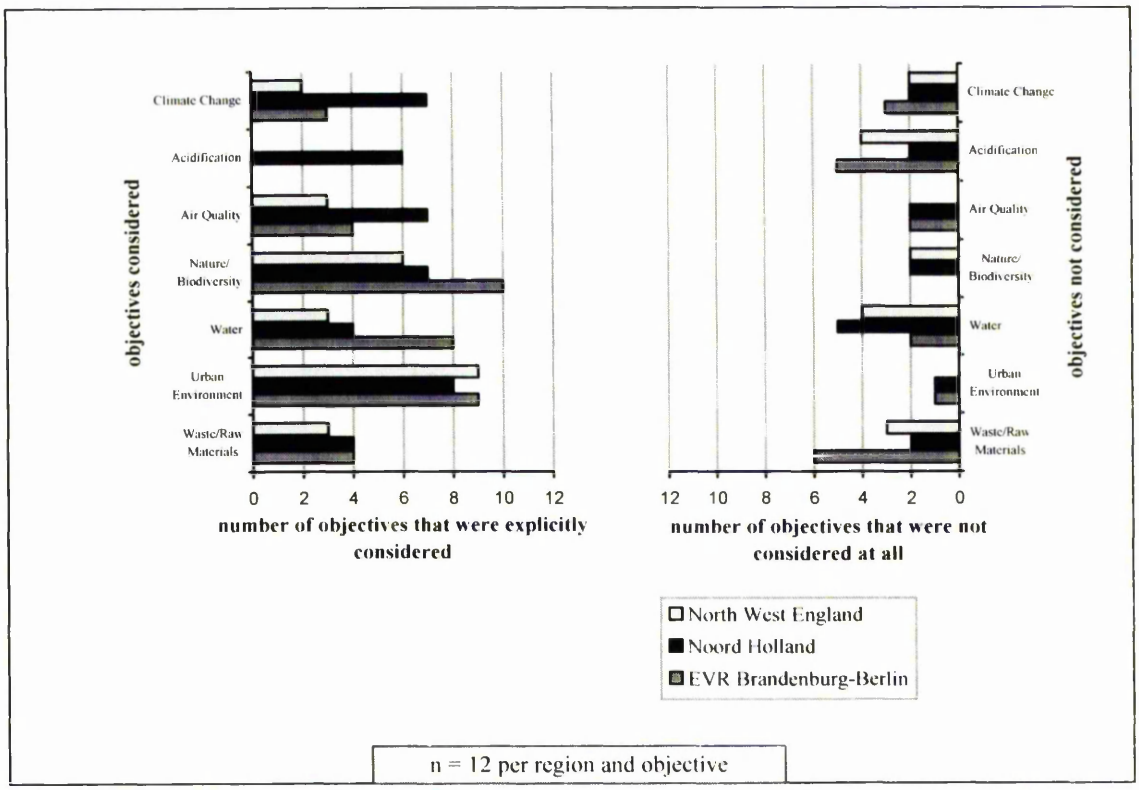
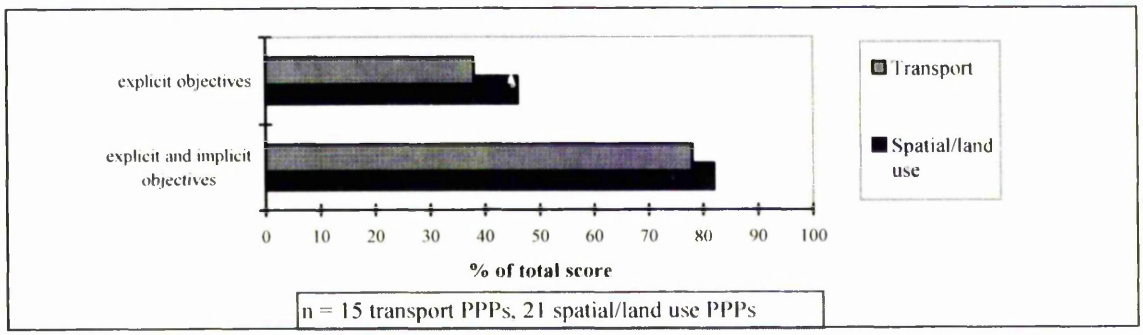


Figure 8.7 shows that objectives were considered to a slightly larger extent in spatial/land use PPPs than in transport PPPs. Differences between both sectors, however, were not statistically significant. The average numbers of all objectives (explicit and implicit) considered in transport and spatial/land use PPPs were between 5.4 and 5.7 in Noord-Holland and EVR Brandenburg-Berlin. In North West England, spatial/land use PPPs considered objectives to a larger extent than transport PPPs. On average, 6.5 objectives were considered in spatial/land use and 5.1 objectives in transport PPPs.

Figure 8.7: Sustainability objectives in transport and spatial/land use PPPs



Individual objectives were considered to varying extents in transport and spatial/land use PPPs. Only the objective 'urban environment' was considered to a similar extent in both sectors. Three explicit objectives were predominantly considered in transport PPPs, namely 'climate change' (P<.01), 'acidification' (P<.05) and 'air quality' (P<.05). This is mainly explained by the comparatively large number of transport policy-SEA. Whilst eight of 13 transport SEAs were policy-SEAs, only two of 12 spatial/land use SEAs were policy-SEAs. Those objectives that were significantly more frequently considered in spatial/land use PPPs than in transport PPPs include 'nature and biodiversity' (P<.01) and 'water' (P<.01).

SEA application

Figure 8.8 shows the extent to which sustainability objectives were considered in PPPs with SEA and PPPs without SEA. Whilst PPPs with SEA on average considered objectives to a slightly larger extent, differences were not statistically significant. For one individual objective, PPPs with SEA obtained a significantly higher score, namely for 'acidification' (P<.05). This is mainly due to the frequent consideration of this objective in policy-SEA.

Figure 8.8: Sustainability objectives and SEA application

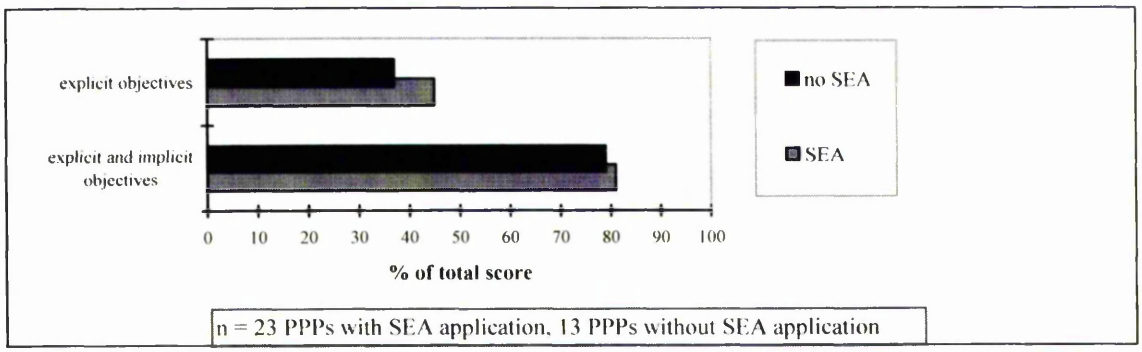
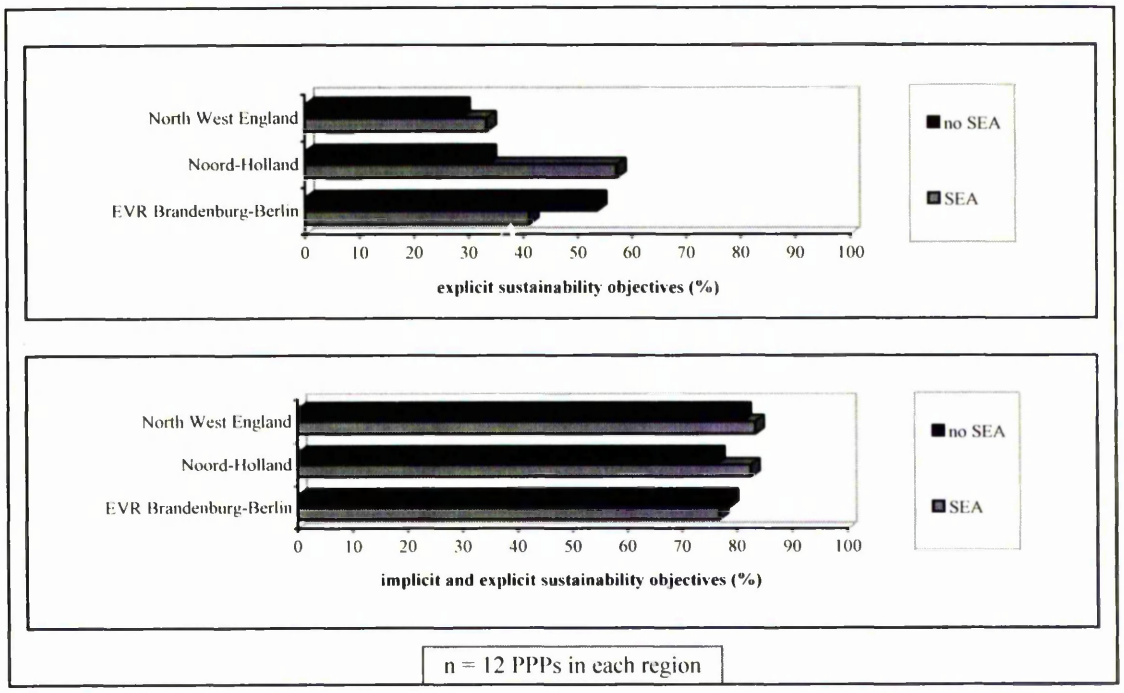


Figure 8.9 shows the regional differences of PPPs with SEA and PPPs without SEA. Whilst in North West England and Noord-Holland, SEA application led to a slightly better consideration of sustainability objectives, in EVR Brandenburg-Berlin, PPPs that did not involve SEA considered more sustainability objectives than PPPs with SEA. Differences were, however, not statistically significant. Two PPPs without SEA are mainly responsible for the rather unexpected finding in EVR Brandenburg-Berlin, namely the National Spatial Orientation Framework (*Raumordnungspolitischer*

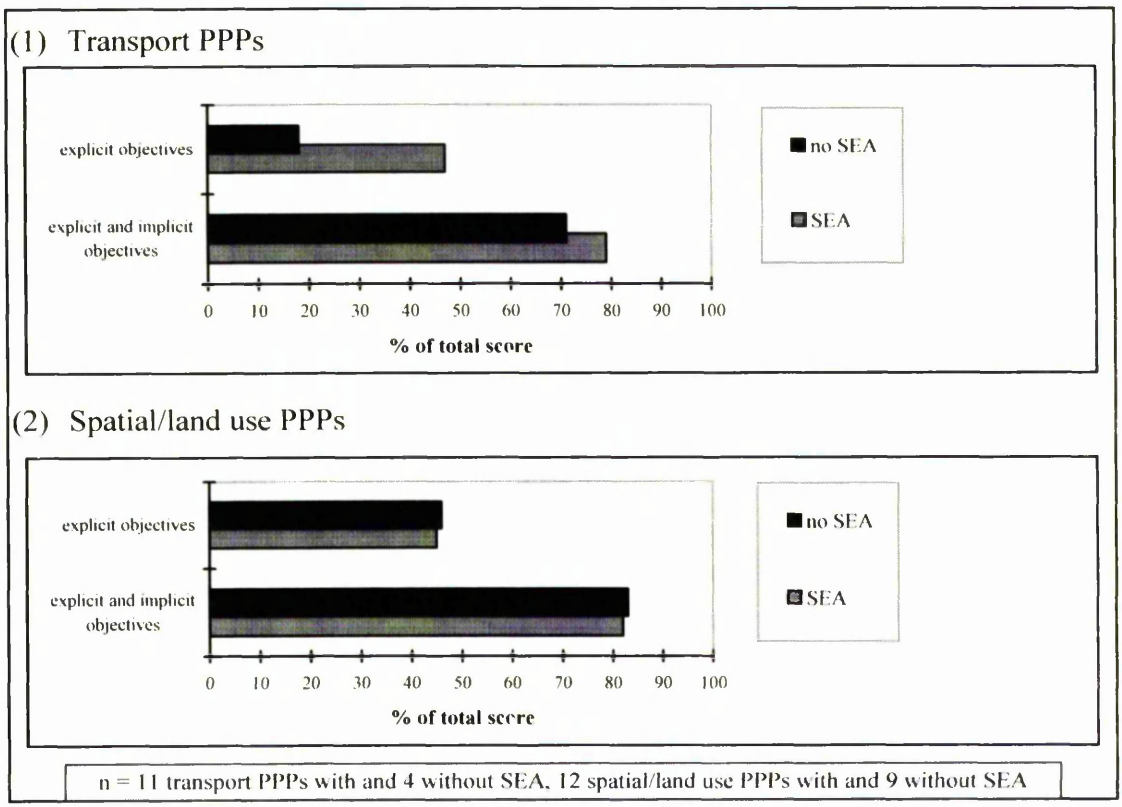
Orientierungsrahmen, ROPOrient) and the Land Development Programme (*LEPro*) Brandenburg. These two PPPs considered the largest numbers of explicit objectives of any PPP in EVR Brandenburg-Berlin. Both PPPs were policy statements at the *Land* level, providing lower tiers with development objectives, including environmental/sustainability objectives.

Figure 8.9: Sustainability objectives and SEA application per sample region



If a distinction is made between transport and spatial/land use PPPs (see Figure 8.10), it is observed that SEA application in transport PPPs led to a significantly better consideration of explicit objectives ($P<.05$). Spatial/land use PPPs with SEA scored slightly lower than spatial/land use PPPs without SEA. This is mainly explained by the two EVR Brandenburg-Berlin PPPs that did not involve SEA, but that scored highly on the consideration of explicit objectives. Differences, however, failed to be statistically significant.

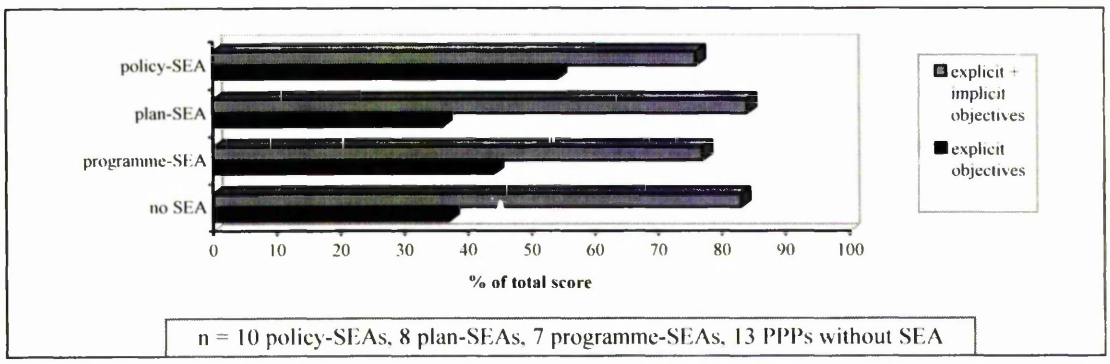
Figure 8.10: Objectives in transport and spatial/land use PPPs and SEA application



SEA types

Figure 8.11 compares the consideration of sustainability objectives in PPPs involving the three SEA types and PPPs not involving SEA at all. PPPs involving policy-SEA obtained higher scores on explicit objectives than all other PPPs. Differences were statistically significant between PPPs involving policy-SEA and PPPs involving plan-SEA ($P<.01$). PPPs with policy-SEA scored significantly better than PPPs with plan-SEA on three objectives, namely 'climate change' ($P<.01$), 'acidification' ($P<.01$) and 'air quality' ($P<.05$). For 'nature and biodiversity', PPPs with plan-SEA scored significantly better than PPPs with policy-SEA ($P<.05$). PPPs with policy-SEA also scored significantly better than PPPs without SEA on 'climate' ($P<.01$) and 'acidification' ($P<.01$). The comparatively high effectiveness of policy-SEA for leading to a better consideration of explicit objectives is explained by its early application in the planning cycle. This allows consideration of a wide range of alternatives and a large number of objectives. As projects usually cannot be clearly located, PPP makers do not need to fear public opposition due to NIMBYism (see section 1.2).

Figure 8.11: SEA types and the consideration of sustainability objectives



8.2.2 Local land use PPPs

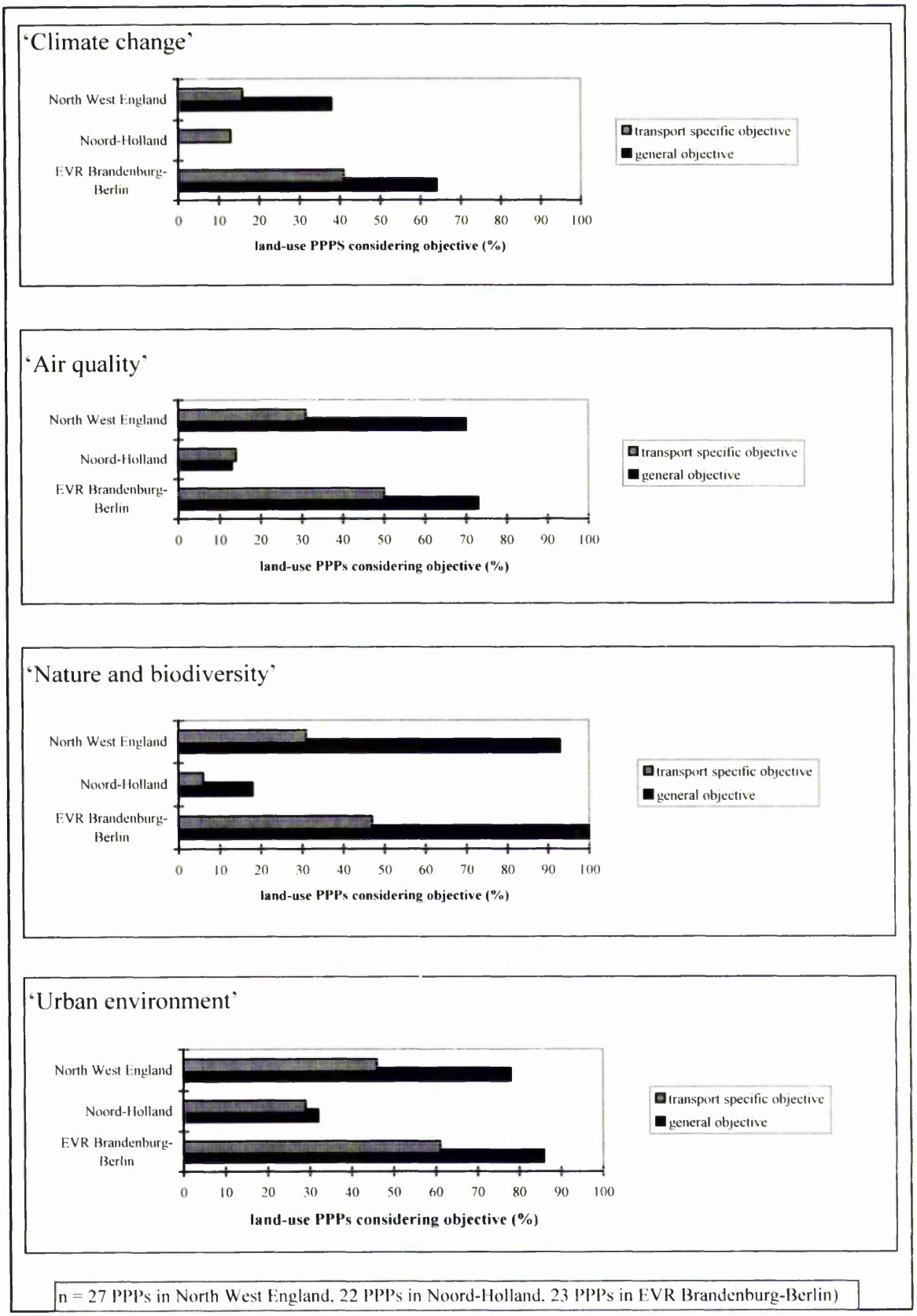
General remarks

Figure 8.12 shows the extent to which sustainability objectives were considered in local land use PPPs in the three sample regions (postal questionnaire results). General and transport specific objectives were distinguished in order to illustrate the importance of considering land use PPPs when dealing with transport infrastructure planning.

In contrast to the findings for the cross-section of PPPs, on average, more sustainability objectives were considered in EVR Brandenburg-Berlin and North West England than in Noord-Holland. There are two main reasons for the differences between the cross-section of PPPs and local land use PPPs, namely a different extent of SEA application in the three regions and different planning approaches. Whilst only one SEA was undertaken for the 22 local land use PPPs in Noord-Holland, 13 of the 27 PPPs in North West England and 21 of the 23 PPPs in EVR Brandenburg-Berlin involved SEA preparation (environmental appraisals and landscape plans, *Landschaftspläne*; see subsequent paragraph on SEA application). In the Netherlands, policy objectives were identified at higher tiers[8] and were to be considered at all other decision making levels. Local land use PPPs therefore considered environmental objectives only indirectly through national, provincial and regional policy.

[8] the same environmental/sustainability objectives were shared by the National Environmental Policy Plan (*NMP*) and the Second Transport Structure Plan (*SVVII*).

Figure 8.12: Sustainability objectives considered in local land use PPPs



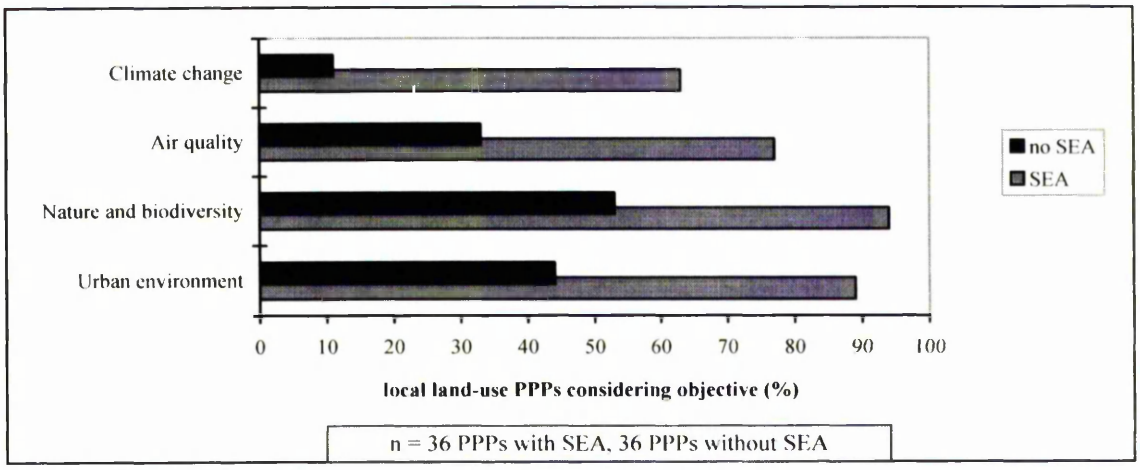
In contrast with the other two regions in Noord-Holland, new development areas with significant impacts on the environment were mostly proposed and assessed either at national or at regional levels of decision making. Local authorities in North West England and EVR Brandenburg-Berlin on average identified and considered objectives more actively and explicitly than local authorities in Noord-Holland and SEA application led to a better consideration of sustainability objectives.

'Nature and biodiversity' and the 'urban environment' were the two objectives that were most frequently considered in local land use PPPs. As a general objective, 'nature and biodiversity' was considered in all local land use PPPs in EVR Brandenburg-Berlin (mainly through the landscape plans, *Landschaftspläne*). The 'urban environment' was the most frequently mentioned transport specific objective. All 'general objectives' were considered to a significantly larger extent in EVR Brandenburg-Berlin and in North West England than in Noord-Holland ($P<.01$). Regarding transport specific objectives, the objective 'nature and biodiversity' ($P<.01$) and 'air quality' ($P<.05$) were significantly more frequently considered in EVR Brandenburg-Berlin than in Noord-Holland, which is explained by the consistent use of landscape plans and programmes (*Landschaftspläne und -programme*).

SEA application

SEA application had a positive effect on the extent to which sustainability objectives were considered in local land use PPPs (see Figure 8.13). All four objectives were considered to significantly larger extents in PPPs with SEA than in PPPs without SEA ($P<.01$). The only region which allowed the differences of PPPs with SEA and without SEAs to be compared was North West England, as 13 of 27 PPP involved SEA preparation (as opposed to 21 of 23 in EVR Brandenburg-Berlin and 1 of 22 in Noord-Holland). It was found that SEA application led to a significantly better consideration of sustainability objectives in local land use PPPs in North West England ($P<.01$).

Figure 8.13: SEA application and the consideration of sustainability objectives in local land use PPPs



8.3 The consideration of sustainability targets

This section describes and analyses the consideration of sustainability targets in transport infrastructure related PPPs in the three sample regions. Similarly to the previous section on sustainability objectives, it separately deals with the cross-section of PPPs (interview results) and with local land use PPPs (postal questionnaire results).

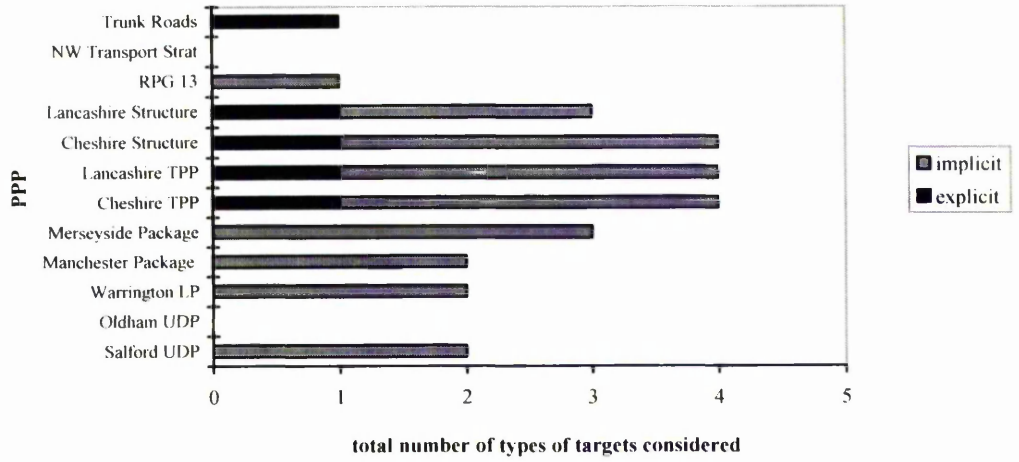
8.3.1 Cross-section of PPPs

General remarks

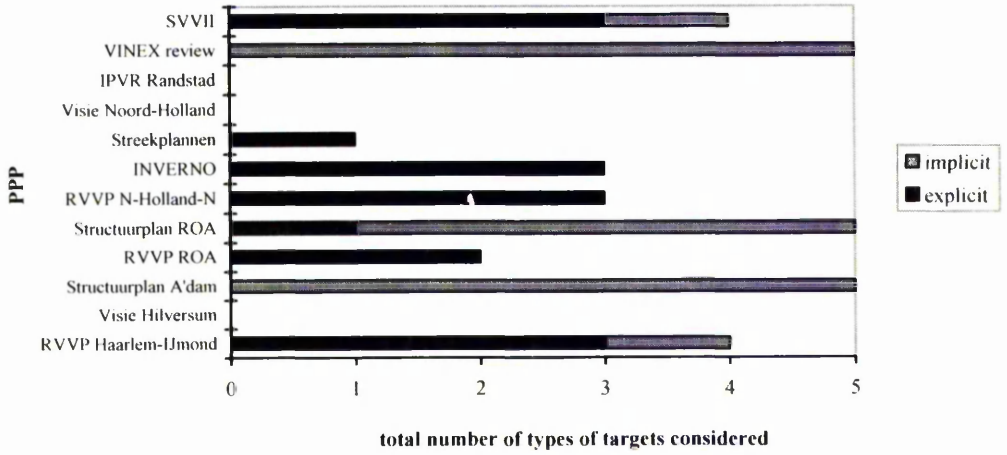
Figure 8.14 shows the total number of targets considered in each of the PPPs in the three sample regions. The maximum possible number to be considered were five targets. 16 (i.e. 70%) of the total number of 23 explicit targets that were considered in all PPPs were from Noord-Holland. Whilst 1.3 targets were on average explicitly considered in each PPP in Noord-Holland, this figure fell to 0.4 targets in North West England and to 0.2 targets per PPP in EVR Brandenburg-Berlin. Regional differences were significant for explicit targets between Noord-Holland and EVR Brandenburg-Berlin ($P<.05$).

Figure 8.14: Total number of sustainability targets per PPP

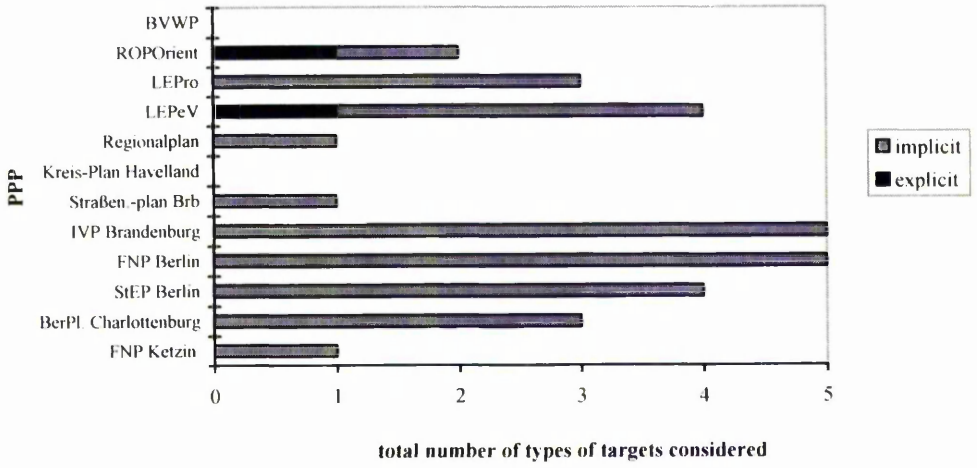
(1) North West England



(2) Noord-Holland



(3) EVR Brandenburg-Berlin



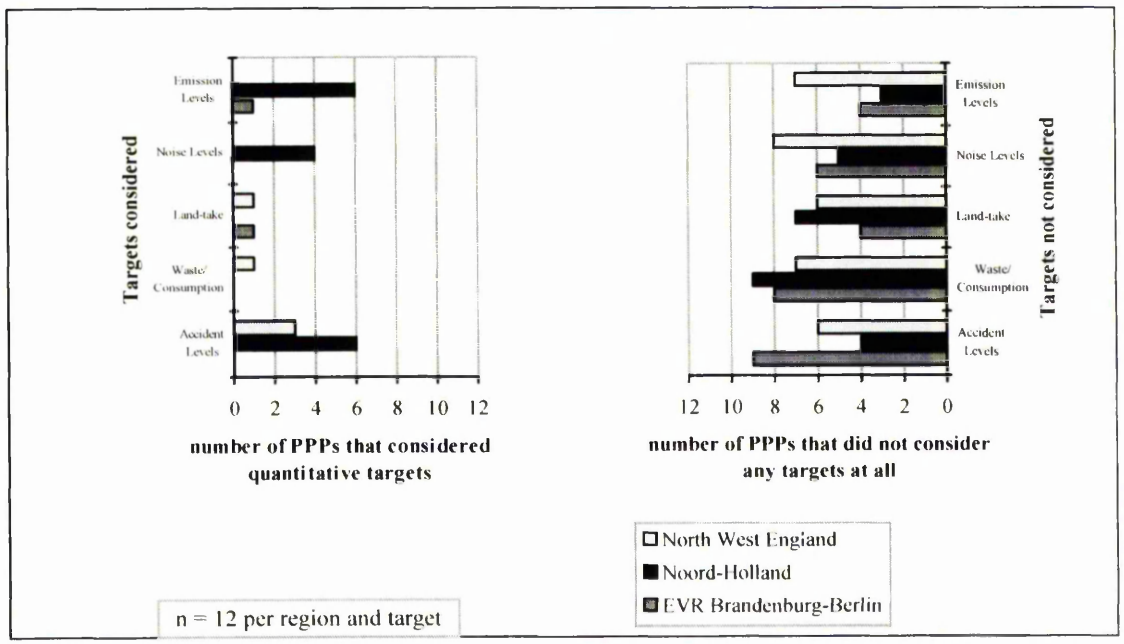
n = 12 PPPs and 5 targets in each region

Besides the five targets proposed in the Fifth Environmental Action Programme, a number of other targets were also considered in the PPPs in the three sample regions. The most frequently mentioned targets include:

- Reducing mobility and road traffic growth.
- 'Improving' ratios of public and private transport (i.e. changing the modal split).
- Better safety standards.
- Greater punctuality of trains and faster trains.
- Higher car occupancies.
- Reduction of congestion.
- Public transport growth.

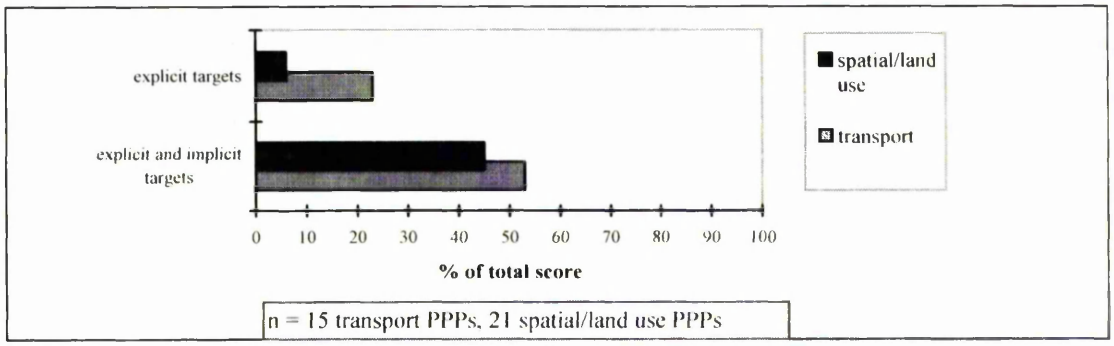
Figure 8.15 presents the number of PPPs in each sample region that either considered targets explicitly or not at all. Authorities of the PPPs that were not included in either category, said that targets were implicitly considered. Noord-Holland PPPs considered 'emissions' and 'noise' targets to a significant larger extent than the PPPs in North West England ($P<.01$ and $P<.05$, respectively) and in EVR Brandenburg-Berlin ($P<.05$ in both cases). Furthermore, 'accident' levels were considered to a significantly larger extent in Noord-Holland than in EVR Brandenburg-Berlin ($P<.01$).

Figure 8.15: The consideration of sustainability targets by region



Differences are mainly explained by the larger extent to which policy-SEA was applied in Noord-Holland, which allowed consideration of a wider range of issues (see also section 9.2). Furthermore, in Noord-Holland, in contrast to the other regions, clear targets were defined in the environmental policy plans (*milieubeleidsplannen*) that were prepared at all administrative levels. Figure 8.16 shows the overall extent to which targets were considered in both sectors. Whilst the extent to which all targets (explicit and implicit) were considered was similar for both sectors, explicit targets were considered to a significantly larger extent in transport PPPs ($P<.05$). This is particularly explained by the large extent to which 'accident' and 'noise' targets were considered in transport PPPs.

Figure 8.16: Sustainability targets in transport and spatial/land use PPPs



SEA application

Figure 8.17 shows the extent to which targets were considered in PPPs with SEA and in PPPs without SEA. Whilst PPPs with SEA considered more objectives on both occasions, differences failed to be statistically significant.

Figure 8.17: Sustainability targets and SEA application

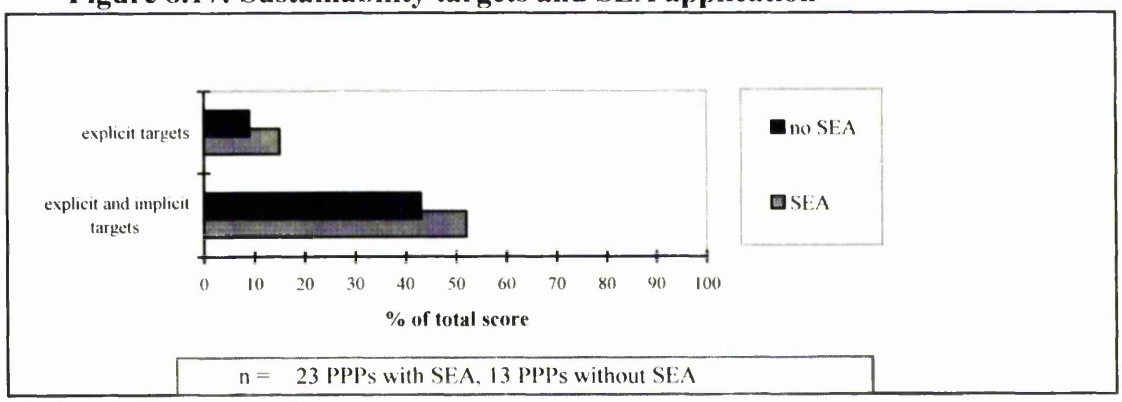


Figure 8.18 shows the effect SEA had on the consideration of sustainability targets in the three sample regions. Whilst in North West England and in Noord-Holland, SEA application led to a better consideration of sustainability targets, in EVR Brandenburg-Berlin, PPPs without SEA obtained higher scores than PPPs with SEA. This is mainly due to a good performance of two PPPs that did not involve SEA preparation, namely the Land Development Programme (*LEPro*) Brandenburg and the Land Development Plan (*Landesentwicklungsplan*) EVR Brandenburg-Berlin. However, differences were not statistically significant.

Figure 8.18: Sustainability targets and SEA application for the regions

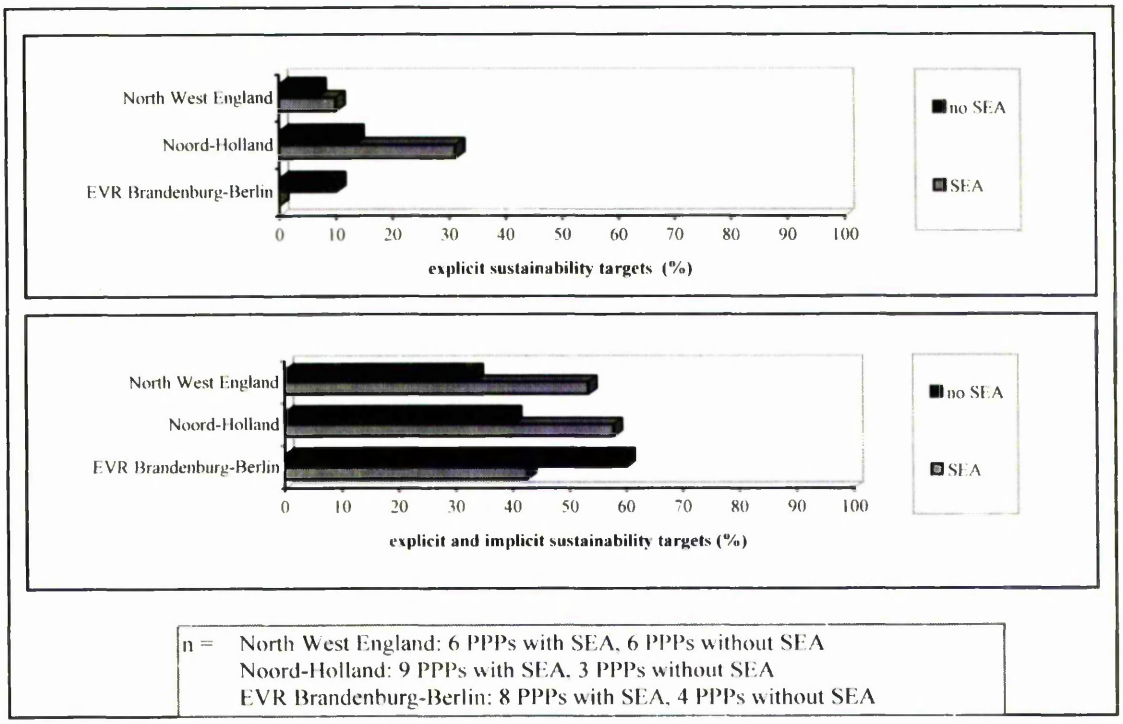
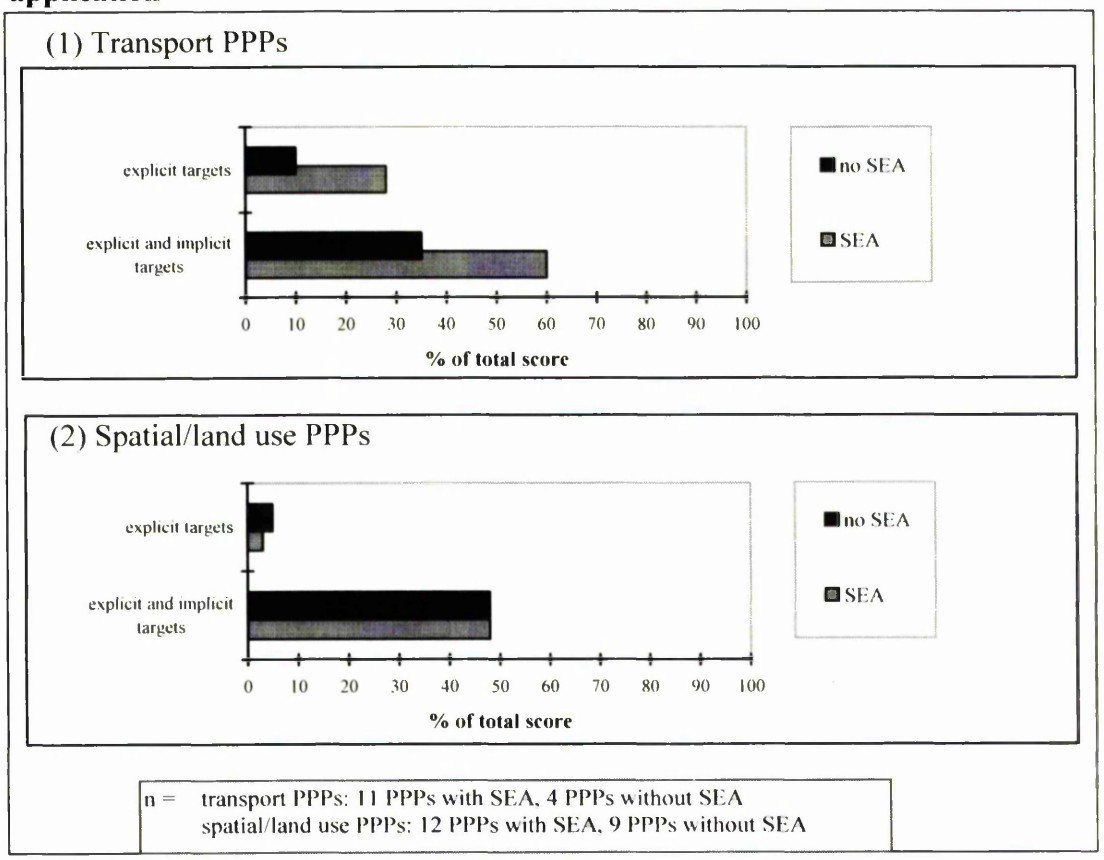


Figure 8.19 shows the extent to which sustainability targets were considered in spatial/land use and transport PPPs with and without SEA. Whilst SEA for transport PPPs had a positive effect on the consideration of sustainability targets, those spatial/land use PPPs that did not involve SEA preparation scored slightly higher than PPPs with SEA. Differences were, however, not statistically significant. The observed patterns are explained firstly by the more extensive use of policy-SEA in the transport sector, particularly in the Netherlands (due to the requirements formulated in the Second Transport Structure Plan). Secondly, spatial/land use PPPs without SEA in

EVR Brandenburg-Berlin scored comparatively highly. This is caused by two PPPs, namely the Land Development Programme (*Landesentwicklungsprogramm, LEPro*) and the Land Development Plan (*Landesentwicklungsplan, LEP*) EVR Brandenburg-Berlin, both of which identify policies and possibilities for development.

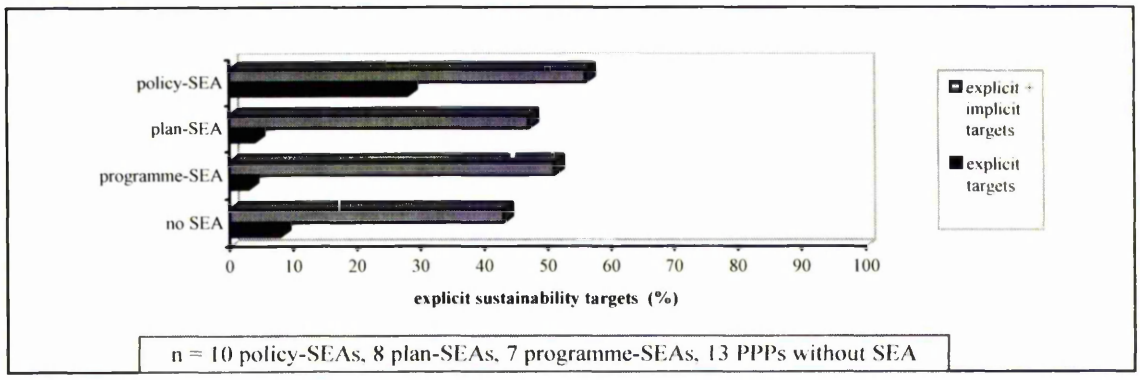
Figure 8.19: Sustainability targets, transport and spatial/land use PPPs and SEA application



SEA types

There was no significant correlation between any of the five individual targets and the general application of SEA. Regarding SEA types (Figure 8.20), policy-SEA considered explicit targets to a significant larger extent than programme-SEA ($P<.05$). Furthermore, PPPs involving policy-SEA considered a number of individual targets to a larger extent than PPPs involving plan-SEA, namely 'emissions' ($P<.01$), 'noise' ($P<.05$) and 'accidents' ($P<.05$). PPPs with policy-SEA also considered a significantly larger number of 'noise' targets than PPPs without SEA ($P<.01$).

Figure 8.20: Sustainability targets and SEA types



Fifth Environmental Action Programme reduction targets

Table 8.1 shows the PPPs that considered sustainability targets in a quantitative manner that were at least as strict as those introduced in the Fifth Environmental Action Programme. With the exception of two PPPs, namely the Federal Spatial Orientation Framework (*Raumordnungspolitischer Orientierungsrahmen, ROPOrient*) and the Regional Development Plan (*LEPeV*) EVR Brandenburg-Berlin, all PPPs were from Noord-Holland. In this region, the Second Transport Structure Plan (*SVVII*) was frequently mentioned as the document from which targets were taken, reflecting the planning approach in the Netherlands (see section 4.2.2).

Table 8.1: Reduction targets of the Fifth Environmental Action Programme considered in PPPs

target type	reduction target	target acknowledged by
emission levels	CO_2	• Second Transport Structure Plan, *SVV II* • Regional Plans (*streekplannen*) Noord-Holland (*SVVII* target) • Transport plan *INVERNO* (regional target) • *RVVP* transport plan Noord-Holland Noord (*SVVII* target) • *RVVP* transport plan ROA (regional target) • *RVVP* transport plan Haarlem-IJmond (*INVERNO* target) • Spatial Orientation Framework (*ROPOrient*)
	NOx	• Second Transport Structure Plan, *SVV II* • Transport plan *INVERNO* (regional target) • *RVVP* transport plan Noord-Holland Noord (*SVVII* target) • *RVVP* transport plan ROA (regional target) • *RVVP* transport plan Haarlem-IJmond (*INVERNO* target)
	VOC	-
	SO_2	• *RVVP* ROA (regional target)
Noise levels	55 dB(A) to 65 dB (A): no increase; < 55 dB(A): not over 55 dB(A)	• Second Transport Structure Plan, *SVVII* • transport plan *INVERNO* (regional target) • *RVVP* transport plan Noord-Holland Noord (*SVVII* target) • *RVVP* transport plan Haarlem-IJmond (*INVERNO* target)
Land-take	maintenance	• Regional Development Plan (*LEP*) EVR, no decrease of forested areas: 40% share on total area

None of the 36 PPPs considered all the targets formulated in the Fifth Environmental Action Programme. No PPP therefore met all the requirements. Noord-Holland transport PPPs, however, addressed a comparatively wide range of sustainability targets, mainly for its widespread application of policy-SEA. Some authorities also said that reduction targets of the Fifth Environmental Action Programme were implicitly considered (Table 8.2). Implicit targets were considered in 16 PPPs (including 14 transport PPPs), all of which were from Noord-Holland.

Table 8.2: Implicit consideration of targets from the Fifth Environmental Action Programme

Targets	PPPs
Emission targets:	• National Spatial Plan (*VINEX*) review (*NMP* target)* • Structure Plan (*structuurplan*) ROA (*NMP* target) • Structure Plan (*structuurplan*) Amsterdam
Noise targets:	• National Spatial Plan (*VINEX*) review • Structure Plan (*structuurplan*) ROA • Structure Plan (*structuurplan*) Amsterdam
Land-take targets:	• National Transport Structure Plan, SVVII • National Spatial Plan (*VINEX*) review • Structure Plan (*structuurplan*) ROA • Structure Plan (*structuurplan*) Amsterdam • RVVP transport plan Haarlem-IJmond
Waste/consumption targets:	• National Spatial Plan (*VINEX*) review • Structure Plan (*structuurplan*) ROA • Structure Plan (*structuurplan*) Amsterdam

* National Environment Policy Plan, *nationaal milieubeleidsplan, NMP*

8.3.2 Local land use PPPs

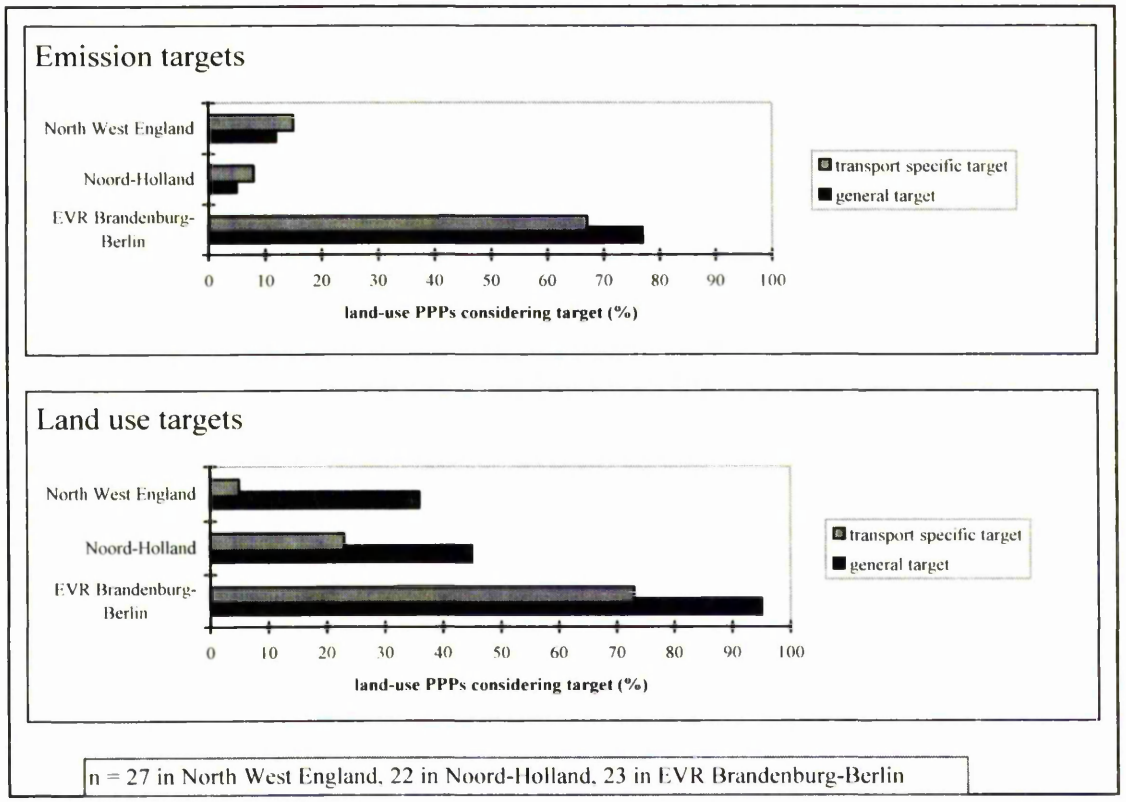
General remarks

Targets within local land use PPPs were usually considered rather qualitatively, including, for example, a general intention to reduce certain emissions. Furthermore, a number of restrictions were included, such as the use of a certain proportion of brown-field sites or the location of transport infrastructure at certain distances away from residential or protection areas. SEAs in EVR Brandenburg-Berlin (landscape plans, *Landschaftspläne*) proposed compensation for expected land use impacts (according to the Federal Environment Protection Act, *Bundesnaturschutzgesetz*).

Figure 8.21 portrays the extent to which local land use PPPs considered emission and land use targets in a general and in a transport specific manner. Significantly more

general and transport specific targets were considered in EVR Brandenburg-Berlin than in the other two regions (P<.01). This is explained mainly by the larger extent of SEA application in EVR Brandenburg-Berlin (see also section 8.2.2). Furthermore, it was found that in North West England, PPPs with SEA considered 'emission' targets to a significant larger extent than PPPs without SEA (P<.05).

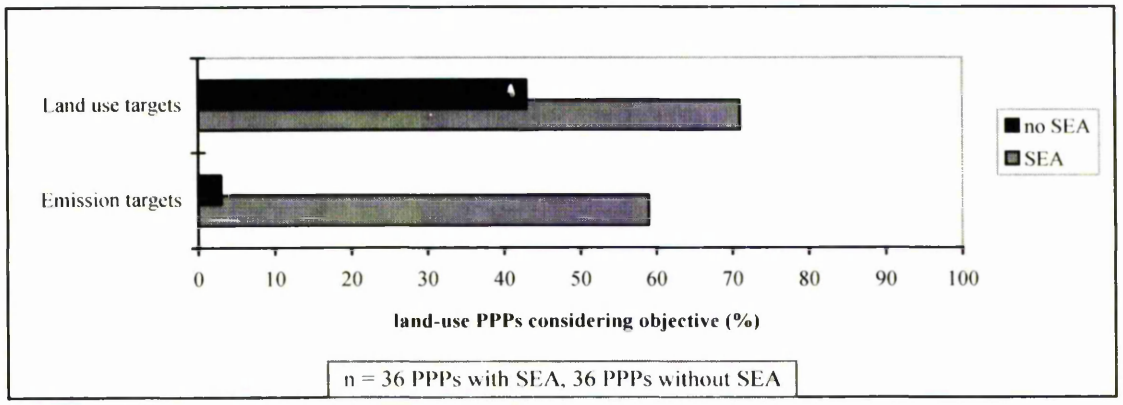
Figure 8.21: Sustainability targets considered in local land use PPPs



SEA application

Figure 8.22 portrays the influence of SEA on the extent to which sustainability targets were considered in local land use PPPs. SEA was indeed able to improve performance and there was significant correlation for SEA with both emission targets (P<.01) and land use targets (P<.05).

Figure 8.22: SEA application and the consideration of sustainability targets in local land use PPPs



8.4 Measures for sustainability

This section describes and analyses the measures proposed in PPPs in order to meet previously defined sustainability objectives and targets. Similar to the previous sections, it deals firstly with the cross-section of PPPs (interview results) and secondly with local land use PPPs (postal questionnaire results).

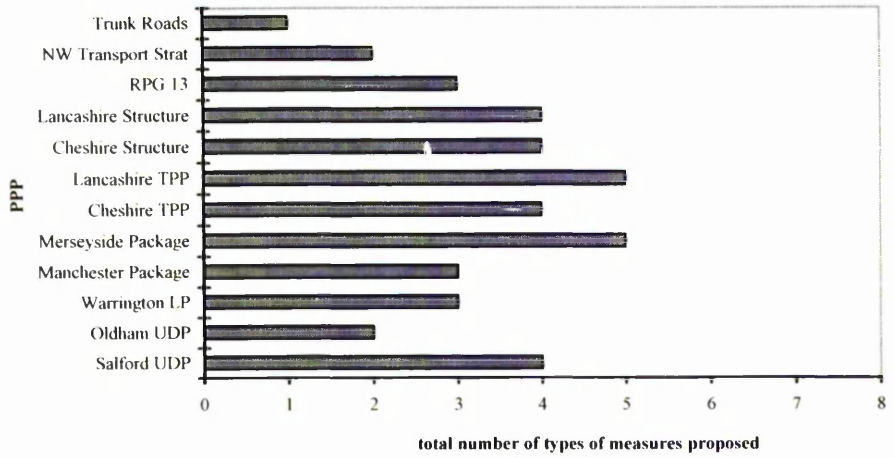
8.4.1 Cross-section of PPPs

General remarks

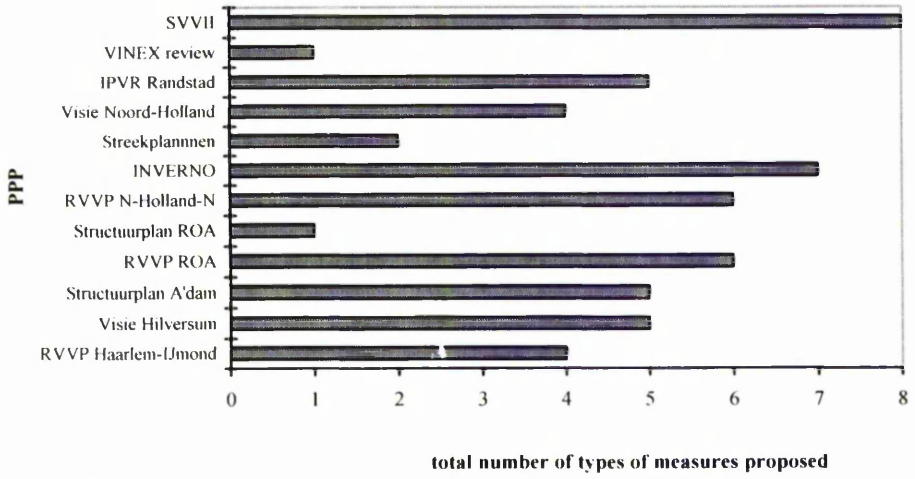
Figure 8.23 shows the total numbers of measures proposed in the cross-section of PPPs. Two PPPs considered all eight measures, namely the Integrated Transport Plan (*IVP*) Brandenburg and the Second Transport Structure Plan (*SVVII*), both of which were policy-SEAs. Seven measures were proposed in the Integrated Transport Plan *INVERNO*. On average, 4.5 measures were proposed in Noord-Holland PPPs, 3.4 measures in EVR Brandenburg-Berlin PPPs and 3.3 measures in North West England PPPs (of the total maximum number of eight measures).

Figure 8.23: Total number of sustainability measures considered in the PPPs

(1) North West England



(2) Noord-Holland



(3) EVR Brandenburg-Berlin

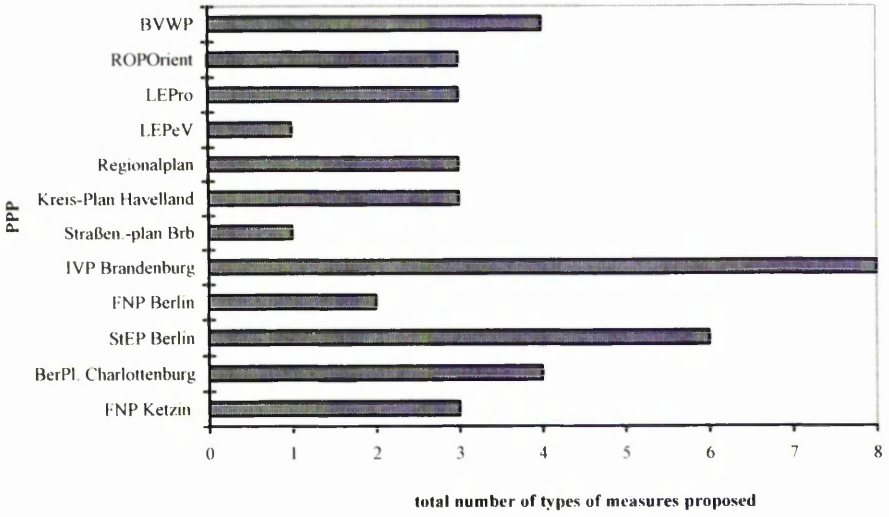
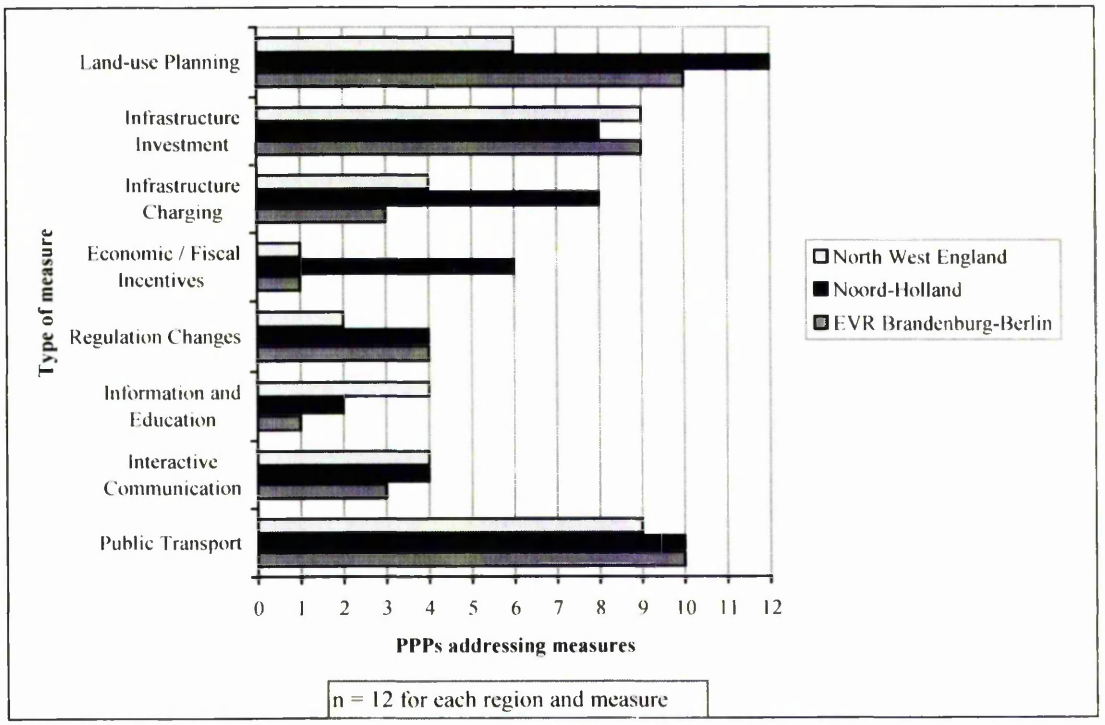


Figure 8.24 shows the number of individual sustainability measures considered in each of the three sample regions. Out of a total possible number of 96 measures (i.e. 12 PPPs and eight possible measures for each region), 54 were set in Noord-Holland, 42 in EVR Brandenburg-Berlin and 39 in North West England. 'Public transport' was the measure that was most frequently considered, namely in 29 of the 36 PPPs, including 10 PPPs in each of Noord-Holland and EVR Brandenburg-Berlin and nine PPPs in North West England. 'Public transport' included measures on service, infrastructure and fares. Furthermore, 'land use planning' and 'infrastructure investment' were frequently considered.

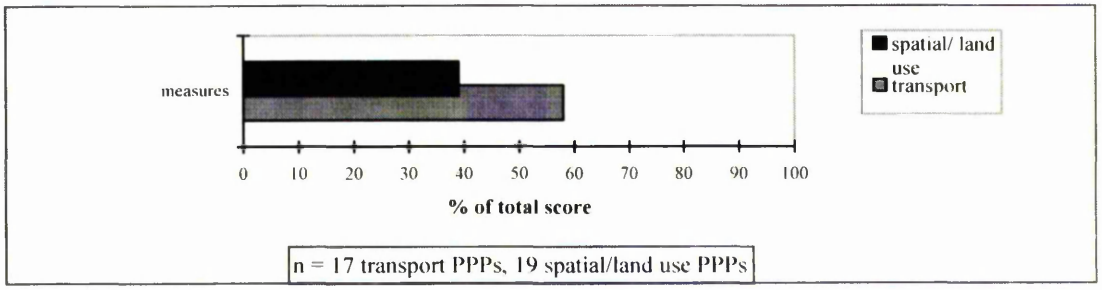
Figure 8.24: The Consideration of sustainability measures in the cross-section of PPPs



Noord-Holland PPPs considered 'land use planning' ($P<.01$) and 'economic incentives' ($P<.05$) to a significantly larger extent than North West England PPPs. Furthermore, Noord-Holland PPPs considered 'infrastructure charging' ($P<.05$) and 'economic incentives' ($P<.05$) to a significantly larger extent than EVR Brandenburg-Berlin PPPs. The main reason of the better performance of Noord-Holland PPPs was the large extent of policy-SEA application and the consideration of environmental policy plans (*NMPs*) at all administrative levels.

Figure 8.25 shows the consideration of measures in spatial/land use PPPs and transport PPPs. On average, transport PPPs considered significantly more sustainability measures than spatial/land use PPPs (P<.05). Three sustainability measures were considered to a significantly larger extent in transport PPPs than in spatial/land use PPPs, namely 'interactive communication' (P<.01), 'infrastructure investment' (P<.01) and 'infrastructure charging' (P<.01). This could be expected, as all three measures are clearly transport related. 'Land use planning' (P<.01), on the other hand, was considered to a significantly larger extent in spatial/land use PPPs.

Figure 8.25: Sustainability measures in spatial/land use and transport PPPs



SEA application

Figure 8.26 shows the extent to which sustainability measures were considered in PPPs with SEA and PPPs without SEA. PPPs with SEA considered significantly more measures than PPPs without SEA (P<.05). This is partially explained by a more extensive consideration of sustainability measures in those PPPs that involved the preparation of policy-SEA. Those measures that were considered to a significantly larger extent in PPPs with SEA include 'infrastructure charging' (P<.05) and 'economic/fiscal incentives' (P<.05), both of which were policy oriented measures that were, in particular, considered in policy-SEA.

Figure 8.26: Sustainability measures and SEA application

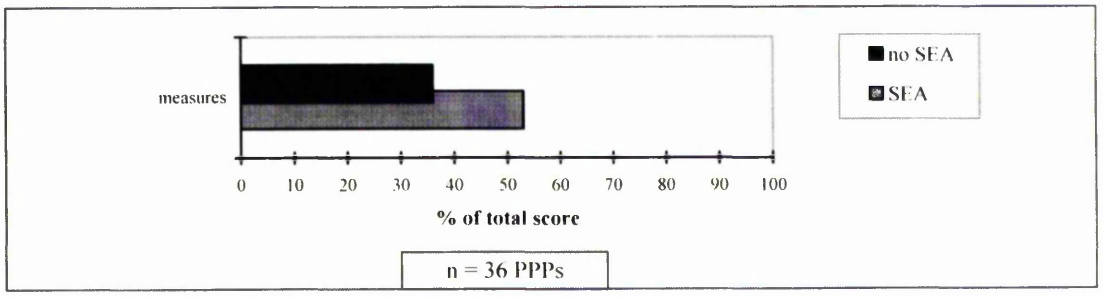
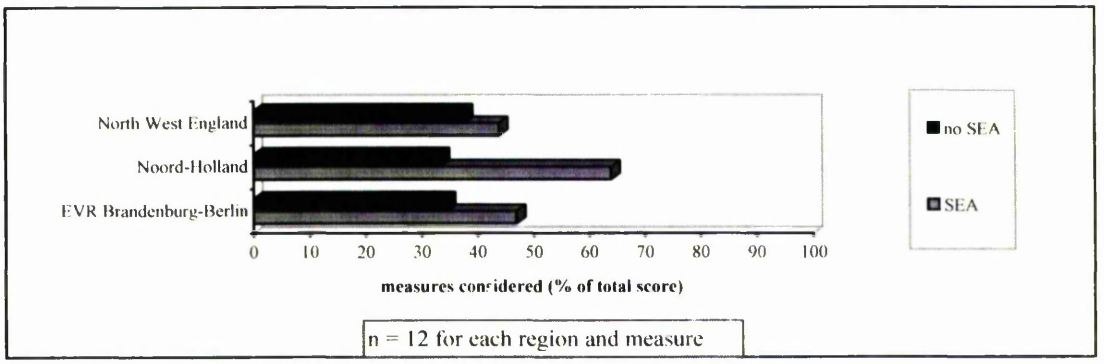


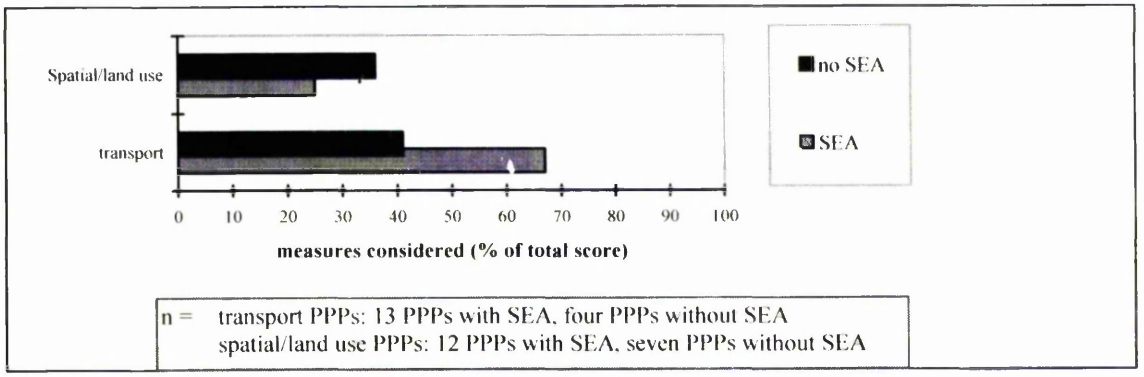
Figure 8.27 shows differences between the three sample regions. In contrast to sustainability objectives and targets, SEA had a positive effect on the consideration of sustainability measures in all three regions. Differences, however, were not statistically significant. Largest differences were observed in Noord-Holland and smallest differences were found in North West England. Differences were mainly explained by the extent to which policy-SEA was applied. This is further discussed below.

Figure 8.27: The impact of SEA on the consideration of sustainability measures



Regarding the differences between transport and spatial/land use PPPs, Figure 8.28 shows that SEA was more effective in transport PPPs than in spatial/land use PPPs. Whilst SEA in transport PPPs led to the consideration of a significant larger number of sustainability measures ($P<.05$), there were no significant differences for spatial/land use PPPs. The observed patterns are explained by the greater extent of policy-SEA application in the transport sector.

Figure 8.28: The impact of SEA on the consideration of sustainability measures for the sectors

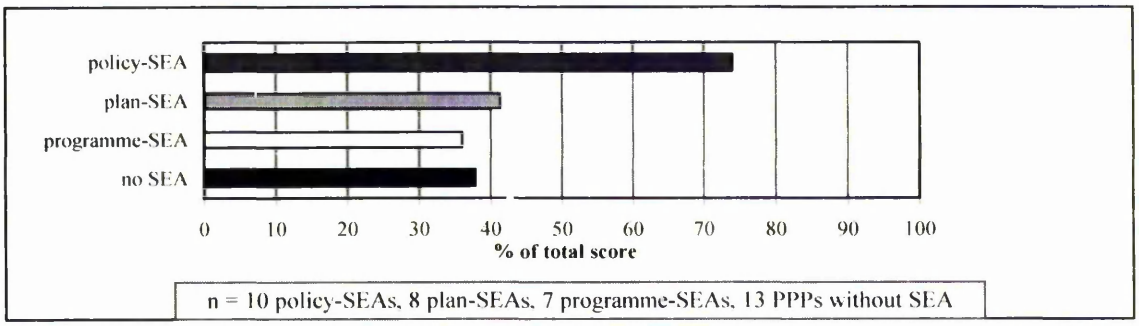


SEA types

Figure 8.29 shows differences of the consideration of sustainability measures for PPPs involving one of the three SEA types and for PPPs not involving SEA at all. Differences were statistically significant for the PPPs involving policy-SEA with PPPs involving plan-SEA (P<.01), programme-SEA (P<.01) and PPPs not involving SEA at all (P<.01).

Regarding individual sustainability measures, PPPs with policy-SEA considered two measures significantly more frequently than PPPs with plan-SEA and programme-SEAs, including 'infrastructure charging' (P<.01) and 'economic incentives' (P<.01 and P<.05). This is not unexpected, as both measures were policy-oriented and eight of the 10 policy-SEAs, but none of the plan-SEAs, were undertaken for transport PPPs. Plan-SEA considered 'land use measures' to a larger extent than policy-SEA and programme-SEA (P<.01). 'Economic and fiscal incentives' were considered significantly more frequently in PPPs with policy-SEA than in PPPs with plan-SEA (P<.01) and PPPs without SEA (P<.01).

Figure 8.29: Measures considered in the three SEA types and in PPPs without SEA



8.4.2 Local land use PPPs

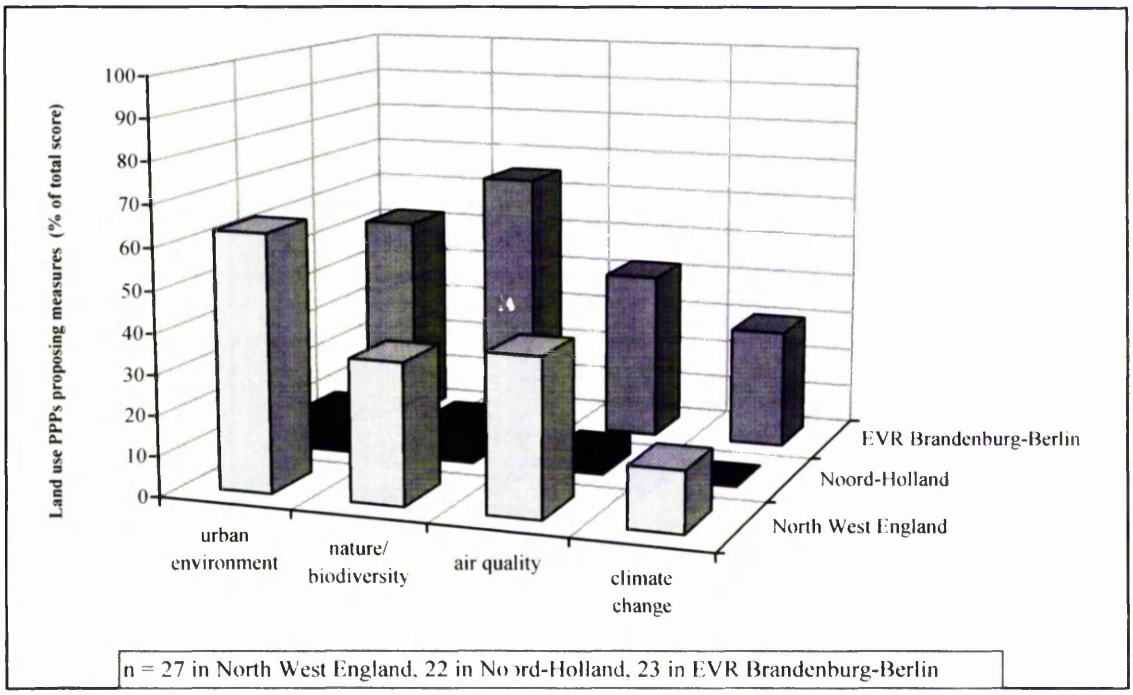
General remarks

Figure 8.30 shows the number of local land use PPPs that considered measures for addressing the four sustainability objectives 'climate change', 'air quality', 'nature/biodiversity' and 'urban environment'. Measures for improving the urban environment were most frequently mentioned. Whilst EVR Brandenburg-Berlin PPPs considered all four measures significantly more frequently than Noord-Holland PPPs (P<.01), North West England PPPs considered three measures to a significantly larger

extent than Noord-Holland's PPPs, namely 'urban environment' (P<.01), 'nature/biodiversity' (P<.05) and 'air quality' (P<.01). Furthermore, EVR Brandenburg-Berlin PPPs considered significantly more 'nature/biodiversity' measures than North West England PPPs (P<.05). The main reasons for regional differences are the larger application of SEA in EVR Brandenburg-Berlin and in North West England and the different planning approaches in the three regions (see also section 8.2.2).

Authorities that specified measures, mostly mentioned land use measures (eight in North West England, two in Noord-Holland and 10 in EVR Brandenburg-Berlin). Furthermore, infrastructure investment and public transport measures were frequently mentioned. In North West England, education and information measures were also proposed.

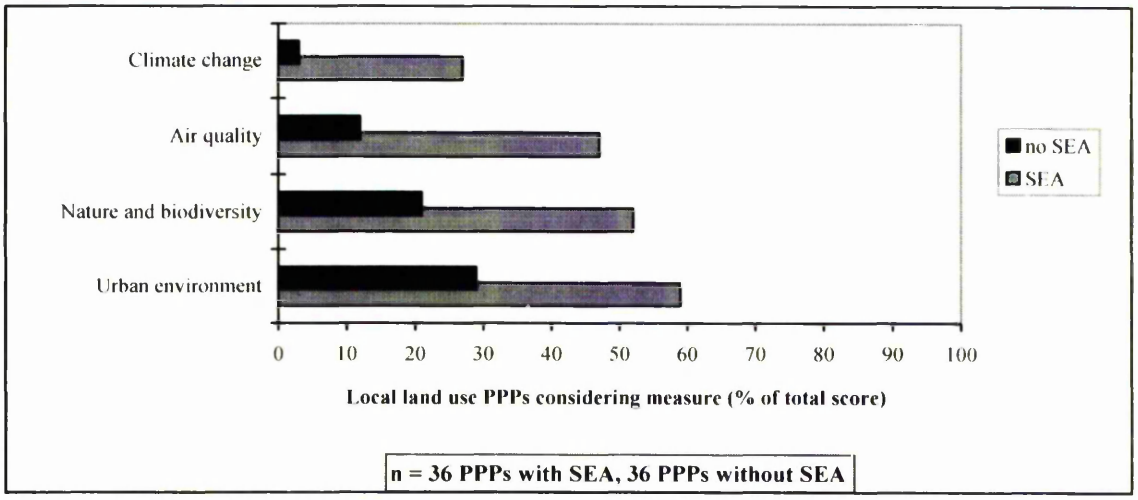
Figure 8.30: Measures considered in local land use PPPs



SEA application

Figure 8.31 shows the effect SEA had on the extent to which sustainability measures were considered in local land use PPPs. Differences for PPPs with SEA and for PPPs without SEA were significant for all four aspects (P<.01).

Figure 8.31: SEA and the consideration of sustainability measures in local land use PPPs



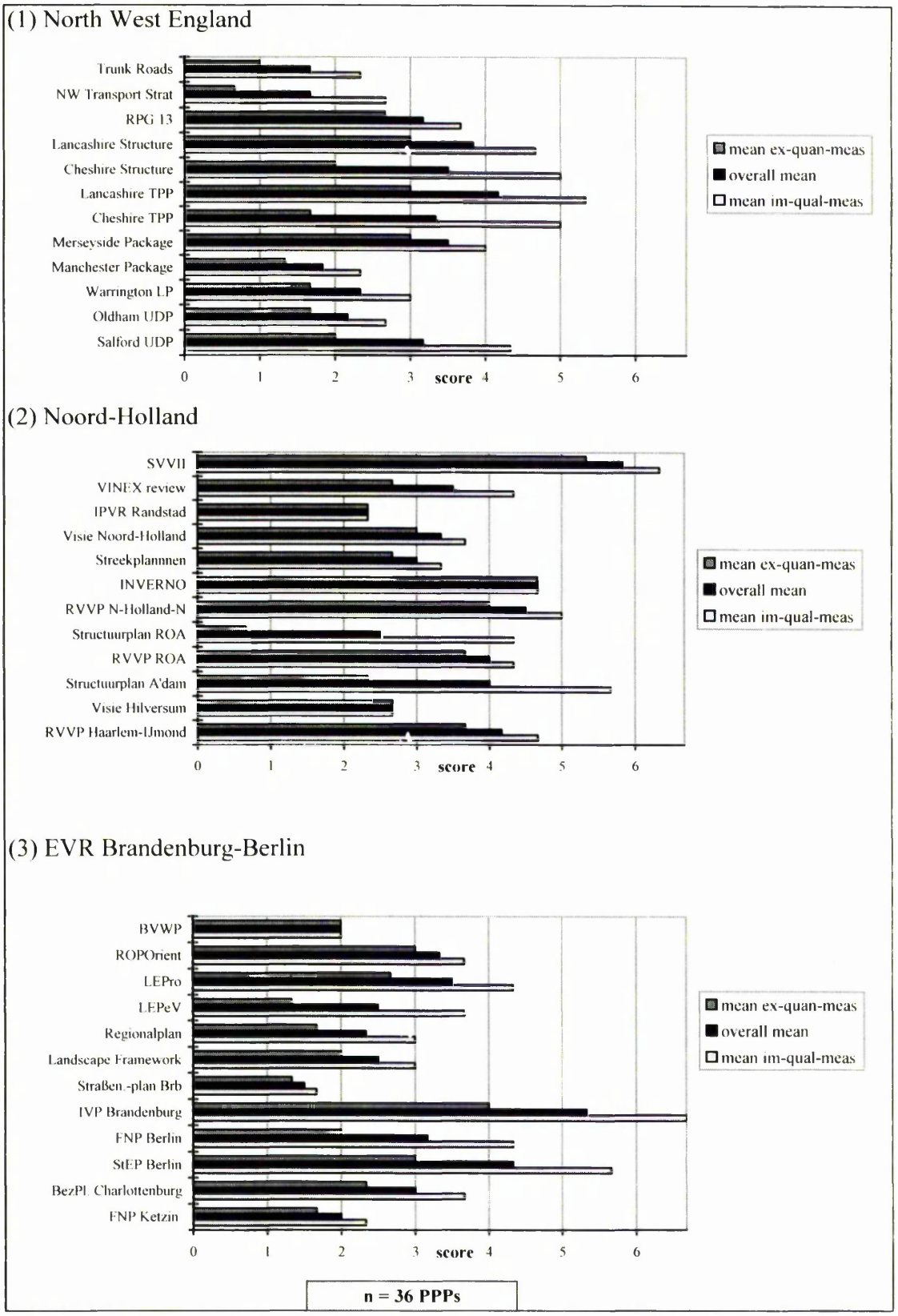
8.5 Overall evaluation of sustainability objectives, targets and measures

Individual PPPs

Figure 8.32 shows the overall sustainability scores for the individual PPPs. The overall sustainability scores are calculated by summing up explicit objectives, explicit targets and measures and adding 50% of the values for implicit objectives and implicit targets. The sum is divided by three, resulting in a total possible score of 6.67 (7 objectives+5 targets+8 measures/3).

Noord-Holland PPPs on average obtained the highest and North West England PPPs the lowest sustainability scores. The highest sustainability scores were obtained by the Second Transport Structure Plan (*SVVII*) and the Integrated Transport Plan (*IVP*) Brandenburg. The highest score in North West England was obtained by the Lancashire TPP.

Figure 8.32: Sustainability scores for the individual PPPs



'mean im-qual-meas':	**mean value of all (explicit and implicit) objectives, targets and measures**
'mean ex-quan-meas':	**mean value of explicit objectives, quantitative targets and measures**
'overall mean':	**overall sustainability score**

Table 8.3 shows the overall scores to be used in statistical analysis (derived from Figure 8.32). Scores vary between 1.5 (23%) (Road Development Plan, *Landesstraßenbedarfsplan* Brandenburg) and 5.8 (87%) (*SVVII*) of the total score.

Table 8.3: Overall ranking and evaluation for all PPPs

PPPs / PPP variables	Sustainability score	Evaluation
Trunk Roads Programme	1.7	○ (26%)
North West Transport Strategy	1.7	○ (26%)
Regional Planning Guidance RPG 13	3.2	○ (48%)
Lancashire Structure Plan	3.8	⊙ (57%)
Cheshire Structure Plan	3.5	⊙ (53%)
Lancashire TPP	4.2	⊙ (63%)
Cheshire TPP	3.3	⊙ (50%)
Merseyside Package Bid	3.5	⊙ (53%)
Greater Manchester Package Bid	1.8	○ (27%)
Warrington Local Plan	2.3	○ (35%)
Oldham Unitary Development Plan	2.2	○ (33%)
Salford Unitary Development Plan	3.2	○ (48%)
Second Transport Structure Plan (*SVVII*)	5.8	● (87%)
National Spatial Plan (*VINEX*) - review	3.5	⊙ (53%)
Interprovincial Urbanisation Vision (*IPVR*)	2.3	○ (35%)
Development Vision (*Ontwikkelingsvisie*) Noord Holland	3.3	○ (50%)
Regional Plans (*Streekplannen*)	3.0	○ (45%)
Integrated Transport Vision Randstad North (*INVERNO*)	4.7	⊙ (70%)
Transport Plan (*RVVP*) Noord-Holland-Nord	4.5	⊙ (67%)
Structure Plan (*Structuurplan*) ROA	[illegible]	○ (38%)
Transport Plan (*RVVP*) ROA	4.0	⊙ (60%)
Structure Plan (*Structuurplan*) Amsterdam	4.0	⊙ (60%)
Future Vision (*Toekomstvisie*) Hilversum	2.7	○ (41%)
Transport Plan (*RVVP*) Haarlem-IJmond	4.2	⊙ (63%)
Federal Transport Infrastructure Plan (*BVWP*)	2.0	○ (30%)
Spatial Orientation Framework (*RopOrient*)	3.3	○ (50%)
Land Development Programme (*LEPro*)	3.5	⊙ (53%)
Land Development Plan EVR Brb (*LEPeV*)	2.3	○ (35%)
Regional Plan (*Regionalplan*) Havelland-Fläming	2.3	○ (35%)
Development Concept (*Kreisentwicklungskonzept*) Havelland	2.5	○ (38%)
Road Development Plan (*Landesstraßenplan*) Brandenburg	1.5	▫ (23%)
Integrated Transport Plan (IVP) Brandenburg	5.3	● (80%)
Local Land Use Plan (*FNP*) Berlin	3.3	○ (50%)
City Development Plan (*StEP*) Transport Berlin	4.3	⊙ (65%)
District Development Plan (*Bereichsplan*) Charlottenburg	[illegible]	○ (45%)
Local Land Use Plans (*FNPs*) Ketzin	2.0	○ (30%)

SEA type 1 | SEA type 2 | SEA type 3 | no SEA

Overall evaluation:

■/□ = 100%

●/◐ = 75% to under 100%

⊙/◉ = 50% to under 75%

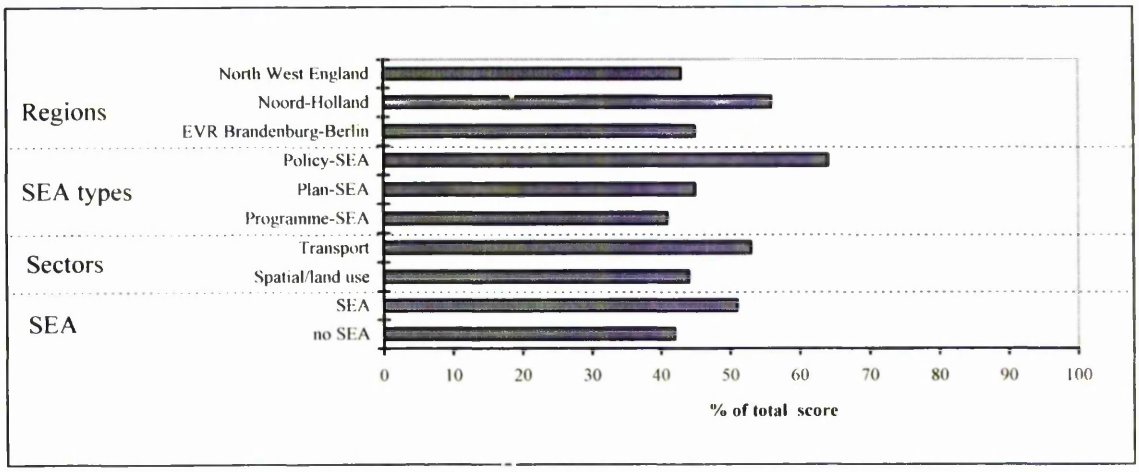
○/◯ = 25% to under 50%

▫/▪ = 0% to under 25%

Regions, SEA types, sectors and general SEA application

Figure 8.33 shows the average scores for the regions, SEA types, sectors and SEA application. It is found that Noord-Holland obtained a significant higher sustainability score than North West England (P<.05). Even though those PPPs with SEA obtained slightly higher scores than the PPPs without SEA, differences failed to be statistically significant. Differences between transport and spatial/land use PPPs were not significant, either. Regarding the differences between the SEA types, PPPs involving policy-SEA obtained significantly higher scores than PPPs involving plan-SEAs (P<.01) and programme-SEA (P<.01) and those not involving SEA at all (P<.01).

Figure 8.33: Overall average scores for the regions, SEA types, sectors and PPPs with SEA and without SEA



Regarding local land use PPPs, only regional differences were compared, as 34 of the 35 SEAs were plan-SEAs. EVR Brandenburg-Berlin and North West England considered significantly more sustainability aspects than Noord-Holland PPPs (P<.01). Furthermore, those PPPs with SEA obtained significantly higher scores than PPPs without SEA (P<.01).

Only few of the explanatory variables were found to be significantly correlated with the overall sustainability score. Most importantly, there was significant correlation with the extent to which the associated PPP considered intermodal alternatives (P<.01). Furthermore, the extent to which the associated PPPs covered procedural stages explained overall sustainability scores (P<.05). This underlines the importance for an

integrated PPP/SEA process in support of sustainable development, as presented in Figure 1.1.

8.6 Summary

PPPs considered sustainability objectives to a larger extent than sustainability targets and measures. Sustainability objectives and targets that were particularly well considered include the 'urban environment', 'nature/biodiversity' and 'emission levels' and 'land use' targets. Those measures that were most frequently proposed in PPPs included 'land use planning', 'infrastructure investment' and 'public transport'.

Regarding the cross-section of PPPs at all administrative levels, if all objectives and targets (explicit and implicit) were considered, results for the three sample regions were similar. Explicit objectives and targets, however, were more extensively considered in Noord-Holland than in the other two regions. SEA application for the cross-section of PPPs did not lead to a significantly better consideration of sustainability objectives and targets. It was, however, able to lead to a better consideration of sustainability measures.

The three SEA types had different effects on the consideration of sustainability aspects. Policy-SEA usually led to a significantly better consideration of sustainability aspects than plan-SEA and programme-SEA. Furthermore, SEA application tended to be more successful in transport PPPs than in spatial/land use PPPs. Thus, in transport PPPs, SEA was able to lead to a better consideration of explicit objectives and targets.

SEA application in local land use PPPs was clearly able to lead to a better consideration of sustainability aspects. Whilst 21 of the 23 local land use PPPs in EVR Brandenburg-Berlin involved SEA application, only one of the 22 local land use PPPs in Noord-Holland did so. In contrast to the cross-section of PPPs, EVR Brandenburg-Berlin local land use PPPs considered the largest number of sustainability aspects and the performance of Noord-Holland local land use PPPs was particularly poor.

A number of explanations were provided for the observed patterns. The procedural coverage was able to explain the overall extent to which sustainability aspects were considered. In addition, a better consideration of intermodal aspects in the PPP was

accompanied by a better consideration of environmental sustainability objectives, targets and measures.

The 'society consensus-led quasi top-down' planning approach in the Netherlands led to a better consideration of sustainability aspects for the cross-section of PPPs than the centrally guided plan making approach in North West England and the public administration consensus-led, counter-current approach in EVR Brandenburg-Berlin. For local land use plans, however, North West England and EVR Brandenburg-Berlin PPPs scored higher than Noord-Holland PPPs.

9 Potential benefits from SEA application

Chapter 9 refers to research objective 5 and 'determines the extent to which SEA results in the potential SEA benefits'. For this purpose, the evaluation framework provided in section 3.4 is used. Interview results are presented for the cross-section of PPPs that were identified in chapter 5. Chapter 9 is divided into nine sections. Section 9.1 provides an overall picture of the extent to which current assessment practice results in the five potential SEA benefits. Sections 9.2 to 9.7 describe, analyse and explain these benefits in further detail. Section 9.8 determines the extent to which those aspects were met, required by the EC 'SEA directive proposal'. Section 9.9 summarises the main results of this chapter.

9.1 Overall picture

Figure 9.1 shows the extent to which assessments in the three sample regions resulted in the five potential SEA benefits (Annex 4 shows how these results were achieved). Included were seven SEAs from North West England and nine SEAs, from each of Noord-Holland and EVR Brandenburg-Berlin. Whilst SEAs scored comparatively well for the potential benefit 5 'consultation and participation on SEA related issues' (80% of the total score), SEAs scored comparatively poorly for the potential benefit 3 'strengthening project EIA - increasing efficiency of tiered decision making' (44% of the total score). The second highest score was reached by benefit 2 'pro-active assessment - SEA as a supporting tool for PPP formulation for sustainable development' (64% of the total score). The remaining potential SEA benefits 1 'wider consideration of impacts and alternatives' and 4 'systematic and effective consideration of the environment at higher tiers of decision making' obtained 59% and 58% of the total scores, respectively.

Figure 9.1: Extent to which SEAs for the cross-section of PPPs result in the potential SEA benefits

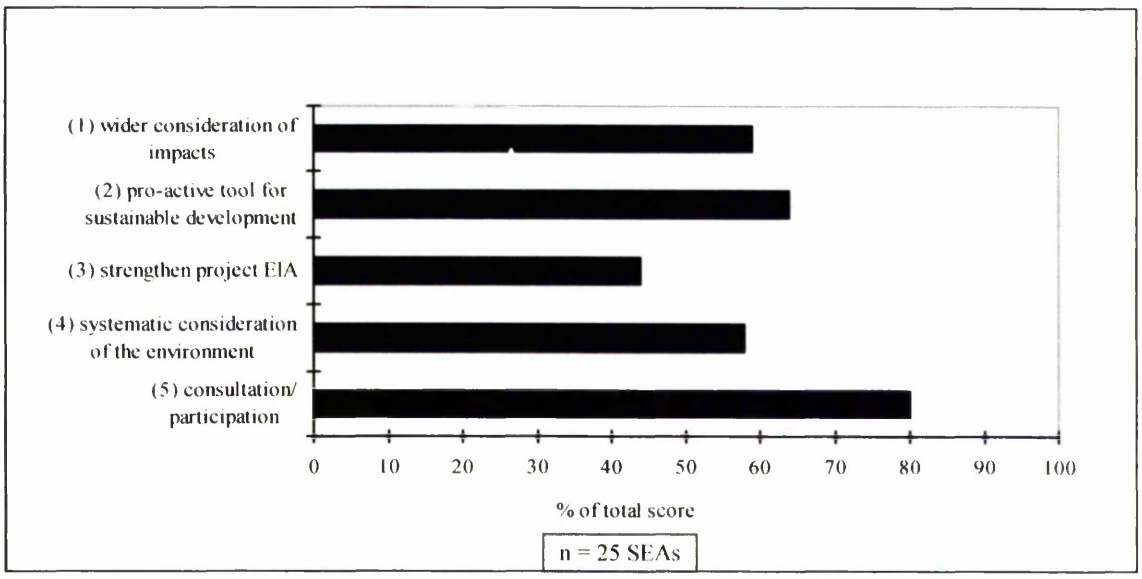
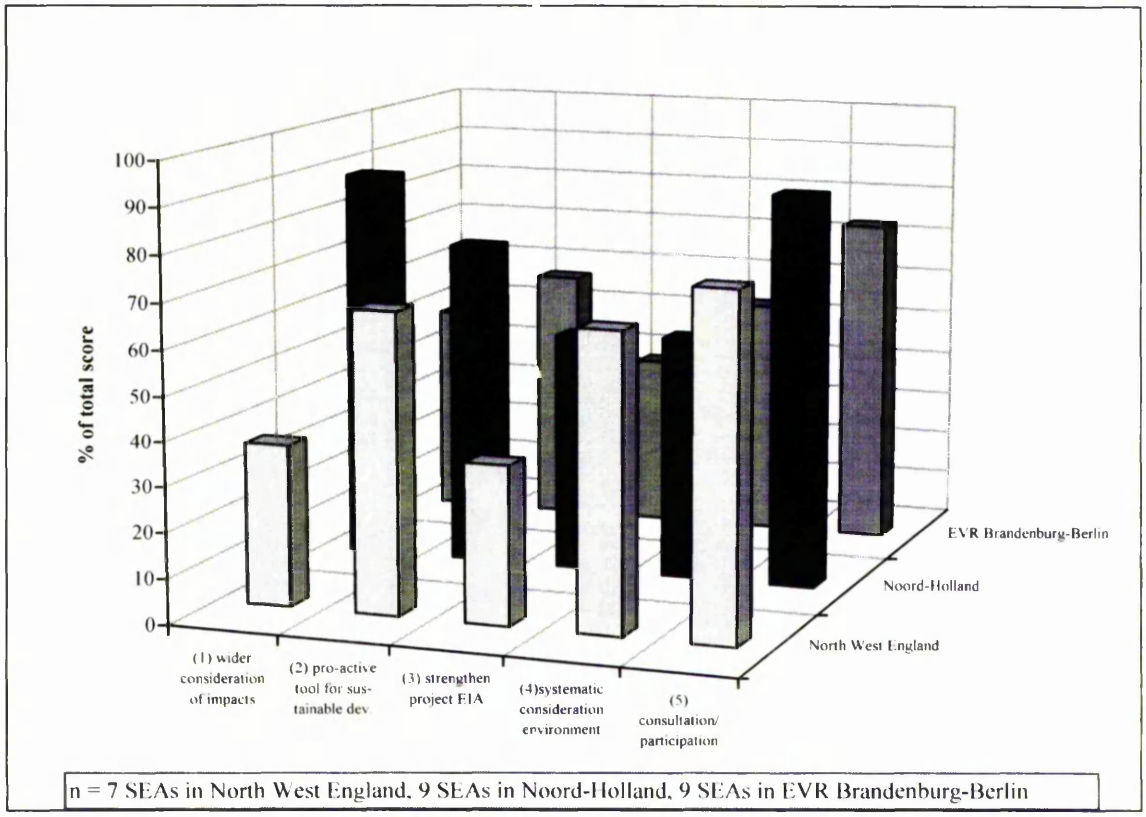


Figure 9.2 shows the average scores for the five potential SEA benefits in the three sample regions. For the potential benefit 1 'wider consideration of impacts and alternatives', Noord-Holland SEAs scored significantly higher than North West England SEAs (P<.01) and EVR Brandenburg-Berlin SEAs (P<.05). As will be shown later, this is mainly caused by the large number of policy-SEAs applied in this region. For the potential benefit 2 'pro-active assessment - SEA as a supporting tool for PPP formulation for sustainable development', EVR Brandenburg-Berlin SEAs scored significantly lower than the SEAs in North West England (P<.05) and in Noord-Holland (P<.01). This is explained by a low extent of public participation at higher tiers and a comparatively large number of programme-SEAs in the cross-section of PPPs in EVR Brandenburg-Berlin. For the potential SEA benefit 3 'strengthening project EIA - increasing efficiency of tiered decision making', Noord-Holland SEAs scored significantly higher than North West England PPPs (P<.05) and EVR Brandenburg-Berlin (P<.05). This was mainly due to the ability of Noord-Holland SEAs to assess different issues from project EIA and to substitute project EIA partly or altogether. For the remaining potential benefits 4 'systematic and effective consideration of the environment at higher tiers of decision making' and 5 'consultation and participation on SEA related issues', differences between the three regions were not significant.

Figure 9.2: Regional average scores by potential SEA benefit



The overall SEA benefits score was significantly correlated with the context variable 'PPP intermodality' (P<.05)(see section 2.3.3). This is explained by the comparatively good performance of policy-SEA, which inherently considered intermodal aspects. There was also significant correlation of the overall SEA benefits score with three SEA variables, namely 'SEA methods and techniques' (P<.01), 'SEA procedure' (P<.01) and the 'quantitative assessment' (P<.05) of impacts. It is therefore suggested that a comprehensive and extensive SEA process, involving impact maps and calculating impact magnitudes is able to result well in potential SEA benefits. Consultation (P<.01), public participation (P<.01) and initiation stages (scoping)(P<.05) had a particular importance for the overall potential SEA benefits score.

9.2 Wider consideration of impacts and alternatives

This section describes, analyses and explains the results for the potential SEA benefit 1 'wider consideration of impacts and alternatives'. It is divided into two sub-sections, one of which deals with regional characteristics and the other one with SEA-type and sectoral characteristics.

The extent to which SEAs resulted in the potential benefit 1 was significantly negatively correlated with the context variable 'PPP relevance' ($P<.05$)(see section 2.3.3). The more a PPP was statutory, mandatory and binding for further planning, the less likely the associated SEA was therefore to consider a wider range of impacts and alternatives. This is possibly explained by a reluctance of PPP makers to consider more impacts and alternatives than necessary as opposition and delays in PPP preparation are expected, caused by the NIMBY (not in my backyard)-phenomenon (see section 1.2). There was significant correlation between the 'consideration of impacts and alternatives' with the extent to which SEA methods and techniques were applied ($P<.01$) and the coverage of SEA procedural stages ($P<.05$). A greater extent of the coverage of SEA procedural stages and the widespread use of methods and techniques therefore led to a wider consideration of impacts and alternatives. Consideration of scenarios and expert consultation were significantly correlated with the potential SEA benefit 1 ($P<.01$).

9.2.1 Regional characteristics

Table 9.1 shows the overall scores for the individual SEAs. It is observed that Noord-Holland PPPs scored significantly higher than both North West England PPPs ($P<.01$) and EVR Brandenburg-Berlin PPPs ($P<.05$). Subsequently, regional characteristics are described in further detail.

North West England

Six of the seven SEAs in North West England scored poorly, with four SEAs obtaining scores of between 25% and 50% and two SEAs obtaining the lowest score of under 25%. Only the underlying integrated transport strategy of the Merseyside Package Bid, the only policy-SEA in the region, received 100% of the total score. It was the only SEA in North West England that considered PPP-wide, cumulative impacts, impacts on transport, intermodal alternatives and the zero alternative. The low scores obtained by the four environmental appraisals are explained by a failure to include accumulated or global effects in the guidance used by the authorities to conduct SEA (DoE, 1993). The evaluation matrices for the transport programme-SEAs only considered project related impacts (following DoT, 1995).

Table 9.1: SEA specific evaluation of the potential SEA benefit 'wider consideration of impacts and alternatives'

North West England (average score)	36%
Environmental Appraisal for the Lancashire Structure Plan	○
Environmental Appraisal for the Cheshire Structure Plan	○
Cheshire TPP	▫
Merseyside Package Bid	▫
Merseyside Package Bid underlying strategy	■
Environmental Appraisal for the Warrington Local Plan	○
Environmental Appraisal for the Oldham UDP	○
Noord-Holland (average score)	**88%**
Second Transport Structure Plan (*SVVII*)	■
SEA for the National Spatial Plan (*VINEX*) review	⊙
Vision (*visie*) Noord-Holland	●
Transport Plan (*RVVP*) INVERNO	■
Transport Plan (*RVVP*) Noord-Holland-Noord	■
Transport Plan (*RVVP*) ROA	■
Environment Matrix (*milieumatrix*) for the Structure Plan Amsterdam	⊙
Vision (*visie*) Hilversum	●
Transport Plan (*RVVP*) Haarlem-IJmond	■
EVR Brandenburg-Berlin (average score)	**48%**
Federal Transport Infrastructure Plan (*BVWP*)	○
Ecological Risk Assessment (*ökologische Risikoanalyse*) for the *BVWP*	⊙
Landscape Framework Plan (*Landschaftsrahmenplan*) Havelland-Fläming	▫
Road Development Plan (*Landesstraßenbedarfsplan*) Brandenburg	○
Integrated Transport Plan (*IVP*) Brandenburg	■
Ecological Conflict Analysis for the Land Use Plan (*FNP*) Berlin	○
Landscape Programme (*Landschaftsprogramm*) for the *FNP* Berlin	▫
Integrated Transport Plan (*StEP*) Berlin	■
Landscape Plan (*Landschaftsplan*) for the Land Use Plan (*FNP*) Ketzin	⊙

policy-SEA plan-SEA programme-SEA

Overall evaluation:

■ = 100%

● = 75% to under 100% of total score

⊙ = 50% to under 75% of total score

○ = 25% to under 50% of total score

▫ = 0% to under 25% of total score

Noord-Holland

Noord-Holland SEAs on average scored higher than the SEAs in the other two regions, which was mainly caused by the large number of policy-SEAs. The maximum score was reached by five of the nine SEAs, all of which were transport policy-SEAs. Furthermore, two SEAs obtained high scores of between 80% and 100%, namely the spatial/land use policy-SEAs, the visions Noord-Holland (*ontwikkelingsvisie*) and Hilversum (*toekomstvisie*). The lowest score in Noord-Holland was obtained by the Environment Matrix (*milieumatrix*) Amsterdam, not considering any PPP-wide cumulative impacts, scenarios, the zero alternative and intermodal alternatives.

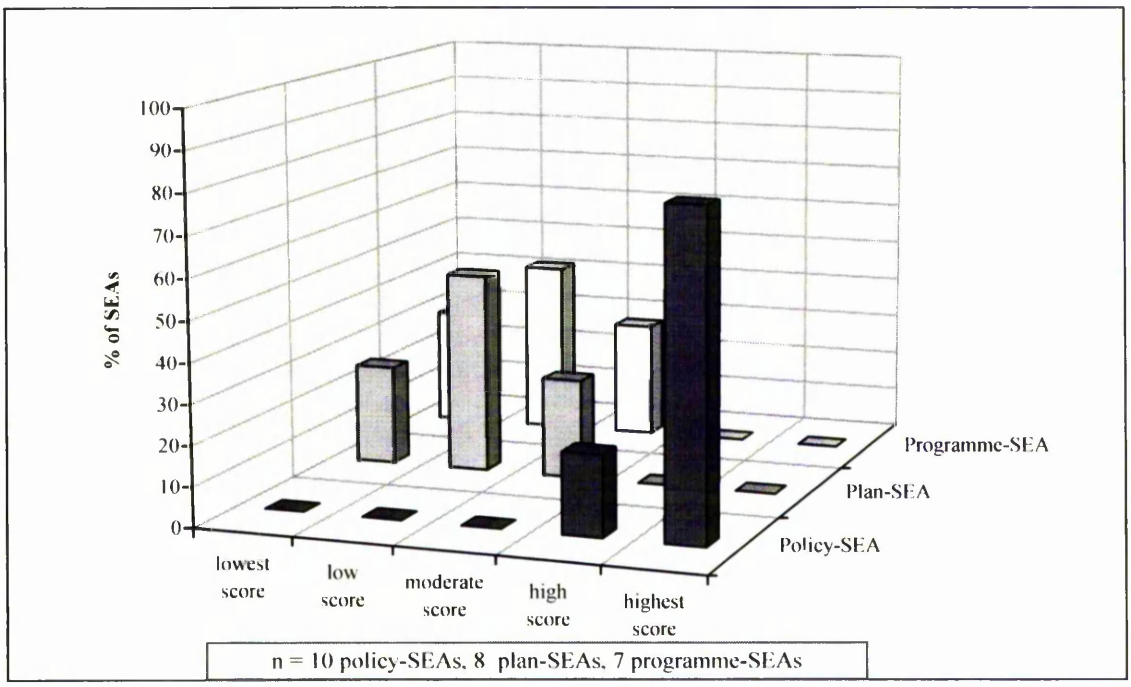
EVR Brandenburg-Berlin

Two SEAs in EVR Brandenburg-Berlin obtained the maximum score, namely the transport policy-SEAs in the region, *IVP* Brandenburg and *StEP* Berlin. Two SEAs obtained moderate scores of between 50% and 75% and three SEAs obtained scores of between 25% and 50%, which were all programme-SEAs. The two SEAs that obtained the lowest score of under 25% were plan-SEAs, namely the Landscape Framework Plan (*Landschaftsrahmenplan*) Havelland-Fläming and the Landscape Programme (*Landschaftsprogramm*) Berlin. Neither of these directly assessed impacts, but defined environmental development objectives, and provided PPP makers with land suitability maps, thus acting as instruments of the precautionary principle (see Table 6.1).

9.2.2 SEA type and sectoral characteristics

Figure 9.3 shows the results for the potential SEA benefit 1 'wider consideration of impacts and alternatives' for the three SEA types. As expected, policy-SEA scored significantly higher than plan-SEA and programme-SEA (P<.01). Eight of the ten policy-SEAs (all transport SEAs) obtained the highest score of 100% and two policy SEAs (both spatial/land use SEAs) obtained high scores of between 75% and 100%.

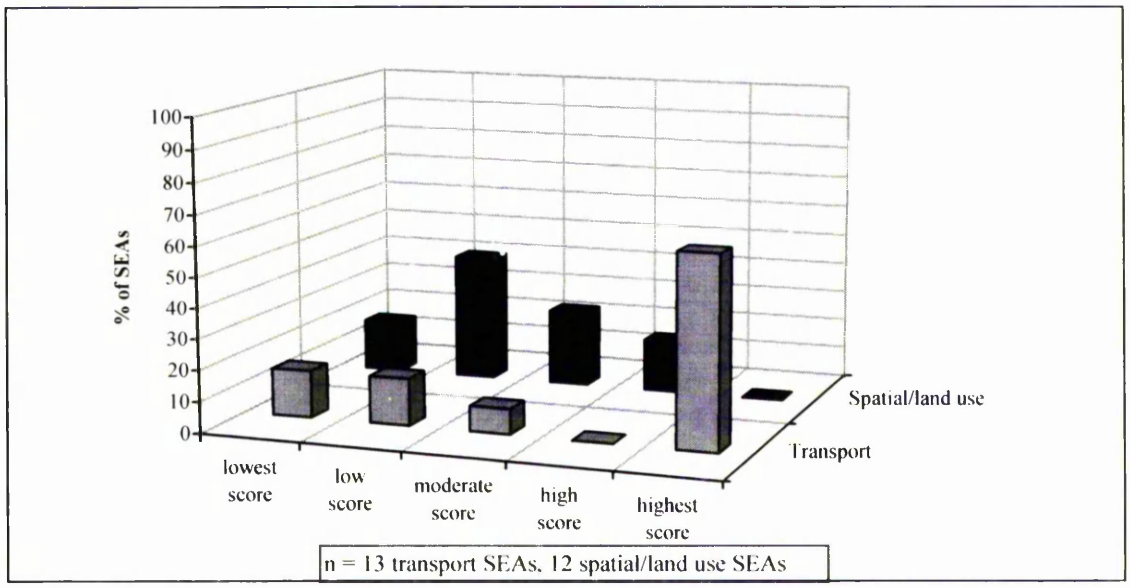
Figure 9.3: SEA-type evaluation for the potential SEA benefit 'wider consideration of impacts and alternatives'



Scores for plan-SEAs and programme-SEAs varied between moderate (50% to 75%) and lowest scores (0% to 25%). The good performance of policy-SEA is mainly explained by a lower 'PPP relevance' (see section 2.3.3). In particular, the unclear connection with project preparation provided PPP makers with the opportunity to regard a much wider range of impacts and alternatives without having to fear public opposition due to NIMBYism (section 1.2).

Figure 9.4 shows sectoral differences for the potential SEA benefit 1. It is observed that transport SEAs scored significantly higher than spatial/land use SEAs (P<.01), which is explained by the larger extent of policy-SEA application in the transport sector. Whilst all transport policy-SEAs obtained the highest score of 100%, transport programme-SEAs obtained only moderate to lowest scores. Furthermore, spatial/land use PPPs with policy-SEA obtained high scores and those with plan-SEA and programme-SEA only obtained moderate to lowest scores.

Figure 9.4: Sector-specific evaluation for the potential SEA benefit 'wider consideration of impacts and alternatives'



9.3 Pro-active assessment, SEA as a supporting tool for PPP formulation for sustainable development

This section describes, analyses and explains the results for the potential SEA benefit 2 'pro-active assessment - SEA as a supporting tool for PPP formulation for sustainable development'. Regional, sectoral and SEA type characteristics are addressed.

Potential SEA benefit scores were significantly correlated with the context variables 'PPP accountability' and 'PPP intermodality' (P<.05) (see section 2.3.3). This underlines the importance of external inputs for being pro-active and supporting PPP formulation for sustainable development. There was also significant statistical correlation with the SEA variable 'SEA procedure' (P<.05), which was to be expected, as both were sharing some same underlying criteria. Thus, the criteria screening, scoping and monitoring were used to describe the potential SEA benefit 2 and they were also part of the variable 'SEA procedure'.

9.3.1 Regional characteristics

Table 9.2 shows the extent to which assessments in the three sample regions resulted in the potential SEA benefit 2. Noord-Holland SEAs obtained the highest average score and EVR Brandenburg-Berlin SEAs obtained the lowest average score. EVR Brandenburg-Berlin SEAs scored significantly lower than the SEAs in North West England (P<.05) and Noord-Holland (P<.01). Subsequently, regional characteristics are described in further detail and reasons are given for the differences.

North West England

The plan-SEAs, environmental appraisals for the Cheshire and Lancashire structure plans, were the only SEAs that obtained high scores of between 75% and 100%. All other SEAs only obtained moderate scores of between 50% and 75%. Screening with external participation was not undertaken in any of the SEAs. Furthermore, monitoring and follow-up were not SEA specific and none of the SEAs were used to structure the PPP process or ran parallel to it.

Noord-Holland

Six of the nine SEAs obtained high scores of between 75% and 100%, five of which were transport policy-SEAs. The only spatial/land use SEA that obtained a high score was the programme-SEA for the National Spatial Plan (*VINEX*) review, which closely followed a project EIA procedure as laid out in the national EIA Decree of 1994. All other SEAs in Noord-Holland only obtained moderate scores of between 50% and 75%. All SEAs were undertaken during the PPP process, except the Transport Environment Map (*verkeersmilieukaart*) ROA, which was undertaken after PPP preparation. The

plan-SEA for the Structure Plan (*structuurplan*) Amsterdam, Environment Matrix (*milieumatrix*), did not include screening, scoping or monitoring and was used for determining land suitability, thus acting as an instrument of the precautionary principle.

Table 9.2: SEA specific evaluation of the potential SEA benefit 'pro-active assessment - SEA as a supporting tool for PPP formulation for sustainable development'

North West England (average score)	67%
Environmental Appraisal for the Lancashire Structure Plan	●
Environmental Appraisal for the Cheshire Structure Plan	●
Cheshire TPP	⦿
Merseyside Package Bid	⦿
Merseyside Package Bid underlying strategy	⦿
Environmental Appraisal for the Warrington Local Plan	⦿
Environmental Appraisal for the Oldham UDP	⦿
Noord-Holland (average score)	**73%**
Second Transport Structure Plan (*SVVII*)	●
SEA for the National Spatial Plan (*VINEX*) review	●
Vision (*visie*) Noord-Holland	⦿
Transport Plan (*RVVP*) INVERNO	●
Transport Plan (*RVVP*) Noord-Holland-Noord	●
Transport Plan (*RVVP*) ROA	●
Environment Matrix (*milieumatrix*) for the Structure Plan Amsterdam	⦿
Vision (*visie*) Hilversum	⦿
Transport Plan (*RVVP*) Haarlem-IJmond	●
EVR Brandenburg-Berlin (average score)	**52%**
Federal Transport Infrastructure Plan (*BVWP*)	○
Ecological Risk Assessment (*ökologische Risikoanalyse*) for the *BVWP*	○
Landscape Framework Plan (*Landschaftsrahmenplan*) Havelland-Fläming	⦿
Road Development Plan (*Landesstraßenbedarfsplan*) Brandenburg	○
Integrated Transport Plan (*IVP*) Brandenburg	⦿
Ecological Conflict Analysis for the Land Use Plan (*FNP*) Berlin	⦿
Landscape Programme (*Landschaftsprogramm*) for the *FNP* Berlin	⦿
Integrated Transport Plan (*StEP*) Berlin	⦿
Landscape Plan (*Landschaftsplan*) for the Land Use Plan (*FNP*) Ketzin	⦿

policy-SEA plan-SEA programme-SEA

Overall evaluation:

■ = 100%

● = 75% to under 100% of total score

⦿ = 50% to under 75% of total score

○ = 25% to under 50% of total score

▫ = 0% to under 25% of total score

EVR Brandenburg-Berlin

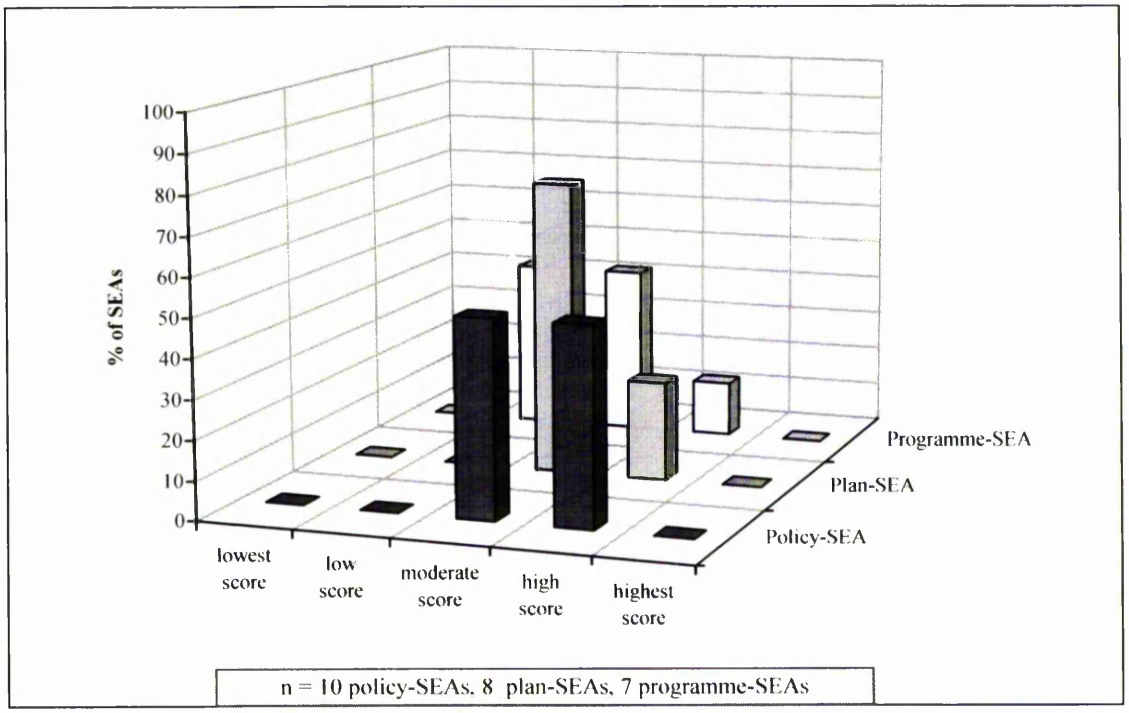
Six SEAs obtained moderate scores of between 50% and 75%. Furthermore, three SEAs obtained low scores of between 25% and 50%, all of which were transport programme-SEAs. Highest scores were obtained by the plan-SEAs, landscape plans and programmes (*Landschaftspläne und -programme*) for the land use plans (*FNPs*) Berlin

and Ketzin, considering all types of objectives and environmental standards in a qualitative manner, according to the *Federal* and *Land* environmental protection acts. Scoping was done with simple checklists, based on legislative requirements formulated in the construction law book (*Baugesetzbuch, BauGB*), and the environmental protection acts. At the time of the research, it was unclear whether the Integrated Transport Plan (*IVP*) Brandenburg would involve any specific monitoring provisions. Screening in the Ecological Risk Assessment (*ökologische Risikoanalyse*) for the Federal Transport Infrastructure Plan (*BVWP*) was based on the sole criterion of road length (all projects with a length of over 5 km were included). In contrast to the other two regions, sustainable development strategies were not considered at all in any of the SEAs in EVR Brandenburg-Berlin.

9.3.2 SEA type and sectoral characteristics

Figure 9.5 shows the results for the potential SEA benefit 2 for the three SEA types. Policy-SEA on average scored slightly better than plan-SEA and programme-SEA.

Figure 9.5: SEA-type evaluation for the potential SEA benefit 'pro-active assessment - SEA as a supporting tool for PPP formulation for sustainable development'



Differences between the three SEA types were not statistically significant. Following the results of chapter 8, however, it needs to be stressed that substantive environmental sustainability objectives, targets and measures were considered to a larger extent in policy-SEA than in the other two SEA types.

Whilst spatial/land use SEAs scored slightly better than transport SEAs (66% as opposed to 62%), sectoral differences were not statistically significant. Most spatial/land use SEAs obtained moderate scores of between 50% and 75%. Only the environmental appraisals for the Cheshire and Lancashire structure plans obtained high scores of between 75% and 100%.

9.4 Strengthening project EIA - increasing efficiency of tiered decision making

This section describes, analyses and explains the results for the potential SEA benefit 3 'strengthening project EIA - increasing efficiency of tiered decision making'. It is divided into two sub-sections, dealing with regional characteristics, SEA-types and sectoral characteristics.

SEA benefit 3 was significantly correlated with the SEA variable 'SEA procedure' ($P<.01$). An extensive coverage of the SEA procedural stages was therefore potentially leading to a strengthening of project EIA and to an increased efficiency of tiered decision making. The individual procedural stages 'initiation of SEA', external participation' and 'public consultation' were of particular importance and were all significantly correlated with the potential SEA benefit 3 ($P<.01$).

9.4.1 Regional characteristics

Table 9.3 shows the overall scores for the individual SEAs. Noord-Holland SEAs obtained significantly higher scores than the SEAs in North West England ($P<.05$)[1].

[1]However, it needs to be stressed that the connection between policies and projects in reality often remained unclear.

Table 9.3: SEA specific evaluation of the potential SEA benefit 'strengthening project EIA, increasing efficiency of tiered decision making'

North West England (average score)	36%
Environmental Appraisal for the Lancashire Structure Plan	○
Environmental Appraisal for the Cheshire Structure Plan	⊙
Cheshire TPP	▫
Merseyside Package Bid	▫
Merseyside Package Bid underlying strategy	▫
Environmental Appraisal for the Warrington Local Plan	○
Environmental Appraisal for the Oldham UDP	⊙
Noord-Holland (average score)	**54%**
Second Transport Structure Plan (*SVVII*)	⊙
SEA for the National Spatial Plan (*VINEX*) review	●
Vision (*visie*) Noord-Holland	⊙
Transport Plan (*RVVP*) INVERNO	⊙
Transport Plan (*RVVP*) Noord-Holland-Noord	⊙
Transport Plan (*RVVP*) ROA	⊙
Environment Matrix (*milieumatrix*) for the Structure Plan Amsterdam	▫
Vision (*visie*) Hilversum	⊙
Transport Plan (*RVVP*) Haarlem-IJmond	⊙
EVR Brandenburg-Berlin (average score)	**39%**
Federal Transport Infrastructure Plan (*BVWP*)	○
Ecological Risk Assessment (*ökologische Risikoanalyse*) for the *BVWP*	▫
Landscape Framework Plan (*Landschaftsrahmenplan*) Havelland-Fläming	⊙
Road Development Plan (*Landesstraßenbedarfsplan*) Brandenburg	○
Integrated Transport Plan (*IVP*) Brandenburg	○
Ecological Conflict Analysis for the Land Use Plan (*FNP*) Berlin	▫
Landscape Programme, (*Landschaftsprogramm*) for the *FNP* Berlin	⊙
Integrated Transport Plan (*StEP*) Berlin	○
Landscape Plan (*Landschaftsplan*) for the Land Use Plan (*FNP*) Ketzin	⊙

policy-SEA plan-SEA programme-SEA

Overall evaluation:

■ = 100%

● = 75% to under 100% of total score

⊙ = 50% to under 75% of total score

○ = 25% to under 50% of total score

▫ = 0% to under 25% of total score

North West England

Three of the seven SEAs in North West England obtained the lowest score of under 25%, all of which were transport SEAs. Two of the remaining four spatial/land use SEAs obtained moderate scores of between 50% and 75% and two SEAs obtained low scores of between 25% and 50%. No assessment was able to lead to project acceleration or to substitute parts of project EIA. Whilst only the Environmental Appraisal for the

Cheshire Structure Plan explicitly addressed mitigation measures, the Environmental Appraisal for the Oldham UDP mentioned the need to mitigate impacts.

Noord-Holland

All seven policy-SEAs in Noord-Holland obtained moderate scores of between 50% and 75%. Whilst the programme-SEA for the National Spatial Plan (*VINEX*) review obtained the highest score of all SEAs (between 75% and 100%), the plan-SEA, Environment Matrix (*milieumatrix*) for the Structure Plan (*structuurplan*) Amsterdam obtained the lowest score with under 25%. Only one assessment entirely substituted project EIA, namely the SEA for the National Spatial Plan (*VINEX*) review, thus being able to accelerate project preparation. All other SEAs were said to be potentially able to accelerate subsequent projects by providing comprehensive environmental information for lower tiers of decision making. Furthermore, all assessments addressed issues that were different from those of project EIA, except the Amsterdam Environment Matrix (*milieumatrix*), which was used as an instrument of the precautionary principle for determining land suitability. Only two SEAs explicitly addressed mitigation measures, namely the policy-SEAs, Second Transport Structure Plan (*SVVII*) and Vision (*toekomstvisie*) Hilversum.

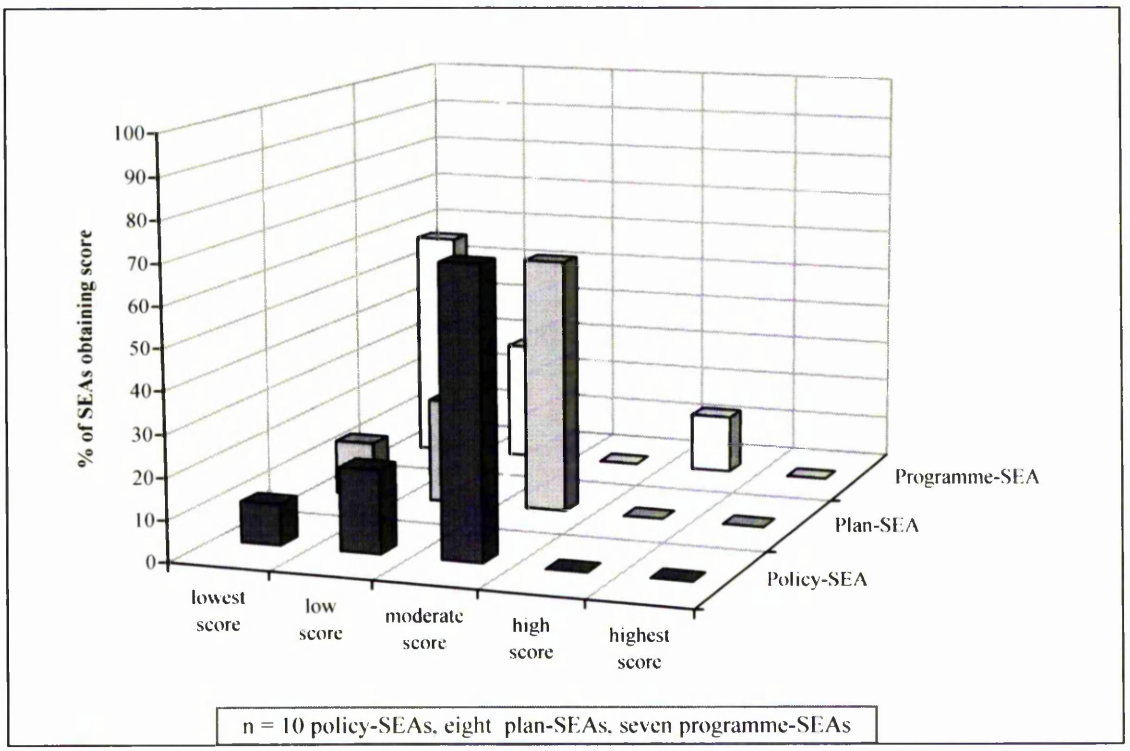
EVR Brandenburg-Berlin

Only three of the nine SEAs in EVR Brandenburg-Berlin obtained moderate scores of between 50% and 75%, all of which plan-SEAs. Four SEAs obtained low scores and two SEAs obtained very low scores, all of which were transport programme-SEAs. None of the assessments was able to substitute for project EIA. All SEAs, however, assessed some different issues from project EIA. Only three SEAs were potentially able to accelerate project preparation by providing comprehensive environmental information, namely all landscape plans and programmes (*Landschaftspläne- und programme*). Mitigation measures were proposed in the Landscape Programme (*Landschaftsprogramm*) Berlin and the Landscape Plan (*Landschaftsplan*) Ketzin. The need for mitigation was also addressed in the Landscape Framework Plan (*Landschaftsrahmenplan*) Havelland-Fläming.

9.4.2 SEA type and sectoral characteristics

Figure 9.6 shows the results for the potential SEA benefit 3 for the three SEA types. Policy-SEA and plan-SEA on average scored higher than programme-SEA. Furthermore, spatial/land use SEAs on average scored higher than transport SEAs. There was, however, no significant statistical correlation between any of the SEA types or between the sectors. Whilst four of the seven programme-SEAs obtained lowest scores of under 25%, one programme-SEA obtained the highest score of all SEAs, namely the National Spatial Plan (*VINEX*) review, which closely followed a project EIA procedure as laid out in the Dutch EIA Decree of 1994.

Figure 9.6: SEA-type evaluation for the potential SEA benefit 'strengthening project EIA - increasing efficiency of tiered decision making'



9.5 Systematic and effective consideration of the environment at higher tiers of decision making

This section describes, analyses and explains the results for the potential SEA benefit 4 'systematic and effective consideration of the environment at higher tiers of decision making'. Two sub-sections deal with regional characteristics and with SEA-type and sectoral characteristics.

The potential SEA benefit 4 was correlated in a significant manner with the context variable 'PPP procedure' ($P<.05$). This underlines the importance of a full coverage of the procedural stages for supporting sustainable development (see Figure 1.1).

9.5.1 Regional characteristics

This section describes the regional characteristics, referring to the individual SEAs. In contrast to all other potential SEA benefits, on average, North West England SEAs obtained highest scores and Noord-Holland SEAs obtained lowest scores. None of the regional differences were statistically significant.

North West England

Two of the seven SEAs obtained high scores of between 75% and 100%, namely the programme-SEA for the Merseyside Package Bid and the Cheshire TPP. These are SEAs that scored comparatively poorly on most other potential SEA benefits. All other assessments obtained moderate scores of between 50% and 75%, as there were either formal or quasi formal requirements. Package bids/TPPs had 'quasi' formal requirements, as it would have been impossible to secure any government funding without their preparation. Furthermore, guidance was used (local authority circulars; DOT, 1995) and all authorities preparing environmental appraisals used the 'Good Practice Guide' (DoE, 1993). Whilst authorities responsible for PPP preparation were usually not the same as the PPP approving bodies, most SEA approving bodies were also SEA initiating bodies, except those for the Cheshire TPP and the Merseyside Package Bid (approved by Central Government). All SEAs were reasonably well considered in decision making.

Table 9.4: SEA specific evaluation for the potential SEA benefit 'systematic and effective consideration of the environment at higher tiers of decision making'

North West England (average score)	66%
Environmental Appraisal for the Lancashire Structure Plan	⊙
Environmental Appraisal for the Cheshire Structure Plan	⊙
Cheshire TPP	●
Merseyside Package Bid	●
Merseyside Package Bid underlying strategy	⊙
Environmental Appraisal for the Warrington Local Plan	⊙
Environmental Appraisal for the Oldham UDP	⊙
Noord-Holland (average score)	**55%**
Second Transport Structure Plan (*SVVII*)	⊙
SEA for the National Spatial Plan (*VINEX*) review	●
Vision (*visie*) Noord-Holland	▫
Transport Plan (*RVVP*) INVERNO	⊙
Transport Plan (*RVVP*) Noord-Holland-Noord	⊙
Transport Plan (*RVVP*) ROA	⊙
Environment Matrix (*milieumatrix*) for the Structure Plan Amsterdam	⊙
Vision (*visie*) Hilversum	▫
Transport Plan (*RVVP*) Haarlem-IJmond	⊙
EVR Brandenburg-Berlin (average score)	**54%**
Federal Transport Infrastructure Plan (*BVWP*)	○
Ecological Risk Assessment (*ökologische Risikoanalyse*) for the *BVWP*	○
Landscape Framework Plan (*Landschaftsrahmenplan*) Havelland-Fläming	●
Road Development Plan (*Landesstraßenbedarfsplan*) Brandenburg	⊙
Integrated Transport Plan (*IVP*) Brandenburg	○
Ecological Conflict Analysis for the Land Use Plan (*FNP*) Berlin	⊙
Landscape Programme (*Landschaftsprogramm*) for the *FNP* Berlin	⊙
Integrated Transport Plan (*StEP*) Berlin	○
Landscape Plan (*Landschaftsplan*) for the Land Use Plan (*FNP*) Ketzin	●

policy-SEA plan-SEA programme-SEA

Overall evaluation:

■ = 100%

● = 75% to under 100% of total score

⊙ = 50% to under 75% of total score

○ = 25% to under 50% of total score

▫ = 0% to under 25% of total score

Noord-Holland

The programme-SEA for the National Spatial Plan (*VINEX*) review was the only SEA that obtained a high score of between 75% and 100%. Six SEAs obtained moderate scores of between 50% and 75%. The only two spatial/land use policy-SEAs in the sample regions, the visions Noord-Holland (*ontwikkelingsvisie*) and Hilversum (*toekomstvisie*) obtained the lowest scores of under 25%. Whilst none of the PPPs had clear legal provisions to conduct SEA, regional transport PPPs had 'quasi' formal provisions, as no government funding allocation would have been possible without their

preparation. Requirements for conducting SEA for all regional transport plans (*RVVPs*) were based on the Second Transport Structure Plan (*SVVII*).

For most PPPs in Noord-Holland, the approving body was not the initiating body. Exceptions were the visions Noord-Holland (*Ontwikkelingsvisie)* and Hilversum (*Toekomstvisie*) and the Structure Plan Amsterdam (*Structuurplan)*. Regarding the integrated transport plans (*RVVPs*) ROA and Haarlem-IJmond, only parts of the SEAs were approved by a different body than the initiating body, namely the transport environment maps (*verkeersmilieukaarten*) by the national government. The Second Transport Structure Plan (*SVVII*) involved a 'quasi' outside review, with the Ministry of Spatial Planning, Environment and Water Management (*Ministerie van VROM*) being involved.

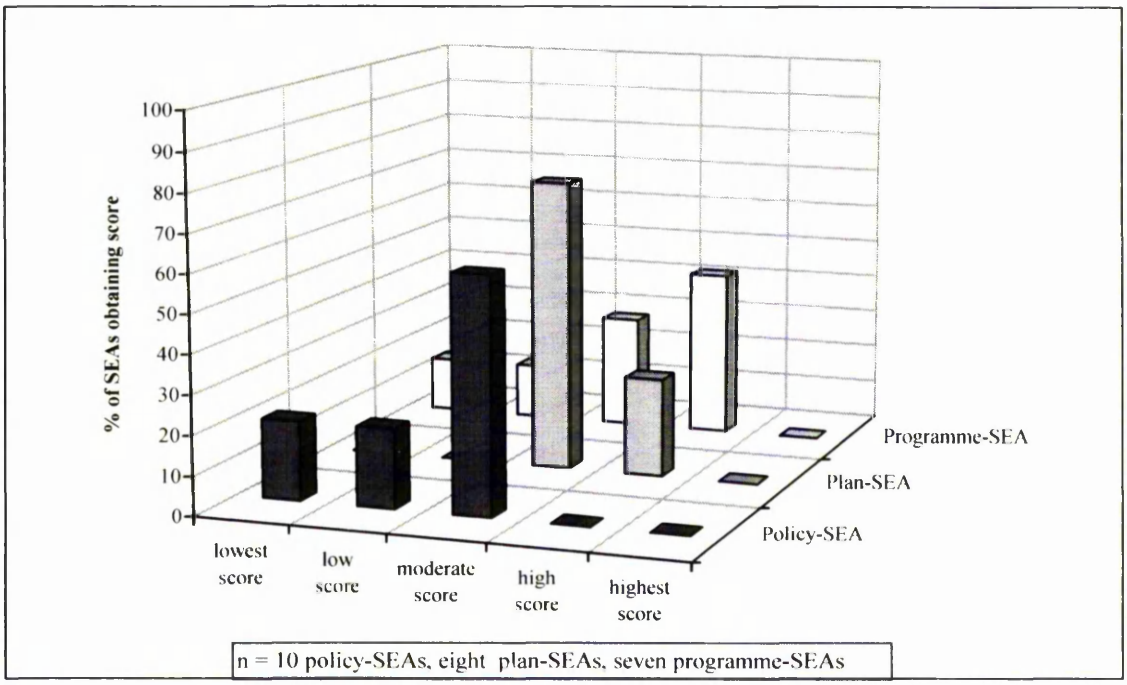
EVR Brandenburg-Berlin

Two SEAs in EVR Brandenburg-Berlin obtained high scores of over 75%, namely the plan-SEAs, Landscape Plan (*Landschaftsplan*) Ketzin and Landscape Framework Plan (*Landschaftsrahmenplan*) Havelland-Fläming. Whilst there was no official approval, a review was conducted by the Upper Land Environment Authority (*Landesumweltamt, LUA*). The third highest score in EVR Brandenburg-Berlin was also obtained by a plan-SEA, namely the Landscape Programme (*Landschaftsprogramm*) Berlin. All other SEAs obtained moderate and low scores.

9.5.2 SEA type and sectoral characteristics

Figure 9.7 shows the results for the potential SEA benefit 4 'systematic and effective consideration of the environment at higher tiers of decision making' for the three SEA types. In contrast to all other potential SEA benefits, policy-SEA obtained the lowest average score (significantly lower than plan-SEA; $P<.05$). This is not unexpected, as policy-SEA is applied in a more flexible manner than the other two SEA types. Whilst spatial/land use SEAs scored slightly higher than transport SEAs, there were no significant differences between the two sectors.

Figure 9.7: SEA-type evaluation for the potential SEA benefit 'systematic and effective consideration of the environment at higher tiers of decision making'



9.6 Consultation and participation on SEA related issues

This section describes, analyses and explains the results for the potential SEA benefit 5 'consultation and participation on SEA related issues'. As done in the previous sections, regional characteristics are firstly described. This is followed by a description of SEA-type and sectoral characteristics.

There was significant statistical correlation with two context variables (see section 2.3.3), namely 'PPP accountability' ($P<.05$) and 'PPP procedure' ($P<.01$) and with two SEA variables (see section 3.1), namely 'SEA procedure' and 'SEA methods and techniques' ($P<.01$). A comprehensive and extensive SEA process that is conducted parallel to, or integrated into, an open and extensive PPP process is therefore seen to be potentially able to result in high benefits from 'consultation and participation'.

9.6.1 Regional characteristics

Table 9.5 shows the scores for the potential SEA benefit 5 for all SEAs. Noord-Holland SEAs on average obtained higher scores than the SEAs of the other two sample regions. None of the regional differences, however, were statistically significant.

Table 9.5: SEA specific evaluation of the potential SEA benefit 'consultation and participation on SEA related issues'

North West England (average score)	76%
Environmental Appraisal for the Lancashire Structure Plan	⊙
Environmental Appraisal for the Cheshire Structure Plan	■
Cheshire TPP	⊙
Merseyside Package Bid	⊙
Merseyside Package Bid underlying strategy	●
Environmental Appraisal for the Warrington Local Plan	●
Environmental Appraisal for the Oldham UDP	●
Noord-Holland (average score)	**88%**
Second Transport Structure Plan (*SVVII*)	■
SEA for the National Spatial Plan (*VINEX*) review	■
Vision (*visie*) Noord-Holland	■
Transport Plan (*RVVP*) INVERNO	⊙
Transport Plan (*RVVP*) Noord-Holland-Noord	⊙
Transport Plan (*RVVP*) ROA	●
Environment Matrix (*milieumatrix*) for the Structure Plan Amsterdam	●
Vision (*visie*) Hilversum	■
Transport Plan (*RVVP*) Haarlem-IJmond	■
EVR Brandenburg-Berlin (average score)	**74%**
Federal Transport Infrastructure Plan (*BVWP*)	⊙
Ecological Risk Assessment (*ökologische Risikoanalyse*) for the *BVWP*	⊙
Landscape Framework Plan (*Landschaftsrahmenplan*) Havelland-Fläming	●
Road Development Plan (*Landesstraßenbedarfsplan*) Brandenburg	⊙
Integrated Transport Plan (*IVP*) Brandenburg	⊙
Ecological Conflict Analysis for the Land Use Plan (*FNP*) Berlin	⊙
Landscape Programme, (*Landschaftsprogramm*) for the *FNP* Berlin	■
Integrated Transport Plan (*StEP*) Berlin	●
Landscape Plan (*Landschaftsplan*) for the Land Use Plan (*FNP*) Ketzin	■

policy-SEA plan-SEA programme-SEA

Overall evaluation:

■ = 100%

● = 75% to under 100% of total score

⊙ = 50% to under 75% of total score

○ = 25% to under 50% of total score

▫ = 0% to under 25% of total score

North West England

The Environmental Appraisal for the Cheshire Structure Plan obtained the highest score. Three SEAs obtained high scores of between 75% and 100%, namely the plan-

SEAs, environmental appraisals for the Warrington Local Plan and the Oldham UDP and the only policy-SEA in North West England, the Transport Strategy for the Merseyside Package Bid. Whilst there was usually both external consultation and public participation in PPP preparation, in SEA preparation only the Transport Strategy for the Merseyside Package Bid as well as the Cheshire Structure Plan included public participation. The Oldham UDP only involved the public in the Environmental Appraisal after the PPP was approved.

Noord-Holland

Five of the nine SEAs obtained the highest score. Two of these were transport policy-SEAs and two were spatial/land use policy-SEAs. Furthermore, it also included the only programme-SEA in Noord-Holland, the National Spatial Plan (*VINEX*) review. Whilst two of the remaining SEAs obtained high scores of between 75% and 100%, the integrated transport plans INVERNO and (*RVVP*) Noord-Holland-Noord obtained only moderate scores as the public was not involved in PPP preparation.

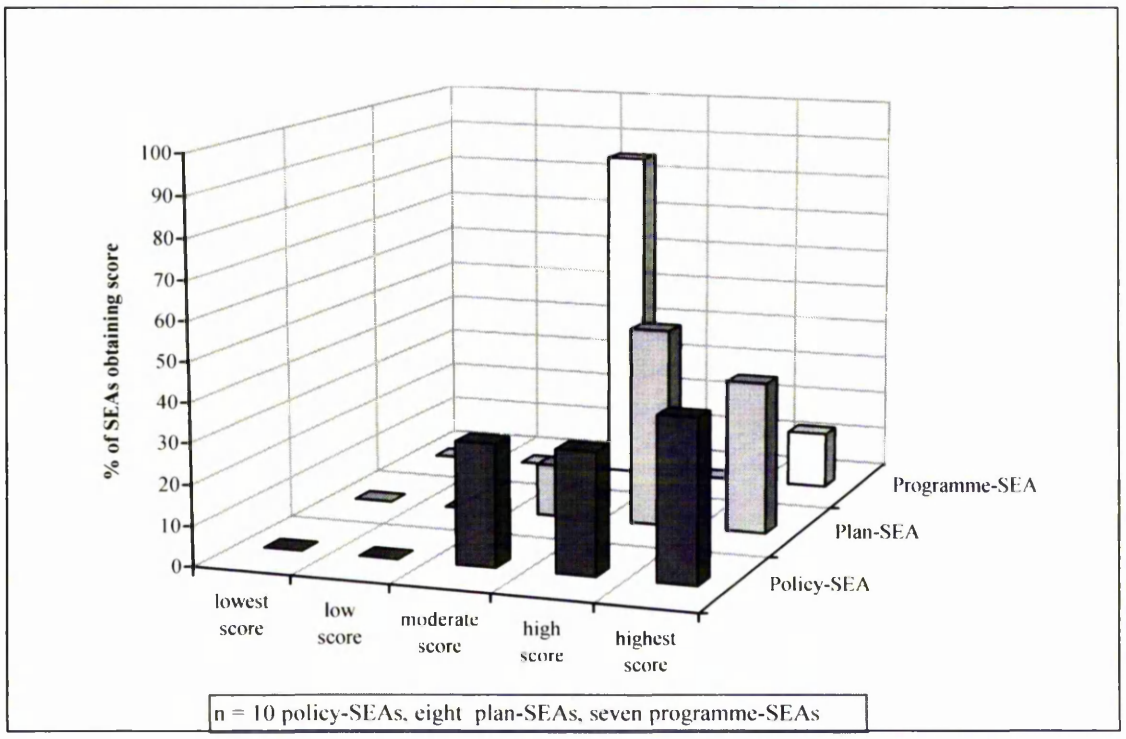
EVR Brandenburg-Berlin

Two of the nine SEAs obtained the highest score of 100%, namely the two plan-SEAs, Landscape Programme (*Landschaftsprogramm*) Berlin and the Landscape Plan (*Landschaftsplan*) Ketzin. The third plan-SEA in the region, the Landscape Framework Plan (*Landschaftsrahmenplan*) Havelland-Fläming and the policy-SEA, Integrated Transport Plan (*StEP*) Berlin obtained high scores of between 75% and 100%. All SEAs that obtained high scores were therefore either undertaken at local or at *Kreis* levels and all remaining SEAs obtained moderate scores of between 50% and 75%. The Federal Transport Infrastructure Plan (*BVWP*), the Roads Development Plan (*Landesstraßenbedarfsplan)* Brandenburg and the Integrated Transport Plan (*IVP*) Brandenburg involved expert participation (however, only rather informal and sporadic), but no public participation, either in PPP, or in SEA preparation. It is suggested that this is mainly due to a fear of public opposition to the projects proposed in the Federal Transport Infrastructure Plan (*BVWP*). The Ecological Conflict Analysis (*ökologische Konfliktanalyse*) for the Land Use Plans (*FNP*) Berlin involved neither the public, nor any other external statutory and non-statutory bodies in SEA preparation.

9.6.2 SEA type and sectoral patterns

Figure 9.8 shows the results for the potential SEA benefit 'consultation and participation on SEA related issues' for the three SEA types. Whilst policy-SEA and plan-SEA scored highly (85% and 89%, respectively), programme-SEA obtained the lowest average score (62%). Differences between programme-SEA and policy-SEA as well as between programme-SEA and plan-SEA were statistically significant (P<.01). Most programme-SEAs obtained moderate scores of between 50% and 75%, except the National Spatial Plan (*VINEX*) review, which obtained the highest score of 100%. Comparatively low scores for consultation and participation in programme-SEA are related to the project-oriented character of this SEA type. As the projects ranked in programme-SEA can usually be geographically located, public opposition is likely (NIMBYism likely, see section 1.2).

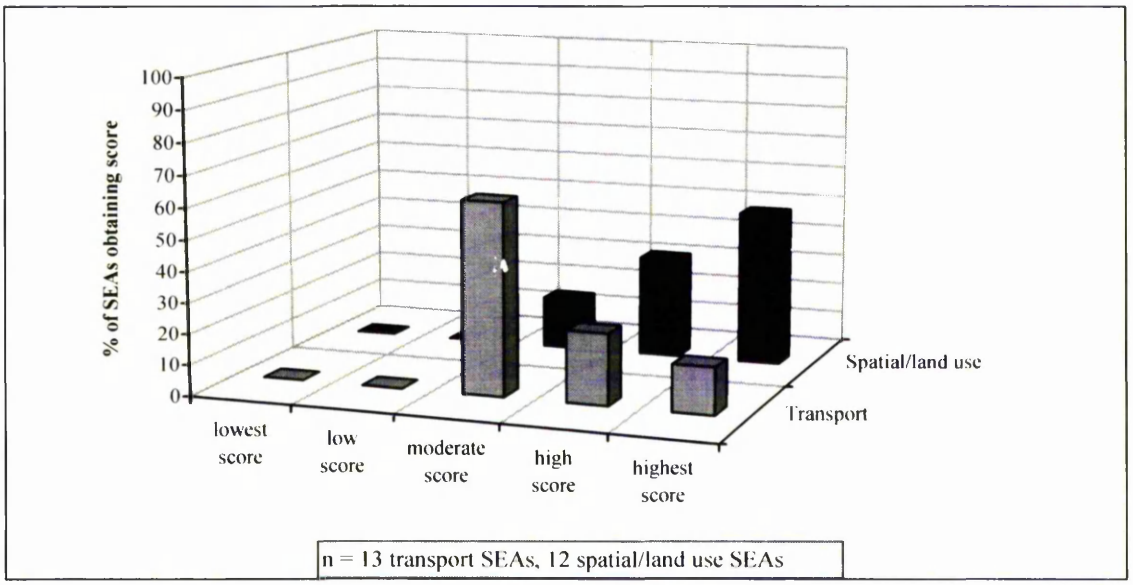
Figure 9.8: SEA-type evaluation for the potential SEA benefit 'consultation and participation on SEA related issues'



Differences between spatial/land use and transport SEAs were statistically significant (P<.01). Figure 9.9 shows that whilst most transport SEAs only obtained moderate scores, most spatial/land use SEAs obtained the highest score or at least a high score of between 75% and 100%. On average, transport SEAs obtained 71% of the total score

and spatial/land use SEAs obtained 90% of the total score. This is particularly due to the comparatively large number of transport programme-SEAs that did not involve any public participation.

Figure 9.9: Sector-specific evaluation for the potential SEA benefit 'consultation and participation on SEA related issues'



9.7 Overall evaluation of the potential SEA benefits

Individual SEAs

Table 9.6 shows the overall evaluation for the individual SEAs (i.e. average scores for the five potential SEA benefits). Only three SEAs achieved over 75% of the total score, all of which were from Noord-Holland. They include the policy-SEA for the Second Transport Structure Plan (*SVVII*) (85%), the programme-SEA for the National Spatial Plan (*VINEX*) review (80%) and the policy-SEA for the regional Transport Plan (*RVVP*) Haarlem-IJmond (78%). SEAs with highest scores in the other two regions include plan-SEAs, the Landscape Plan (*Landschaftsplan*) Ketzin (73%) and the Environmental Appraisal for the Cheshire Structure Plan (69%).

Table 9.6: Overall evaluation 'potential SEA benefits' for the individual SEAs

North West England (average score)	56%
Environmental Appraisal for the Lancashire Structure Plan	⦿ (55%)
Environmental Appraisal for the Cheshire Structure Plan	⦿ (69%)
Cheshire TPP	○ (46%)
Merseyside Package Bid	○ (46%)
Merseyside Package Bid underlying strategy	⦿ (65%)
Environmental Appraisal for the Warrington Local Plan	⦿ (53%)
Environmental Appraisal for the Oldham UDP	⦿ (59%)
Noord-Holland (average score)	**72%**
Second Transport Structure Plan (*SVVII*)	● (85%)
SEA for the National Spatial Plan (*VINEX*) review	● (80%)
Vision (*visie*) Noord-Holland	⦿ (67%)
Transport Plan (*RVVP*) INVERNO	⦿ (69%)
Transport Plan (*RVVP*) Noord-Holland-Noord	⦿ (72%)
Transport Plan (*RVVP*) ROA	⦿ (74%)
Environment Matrix (*milieumatrix*) for the Structure Plan Amsterdam	⦿ (52%)
Vision (*visie*) Hilversum	⦿ (68%)
Transport Plan (*RVVP*) Haarlem-IJmond	⦿ (78%)
EVR Brandenburg-Berlin (average score)	**53%**
Federal Transport Infrastructure Plan (*BVWP*)	○ (43%)
Ecological Risk Assessment (*ökologische Risikoanalyse*) for the *BVWP*	○ (38%)
Landscape Framework Plan (*Landschaftsrahmenplan*) Havelland-Fläming	⦿ (59%)
Road Development Plan (*Landesstraßenbedarfsplan*) Brandenburg	○ (46%)
Integrated Transport Plan (*IVP*) Brandenburg	⦿ (57%)
Ecological Conflict Analysis for the Land Use Plan (*FNP*) Berlin	○ (46%)
Landscape Programme, (*Landschaftsprogramm*) for the *FNP* Berlin	⦿ (57%)
Integrated Transport Plan (*StEP*) Berlin	⦿ (63%)
Landscape Plan (*Landschaftsplan*) for the Land Use Plan (*FNP*) Ketzin	⦿ (73%)

policy-SEA plan-SEA programme-SEA

Overall evaluation:

■ = 100%

● = 75% to under 100% of total score

⦿ = 50% to under 75% of total score

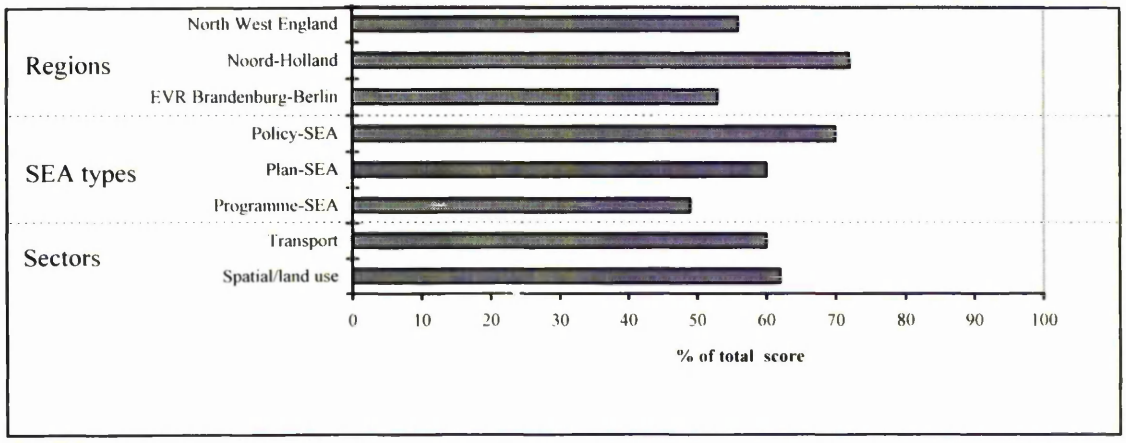
○ = 25% to under 50% of total score

▫ = 0% to under 25% of total score

Regions, SEA types and sectors

Figure 9.10 shows the average scores for the five potential SEA benefits for the regions, SEA types and sectors. Noord-Holland SEAs, policy-SEAs and spatial/land use SEAs obtained the highest scores. Average scores in Noord-Holland were significantly higher than average scores in North West England and in EVR Brandenburg-Berlin ($P<.01$). Furthermore, policy-SEA scored significantly higher than plan-SEA ($P<.05$) and programme-SEA ($P<.01$). Plan-SEAs also obtained significant higher scores than programme-SEAs ($P<.05$). Differences between transport and spatial/land use SEAs failed to be statistically significant.

Figure 9.10: Average potential SEA benefits scores for the regions, SEA types and sectors



9.8 Requirements of the EC 'SEA directive' proposal

Figure 9.11 shows the extent to which the SEAs were able to meet the requirements of the EC 'SEA directive' proposal. These were identified in terms of the SEA principles which describe the five potential SEA benefits (see section 3.5). Detailed evaluation scores are listed in Annex 5. Whilst none of the SEAs was able to meet the requirements of the proposed EC directive fully, five SEAs were able to obtain overall scores of over 70%. The highest overall score was obtained by the plan-SEA, Landscape Plan (*Landschaftsplan*) for the Land Use Plan (*FNP*) Ketzin. Over 70% of the total score was also reached by three SEAs in Noord-Holland, namely the policy-SEAs, Second Transport Structure Plan (*SVVII*) and Regional Transport Plan (*RVVP*) Haarlem-IJmond, and the programme-SEA for the National Spatial Plan (*VINEX*) review. Furthermore, over 70% of the requirements were reached by the Environmental Appraisal for the Cheshire Structure Plan.

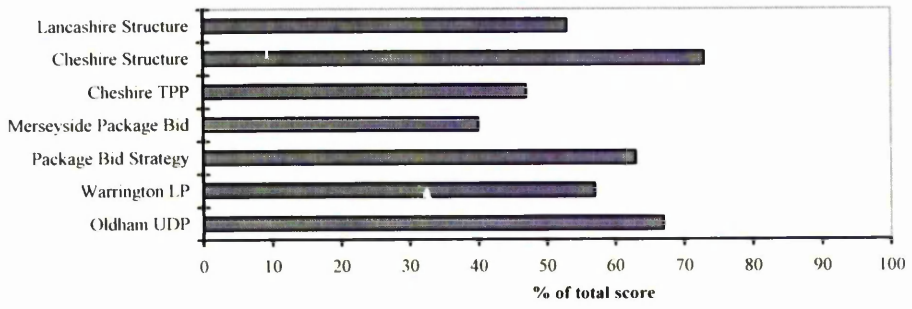
Six SEAs obtained scores of under 50%, four from EVR Brandenburg-Berlin, and two from North West England. All the six SEAs that obtained lowest scores were programme-SEAs and the only programme-SEA that was able to obtain a comparatively high score was the National Spatial Plan (*VINEX*) review, which is not surprising as it followed a formal project EIA procedure as laid out in the Dutch EIA decree of 1994.

If the scores for the PPPs that involved the preparation of two SEAs are summarised (i.e. the Merseyside Package Bid, involving a policy-SEA and a programme-SEA and the Land Use Plan, *FNP* Berlin, involving a plan-SEA and a programme-SEA), over

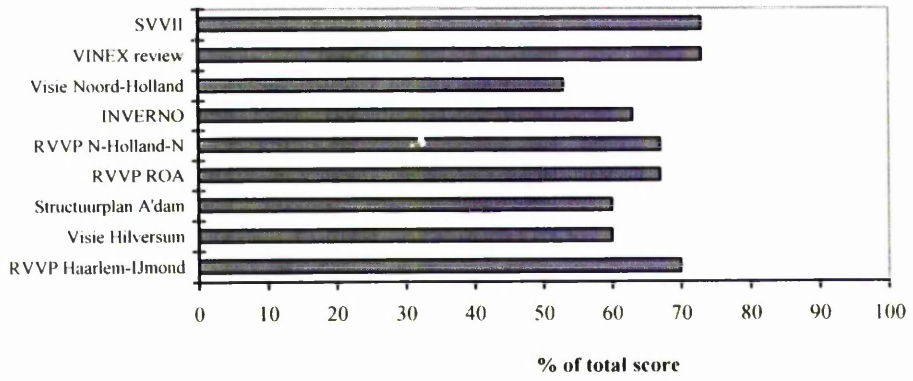
70% of the total possible score were also reached for the Land Use Plan (*FNP*) Berlin and the Merseyside Package Bid.

Figure 9.11: Extent to which individual SEAs meet the requirements of the EC 'SEA directive' proposal

(1) North West England



(2) Noord-Holland



(3) EVR Brandenburg-Berlin

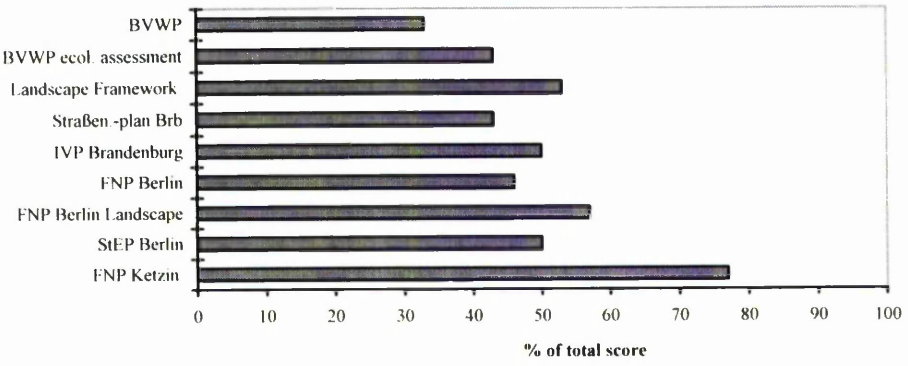


Figure 9.12 shows the extent to which individual requirements of the EC 'SEA directive proposal' were considered in the SEAs in the three sample regions (see also Annex 5). Five criteria were considered in over 75% of the SEAs, namely 'environmental impacts', 'reporting of the final SEA results', 'sustainable development', 'consultation of external bodies' and 'alternatives'. Three SEAs did not directly assess 'environmental impacts', but were used as instruments of the precautionary principle, identifying land suitability maps. These include the Environment Matrix (*milieumatrix*) Amsterdam, the Landscape Framework Plan (*Landschaftsrahmenplan*) Havelland-Fläming and the Landscape Programme (*Landschaftsprogramm*) Berlin. 'Reporting of the final SEA results' was not done for the Cheshire TPP and the Merseyside Package Bid. Whilst sustainable development was considered in all SEAs in North West England and Noord-Holland, it was only acknowledged in three SEAs in EVR Brandenburg-Berlin, namely in the plan-SEA, Landscape Framework Plan (*Landschaftsrahmenplan*) Havelland-Fläming and the policy-SEAs, integrated transport plans (*IVP*) Brandenburg and (*StEP*) Berlin.

Six criteria were considered in less than 50% of the SEAs. These include 'screening', 'mitigation', 'public participation', 'clear provisions', 'review by an external body' and the preparation of a 'separate SEA report'. Whilst none of the SEAs had screening provisions, public participation was more extensive in Noord-Holland than in EVR Brandenburg-Berlin and in North West England[2]. Mitigation, on the other hand, was particularly poorly considered in North West England. 'External review' was conducted to the largest extent in Noord-Holland and 'separate SEA reports' were most frequently prepared in North West England.

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[2] If, however, local land use PPPs are considered, EVR Brandenburg-Berlin SEAs involved public participation to the largest extent.

Figure 9.12: Extent to which the criteria of the EC 'SEA directive' proposal are considered

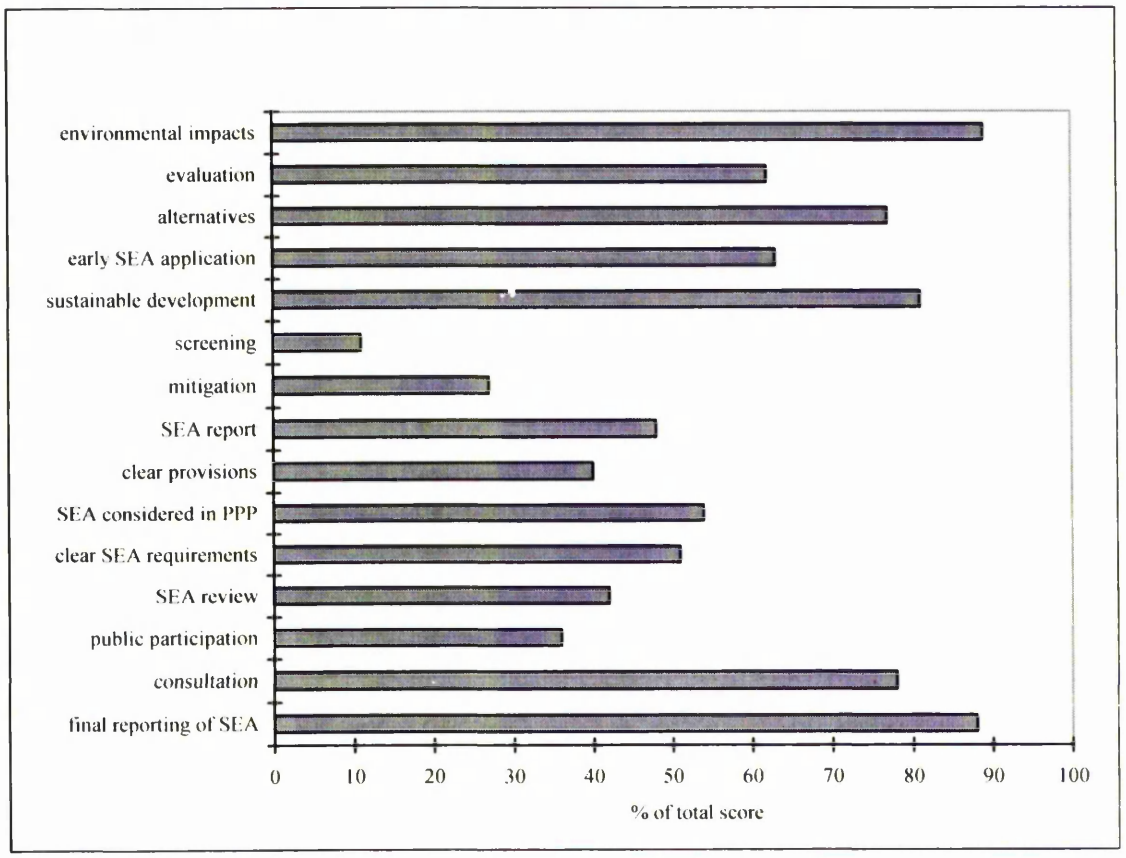
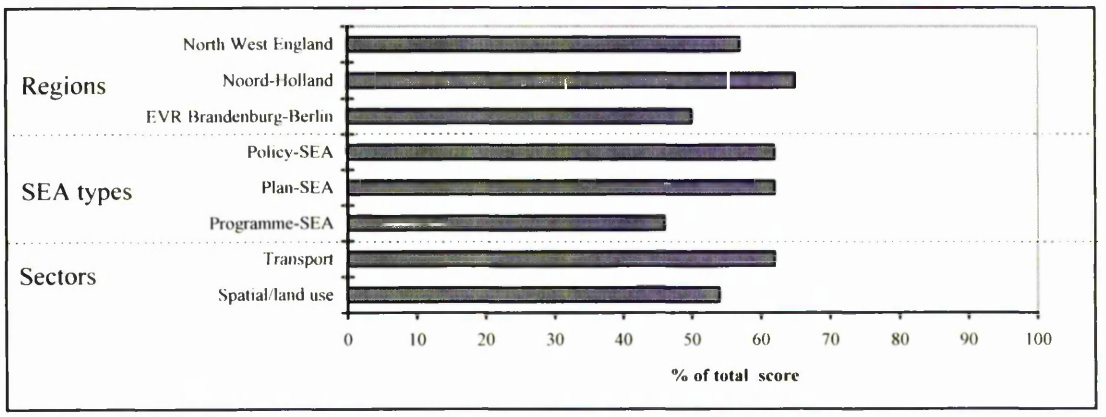


Figure 9.13 shows the average scores for the three regions, SEA types and the two sectors. Noord-Holland SEAs obtained the highest overall score and EVR Brandenburg-Berlin the lowest overall score ($P<.01$). Both policy-SEA and plan-SEA obtained the same score which was significantly higher than the score for programme-SEA ($P<.05$). Plan-SEA and to some extent programme-SEA for spatial/land use PPPs are most likely to be subject to formalised SEA under a 'SEA directive'. As policy-SEA fulfils certain tasks that are not covered by the other two SEA types (particularly a 'wider consideration of impacts and alternatives' and an extensive consideration of sustainability aspects), it is however suggested that SEA should be applied within a tiered SEA system, applying all these SEA types.

Figure 9.13: Average scores for the 'SEA directive' proposal requirements by region, SEA type and sector



9.9 Summary

The 25 SEAs for the cross-section of 36 PPPs in the three sample regions resulted in the five potential SEA benefits to varying extents. Whilst the potential benefit 'consultation and participation on SEA related issues' was comparatively well considered, the potential benefit 'strengthening project EIA - increasing efficiency of tiered decision making' was comparatively poorly considered.

The extent to which assessments resulted in the potential SEA benefits depended on the region and the SEA type. Whilst Noord-Holland SEAs and policy-SEAs mostly resulted in high potential SEA benefits scores, programme-SEAs obtained comparatively poor scores, in particular for the potential SEA benefit 'wider consideration of impacts and alternatives'.

The SEA variable 'SEA procedure' was of particular importance for explaining the observed patterns and there is significant correlation of the extent to which SEA procedural stages were covered with all SEA benefits. Of all PPP context variables, 'PPP accountability' played the most important role, explaining partly the extent to which assessments resulted in three of the potential SEA benefits, namely 'pro-active assessment - SEA as a supporting tool for PPP formulation for sustainable development', 'systematic and effective consideration of the environment at higher tiers of decision making' and 'consultation and participation on SEA related issues'.

Policy-SEA resulted in high potential SEA benefits, involving a comparatively comprehensive, extensive and open SEA process. Most of the SEAs in Noord-Holland were policy-SEAs, which is explained by the overall planning approach in this region (society consensus-led, quasi top-down). The use of programme-SEAs was comparatively widespread in EVR Brandenburg-Berlin. Projects were clearly ranked and there was no public participation, particularly for a fear of public opposition (NIMBYism).

It was found that SEAs were not able to fully meet the requirements of the 'SEA directive' proposal of the EC. Whilst some policy-SEAs and plan-SEAs were able to obtain comparatively high scores, most programme-SEAs only obtained under 50% of the total score. On average, for a cross-section of PPPs, Noord-Holland's SEA were better able to meet the 'SEA directive' requirements than the SEAs in North West England and EVR Brandenburg-Berlin.

PART IV

Summary and Conclusions

Introduction to part IV

Part IV is divided into two chapters. Chapter 10 provides an overview and a synthesis of the results for seven SEA aspects analysed, namely SEA procedure, SEA impact range, SEA methods and techniques, opinions of PPP makers, attitudes of PPP makers, sustainability aspects and potential SEA benefits. Furthermore, a summary of the findings of the correlation analysis is presented and results are interpreted in the light of current theoretical SEA understanding.

Chapter 11 draws the conclusions, referring to the research questions formulated in chapter 1. Furthermore, suggestions for improving current SEA practice in transport and spatial/land use planning are made.

10 Overview and synthesis

Chapter 10 draws together the main results of chapters 6 to 9 and explains and interprets observed results in the context of wider research. Reference is made to the 25 SEAs for the cross-section of 36 PPPs (interview results) and to the 35 SEAs for the 78 local land use PPPs (postal questionnaire results) in the three sample regions, and explanation and interpretation of the results is provided. This fulfils research objective 6 - 'to summarise and interpret research results'.

The chapter is divided into four sections. Section 10.1 presents an overall picture of the results, referring to the regions, SEA types and sectors. Section 10.2 presents the results for the individual SEAs and identifies good practice SEAs. This is followed by section 10.3, identifying correlation between PPP context variables, SEA variables and the other examined SEA aspects (using Spearman's rank order test). Section 10.4, finally interprets the research results, referring to five statements, reflecting common understanding of SEA, and to the requirements of the EC 'SEA directive' proposal.

10.1 Overall results

This section presents the overall results from chapters 6 to 9 in a cross-thematic manner. The following seven SEA aspects are covered (see section 2.7):

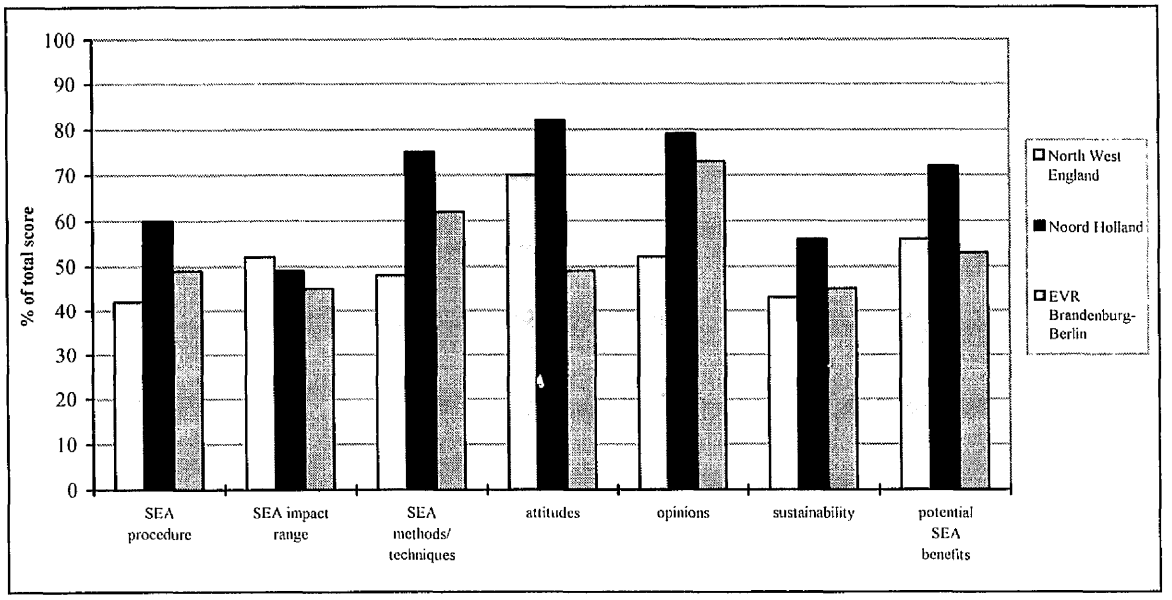
- SEA procedure.
- SEA impact range.
- SEA methods and techniques.
- PPP makers' attitudes.
- PPP makers' opinions.
- Consideration of sustainability objectives, targets and measures.
- Potential benefits from SEA application.

Whilst the cross-section of PPPs covered all seven aspects, local land use PPPs covered only three, namely the examination of PPP makers' attitudes and opinions and the consideration of sustainability aspects. Section 10.1 is divided into five sub-sections, dealing with the results in terms of the regions, SEA types and sectors, PPPs with and without SEA, and local land use PPPs.

10.1.1 Regions

Figure 10.1 shows the overall results for the seven SEA aspects in a region-specific manner. Whilst Noord-Holland SEAs obtained high scores for all of the aspects, North West England SEAs and EVR Brandenburg-Berlin SEAs scored comparatively poorly on a number of them. Regional differences were statistically significant for all aspects, except for the 'SEA impact range'.

Figure 10.1: Results for seven SEA aspects by region



For two aspects, Noord-Holland SEAs obtained significantly higher scores than SEAs from the other two regions - the potential SEA benefits (P<.01) and the consideration of sustainability aspects (P<.05). This is explained by the more extensive use of policy-SEA in Noord-Holland, which led to a better consideration of two potential SEA benefits, namely 'wider consideration of impacts and alternatives' and 'pro-active assessment - SEA as a supporting tool for PPP formulation for sustainable development'. Furthermore, PPPs involving policy-SEA considered explicit sustainability objectives and targets, as well as sustainability measures, to a larger extent than PPPs involving the other two SEA types and PPPs without SEA.

North West England SEAs obtained significantly lower scores on two aspects than SEAs in the other two regions, including the range of 'SEA methods and techniques' (P<.01 for Noord-Holland; P<.05 for EVR Brandenburg-Berlin) and opinions of PPP makers (P<.05 for Noord-Holland; P<.01 for EVR Brandenburg-Berlin). The smaller

range of 'SEA methods and techniques' used in North West England was caused by the use of central government guidance, which mainly promoted the use of matrices and checklists (DoE, 1993; DoT 1995). Whilst opinions on the quality of SEAs were similar in the three regions, opinions on the influence of SEA in the PPP process were comparatively low in North West England. This was related to the short SEA preparation times, which were all under one person-year. Finally, North West England SEAs also obtained a significantly lower score on the coverage of SEA procedural stages than Noord-Holland SEAs ($P<.05$). Stages considered particularly poorly were SEA initiation (scoping) and monitoring.

EVR Brandenburg-Berlin SEAs obtained significantly lower scores than the other two regions on attitudes of PPP makers towards formalised SEA ($P<.05$). This is not unexpected, as other studies on SEA and EIA all indicated negative attitudes of decision makers in Germany (see section 1.1.5).

Overall, the comparatively poor performance of EVR Brandenburg-Berlin SEAs is principally explained by the comparatively frequent application of programme-SEA. Thus, programme-SEA did not include public participation and only limited external consultation (Table 6.4), both aspects previously found to have been of high importance for overall SEA success (section 10.3). Furthermore, public participation in plan-SEAs in EVR Brandenburg-Berlin was only conducted at the local level.

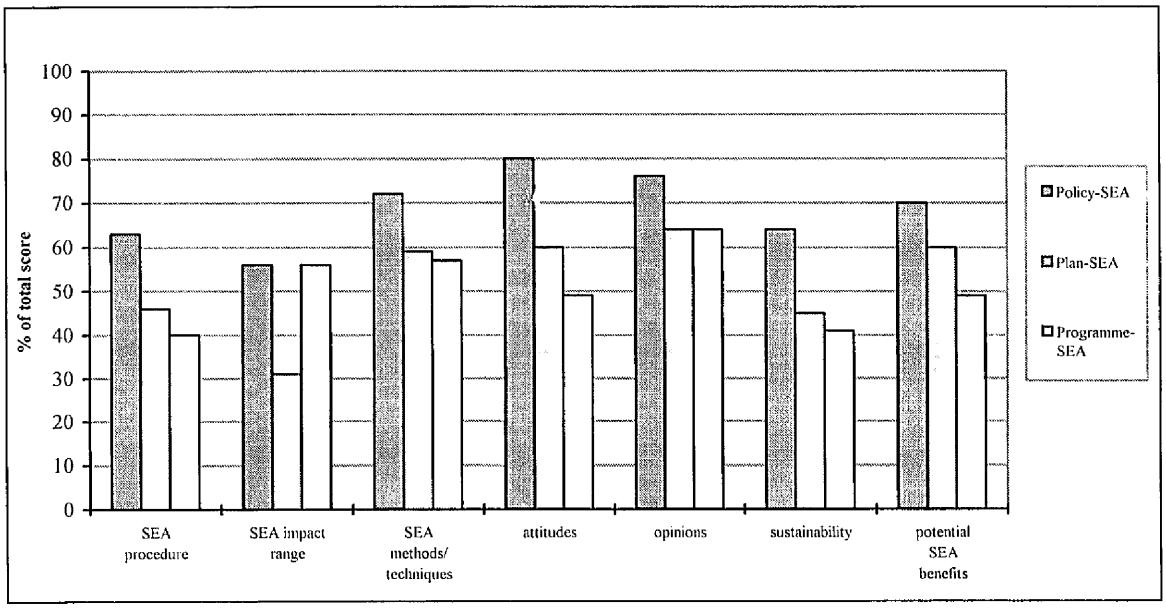
These research results confirm the findings of Thérivel and Partidário (1996a, p12) who indicated that British SEAs were more qualitative and slimmer than German and Dutch SEAs, and that German SEAs emphasise quantification. However, based on the results of this research it is arguable whether Dutch SEAs deal particularly well with hierarchies of decision making (Thérivel and Partidário, 1996a, p12). Thus, relationships between policies and projects in Noord-Holland remain largely unclear.

10.1.2 SEA-types

Figure 10.2 shows the overall results for the three examined SEA types. Policy-SEA obtained significantly higher scores than the other two SEA types on three aspects - 'potential SEA benefits', 'SEA procedure' ($P<.05$ for plan-SEA and $P<.01$ for programme-SEA) and 'sustainability' aspects ($P<.01$ for both plan-SEA and

programme-SEA). Policy-SEA also obtained significantly higher scores on attitudes of PPP makers towards formalised SEA than programme-SEA (P<.05). In addition to these differences, plan-SEA obtained significantly higher scores for the 'potential SEA benefits' than programme-SEA (P<.05), which was mainly caused by the more extensive coverage of SEA procedural stages and a wider use of different methods and techniques. On the 'SEA impact range', however, plan-SEA obtained a significantly lower score than programme-SEA (P<.05), which was mainly due to the failure of plan-SEA to consider socio-economic impacts.

Figure 10.2: Results for seven SEA aspects by SEA type



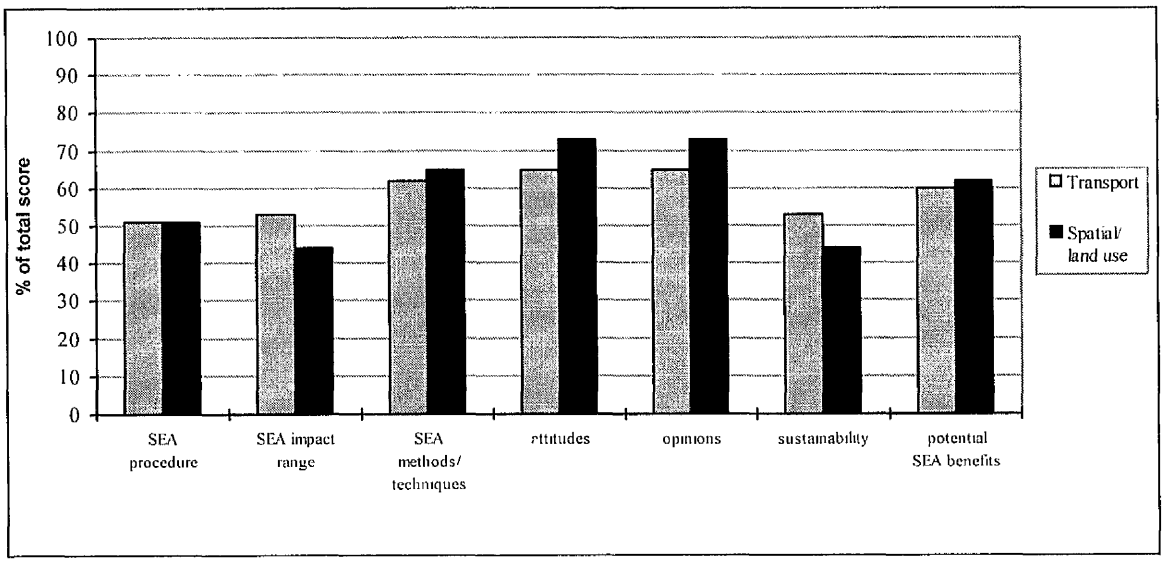
The good performance of policy-SEA regarding all examined SEA aspects is mainly explained by its application at an early stage in the planning cycle. Both plan-SEA and programme-SEA are applied at later stages in the planning cycle and are more project oriented. Public opposition due to the NIMBY (Not In My Backyard)-phenomenon is therefore more likely (see section 1.2) and the willingness of PPP makers to involve the public in SEA preparation as well as to consider a wide range of impacts and alternatives is reduced. Policy-SEA usually involved widespread participation and consultation and considered a wide range of impacts and alternatives, factors which proved to be of high importance for good SEA performance (see section 10.3).

On average, whilst most programme-SEAs obtained comparatively poor scores, the programme-SEA for the National Spatial Plan (*VINEX*) review performed well, following a formal procedure laid out in the Dutch EIA Decree of 1994. Performance of the different plan-SEAs varied considerably, depending on the region and the administrative level of application. In North West England, plan-SEAs (environmental appraisals) mostly obtained moderate scores. In EVR Brandenburg-Berlin, plan-SEAs (landscape plans and programmes, *Landschaftspläne und -programme*), undertaken at the local level obtained higher scores than those undertaken at decision making levels above the project level. This was particularly caused by the fact that public participation in EVR Brandenburg-Berlin SEAs only took place at the local level of decision making.

10.1.3 Sectors

Figure 10.3 shows the overall results for the seven SEA aspects for the two sectors. None of the differences were statistically significant. Whilst transport SEAs on average scored slightly higher on the SEA impact range and the consideration of sustainability aspects, spatial/land use SEAs scored slightly higher on SEA methods and techniques and attitudes and opinions of PPP makers. Furthermore, whilst socio-economic impacts and intermodal alternatives were considered to a larger extent in transport SEA, public participation and impact mapping were more widespread in spatial/land use SEA.

Figure 10.3: Results for seven SEA aspects by sector

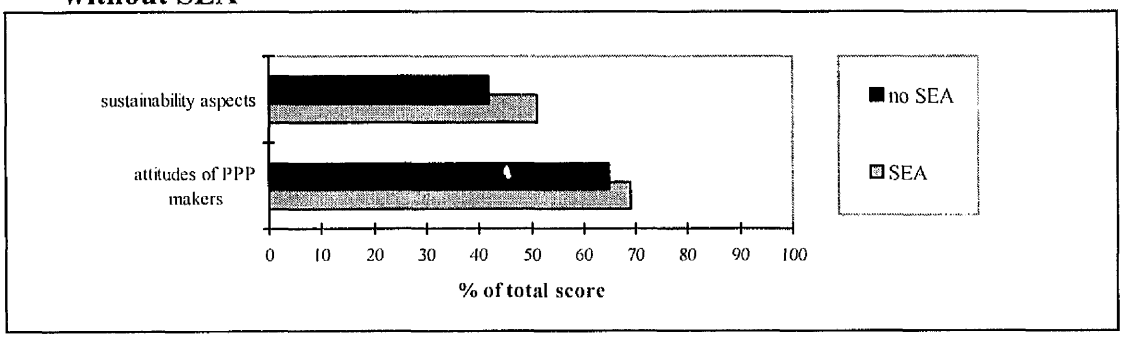


10.1.4 Comparison of PPPs with SEA and PPPs without SEA

PPPs with and without SEA were compared for the consideration of sustainability objectives, targets and measures, and the attitudes of PPP makers towards an application of formalised SEA. Figure 10.4 shows the overall results.

Whilst SEA application led to a slightly better consideration of sustainability aspects, the results were not statistically significant. Only sustainability measures were considered to a significantly larger extent in PPPs involving SEA ($P<.05$). Furthermore, whilst SEA of transport PPPs led to the consideration of a significantly larger number of explicit objectives, explicit targets and measures ($P<.05$), SEA for spatial/land use PPPs did not lead to a better consideration of any of these aspects. Only those PPPs involving policy-SEA considered sustainability objectives, targets and measures to a larger extent than PPPs without SEA.

Figure 10.4: Sustainability aspects and attitudes in PPPs with SEA and without SEA

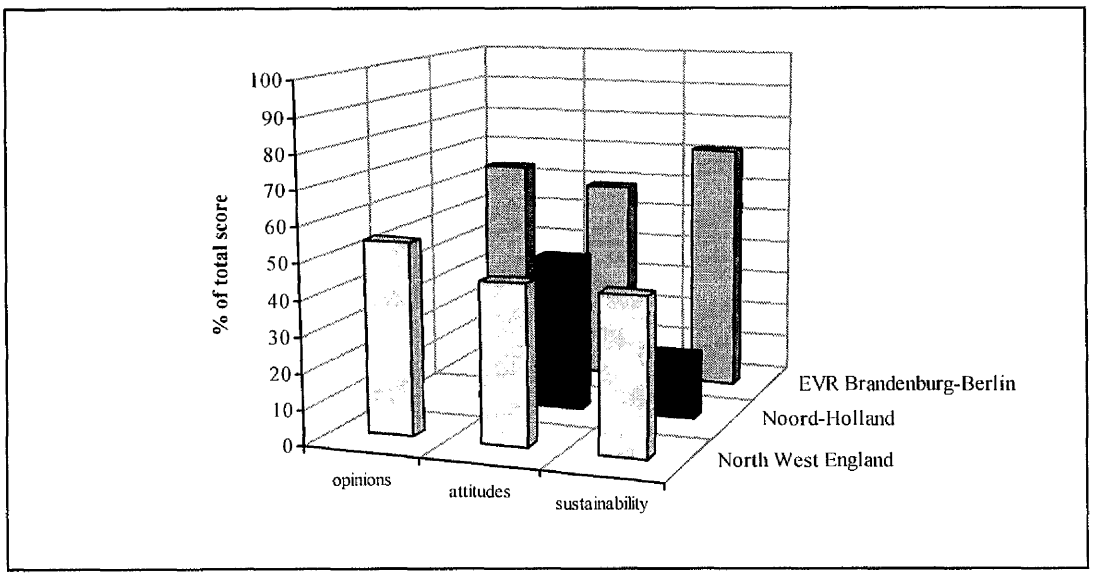


There were no significant differences in attitudes towards the application of formalised SEA between PPP makers undertaking SEA and PPP makers not undertaking SEA. It was, however, observed that those PPP makers that either undertook policy-SEA or that did not undertake SEA at all had more positive attitudes towards formalised SEA than those undertaking plan-SEA and programme-SEA. As policy-SEA was integrated into the PPP process, there was no fear of a PPP process delay. Positive attitudes of PPP makers that did not undertake SEA are explained by a perception that without formal requirements SEA would be more difficult to conduct. Very long preparation times of plan-SEA and programme-SEA were an important reason for overall negative attitudes, which were particularly observed in EVR Brandenburg-Berlin.

10.1.5 Local land use PPPs

At the local level, three SEA aspects were analysed, namely attitudes of PPP makers and opinions of PPP makers and the consideration of sustainability aspects. Of the 35 SEAs undertaken for local land use PPPs, 34 were of the plan-SEA type. Figure 10.5. shows the overall results. As only one SEA was undertaken at the local level in Noord-Holland, opinions on the quality and the influence of SEA can only be shown for North West England and EVR Brandenburg-Berlin.

Figure 10.5: Regional overall scores for local land use PPPs



Results for local land use PPPs differed considerably from those of the cross-section of PPPs, particularly for Noord-Holland and EVR Brandenburg-Berlin. Whilst Noord-Holland SEAs obtained the highest scores on all examined aspects for the cross-section of PPPs, it obtained the lowest scores on attitudes towards formalised SEA and the consideration of sustainability aspects at the local level. EVR Brandenburg-Berlin SEAs, on the other hand, scored highest on all SEA aspects at the local level. The only region for which results for the cross-section of PPPs and local land use PPPs were similar was North West England, mainly because most PPP makers included were from the local and county levels, using similar planning instruments and the same kinds of SEAs (environmental appraisals for development plans and TPPs/package bids).

Differences between the cross-section of PPPs and local land use PPPs in Noord-Holland and EVR Brandenburg-Berlin are explained by the different extent of SEA application and by the different planning approaches. Whilst only one of 22 local land use PPPs in Noord-Holland involved SEA application, this number rose to 21 of 23 local land use PPPs in EVR Brandenburg-Berlin (13 of 27 PPPs in North West England involved SEA application). The planning approach in Noord-Holland ('society consensus-led, quasi top down approach', see section 4.2) is the reason that policy objectives and targets are identified at higher tiers for consideration at the local level. Furthermore, attitudes towards formalised SEA were found to be negative at the local level in Noord-Holland, where authorities thought SEA was inappropriately applied. In EVR Brandenburg-Berlin, the perception that SEA could be based upon the existing landscape plans led to local authorities having more positive attitudes towards formalised SEA.

10.2 Evaluation of individual SEAs

Table 10.1 shows the scores for the seven SEA aspects examined in chapters 6 to 9 for each individual SEA. Overall good practice SEAs were identified for each of the three SEA types, also covering the two sectors. All aspects except attitudes towards formalised SEA were used to identify good practice cases which include:

- The policy-SEA for the Second Transport Structure Plan (*SVVII*).
- The programme-SEA for the National Spatial Plan (*VINEX*) review.
- The plan-SEA (Landscape Plan, *Landschaftsplan*) for the Land Use Plan (FNP) Ketzin.

The overall good practice SEAs scored highly on most aspects with two exceptions, namely a poor consideration of sustainability aspects in the Landscape Plan (*Landschaftsplan*) Ketzin and a small SEA impact range in the Second Transport Structure Plan (*SVVII*). All good practice SEAs started before, or at the beginning of, PPP formulation and accompanied, or were integrated into, the PPP process.

Table 10.1: Results for the seven main comparative aspects for individual SEA and identification of good practice cases

SEA \ SEA stage	Attitude	Procedure	Impact assessment	Methods and techniques	Opinions	Sustainability aspects	Potential SEA benefits	Good practice SEA
Lancashire Structure Plan, Environmental Appraisal	●	○	⊙	○	⊙	⊙	⊙	
Cheshire Structure Plan, Environmental Appraisal	●	⊙	⊙	⊙	⊙	⊙	⊙	✓
Cheshire TPP	⊙	○	⊙	○	○	⊙	○	
Merseyside Package Bid	n.a.	○	⊙	○	○	⊙	○	
Merseyside Package Bid, underlying strategy		⊙	○	⊙	⊙		⊙	✓
Warrington Local Plan, Environmental Appraisal	●	○	⊙	○	⊙	○	⊙	
Oldham UDP, Environmental Appraisal	⊙	○	⊙	⊙	⊙	○	⊙	
2nd Transport Structure Plan (*SVVII*)	■	●	○	⊙	■	●	●	✓✓
National Spatial Plan (*VINEX*) - review	●	●	●	■	■	⊙	●	✓✓
Development Vision Noord-Holland	⊙	⊙	⊙	⊙	n/a	○	⊙	
Transport Vision (*INVERNO*)	■	⊙	⊙	⊙	⊙	⊙	⊙	
Transport Plan (*RVVP*) Noord-Holland-Nord	■	⊙	○	⊙	○	⊙	⊙	
Transport Plan (*RVVP*) ROA	○	⊙	○	⊙	●	⊙	⊙	
Structure Plan Amsterdam, Environment Matrix	⊙	▫	▫	●	⊙	⊙	⊙	
Future Vision (*visie*) Hilversum	●	⊙	●	⊙	■	○	⊙	✓
Transport Plan (*RVVP*) Haarlem-IJmond	■	⊙	⊙	●	■	⊙	●	
Federal Transport Plan (*BVWP*) Ecological Risk Assessment	○	▫	○	⊙	⊙	○	○	
Federal Transport Plan (*BVWP*)	○	○	⊙	⊙	⊙	○	○	
Regional Plan Havelland-Fläming } Landscape Framewk. Plan	⊙	⊙	▫	⊙	●	○	⊙	
Development Concept Havelland } Landscape Framewk. Plan	⊙					○		
Road Development Plan Brandenburg	⊙	▫	⊙	○	⊙	▫	○	
Integrated Transport Plan, *IVP* Brandenburg	●	⊙	●	⊙	n/a	●	⊙	
Land Use Plan (*FNP*) Berlin, Ecological Conflict Analysis	▫	○	⊙	⊙	n/a	○	○	
Land Use Plan (*FNP*) Berlin, Landscape Programme		⊙	▫	⊙	n/a		⊙	
Development Plan (*StEP*) Transport	○	⊙	●	●	n/a	⊙	⊙	✓
Local Land Use Plan (*FNP*) Ketzin, Landscape Plan	⊙	●	⊙	●	⊙	○	⊙	✓✓

policy-SEA plan-SEA programme-SEA

✓✓ = overall good practice SEA

✓ = other regional good practice SEA

Overall evaluation:

■ = 100%

● = 75% to under 100% of total score

⊙ = 50% to under 75% of total score

○ = 25% to under 50% of total score

▫ = 0% to under 25% of total score

In addition to the three overall good practice SEAs, region-specific good practice was identified for each of the three SEA types and sectors. In North West England and EVR Brandenburg-Berlin, no good practice cases for the programme-SEA type were identified, as all of the programme-SEAs obtained comparatively poor scores. In Noord-Holland, no overall good practice plan-SEA was identified, as only one plan-SEA was undertaken. Regional good practice included:

- North West England: the plan-SEA - Environmental Appraisal for the Cheshire Structure Plan; and the policy-SEA - underlying Transport Strategy for the Merseyside Package Bid.
- EVR Brandenburg-Berlin: the plan-SEA - Landscape Plan (*Landschaftsplan*) Ketzin; and the policy-SEA - Integrated Transport Plan (*StEP*) Berlin.
- Noord-Holland: the policy-SEA - Second Transport Structure Plan (*SVVII*); the programme-SEA - National Spatial Plan (*VINEX*) review; and the spatial/land use policy-SEA - Vision (*visie*) Hilversum.

Previously reviewed SEAs

Three assessments representing the three SEA types had been previously reviewed by other authors on a number of occasions. These were:

- Federal Transport Infrastructure Plan (*BVWP*) - Integrated Assessment and Ecological Risk Assessment (EC, 1999a; ECMT, 1998; Steer Davies Gleave, 1996; Lee and Hughes, 1995, part B).
- Lancashire Structure Plan/Environmental Appraisal (Sadler and Verheem, 1996a; EC, 1994).
- Second Transport Structure Plan, *SVVII*/integrated assessment (EC, 1999a; ECMT, 1998; Steer Davies Gleave, 1996 and OECD, 1994).

Whilst the Second Transport Structure Plan (*SVVII*) was identified as an overall good practice SEA, in terms of the SEA types, the sectors and the regions, the Environmental Appraisal for the Lancashire Structure Plan is a moderate SEA example, both in terms of the SEA type and the sector. The Federal Transport Infrastructure Plan (*BVWP*) - Integrated Assessment and Ecological Risk Assessment, finally, scored similarly to the other transport programme-SEAs in the three sample regions, all of which, on average, obtained comparatively poor scores. It is therefore regarded as an average programme-

SEA example.

If the three SEAs were evaluated based on their overall performance without taking the SEA type into account, the Federal Transport Infrastructure Plan would have been judged to perform poorly. The SEA categorisation put forward in this research therefore helps to evaluate SEA performance based on the specific SEA type requirements.

10.3 Correlation analysis of SEA aspects

Table 10.2 shows the statistical correlation between the PPP context variables, SEA variables and the other SEA aspects for the cross-section of PPPs as defined in chapters 5 to 9. Subsequently, the observed patterns are described and discussed in further detail.

PPP context variables

The context variable 'PPP relevance' was correlated in a negative manner with the 'SEA impacts'. PPPs with a high 'PPP relevance' included, in particular, statutory spatial/land use PPPs for which plan-SEAs were mostly undertaken. The low score of the 'SEA impacts' is explained by a general failure of plan-SEA to assess socio-economic impacts (see Table 6.1).

The context variable 'PPP intermodality' was significantly correlated with the overall 'sustainability' and the 'potential SEA benefits' scores. Furthermore, there was also significant correlation with the 'SEA procedure'. These results were particularly due to policy-SEA application, which systematically considered intermodal aspects and obtained high sustainability and potential SEA benefits scores (chapters 8 and 9).

The context variable 'PPP procedure' was significantly correlated with the extent to which 'sustainability' aspects were considered, thus supporting the procedural framework for PPP formulation for sustainable development, portrayed in Figure 1.1. The 'PPP procedure' was significantly correlated with the opinions of PPP makers. An extensive PPP process is therefore thought to provide greater chances for SEA to be effective in PPP formulation.

Table 10.2: Correlation of PPP and SEA variables and the other SEA aspects

		Other SEA aspects				SEA variables				PPP variables			
		SEA benefits	Sustain-ability	Attitudes	Opinions	SEA time	SEA meth. & techn.	SEA impacts	SEA procedure	PPP procedure	PPP inter-modality	PPP ac-countability	PPP relevance
PPP variables	PPP relevance							**				**	
	PPP ac-countability									**			
	PPP inter-modality	*	**						**				
	PPP procedure		*		*								
SEA variables	SEA procedure	**	*	*	**		**						
	SEA impacts												
	SEA meth. & techniq.	**			**	**							
	SEA time				**								
Other SEA aspects	Opinions												
	Attitudes	**	*										
	Sustain-ability	**											
	SEA benefits												

*: P<.05, Spearman's rank order test

**: P<.01, Spearman's rank order test

correlation not significant

SEA variables

Among the four SEA variables, 'SEA procedure' and 'SEA methods and techniques' were correlated with the largest number of other aspects. Those procedural stages that were found to have been of particular importance included 'public participation' and 'consultation of external bodies'. Furthermore, those methods and techniques that were identified to be most relevant included 'quantitative impact assessment' and 'impact mapping'.

'SEA preparation times' were correlated with the extent to which 'SEA methods and techniques' were used. This is mainly explained by regional differences. Thus, in North West England short SEA preparation times were accompanied by an application of only a few 'SEA methods and techniques'[1]. There was no correlation of 'SEA preparation times' with the 'potential SEA benefits', indicating that SEA is not always applied effectively in terms of time input and benefits output.

'SEA procedure' was correlated with the extent to which 'sustainability' aspects were considered. Furthermore, 'SEA procedure' was correlated with the overall scores for the 'potential SEA benefits', and also with 'opinions' and 'attitudes' of PPP makers. Thus, an extensive coverage of procedural stages in SEA meant that PPP makers did not expect formal SEA provisions to result in many changes and had rather positive attitudes towards formal SEA. There was not only correlation of the 'SEA procedure' with those individual potential SEA benefits that shared some of the underlying procedural stages, but also with those potential benefits that did not. These included a 'wider consideration of impacts and alternatives' and 'strengthening project-EIA, increasing efficiency of tiered decision making'. SEAs that included monitoring tended to consider sustainability objectives, targets and measures well, i.e. monitoring provisions show commitment for achieving previously defined objectives and targets.

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[1] Government spending on planning and environment issues in general is smaller in the UK than in other EU countries (Eurostat Jahrbuch, 1997, p239). Furthermore, project EIA preparation times in the UK were also found to be smaller than in other EU countries (see, for example, Marr, 1997).

The overall 'SEA impact range' was not significantly correlated with any of the examined SEA aspects. However, the extent to which impacts were quantitatively assessed was correlated with the overall 'potential SEA benefits' score, i.e. quantitative assessment has more positive effects than qualitative assessment. SEA 'methods and techniques' were significantly correlated with 'opinions of PPP makers' on the quality and the influence of current assessments. Those methods and techniques that appeared to have been of particular importance included 'simulation', 'expert consultation', 'impact mapping', 'mitigation', the consideration of 'inter-modal alternatives' and 'scenarios'. All of these methods and techniques were used particularly in policy-SEA, which scored highly on all examined SEA aspects (Figure 10.2).

Other SEA aspects

The extent to which existing assessments resulted in the 'potential SEA benefits' was correlated with all PPP and SEA variables, except for the 'SEA preparation times'. 'Attitudes' of PPP makers towards an application of formalised SEA were dependent on the extent to which current assessments considered 'sustainability' aspects and resulted in the 'potential SEA benefits', i.e. those PPP makers that undertook high quality SEAs did not think an introduction of formal requirements would change current practice and had positive attitudes. Furthermore, sustainability aspects were significantly correlated with the overall scores for the 'potential SEA benefits', and particularly strongly with a 'pro-active assessment - SEA as a tool for PPP making for sustainable development'.

10.4 Interpretation of the results

This section interprets the research results. In this context, five statements are discussed that reflect current SEA understanding. Furthermore, the likely extent of SEA application in the three sample regions after the implementation of a 'SEA directive' in the EU is discussed.

10.4.1 Interpretation of the research results in the light of current SEA understanding

This section interprets research results in the light of five statements, reflecting current SEA understanding (as introduced in section 2.4.5). Whilst some statements were found to be confirmed, others were not and are, therefore, rejected.

Statement 1: 'SEA experience is only limited'

Based on a broad definition of SEA (encompassing any kind of assessment of the environmental impacts of a PPP), this research identified a minimum number of 80 assessments for transport infrastructure related PPPs in the three regions that, if broadly defined can be called SEA. These include 17 SEAs for transport PPPs and 63 SEAs for spatial/land use PPPs. Whilst none of the assessments included in this research was officially called 'SEA', many obtained high scores on the various SEA aspects examined. When considering the combined population (3.5% of total EU population) and area size (0.5% of total EU area) of the regions examined, as well as the fact that only transport and spatial/land use PPPs were examined, the potential number of SEAs in the EU appears to be quite high. SEA experience therefore appears to be more extensive than is often suggested.

Statement 2: 'SEA should develop more independently of project EIA'

This research found that successful SEA application (i.e. SEA that results in the potential SEA benefits and scores highly on a large range of examined SEA aspects) is correlated with the extent to which procedural stages, similar to those for project EIA, were covered (i.e. NEPA based process, see Box 1.1). Procedural stages that were of particular importance included public participation and the consultation of external bodies. Furthermore, methods and techniques that were found to be of importance for successful SEA included those that were also known to be used in project EIA, namely expert involvement, workshops and the quantitative assessment of impacts (i.e. calculating impact magnitudes), impact mapping and the consideration of intermodal alternatives.

Whilst different authors suggested that SEA was particularly difficult to apply early in the planning cycle, this is not confirmed by the findings of the research. In fact, the

SEA type that was applied at the earliest stage in the planning cycle (i.e. policy-SEA) on average obtained the highest scores of all SEA types. It is therefore suggested that, at least for the kinds of PPPs considered in this research, SEA principles are not different from project EIA principles and the statement in its general sense needs to be rejected[2].

Statement 3: 'SEA ensures sustainable development is considered in PPP making'

Three aspects that were said to be of importance for PPP making for sustainable development were examined, including procedural aspects, the assessment of environmental and socio-economic impacts and the consideration of sustainability objectives, targets and measures. Table 6.3 shows that procedural stages for PPP making for sustainable development were indeed considered to a larger extent in PPPs involving SEA. Whilst none of the PPPs without SEA assessed environmental and socio-economic impacts, all policy-SEAs and programme-SEAs considered both. It appears therefore that SEA can indeed lead to a better coverage of procedural stages and to a better consideration of both environmental and socio-economic aspects.

Regarding the consideration of sustainability objectives, targets and measures, more detailed comments can be made, referring to the results of chapter 8. Overall, it was found that SEA was not always able to result in higher overall sustainability scores. Substantive differences were observed between the two sectors. Thus, whilst SEA was able to lead to a significantly larger consideration of explicit objectives, explicit targets and measures in transport PPPs, differences for spatial/land use PPPs were statistically insignificant. Furthermore, it was found that only one SEA type was clearly able to lead to a better consideration of sustainability objectives, targets and measures, namely the policy-SEA type. Policy-SEA covered SEA procedural stages to a comparatively large extent. Furthermore, intermodal alternatives as well as environmental and socio-economic impacts were considered, and cumulative impacts were assessed, frequently involving public participation and consultation of external bodies. This research suggests that only a tiered SEA approach is likely to ensure that the sustainability aspects defined at higher levels will be passed on to lower levels.

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[2] It is acknowledged that under different circumstances, SEA might need to be applied more flexibly, as 'legislative environmental assessment' (see Marsden, 1999). This needs to be researched in further detail.

Statement 4: 'A tiered approach ensures SEA only addresses those matters and at that level of detail which are appropriate to it'

Tiering in SEA currently takes place, both between different administrative levels ('vertical integration') as well as within administrative levels ('horizontal integration'). Tiering between different administrative levels was found to consist of the formulation of policy objectives at higher levels that were to be considered at lower levels. Tiering within administrative levels was conducted in a more organised manner between policy-SEA and programme-SEA and between plan-SEA and programme-SEA. Whilst policy-SEA was applied early in the planning cycle and focused on scenarios, intermodal alternatives and cumulative impacts, programme-SEA prioritised projects and was conducted at a later stage in the planning cycle. Plan-SEAs mainly referred to spatial alternatives. Whilst no tiering between policy-SEA and plan-SEA was observed, consideration of the tasks of the three SEA types indicates that plan-SEA is applied after policy-SEA and before programme-SEA. This research suggests that tiering of policy-SEA, plan-SEA and programme-SEA can lead potentially to a simplification of current planning practice by fulfilling clearly identified tasks and the statement is supported.

Statement 5: 'SEA that is well founded and based on the application of clear SEA principles is most likely to be influential in PPP making'

It was found that the existence of SEA provisions or guidance was not necessarily leading to improved SEA performance in terms of the resulting potential SEA benefits (section 9.5) and the considered sustainability objectives, targets and measures (chapter 8). Research results indicated that the influence of SEA in PPP making was related in particular to SEA application times, i.e. SEAs with long preparation times were said to have been of greater influence in PPP making than SEAs with shorter preparation times. Furthermore, the extent to which SEA methods and techniques were applied, and the extent to which SEA procedural stages were covered, was of importance. It is therefore concluded that the influence of SEA in PPP formulation is only likely to be high if provisions and requirements are based on SEA principles, ensuring that SEA procedural stages are covered and methods and techniques are extensively applied.

10.4.2 Likely extent of SEA application in the three sample regions after the introduction of a 'SEA directive'

The EC 1996/1999 'SEA directive' proposal (COM(96)511; COM(99)073 final) does not differentiate between SEA types. The explanatory memorandum to COM(96)511, however, indicated that probably only those assessments that were classified in this thesis as plan-SEAs and to some extent programme-SEA for spatial/land use PPPs might be subject to formal SEA provisions.

This research identified that the plan-SEA, Landscape Plan (*Landschaftsplan*) for the Land Use Plan (*FNP*) Ketzin met the requirements of the 'SEA directive' proposal to the largest extent (section 9.8). Three other SEAs, however, were also able to meet the requirements of the SEA directive proposal to a large extent, including a policy-SEA (Second Structure Transport Plan, *SVVII*), a plan-SEA (Environmental Appraisal for the Cheshire Structure Plan) and a programme-SEA (National Spatial Plan, *VINEX* review). This indicates that all SEA types are potentially able to meet the 'SEA directive' requirements to a similar extent.

It is suggested that if the EC 'SEA directive' only covered plan-SEA and programme-SEA for spatial/land use PPPs, proportionally more PPPs in the UK and Germany would be subject to formal SEA than in the Netherlands (section 9.8). Thus, whilst most local authorities in EVR Brandenburg-Berlin and all local authorities in North West England prepared formal land use PPPs that would most likely be subject to SEA, only one third of the responding authorities in Noord-Holland were preparing local land use PPPs (in the form of structure plans, *structuurplannen*), that would require SEA (only one authority in each of Noord-Holland and EVR Brandenburg-Berlin were preparing programme-SEAs for spatial/land use PPPs). Furthermore, this research showed that local authorities in Noord-Holland increasingly prepare PPPs that would not require formal SEA preparation under the proposed SEA directive.

11 Conclusions

The main aim of this research was to undertake a systematic comparative analysis of SEA for transport infrastructure related PPPs in three EU countries. Furthermore, the patterns observed were to be explained and improvements to SEA practice suggested. Four research questions were addressed through six objectives in chapters 4 to 10 (following Figure 1.2). The research questions are answered in this chapter in sections 11.1 to 11.4, namely:

(1) 'What is the extent of SEA application, and is it possible to classify SEA types based on current practice?' (section 11.1).

(2) 'What are PPP makers' opinions on current SEA, and attitudes towards formalised SEA?' (section 11.2).

(3) 'What is the role of SEA in considering sustainability objectives, targets and measures?' (section 11.3).

(4) 'To what extent do assessments result in the five potential SEA benefits?' (section 11.4).

In accordance with the main research aim, section 11.5 makes suggestions for improving current practice.

11.1 Extent of SEA application and SEA classification

11.1.1 Extent of SEA application

The extent of SEA application (including any type of assessment of the environmental impacts of a PPP) at all administrative levels was systematically identified in the three sample regions of North West England (UK), Noord-Holland (the Netherlands) and EVR Brandenburg-Berlin (Germany). All authorities responsible for the preparation of transport infrastructure related PPPs (including transport PPPs and spatial/land use PPPs with a transport component) in the three regions were contacted. Comprehensive interviews were conducted on 12 PPPs in each region, representing all administrative levels (referred to as the 'cross-section' of PPPs). Furthermore, 178 mostly local authorities were sent postal questionnaires, i.e. in total 214 authorities were contacted.

A minimum number of 80 SEAs was identified (see Annex 1). These included 23 SEAs in North West England, 23 SEAs in Noord-Holland and 34 SEAs in EVR Brandenburg-Berlin. 17 SEAs were undertaken for transport PPPs and 63 SEAs were undertaken for spatial/land use PPPs[1].

In North West England, SEAs were undertaken at only two administrative levels, the county and district levels. In Noord-Holland and EVR Brandenburg-Berlin, SEAs were undertaken at all main PPP preparation levels, including national, regional (combined with *provincie* and *Land*), city regional and local levels. Whilst in North West England and EVR Brandenburg-Berlin, SEA was conducted to the largest extent at the local level, only a few local level SEAs were conducted in Noord-Holland. Local level SEAs included 23 of the 34 SEAs in EVR Brandenburg-Berlin, 16 of the 23 SEAs in North West England, but only six of the 23 SEAs in Noord-Holland (Table 6.2). The different focus of SEA application regarding the administrative level in the three regions is explained by the different planning approaches (section 4.2). The 'society consensus-led, quasi top down approach' in Noord-Holland identified policy objectives at higher tiers that were to be considered and implemented at lower tiers. Planning approaches in North West England ('centrally guided, local plan making approach') and EVR Brandenburg-Berlin ('public administration consensus-led, counter current approach') apparently gave the local level more discretion to identify and implement their own environmental policy objectives.

11.1.2 SEA type classification

Three SEA types were identified, based on sectoral and procedural characteristics, the stage of PPP formulation in the planning cycle, impact coverage and other methodological characteristics (methods and techniques) (Table 6.1). They were named

[1] The number of SEAs finally included in the analysis was 25 SEAs for the 36 cross-sectional PPPs (analysis based on comprehensive interviews) and 35 SEAs for local land use PPPs (analysis based on postal questionnaires). 20 SEAs were not analysed, including those that became accessible only after data collection was completed and 'big-project-SEAs' for Noord-Holland regional plans (*streekplannen*), which were conducted according to the national EIA decree, dealing with 'big' projects, but not with the plan as a whole. PPP makers of three visions (*visies*) in Noord-Holland and one landscape plan in EVR Brandenburg-Berlin did not provide any information on the assessment of environmental impacts, and could therefore not be included.

according to existing terminology:

- Policy-SEA (16 of which were identified in the three sample regions).
- Plan-SEA (48 of which were identified in the three sample regions).
- Programme-SEA (eight of which were identified in the three sample regions).

Furthermore, eight big-project-SEAs/EIAs were applied in Noord-Holland for regional plans (*streekplannen*), following national (project-) EIA legislation. The key findings for policy-SEA, plan-SEA and programme-SEA are set out in the following sections. Whilst tiering was conducted by authorities in a planned manner between policy-SEA and programme-SEA and between plan-SEA and programme-SEA within the same administrative level (horizontal tiering), tiering between different administrative levels (vertical tiering) mainly consisted of policy objectives being passed on in a top-down manner.

Policy-SEA

Policy-SEA was undertaken at all administrative levels at an early stage in the planning cycle and was integrated into the PPP process. Environmental impacts (in particular air and climate) and socio-economic impacts (in particular social and public service impacts) were considered to a similar extent and SEA procedural stages were covered to a large extent (Table 6.4). Policy-SEA frequently included public participation. Furthermore, scenarios (simulation of possible developments), intermodal alternatives and cumulative impacts were considered. Spatial/land use policy-SEA identified impacts of the development options on transport infrastructure.

13 of the 16 policy-SEAs were undertaken in Noord-Holland, eight at decision making levels above the local level, thus reflecting the overall planning approach in the Netherlands. Only one policy-SEA was undertaken in North West England at the county level and two policy-SEAs were undertaken in EVR Brandenburg-Berlin at the city regional and *Land* levels.

Plan-SEA

Plan-SEA was undertaken at a later stage in the planning cycle than policy-SEA for statutory spatial/land use PPPs at regional, county/*Kreis* and local levels[2]. Plan-SEA focused on environmental impacts and usually started before the PPP process. Whilst in EVR Brandenburg-Berlin, SEA procedural stages were covered to a large extent and always involved public participation (section 6.4), in North West England and Noord-Holland, procedural stages were poorly covered and the public was usually not involved. No scenarios were considered and no overall cumulative impacts and intermodal alternatives were assessed (Table 6.1).

47 of the 48 plan-SEAs were applied in North West England and EVR Brandenburg-Berlin. Plan-SEA is therefore typical for these two regions, applying traditional statutory planning instruments more frequently than Noord-Holland, where non-statutory PPPs are of increasing importance. Plan-SEA was most frequently applied at the local level of decision making, i.e. 40 of the 48 plan-SEAs were undertaken for local land use PPPs.

Programme-SEA

Programme-SEA was applied at the latest stage in the planning cycle before project preparation. All programme-SEAs used either multi-criteria-analysis or cost-benefit-analysis and ranked potential projects. Both environmental and socio-economic impacts were assessed in a combined manner (section 6.5). On average, programme-SEA covered SEA procedural stages to a lesser extent, with the exception of the spatial/land use programme-SEA for the National Spatial Plan (*VINEX*) review (Table 6.4). No overall cumulative impacts, intermodal alternatives or scenarios were considered. All of the transport programme-SEAs were undertaken in North West England and in EVR Brandenburg-Berlin. In Noord-Holland, only one spatial/land use programme-SEA was applied (National Spatial Plan, *VINEX*-review).

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[2] Two transport SEA research studies, covering parts of North West England and EVR Brandenburg-Berlin, could also be classified as 'plan-SEAs' (see MVA et al., 1999; Ministerium für Wohnungswesen, Städtebau und Verkehr, 1995). These involved assessing transport alternatives for improving accessibility in a larger regional context.

11.2 PPP makers' opinions on current SEA and attitudes towards formalised SEA

11.2.1 Opinions of PPP makers

Whilst opinions of PPP makers on the quality of SEA were similar in the three sample regions, opinions on the influence of SEA in PPP making were significantly more negative in North West England than the other two regions (Figure 7.2). These negative opinions were connected with shorter SEA preparation times, the use of a comparatively small number of methods and techniques and a poor coverage of SEA procedural stages. Those methods and techniques and procedural stages that were found to have had a positive impact on PPP makers' opinions were used to a comparatively small extent in North West England SEAs, including impact mapping, the consideration of mitigation measures, quantitative impact assessment, scoping and the consultation of external bodies (see section 7.2.4 and Table 6.4). In North West England, impacts were mainly assessed in a qualitative manner and usually only matrices and checklists were used (based on government guidance, DoE, 1993; see also DoT, 1995).

Of all SEA types, policy-SEA was said to have been most influential. This is not surprising, as policy-SEA and the associated PPP were integrated. Also, the influence of EVR Brandenburg-Berlin plan-SEAs was said to have been high. This is explained by a comparatively extensive coverage of SEA procedural stages, involving widespread public participation and the use of a wide range of methods and techniques (see figures 6.1, 6.9 and 6.14). Furthermore, in contrast to North West England and Noord-Holland, EVR Brandenburg-Berlin plan-SEAs were statutory, which also had a positive impact on the influence in PPP making.

On average, spatial/land use SEAs were thought to have been of significantly higher quality than transport SEAs (Figure 7.8). In this context, the greater extent of public participation in spatial/land use SEAs was of particular importance.

11.2.2 Attitudes of PPP makers

Overall findings

Most PPP makers believed that an integration of SEA into the PPP process was possible, but also thought that SEA would probably delay PPP preparation. Overall, attitudes on whether formal SEA would lead to project acceleration and to a better consideration of the environment were quite positive (Figure 7.1). Attitudes of PPP makers preparing policy-SEA were most positive. This was caused by a perception that formal requirements would not change existing practice to any large extent, as SEA procedural stages were extensively covered, environmental and socio-economic impacts were assessed in a cumulative manner and assessment methods and techniques were used extensively. Whilst PPP makers preparing plan-SEA and programme-SEA on average had more negative attitudes, those PPP makers not undertaking SEA had comparatively positive attitudes. They argued that only formal requirements would ensure SEA was conducted and as long as there were no such requirements, there would always be resistance against the use of SEA.

Attitudes were positively influenced by the extent to which procedural stages were covered in current SEA. Thus, there was a perception that current practice would not need to be changed to any large extent after introduction of formal SEA requirements, if procedural stages were covered well. Two stages were of particular importance for positive attitudes, namely the 'consultation of external bodies' and the 'SEA report review'. Long preparation times of SEA had a negative impact on PPP makers' attitudes towards formalised SEA, i.e. time efficiency of current SEA plays an important role for the attitudes of PPP makers.

Differences between the cross-section of PPPs and local land use PPPs

There were considerable differences between the attitudes of PPP makers of the cross-section of PPPs, and of local land use PPPs (see section 7.3). Whilst the attitudes of authorities representing a cross-section of PPPs were most positive in Noord-Holland and most negative in EVR Brandenburg-Berlin, at the local level the opposite was observed, i.e. attitudes were most positive in EVR Brandenburg-Berlin and most

negative in Noord-Holland. There were no substantial differences in North West England between the two PPP sets.

Differences within Noord-Holland and EVR Brandenburg-Berlin are most likely explained by the different planning approaches (referring particularly to public participation) and the extent of SEA application at the local level. Whilst there was widespread public participation and consultation of external bodies in SEA in Noord-Holland at all decision making levels, in EVR Brandenburg-Berlin, public participation in SEA only took place at the local level. Current practice at all administrative levels above the local level therefore will need to change after an introduction of formal SEA requirements. At the local level, authorities in Noord-Holland did not think SEA was necessary, as local activities were perceived to only have minor impacts which, it was thought, need not be assessed by SEA. As a consequence, SEA was seen to be appropriately applied only at higher tiers (in particular at the regional level) and attitudes at the local level were more negative. In EVR Brandenburg-Berlin, local authorities had the view that formal SEA requirements would not change existing practice to any large extent.

The current extent of SEA application at the local level had a positive impact on PPP makers' attitudes. Thus, whilst 21 of the 23 local land use PPPs in EVR Brandenburg-Berlin involved SEA application, only one of the 21 local land use PPPs in Noord-Holland involved the application of SEA. Attitudes at the local level were significantly more positive in EVR Brandenburg-Berlin than in Noord-Holland (section 7.3.5). Furthermore, it was found that in North West England, those 13 PPP makers preparing SEA at the local level had more positive attitudes than the 14 PPP makers not preparing SEA.

11.3 Consideration of sustainability objectives, targets and measures and the role of SEA

11.3.1 Consideration of sustainability objectives, targets and measures of the EC Fifth Environmental Action Programme

Overall, it was observed that general sustainability objectives were considered to a larger extent than the more specific targets and measures. However, the requirements of

a decision making framework in support of sustainable development (Figure 1.1), indicate that objectives, targets and measures should be considered to the same extent. Current practice therefore fails to consider sustainability aspects consistently.

Objectives on nature/biodiversity and the urban environment were comparatively well considered in the three sample regions as were measures on land use, public transport and infrastructure investment. Targets were not as well considered as objectives and measures. At the local level, there was widespread consideration of land use and emission targets, which is mainly due to EVR Brandenburg-Berlin local land use PPPs, most of which involved the preparation of plan-SEAs - landscape plans (*Landschaftspläne*). None of the PPPs included in the research were able to fully meet the requirements of the 'Fifth Environmental Action Programme'. Some of the Noord-Holland PPPs, however, performed comparatively well (Table 8.1).

In the cross-section of PPPs, sustainability objectives, targets and measures were clearly considered to the greatest extent in Noord-Holland. For local land use PPPs, on the other hand, they were considered to the greatest extent in EVR Brandenburg-Berlin. The observed patterns are explained by the different planning approaches in the three regions, as well as by the different extent of SEA application. Thus, higher tier PPPs in Noord-Holland focused on the identification of policy objectives that were to be considered and implemented at lower tiers. In the other two regions, the local level had more discretion for identifying environmental objectives. The influence of SEA is further explained in section 11.3.2.

The extent to which PPPs considered the sustainability objectives, targets and measures of the Fifth Environmental Action Programme was correlated with the extent to which the associated PPP considered intermodal alternatives. This is a surprising finding, as the EC Fifth Environmental Action Programme focused on the environment and did not consider socio-economic issues. The extent to which the associated PPP as well as the SEA covered the stages of the procedural framework in support of PPP formulation for sustainable development (Figure 1.1) was also correlated with the extent to which sustainability objectives, targets and measures were considered. This supports the suggested connection of substantive aspects and procedural stages (see Box 3.7).

11.3.2 Impact of SEA

Whilst SEA application for the cross-section of PPPs did not have a significant impact on the consideration of sustainability objectives or targets, it was able to lead to a better consideration of sustainability measures (Figure 8.25). SEA was observed to be more effective in transport PPPs, leading to a significantly better consideration of explicit objectives, explicit targets and measures (Figures 8.10, 8.19 and 8.29). For the cross-section of PPPs, SEA was more effective in leading to a better consideration of sustainability aspects in North West England and Noord-Holland than in EVR Brandenburg-Berlin[3]. Furthermore, policy-SEA had the most positive impact on the consideration of explicit objectives, explicit targets and measures.

At the local level, current SEA application had a positive effect, as 21 of the 23 EVR Brandenburg-Berlin PPPs which considered sustainability aspects to the greatest extent involved SEA application. Only 1 of the 21 Noord-Holland PPPs which considered sustainability aspects to the smallest extent involved SEA application. Furthermore, the 13 local land use PPPs in North West England with SEA considered sustainability objectives, targets and measures to a larger extent than the 14 PPPs that did not involve SEA.

The consideration of sustainability aspects was correlated with the extent to which PPP procedural stages were covered. Those procedural stages that appeared to have been of particular importance included consultation and participation as well as monitoring.

11.4 Extent to which assessments result in the five potential SEA benefits

The extent to which SEA for transport infrastructure related PPPs resulted in the following five potential SEA benefits was analysed (see Box 3.8)[4]:

(1) Wider consideration of impacts and alternatives.

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[3] This was mainly caused by three PPPs without SEA at higher tiers, that were said to consider sustainability particularly well (see sections 8.2 and 8.3).

[4] The analysis of SEA benefits only referred to the cross-section of PPPs, mainly because the set of questions was too comprehensive for inclusion in a postal questionnaire. Those local land use SEAs included in the cross-section of PPPs, however, allowed estimation of possible differences between local and higher tiers of decision making.

(2)Pro-active assessment - SEA as a supporting tool for PPP formulation for sustainable development.

(3)Strengthening project EIA - increasing efficiency of tiered decisions making.

(4) Systematic and effective consideration of the environment at higher tiers of decision making.

(5) Consultation and participation on SEA related issues.

Overall, whilst potential benefit 5 ('consultation and participation on SEA related issues') was found to have been considered to a comparatively large extent (80% of possible score), potential benefit 3 ('strengthening project EIA - increasing efficiency of tiered decision making') was comparatively poorly considered (43% of possible score). On average, the other three potential SEA benefits were met to a moderate extent (around 60% of possible score).

Regional differences were statistically significant for three potential SEA benefits, namely for benefit 1 ('wider consideration of impacts and alternatives'), benefit 2 ('pro-active assessment - SEA as a supporting tool for PPP formulation for sustainable development') and benefit 3 ('strengthening project EIA - increasing efficiency of tiered decision making'). For all three potential benefits, Noord-Holland SEAs obtained higher scores than the SEAs in the other two regions. The high score for potential SEA benefit 1 was caused by the high degree of policy-SEA application in Noord-Holland. Thus, being applied at an early stage in the planning cycle, strategic choices for considering alternatives and options were still numerous (section 9.2). Furthermore, in policy-SEA application, public opposition due to NIMBYism was less likely (section 1.2) and PPP makers were more inclined to consider a wider range of impacts and alternatives.

The extent to which assessments resulted in the five potential SEA benefits was explained in particular by the coverage of SEA procedural stages, the extent to which methods and techniques were used and the intermodality of the underlying PPP. Public participation and external consultation were found to have been of particular importance. Furthermore, the extent to which impacts were assessed in a quantitative manner (i.e. calculating impact magnitudes and impact mapping) was also an important aspect that increased the likelihood that SEA would result in the potential SEA benefits.

EC 'SEA directive'

The 1999 'SEA directive' proposal of the EC did not require all those principles that underlie the five potential SEA benefits to be met (Box 3.8). Therefore, only a selected number of principles were used to identify the extent to which SEA was meeting its requirements (Box 3.13).

Whilst most of Noord-Holland SEAs were able to meet the 'SEA directive' requirements to a comparatively large degree (mainly caused by the large extent of policy-SEA application), the variation of SEA scores in North West England and, particularly in EVR Brandenburg-Berlin was considerable. Whilst the average extent to which the 'SEA directive' requirements were met in EVR Brandenburg-Berlin was smallest in the cross-section of PPPs, it was largest in local land use PPPs. Current practice needs to be improved particularly regarding screening, mitigation and public participation. Whilst policy-SEA and plan-SEA on average met the 'SEA directive' requirements to the same moderate extent, programme-SEA on average scored comparatively poorly.

11.5 Suggestions for improving current practice

This section suggests improvements to current SEA practice and is divided into four sub-sections. Section 11.5.1 recommends specific tasks for the three SEA types within a tiered system and suggests improvements to current tiering practice. This is followed by section 11.5.2, identifying general ingredients for SEA success. Section 11.5.3 suggests improvements to the existing SEA instruments currently used in the three regions and section 11.5.4 finally suggests some other SEA improvement measures.

11.5.1 Developing tiered SEA systems

The identification of SEA type specific tasks

In order to be an effective decision making tool and to meet overall SEA principles, SEA should be applied in a tiered manner, with a specific SEA type with clearly identified tasks used at each tier. In the three sample regions, tiering between different administrative levels (i.e. vertical tiering) mainly took the form of policy objectives being passed on from higher tiers to lower tiers. A clear tiering structure consisting of

different SEA types was only identified within the same administrative level (horizontal tiering). The structure of horizontal tiering is characterised by three stages, consisting of policy-SEA at the highest level, followed by plan-SEA and programme-SEA. Whilst examples for the three SEA types are found in every region, tiering is currently rarely undertaken. In order to improve SEA performance, it is therefore suggested that SEA tiering be used more frequently. The three SEA types should fulfil specific tasks. These are outlined in Figure 11.1.

Figure 11.1: Taks of SEA types

SEA types	Tasks
Policy-SEA	⇒ to be prepared at the earliest stage in the planning cycle. ⇒ to consider scenarios. ⇒ to assess any option that can lead to previously defined objectives. ⇒ to consider regulatory, fiscal and economic measures and intermodal alternatives. ⇒ to consider a selected number of environmental and socio-economic impacts in a cumulative and inter-sectoral manner. ⇒ can be used to refine policy options. ⇒ is fully integrated into PPP formulation.
Plan-SEA	⇒ to be applied between policy-SEA and programme-SEA. ⇒ to focus on environmental impacts. ⇒ to identify spatial alternatives and 'land suitability'. ⇒ may include only parts of the geographical area covered by policy-SEA (i.e. improving accessibility within defined areas).
Programme-SEA	⇒ to be applied at the latest stage in the planning cycle. ⇒ to use multi-criteria-analysis or cost-benefit-analysis. ⇒ to rank those projects being passed on from plan-SEA. ⇒ to assess environmental and socio-economic impacts within the same framework.

note: only plan-SEA and to some extent programme-SEA for spatial/land use PPPs is likely to be required after the introduction of a 'SEA directive'

Improving current SEA tiering

Table 11.1 shows experience with the application of the three SEA types in the three regions at national, regional (including *provincie, Land,* county and *Kreis* levels) and local levels, indicating where improvement in current practice is needed. Individual examples for each of the SEA types are listed in Annex 1 and overall good practice examples are found in Table 10.1. Suggestions are made for improving current tiering practice for the three regions.

Table 11.1: Current SEA type practice for transport and spatial/land use PPPs at national, regional and local levels in the three sample regions

Region / SEA type	North West England(1)			Noord-Holland			EVR Brandenburg-Berlin		
	National(2)	Regional	Local	National	Regional	Local(3)	National	Regional	Local(3)
Transport									
Policy-SEA	-	⊙		■	■	?	-	■	?
Plan-SEA	(⊙)	○		○	○	?	(⊙)	○	?
Programme-SEA	■	●		○	○	?	■	■	?
Spatial/land use									
Policy-SEA	-	-	-	■	■	⊙	○	-	(⊙)
Plan-SEA	-	■	■	○	○	⊙	-	■	■
Programme-SEA	-	○	○	⊙	○	○	-	○	⊙

(1) It is not possible to clearly distinguish between local and county levels in transport planning in North West England, as local TPPs (local transport plans) are combined for metropolitan or county areas.
(2) Planning Policy Guidance is not regarded to be equivalent to a national spatial plan.
(3) Following the *Regionalisierungsgesetz* in Germany and the *planwet verkeer en vervoer* in the Netherlands, local authorities will need to prepare local transport PPPs.
■ all of the identified PPPs involved SEA.
● most of the identified PPPs involved SEA.
⊙ sporadic SEA application.
(⊙) research studies (for local policy-SEA in EVR Brandenburg-Berlin, see Bunge, 1998).
○ PPP prepared, but no SEA application (plan-SEA and programme-SEA are regarded as having the same underlying PPPs; in Noord-Holland, policy-SEAs often include specific projects that can be the basis for further SEA application.
? PPPs to be prepared under new legislation, scope unclear.
\- no PPP prepared.

For **North West England**, current SEA tiering could be improved largely by a more widespread use of policy-SEA for both spatial/land use and transport PPPs at all administrative levels. As long as the emphasis is put on the application of plan-SEA and programme-SEA, it is unlikely that a wider consideration of impacts and alternatives (see chapter 9) and a better inclusion of sustainability aspects (see chapter 8) in PPP formulation can be achieved. Furthermore, programme-SEA could be conducted for development plans (possibly integrated into environmental appraisal) in order to rank proposed developments according to their environmental and socio-economic benefits. If plan-SEA was applied to the transport PPPs (package bids and TPPs), environmentally suitable options within larger geographical areas could be identified for achieving the desired degree of accessibility.

For **Noord-Holland**, current practice can be improved by applying plan-SEA and programme-SEA more widely than is currently done. Resulting from the current failure to apply these two SEA types, it remains largely unclear how the findings of policy-SEA are passed on to the project level, i.e. without the use of other SEA instruments, the connection between policies and project implementation is unclear.

For **EVR Brandenburg-Berlin**, there is a need for more frequent application of policy-SEA at all administrative levels of decision making to both spatial/land use and transport PPPs. Without the application of policy-SEA, it will remain unclear how the projects included in plan-SEA and programme-SEA fit into the overall policy framework, and how they are able to help achieve overall aims and objectives.

11.5.2 General ingredients for SEA success

Based on the findings of this research, general ingredients were identified for enhancing SEA performance and overall SEA success. It needs to be stressed that no individual SEA is likely to meet all SEA principles and result in all potential SEA benefits, but that a tiered SEA approach is needed for securing success, using the SEA types identified in this research. SEA success ingredients include:

Complete coverage of procedural stages

The extent to which procedural stages were covered was positively correlated with all examined SEA themes, including opinions on current SEA, attitudes towards formalised SEA, the consideration of sustainability aspects and the extent to which assessments resulted in the overall potential SEA benefits. Procedural stages to be covered include screening, scoping, the main impact assessment stage with the preparation of a SEA report and SEA report review, participation and consultation as well as monitoring (Figure 1.1). Monitoring and auditing provisions generally need to be improved in order to learn more about the actual effects of the measures proposed in SEA. Only a clear understanding of causes and effects can improve current practice and ultimately ensure that SEA is successful. General research can also help to achieve this aim.

Integration of SEA into the PPP

SEA which is integrated into the associated PPP has proven to perform well. In this research, SEAs that were integrated with the associated PPP included policy-SEAs and, in some instances, plan-SEAs.

Early SEA start

Those SEAs that start before or at the beginning of the PPP process and are integrated into PPP making are more likely to be successful. In this research, SEAs that started before or at the beginning of PPP formulation included, in particular, the policy-SEAs and EVR Brandenburg-Berlin landscape plans (*Landschaftspläne*) for local land use PPPs.

Consultation of external bodies and public participation

This research concluded that those SEAs involving consultation of external bodies and public participation were more successful. Furthermore, they were perceived by PPP makers to be of better quality.

Extensive use of methods and techniques

The extent of the use of methods and techniques was correlated with overall SEA performance. Methods and techniques that were of particular importance included workshops and impact mapping. Furthermore, quantitative impact assessment (indicating clear impact magnitudes) was found to be beneficial for the overall SEA success. Mitigation is currently not included in transport SEA, without which different development options cannot be properly compared and alternatives that result in the highest overall benefits cannot be determined.

Appropriate funding and appropriate SEA preparation times

Short SEA preparation times (and associated low funding) were found to lead to a reduced influence of the SEA in PPP making. Longer preparation times were associated with a better coverage of procedural stages and a wider use of methods and techniques. PPP makers perceived SEA with longer preparation times to be of higher relevance.

11.5.3 Improving existing SEA instruments

Based on sections 11.5.1 and 11.5.2, suggestions for improving existing SEA instruments in the three sample regions are made. Table 11.2 shows eleven improvement aspects, including procedural aspects and some methodological aspects.

Table 11.2: Improving current SEA instruments

Regions	Improvement / Instrument	improve tiered SEA	cover proced-ural stages more fully	integrate SEA and PPP better	conduct public particip-ation	conduct consult-ation of external bodies	use other tech-niques besides checklists &matrices	use impact mapping	conduct work-shops	assess impacts quantitat-ively	consider overall objectives	include impact assess-ment
North West Eng-land	Environmental Apprai-sal development plans	!	!	!	!	!	!	!	!	!	✓	✓
	Multi-criteria-analysis for TPPs/ package bids	!	!	✓	!	!	✓	✓	!	✓	!	✓
	Policy-SEA for TPPs/ package bids											
Noord-Holland	Transport and spatial/ land use policy-SEAs	!	✓	✓	✓	✓	✓	✓	✓	✓	!(1)	✓
	Plan-SEA and programme-SEA											
EVR Bran-denburg -Berlin	Landscape Plans and programmes	!	✓	!(2)	✓	✓	✓	✓	!	✓	✓	!(2)
	Integrated transport PPPs	!	!	✓	!	!	✓	✓	✓	✓	✓	✓
	Transport programmes (federal and *Länder*)	!	!	✓	!	!	✓	✓	!	✓	!	✓

! improvement needed
✓ whilst individual cases need to be checked, in a generic sense there is no urgent need for improvement
(1) need for improvement only for spatial/land use PPPs
(2) improvement needed, except for landscape plans (*Landschaftspläne*) for local land use plans (*FNPs*) in Brandenburg
▒ only one SEA found, generic recommendations therefore not made, more frequent use of SEA type is needed

No suggestions for improvement are made for those instruments that were conducted only once, including policy-SEA for TPPs/package bids in North West England and both plan-SEA and programme-SEA in Noord-Holland.

It is found that all instruments could be considerably strengthened if there was better SEA tiering. Whilst there were hardly any aspects to be improved in policy-SEA, plan-SEA and programme-SEA should cover procedural stages more fully and include public participation, external consultation and workshops.

Instruments that need improvement on a large number of aspects include the transport programme-SEAs in North West England and in EVR Brandenburg-Berlin (there was no transport programme-SEA undertaken in Noord-Holland) and the plan-SEAs in North West England (environmental appraisals). In addition to a better tiering and a more complete coverage of procedural stages, transport programme-SEA should consider overall policy-objectives. North West England plan-SEAs (environmental appraisals) should also use other techniques besides matrices and checklists. Furthermore, impacts should be assessed in a quantitative manner and impact mapping should be applied.

11.5.4 Other SEA improvement measures

Based on the findings of the research, other measures are suggested that aim at improving SEA. These include a better dissemination of existing SEA experience, more research and the need for formal requirements for tiered SEA application.

Dissemination of existing experience

This research has shown that SEA application in the European Union is more widespread than is often acknowledged. Whilst there is scope for improving current practice, there is no need to reinvent the wheel. SEA is there and waiting to be applied. Current practice could largely be improved if existing experience and knowledge was used more extensively. Good practice SEA case studies, identified in comparative research therefore need to be disseminated more widely.

More research

Much more of an effort needs to be put into systematic research on existing practice as well as on understanding cause-effect relationships (including monitoring and post-audit) and the impact SEA has in decision making. Case study research is needed, particularly for increasing the effectiveness of tiered SEA, i.e. policy-SEA, plan-SEA and programme-SEA. A review package should be developed, distinguishing between the three SEA types and allowing for identification of good quality SEA reports.

Formal requirements for tiered SEA

This research has shown that only a tiered approach is likely to be successful in meeting SEA principles. Whilst the proposed EC 'SEA directive' proposal only includes provisions for plan-SEA and to some extent for programme-SEA, it is clear that it should go ahead and be implemented in its current state after more than a decade of negotiations. In the interest of avoiding distortion of competition between EU member states, it is however suggested that it should later be amended in order to include provisions for policy-SEA (as used in this thesis).

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Gesetz zur Regionalisierung des öffentlichen Personennahverkehrs (Regionalisierungsgesetz) 1993 (BGBl. IS. 2395).

Gemeinsamer Erlaß des Ministeriums für Umwelt, Naturschutz und Raumordnung und des Ministeriums für Stadtentwicklung, Wohnen und Verkehr vom 24.10.1994 (Bauleitplanung und Landschaftsplanung) (Amtsblatt für Brandenburg vom 06.12.1994), last amended 29.04.1997 (Amtsblatt für Brandenburg vom 23.05.1997).

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Baugesetzbuch (BauGB) vom 27.08.1997 (BGBl. IS. 2141), last amended 1998 (BGBl. IS. 137).

Gesetz zur Änderung des Baugesetzbuches und zur Regelung des Rechts der Raumordnung (Bau- und Raumordnungsgesetz - BauROG) vom 01.01.98.

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ANNEX 1

List of all the SEAs in the three regions

(1) Policy-SEAs

(a) Transport

National level

- Second Transport Structure Plan (SVVII), The Netherlands*

Regional level

- Transport Strategy for the Merseyside Package Bid (MerITS), UK *
- Transport Plan (*RVVP*) Noord-Holland-Noord, the Netherlands *
- Transport Plan (*RVVP*) Haarlem-IJmond, the Netherlands *
- Transport Plan (*RVVP*) ROA, the Netherlands *
- Transport Plan (*RVVP*) Gooi en Vechtstreek, the Netherlands***
- Integrated Transport Plan for the Northern Wing of the Randstad (*INVERNO*), the Netherlands*
- City Development Plan Transport (*Stadtentwicklungsplan Verkehr*) Berlin, Germany*
- Integrated Transport Strategy (*Integrierter Verkehrsplan*) Brandenburg, Germany*

Local level

no SEA found

(b) Spatial/land use

National level

- National Vision of the Netherlands (*Visie Nederland*), the Netherlands***

Regional level

- Development Vision (*ontwikkelingsvisie*) Noord-Holland, the Netherlands*

Local level

- Future Vision (*Toekomstvisie*) Hilversum, the Netherlands*
- Vision (*visie*) Enkhuizen, the Netherlands **
- Vision (*visie*) Waterland, the Netherlands ***
- Vision (*visie*) Uithoorn, the Netherlands ***
- Vision (*visie*) Aalsmeer, the Netherlands ***

* = included in analysis, based on interview results
** = included in analysis, based on postal questionnaire results
*** = not included in analysis (not accessible, accessible only after data collection, no reply by local authority, research study)

(2) Plan-SEAs

(a) Transport

National level

- SEA in the Trans-Pennine Corridor, UK***
- Improvement of the Transport Infrastructure within the Triangle Hamburg-Hannover-Berlin (Verkehrsuntersuchung Nord-Ost), Germany***

Regional level

no SEA found

Local level

no SEA found

(b) Spatial/land use

National level

no SEA found

Regional level

- Environmental Appraisal for the Lancashire Structure Plan, UK*
- Environmental Appraisal for the Cheshire Structure Plan, UK*
- Landscape Framework Plan (*Landschaftsrahmenplan*) Havelland, Germany*
- Landscape Framework Plan (*Landschaftsrahmenplan*) Oberhavel, Germany***
- Landscape Framework Plan (*Landschaftsrahmenplan*) Dahmeland, Germany***
- Landscape Programme (*Landschaftsprogramm*) Berlin, Germany*

Local level

- Environmental Appraisal for the Oldham UDP, UK*
- Environmental Appraisal for the Warrington Local Plan, UK*
- Environmental Appraisal for the Vale Royal Local Plan, UK**
- Environmental Appraisal for the Burnley Local Plan, UK**
- Environmental Appraisal for the Chester Local Plan, UK**
- Environmental Appraisal for the Halton Local Plan, UK**
- Environmental Appraisal for the Pendle Local Plan, UK**
- Environmental Appraisal for the South Ribble Local Plan, UK**
- Environmental Appraisal for the West Lancashire Local Plan, UK**
- Environmental Appraisal for the Crewe Local Plan, UK**

* = included in analysis, based on interview results
** = included in analysis, based on postal questionnaire results
*** = not included in analysis (not accessible, accessible only after data collection, no reply by local authority, research study)

- Environmental Appraisal for the Congleton Local Plan, UK**
- Environmental Appraisal for the Blackburn Local Plan, UK**
- Environmental Appraisal for the Lancaster Local Plan, UK**
- Environmental Appraisal for the Macclesfield Local Plan, UK**
- Environmental Appraisal for the Liverpool UDP, UK**
- Environmental Appraisal for the Sefton UDP, UK***
- Landscape Plan (*Landschaftsplan*) for the Land Use Plan (*FNP*) Ketzin, Germany*
- Landscape Plan (*Landschaftsplan*) for the Land Use Plan (*FNP*) Nauen, Germany**
- Landscape Plan (*Landschaftsplan*) for the Land Use Plan (*FNP*) Fürstenwalde, Germany**
- Landscape Plan (*Landschaftsplan*) for the Land Use Plan (*FNP*) Oranienburg, Germany**
- Landscape Plan (*Landschaftsplan*) for the Land Use Plan (*FNP*) Hohen-Neuendorf, Germany**
- Landscape Plan (*Landschaftsplan*) for the Land Use Plan (*FNP*) Strausberg, Germany**
- Landscape Plan (*Landschaftsplan*) for the Land Use Plan (*FNP*) Unteres Dahmeland, Germany**
- Landscape Plan (*Landschaftsplan*) for the Land Use Plan (*FNP*) Birkenwerder, Germany**
- Landscape Plan (*Landschaftsplan*) for the Land Use Plan (*FNP*) Kleinmachnow, Germany**
- Landscape Plan (*Landschaftsplan*) for the Land Use Plan (*FNP*) Woltersdorf, Germany**
- Landscape Plan (*Landschaftsplan*) for the Land Use Plan (*FNP*) Königs-Wusterhausen, Germany**
- Landscape Plan (*Landschaftsplan*) for the Land Use Plan (*FNP*) Schönefeld, Germany**
- Landscape Plan (*Landschaftsplan*) for the Land Use Plan (*FNP*) Bestensee, Germany**
- Landscape Plan (*Landschaftsplan*) for the Land Use Plan (*FNP*) Schwielosee, Germany**
- Landscape Plan (*Landschaftsplan*) for the Land Use Plan (*FNP*) Neuenhagen, Germany**
- Landscape Plan (*Landschaftsplan*) for the Land Use Plan (*FNP*) Trebbin, Germany**
- Landscape Plan (*Landschaftsplan*) for the Land Use Plan (*FNP*) Stadt Bernau, Germany**
- Landscape Plan (*Landschaftsplan*) for the Land Use Plan (*FNP*) Petershagen, Germany**
- Landscape Plan (*Landschaftsplan*) for the Land Use Plan (*FNP*) Stahnsdorf, Germany**
- Landscape Plan (*Landschaftsplan*) for the Land Use Plan (*FNP*) Velten, Germany**
- Landscape Plan (*Landschaftsplan*) for the Land Use Plan (*FNP*) Nauen-Land, Germany**
- Landscape Plan (*Landschaftsplan*) for the Land Use Plan (*FNP*) Ludwigsfelde, Germany**
- Landscape Plan (*Landschaftsplan*) for the Land Use Plan (*FNP*) Oranienburg-Land, Germany***
- Environment Matrix (*milieumatrix*) for the Structure Plan (*structuurplan*) Amsterdam, the Netherlands*

(3) Programme-SEAs

(a) Transport

National Level

- Roads Programme, UK***
- Federal Transport Structure Plan (BVWP), Germany*
- Federal Transport Structure Plan (BVWP), ecological assessment, Germany*

* = included in analysis, based on interview results
** = included in analysis, based on postal questionnaire results
*** = not included in analysis (not accessible, accessible only after data collection, no reply by local authority, research study)

Regional level

- Cheshire TPP, integrated appraisal, UK*
- Merseyside Package Bid, integrated appraisal, UK*
- Land Road Development Plan (*Landesstraßenbedarfsplan*), integrated appraisal, Germany*

Local level

no SEA found

(b) Spatial/land use

National level

- National Spatial Plan (VINEX) review*

Regional level

- Ecological Conflict Assesssment (*Ökologische Konfliktanalyse*) for the Land Use Plan (*FNP*) Berlin, Germany*

Local level

no SEA found

(4) Big-project-SEAs/EIAs

Only for regional level spatial/land use PPPs (*streekplannen*) in the Netherlands:

- Residential Area Amsterdam-Nieuw Oost***
- Residential Area Amsterdam-Nieuw Oost, 1st stage***
- City extension Amsterdam-Nieuw Oost, 2nd stage***
- Residential Area Purmerend***
- Residential Area HAL-gebied (Heerhugowaard, Alkmaar, Langedijk) ***
- Residential Area Zaanstad***
- Residential Area Haarlemmermeer-West***
- Airport Schiphol and surrounding area***

* = included in analysis, based on interview results
** = included in analysis, based on postal questionnaire results
*** = not included in analysis (not accessible, accessible only after data collection, no reply by local authority, research study)

ANNEX 2

Interviewees / personal communications

(1)North West England

Subsequently, interviewees in North West England for the PPPs/SEAs included in the main analysis are listed (several contacts were made from mid-1997 to mid-1998):

Policy, Plan or Programme	Authority	Interviewee (main persons)
Roads Programme	Department of Transport, London	Tim Fairclough
Regional Planning Guidance 13	North West Regional Association, Oldham Metropolitan Borough	Keith Howcroft
North West Transport Strategy	Lancashire County Council, Preston	Eric Waterhouse
Lancashire Structure Plan	Lancashire County Council, Planning Department, Preston	Phil Megson
Cheshire Structure Plan	Cheshire County Council, Planning Department, Chester	Simon Excell
Lancashire TPP	Lancashire County Council, County Surveyor's Council, Preston	Roy Worthington
Cheshire TPP	Cheshire County Council, Engeneering Service, Chester	Roy Newton
Merseyside Package Bid	Merseytravel, Liverpool	Brian Knowles
Greater Manchester Package Bid	Greater Manchester Passenger Transport Executive, Manchester	Nick Vaughan
Salford UDP	Salford City Council, Technical Services, Salford	Mr. Morris
Oldham UDP	Oldham Metropolitan Borough Council, Environmental Services, Oldham	Sarah Barker
Warrington Local Plan	Warrington Borough Council, Warrington	Ian Estall

The following persons were interviewed on general issues in North West England (between 1997 and 1998):

- Mark Baker of the University of Newcastle, on general planning issues
- Nick Clifford of Manchester City Council on planning issues in Greater Manchester
- Richard Elliot of Greater Manchester Transport Executive on transport planning in Greater Manchester

(2)Noord-Holland

Subsequently, interviewees in Noord-Holland for the PPPs/SEAs included in the main analysis are listed (several contacts were made from mid-1997 to mid-1998):

Policy, Plan or Programme	Authority	Interviewee
Second Transport Structure Plan, *SVVII*	Ministry of Transport and Water Management (Ministerie van Verkeer en Waterstaat), Den Haag	Mr. Ruud Splitthoff
National Spatial Plan, *VINEX* and *VINEX* review	Ministry for Spatial Planning and the Environment (Ministerie van VROM), Den Haag	Mr. Buys
Regional Plans (*Streekplannen*) Noord-Holland	Authority of Spatial Planning and Environment Noord-Holland (Provincie Noord-Holland, dienst Ruimte en Groen), Haarlem	Mr. Mauritz Schaafsma Mr. Van den Burg
Structure Vision (*Structuurvisie*) Noord-Holland	Authority of Spatial Planning and Environment Noord-Holland (Provincie Noord-Holland, dienst Ruimte en Groen), Haarlem	Mr. Peeskens
Regional Transport Plan (*RVVP*) Noord-Holland-Noord	Gemeente Alkmaar	Mr. Renee Meijer
Transport plan (*RVVP*) INVERNO	Transport Authority of Noord-Holland, Haarlem	Mr. De Vries
Structure Plan (*Structuurplan*) ROA	Regional Body of Amsterdam (Regionaal Orgaan, ROA)	Mr. Paul Gravemaker
Regional Transport Plan ROA (*RVVP* ROA)	Amsterdam Spatial Planning Authority (Gemeente Amsterdam, Dienst Ruimtelijke Ordening)	Mr. Buffing Mr. Joustra
Interprovinvial Urbanisation Vision of the Randstad (*IPVR*)	Randstad Overleg Ruimtelijke Ordening (RoRo-team), Haarlem	Mr. Wouter de Herder
Structure Plan (*Structuurplan*) Amsterdam	Gemeente Amsterdam	Mrs. Alexandra van Olst (*structuurplan*) Pim Vermeulen (*milieumatrix*)
Regional Transport Plan (*RVVP*) Haarlem/IJmond	Geweest Haarlem/IJmond, Haarlem	Mr. Henk van Steveninck
Structure Vision (*Structuurvisie*) Hilversum	Gemeente Hilversum	Mr. Cor vande Varst

The following persons were interviewed on general issues in Noord-Holland (between 1997 and 1998):

- Mr. Van Dalen of National Dutch Railways, Amsterdam on RAIL 21 strategy
- Luc Kapoen of the University of Amsterdam on general planning issues in the Netherlands
- Mr. Poulstra of Gemeente Amsterdam on the Transport Plan for the inner city Amsterdam (VIP)
- Mrs. Linda Maasdijk of Milieudienst Amsterdam on milieumatrix Amsterdam
- Mr. Theo de Munnik of regional branch of the national ministry of transport in Haarlem on general transport issues
- Mr. Harold Koster of dienst Ruimtelijke Ordening Amsterdam on general planning issues in Amsterdam
- Mr. Boot of Provincie Noord-Holland on transport related planning issues
- Jack van den Burg of the Provincie Noord-Holland on general planning issues

(3)EVR Brandenburg-Berlin

Subsequently, interviewees in EVR Brandenburg-Berlin for the PPPs/SEAs included in the main analysis are listed (several contacts were made from mid-1997 to mid-1998):

Policy, Plan or Programme	Authority	Interviewee
Federal Transport Infrastructure Plan (*Bundesverkehrswegeplan*)	Federal Ministry of Transport, Bonn	Mrs. Gipper
Federal Spatial Orientation Framework (*Raumordnungs-politscher Orientierungsrahmen*)	Federal Ministry of Spatial Planning, Bonn	Mrs. Lorenz-Hennig
Land Development Programme (*LePro*) Brandenburg	Joint Land Planning Authority, Potsdam	Dr. Assig
Land Development Plan (*LEPeV*) EVR Brandeneburg Berlin	Joint Land Planning Authority, Potsdam	Mr. Uwe Rühl
Road Development Plan (*Landesstraßenbedarfsplan*) Brandenburg	Ministry for City Development, Construction and Transport, Potsdam	Dr. Dörner
Integrated Transport Plan (*Landesverkehrsplan*) Brandenburg	Ministry for City Development, Construction and Transport, Potsdam	Mrs. Wermke Mr. Neumann
Regional Plan (*Regionalplan*) Havelland-Fläming	Regional Planning Association, Kleinmachnow	Mr. Schneider
County Development Concept (*Kreisentwicklungskonzeption*) Havelland	County Authority (Landkreis) Havelland, Rathenow	Mrs. Westphal (Concept) Mr. Austel (Landscape Plan)
City Development Plan (*StEP*) - Transport	Authority for Construction, Dwellings and Transport, Berlin	Mr. Von Alm
Preparatory Land Use Plan (*FNP*) Berlin	Authority for City Development, Environmental Protection and Technology, Berlin	Mr. Sauer
District Development Plan (*Bereichsentwicklungsplan*)	District Authority (Bezirksamt) Charlottenburg, Berlin	Mrs. Bartsch
Preparatory Land Use Plan (*FNP*) Ketzin	Local Authority Ketzin	Mrs. Pönisch

The following persons were interviewed on general issues in EVR Brandenburg-Berlin (between 1997 and 1998):

- Mr. Ritter of Berlin City Council on FNP Berlin
- Mr. Brandl of Berlin City Council on Landscape Programme Berlin
- Mrs. Mangold of Berlin City Council on Landscape Programme Berlin
- Mr. Knackfuß of Berlin City Council on Agenda 21 Berlin
- Mrs. Fellmer and Mr. Schneider of Berlin Authority for Urban Development, Environment and Technology on Environment Atlas Berlin
- Mr. Sperling of Schöneberg District Authority on EIA of binding land use plan of Schöneberg district
- Mr. Hodek, Ministry of Environment, Nature Protection and Spatial Planning of Land Brandenburg on EIA in Brandenburg
- Mr. Lenk and Mrs. Loewa of Common Land Planning Authority, Potsdam on general planning issues in the Land Brandenburg

ANNEX 3

List of interview questions/ postal questionnaire

(1) List of interview questions

Date: Schedule number ☐☐☐

Document (policy, plan or programme):
Institution:
Address:
Name of Interviewee:
Telephone number:

I Questions relating to the policy, plan, programme (PPP) in general

1. What is legal status of the PPP? Are there any mandatory or non-mandatory provisions for the PPP?
2. Who is responsible for the PPP preparation ?
3. Is there a formal or an informal PPP process?
4. Please name the stages of the PPP preparation process and indicate, if appropriate, how SEA is integrated
5. Does the PPP have a sectoral specific or an integrative approach?
6. What are the overall objectives of the PPP/ what are the objectives concerning transport?
7. Does the PPP consider the entire administrative area of reference?
8. What transport modes are covered? What is the scale of the main map?
9. Is a) site specific information or b) a general outline for development presented (comparison of policy options)?
10. Is there a ranking of projects? Are any definite decisions made about location and timing?
11. Are environmental issues considered, when were environmental issues first considered: prior, during or after PPP preparation?
12. Were any formal/ informal consultations carried out during the preparation of the PPP? What statutory/ non-statutory bodies were involved?
13. Are there any provisions for receiving comments from the public during or after the preparation of the PPP?
14. Was there any guidance to be followed?
15. How long was the PPP preparation process?
16. Who approved the PPP? When was the PPP approved?
17. How long is the PPP valid?

II Questions relating to the co-ordination between different kinds of PPPs/tiers of PPPs

18. Was there any co-ordination between the preparation of the PPP & other PPPs?
19. Did the PPP have an impact on decisions taken in another decision area?
20. Were there any other policies, plans and programmes that influenced the preparation of the PPP?

III Questions relating to sustainability

21. is sustainable development considered?
22. how is sustainable development defined? based on a sustainable development strategy?
23. Are the following objectives considered? a) climate change
b)acidification
c) air quality
d) nature/biodiversity
e) water
f) urban environment
g) waste management/ raw materials
h) other objectives
24. Are any targets defined for the following sustainability criteria: a) emission levels
b) noise levels
c) land-take
d) waste/ consumption levels
e) accident levels
f) other targets

25. please specify which of the following kinds of measures were used in order to achieve objectives/targets: a) land-use planning
b) infrastructure investment
c) infrastructure charging
d) incentives to use environmental friendly transport means
e) regulation changes
f) information and education
g) interactive communication
h) public transport improvement?
i) others

IV Questions relating to strategic environmental assessment (SEA)

26. Are there any provisions for the consideration of the environment in PPP making?
27. Is any formal or informal SEA carried out? If not, why not? Is there a separate SEA or an integrated assessment covering several subjects?
28. Who is responsible for SEA preparation? Are any consultants involved?
29. At what stage of the PPP preparation was the SEA carried out?
30. Are socio-economic impacts considered?
31. Are impacts of the whole plan considered?
32 Are impacts on transport assessed?
33. Is SEA linked to any other environment initiatives?
34. Which of following stages of SEA process were carried out: •screening •scoping •assessment report preparation •assessment report review •monitoring
35. Does SEA currently structure or run parallel to PPP making?
36. Does the scope of the SEA commensurate with the scope of the PPP?
37. Is there a separate SEA document or is SEA integrated into another document?
38. Does the SEA follow an approach or a project oriented approach?
39. Are the following methods applied: a)prediction of environmental impacts a1) consideration of different scenarios b)objectives/ problems, evaluation c)intra-modal alternatives c1) inter-modal alternatives d)mitigation
40. What techniques were used to assess environmental impacts?
41.Are there any formal or informal consultations of other bodies?
42. Is there any public participation?
43. Is there any public reporting on the results of the SEA?
44. Is any SEA guidance followed?
45. Who approved the SEA report?
46. How long did the SEA process take?
47. how influential was the SEA?

V Questions on opinions and attitudes

48. What is the quality of assessment report?
49. Do you think there are any deficiencies in the assessment?
50. Could a formal SEA be integrated in the PPP preparation process?
51. Do you think SEA leads to a better consideration of environment concerns?
52. Do you think formal SEA would lead to a delay of the preparation of the PPP?
53. What effects do you think SEA has on later decisions? (e.g. at project level) May it lead to an acceleration of subsequent projects? Any other comments:

(2) Postal Questionnaire

Thomas B. Fischer
EIA Centre
Department of Planning & Landscape
University of Manchester
Oxford Road
Manchester, M13 9PL
Email: mfhxatbf@fs1.ar.man.ac.uk

To

questionnaire on *local plan*

Dear Sir/ Madam,

I am writing to ask your help with my research. I am currently undertaking a PhD under the supervision of Professor Christopher Wood at the EIA Centre, Department of Planning and Landscape, University of Manchester. My research focuses on transport and spatial/land use policies, plans and programmes (ppps), strategic environmental assessment (SEA) and the consideration of sustainability aspects. The particular geographical areas studied are the North West Counties surrounding Greater Manchester, the province of Noord-Holland (administrative region around the regional body of Amsterdam) and the planning region of Berlin-Brandenburg. The study has the following aims:

- To describe, analyse and evaluate how sustainability aspects are taken into account in transport and spatial/land use ppps (referring to objectives, targets and measures proposed in the Fifth Environmental Action Programme of the European Commission).
- To explore the implications of SEA on transport and spatial/land use ppps. The understanding of SEA is derived from environmental assessment of projects; i.e.
  - ⇒ *screening* determines the need for assessment,
  - ⇒ *scoping* identifies the key environmental issues that are potentially significantly affected by the ppp to be identified and determines the issues to be addressed in the assessment,
  - ⇒ an *assessment report* is prepared in order to provide PPP makers with factual information and comprises the analysis of environmental impacts and consequences,
  - ⇒ *review* is conducted in order to check the quality and adequacy of the assessment report.
  - ⇒ *monitoring* is conducted in order to compare predictions with real outcomes,
- To suggest how sustainability and SEA might be included in transport and spatial/land use ppps.

My research includes interviews and questionnaires covering a wide range of different documents related to the national, provincial/ regional and local level of decision making. May I therefore ask you to complete the attached 4-page questionnaire on the local plan that is currently used in your district. This will take you about 15 to 30 minutes. I appreciate you have a very busy schedule and I would be very grateful for your assistance in this matter. Please send the completed questionnaire back by 31 October 1997.

If you have any further questions please do not hesitate to contact me. If you wish I will send you a summary of the final results of my research. Thank you very much for your co-operation.

Yours sincerely

Thomas B. Fischer

Questionnaire

Date of completing the questionnaire _____
Adoption date of Development Plan _____
Local authority _____
Name of respondent _____
Address _____
Telephone number _____

NOTE: FOR THE FOLLOWING QUESTIONS YOU MAY GIVE MORE THAN ONE ANSWER

1. Please indicate the current status of the development plan that is used in your district: adopted ☞ ( )
not yet adopted ☞ ( )

If not yet adopted please specify when development plan will be adopted:_____

2. Please indicate other transport infrastructure related plans/ programmes in your county ☞ ( )

please specify type (e.g. statutory, non-statutory, guidance, investment plan) and adoption date:_____

2a. Please name the main objectives of the structure plan:_____

3. Is an assessment provided on the potential impacts of the structure plan on transport? no ☞ ( )
yes ☞ ( )

if yes, please specify_____

4. Does the structure plan consider the concept of sustainable development? no ☞ ( )
yes ☞ ( )

if no, please specify why
concept not known ☞ ( )
there are no requirements to consider the concept ☞ ( )
concept not applied, yet ☞ ( )
concept doesn't add anything new to what is already done today ☞ ( )
other ☞ ( )

if other, please specify:_____

5. Does the structure plan refer to a sustainable development strategy / strategies? no ☞ ( )
yes ☞ ( )

If yes, please name the strategy/ strategies; if no, please specify how environmental sustainability is defined:

6. Have you heard of Agenda 21? no ☞ ( )
yes ☞ ( )

if yes, please specify in what context you have heard of it:_____

7. Does the structure plan consider the following issues?

(a)	climate change	(i) general:	no ☞ ( ) yes ☞ ( )	(ii) transport specific:	no ☞ ( ) yes ☞ ( )
(b)	air quality	(i) general:	no ☞ ( ) yes ☞ ( )	(ii) transport specific:	no ☞ ( ) yes ☞ ( )
(c)	nature/ biodiversity	(i) general:	no ☞ ( ) yes ☞ ( )	(ii) transport specific:	no ☞ ( ) yes ☞ ( )
(d)	urban environment/ health	(i) general:	no ☞ ( ) yes ☞ ( )	(ii) transport specific:	no ☞ ( ) yes ☞ ( )
(e)	others	(i) general:	no ☞ ( ) yes ☞ ( )	(ii) transport specific:	no ☞ ( ) yes ☞ ( )

if others, please specify:_____

8. Are there any targets set for the following criteria (quantitative or qualitative)?

(a) emissions
(i) general: no ☞ ( ) / yes, qualitative ☞ ( ) / yes, quantitative ☞ ( )
(ii) transport specific: no ☞ ( ) / yes, qualitative ☞ ( ) / yes, quantitative ☞ ( )

Please specify: _____

(b) land-take
(i) general: no ☞ ( ) / yes, qualitative ☞ ( ) / yes, quantitative ☞ ( )
(ii) transport specific: no ☞ ( ) / yes, qualitative ☞ ( ) / yes, quantitative ☞ ( )

Please specify: _____

(c) others
(i) general: no ☞ ( ) / yes, qualitative ☞ ( ) / yes, quantitative ☞ ( )
(ii) transport specific: no ☞ ( ) / yes, qualitative ☞ ( ) / yes, quantitative ☞ ( )

Please specify: _____

9. Please indicate if there are any specific transport related measures proposed in order to address the following issues:

(a) global climate change — no ☞ ( ) / yes ☞ ( )

Please specify the kind of measures proposed _____

(b) air quality — no ☞ ( ) / yes ☞ ( )

Please specify the kind of measures proposed _____

(c) nature/biodiversity — no ☞ ( ) / yes ☞ ( )

Please specify the kind of measures proposed _____

(d) urban environment — no ☞ ( ) / yes ☞ ( )

Please specify the kind of measures proposed _____

(e) others — no ☞ ( ) / yes ☞ ( )

Please specify the kind of measures proposed _____

10. Was a Strategic Environmental Assessment (SEA)/ an Environmental Appraisal (EA) carried out or was there any other kind of consideration of environmental impacts (EE; including Council *internal* evaluation)?

no ☞ ( )

If no SEA/ EA/ EE have been prepared please go to question 21

yes, SEA ☞ ( )
yes, EA ☞ ( )
yes, EE ☞ ( )

If SEA or EE, please specify: _____

PLEASE CIRCLE SEA OR EA OR EE BELOW, WHERE APPLICABLE

10a. If there is SEA/ EA/ EE, please specify if it was carried out

before adoption of the structure plan ☞ ( )
after adoption of the structure plan ☞ ( )

11. Is the SEA/ EA/ EE linked to any other environmental/ sustainable development initiatives? no ☞ ( ) / yes ☞ ( )

if yes, please pecify _____

12. Please indicate which of the following stages of the SEA/EA/ EE process were undertaken:

(a) screening — no ☞ ( ) yes ☞ ( )

Please indicate how:_____

(b) scoping — no ☞ ( ) yes ☞ ( )

Please indicate how:_____

(c) SEA /EA/ EE report — no ☞ ( ) yes ☞ ( )

Please state the number of pages of the report:_____

(d) SEA/ EA/ EE report review — no ☞ ( ) yes ☞ ( )

Please specify by whom review is done:_____

(e) monitoring — no ☞ ( ) yes ☞ ( )

Please specify how:_____

13. Does the SEA/EA/ EE report include any of the following aspects:

(a) description of environmental impacts — no ☞ ( ) yes ☞ ( )

Please specify if impacts are considered that are — direct ☞ ( ) indirect ☞ ( ) cumulative ☞ ( )

(b) consideration of different development scenarios — no ☞ ( ) yes ☞ ( )

Please name the scenarios_____

(c) consideration of alternative sites/ geographical alternatives — no ☞ ( ) yes ☞ ( )

(d) consideration of any other alternatives (e.g. intermodal) — no ☞ ( ) yes ☞ ( )

Please specify:_____

(e) (i) the consideration of mitigation measures — no ☞ ( ) yes ☞ ( )
(ii) the consideration of compensation measures — no ☞ ( ) yes ☞ ( )

(f) monitoring — no ☞ ( ) yes ☞ ( )

14. What techniques were used for the SEA/EA/ EE:

matrices ☞ ( )
overlay/ mapping techniques (e.g. GIS) ☞ ( )
checklists ☞ ( )
other ☞ ( )
field research ☞ ( )
expert judgement ☞ ( )
workshops ☞ ( )
simulation/ scenario analysis/ environmental models ☞ ( )

If other, please specify:_____

15. Were there any consultations carried out for the SEA/EA/EE — no ☞ ( ) yes ☞ ( )

Please specify the kind of consultations_____

16. Was there any public participation in the SEA/EA/EE

no ☞ ( )
yes ☞ ( )

Please specify (i) the stage in PPP formulation at which public participation takes place (ii) also specify if the results of the public participation are considered in the development plan:_____

_____

17. Are the SEA/EA/ EE documents accessible to the public

no ☞ ( )
yes ☞ ( )

18. How much time was spend on the SEA/EA/ EE?

≤1 person year ☞ ( )
1 person year to ≤ 2 person years ☞ ( )
2 person years to ≤ 3 person years ☞ ( )
3 person years to ≤4 person years ☞ ( )
> 4 person years ☞ ( )
not possible to say ☞ ( )

19. In your opinion, is the quality of the SEA/EA/ EE

very good ☞ ( ) good ☞ ( )
marginally good ☞ ( ) not good at all ☞ ( )

20. How influential do you think was the SEA/ EA/ EE for final decision making?

very influential ☞ ( ) reasonably influential ☞ ( )
marginally influential ☞ ( ) not influential at all ☞ ( )

21. Do you think formal SEA leads to a better consideration of environmental concerns?

no ☞ ( )
yes ☞ ( )

Please specify _____

_____

22. Do you think an integration of formal SEA into the PPP process is possible?

no ☞ ( )
yes ☞ ( )

Please specify _____

_____

23. Do you think a formal SEA would lead/ has led to a delay of the preparation of the structure plan?

no ☞ ( )
yes ☞ ( )

Please specify:_____

_____

24. Do you think a formal SEA of the local plan may lead to an acceleration of later project preparation

no ☞ ( )
yes ☞ ( )

Please specify:_____

_____

25. Please name any other important documents in your district that relate to the structure plan

_____

_____

26. Do you have any other comments on the topic?

_____

_____

_____

Please tick here if you want to obtain a summary of the final results ☞ ( )

If possible, please attach any relevant documents or studies to this questionnaire or provide a reference!
Thank you very much for your help!

ANNEX 4

Evaluation of the potential SEA benefits for the SEA case studies

North West England: Evaluation of environmental appraisals for the Structure Plans Cheshire and Lancashire, Merseyside Package Bid (a) + underlying strategy (b), Cheshire TPP as well as the environmental appraisals for the Warrington Local Plan and the Oldham UDP

Benefits / PPP	Lancashire Structure Plan	Cheshire Structure Plan	Cheshire TPP	Merseyside Package Bid		Warrington Local Plan	Oldham UDP
Benefit 1: wider consideration of impacts and alternatives							
environmental and other impacts							
- environmental impacts (directly, indirectly, no)	✓	✓	✓	✓	✓	✓	✓
- overall impacts on CO2/energy (yes, qualitatively, no)	⇔	⇔	×	×	✓	⇔	⇔
- impacts on transport (yes, qualitatively, no)	×	×	×	×	✓	×	×
- other PPP wide cumulative (yes, cumulative alternatives, no)	×	×	×	×	✓	×	×
evaluation of significance (impacts compared with objectives: yes/quantitatively, only qualitatively, no)	⇔	⇔	×	×	✓	⇔	⇔
-intermodal, intramodal, no alternatives considered	×	⇔	×	×	✓	×	×
- zero alternative (yes, implicitly, no)	×	⇔	×	×	✓	×	×
scenarios (in maps or figures, qualitative discussion, no)	⇔	⇔	×	×	✓	×	⇔
Total score: <25% = ▫ ≥25% to < 50% = ○ ≥ 50% to < 75% = ⊙ ≥ 75% to < 100% = ● 100% = ■	5 out of 16 = ○ (30%)	7 out of 16 = ○ (43%)	2 out of 16 = ▫ (13%)	2 out of 16= ▫ (13%)	16 out of 16 = ■	4 out of 16 = ○ (25%)	5 out of 16 = ○ (30%)
Benefit 2: pro-active assessment - SEA for sustainability							
early application of SEA (before/beginning, during, after)	⇔	⇔	⇔	⇔	✓	⇔	⇔
consider environment (before/beginning, during, after)	✓	✓	✓	✓		✓	✓
main objectives of PPP (yes, indirectly, no)							
- environmental	✓	✓	⇔	⇔		✓	✓
- economic	✓	✓	⇔	✓		✓	✓
- social	✓	✓	⇔	⇔		✓	✓
- transport	⇔	✓	✓	✓		⇔	✓
- environment standards (yes, implicitly/ qualitatively, no)	✓	✓	✓	✓		×	×
SEA should be pro-active							
- predetermined, formal PPP process? (yes, no)	✓	✓	✓	✓		✓	✓
- SEA structures PPP? (yes/parallel SEA, indirectly, no)	✓	✓	×	×	×	×	×
- socio-economic impacts? (yes, implicitly, no)	×	⇔	✓	✓	✓	×	×
- sustainable development (yes, implicitly, no)	✓	✓	✓	✓		✓	✓
- sustainable development strategies (yes, indirectly, no)	✓	✓	✓	✓		×	×
screening (yes/documented, checklist or similar, no)	×	×	×	×	×	×	×
scoping (yes/documented/consultation, checklist, no)	⇔	⇔	⇔	⇔	×	⇔	⇔
separate assessment report (yes, sheets, integrated)	✓	✓	⇔	⇔	×	✓	✓
monitoring/follow-up (yes, ongoing/research/implicit, no)	⇔	⇔	×	×	×	⇔	⇔
Total score: <25% = ▫ ≥25% to < 50% = ○ ≥ 50% to < 75% = ⊙ ≥ 75% to < 100% = ● 100% = ■	25 out of 32 = ● (75%)	27 out of 32 = ● (81%)	21 out of 32 = ⊙ (66%)	21 out of 32=⊙ (66%)	20 out of 32=⊙ (63%)	18 out of 32 = ⊙ (56%)	19 out of 32 = ⊙ (59%)

Benefits \ PPP	Lancashire Structure Plan	Cheshire Structure Plan	Cheshire TPP	Merseyside Bid	Package	Warrington Local Plan	Oldham UDP
Benefit 3: strengthening project EIA, increasing efficiency, tiered EIA/SEA							
- SEA commensurate with scope of PPP (yes, no)	✓	✓	✓	✓	×	✓	✓
- acceleration of projects (yes, potentially through comprehensive environmental information, no)	×	×	×	×	×	×	×
- substitute (parts of) project EIA (yes, no)	×	×	×	×	×	×	×
- do SEA and EIA assess different issues (yes, no)	✓	✓	×	×	✓	✓	✓
mitigation (yes, need mentioned, no)	×	✓	×	×	×	×	⇔
Total score: <25% = □ ≥25% to < 50% = ○ ≥ 50% to < 75% = ⊙ ≥ 75% to < 100% = ● 100% = ■	4 out of 10 = ○ (40%)	6 out of 10 = ⊙ (60%)	2 out of 10 = □ (20%)	2 out of 10=□ (20%)	2 out of 10=□ (20%)	4 out of 10 = ○ (40%)	5 out of 10 = ⊙ (50%)
Benefit 4: systematic consideration of environment at higher tier levels							
Legal provisions (yes, quasi/ indirectly, no) - SEA	⇔	⇔	⇔	⇔	×	⇔	⇔
- PPP	✓	✓	⇔	⇔		✓	✓
clear requirements (guidance: yes, research/other studies, no) - SEA	✓	✓	✓	✓	×	✓	✓
- PPP	✓	✓	✓	✓		✓	✓
accountability (initiating not approving body: yes, no), -SEA	×	×	✓	✓	×	×	×
-PPP	✓	✓	✓	✓		✓	✓
SEA considered in decision making (yes, partly, no)	⇔	⇔	⇔	⇔	⇔	⇔	⇔
outside review of SEA report (yes, indirectly, no)	×	×	✓	✓	✓	×	×
Total score: <25% = □ ≥25% to < 50% = ○ ≥ 50% to < 75% = ⊙ ≥ 75% to < 100% = ● 100% = ■	10 out of 16 = ⊙ (63%)	10 out of 16 = ⊙ (63%)	13 out of 16 = ● (81%)	13 out of 16=● (81%)	8 out of 16=⊙ (50%)	10 out of 16 = ⊙ (63%)	10 out of 16 = ⊙ (63%)
Benefit 5: public involvement and consultation of other bodies							
involvement (yes, after PPP approval, no): - public SEA	×	✓	×	×	✓	×	⇔
- public PPP	✓	✓	✓		✓	✓	✓
- consultations other bodies SEA	×	✓	×	×	✓	✓	✓
- consultations other bodies PPP	✓	✓	✓		✓	✓	✓
- reporting SEA (yes, copies of sections available, no)	✓	✓	×	×	⇔	✓	✓
- reporting PPP	✓	✓	✓		✓	✓	✓
Total score: <25% = □ ≥25% to < 50% = ○ ≥ 50% to < 75% = ⊙ ≥ 75% to < 100% = ● 100% = ■	8 out of 12 = ⊙ (67%)	12 out of 12 = ■	6 out of 12 = ⊙ (50%)	6 out of 12=⊙ (50%)	11 out of 12=● (92%)	10 out of 12 = ● (83%)	11 out of 12 = ● (92%)

✓ = yes or see information in brackets after criterion (scores 2), ⇔ = partially or see information in brackets after criterion (scores 1), × = no or see information in brackets after criterion (scores 0)

Policy-SEA

Plan-SEA

Programme-SEA

Noord-Holland: Evaluation of SEAs for the Second Transport Structure Plan, *SVV* II, the National Spatial Plan, *VINEX* review, the Vision, *visie* Noord-Holland, the integrated transport PPPs INVERNO, *RVVP* Noord-Holland Noord, *RVVP* ROA and *RVVP* Haarlem-IJmond (a=*RVVP*, b= environmental maps), the Strucure Plan, *structuurplan* Amsterdam and the Vision, *visie* Hilversum

Benefits / PPP	SVVII	VINEX Review	Visie N-Holland	INVER-NO	RVVP N-Holland-N	RVVP ROA	Structuur-pl. A'dam	Visie Hilversum	RVVP Haarl.-IJ.
Benefit 1: wider consideration of impacts and alternatives						(a) (b)			(a) (b)
environmental and other impacts									
- environmental impacts (directly, indirectly, no)	✓	✓	✓	✓	✓	✓ ✓	(✓)	✓	✓ ✓
- impacts on CO_2/energy (yes, qualitatively, no)	✓	✓	✓	✓	✓	✓ ✗	✗	✓	✓ ✗
- impacts on transport (yes, qualitatively, no)	✓	✓	✓	✓	✓	✓ ✗	✗	✓	✓ ✗
- PPP wide cumulative (yes, cumulative alternatives, no)	✓	✗	✓	✓	✓	✓ ⇔	✗	✓	✓ ⇔
evaluation of significance (impacts compared with objectives: yes, only qualitatively, no)	✓	✓	⇔	✓	✓	✓ ✗	(✓)	✓	✓ ✗
-alternatives (intermodal, intramodal, no alternatives)	✓	⇔	✓	✓	✓	✓ ✓	(✓)	✓	✓ ✓
- zero alternative (yes, implicitly, no)	✓	✗	✓	✓	✓	✓ ✓	(✓)	✓	✓ ✓
scenarios (in maps or figures, qualitatively discussed, no)	✓	✗	✓	✓	✓	✓ ✓	✗	⇔	✓ ✓
Total score: <25% = □ ≥25% to < 50% = ○ ≥ 50% to < 75% = ⊙ ≥ 75% to < 100% = ● 100% = ■	16 of 16 = ■	9 of 16 = ⊙ (56%)	15 of 16 = ● (94%)	16 of 16 = ■	16 of 16 = ■	16 of 16 = ■	8 of 16 = ⊙ (50%)	15 of 16 = ● (94%)	16 of 16 = ■
Benefit 2: pro-active assessment - SEA for sustainability									
early application of SEA (before/beginning, during, after)	⇔	⇔	⇔	✓	✓	✓ ✗	(⇔)	⇔	✓ ⇔
consider environment (before/beginning, during, after)	✓	✓	⇔	✓	✓	✓	(⇔)	⇔	✓
main objectives of PPP (yes, implicitly, no)									
- environmental	✓	✓	✓	✓	✓	✓	✓	✓	✓
- economic	✓	✓	✓	✓	✓	⇔	✓	✓	⇔
- social	✓	✓	✓	✓	✓	⇔	✓	✓	⇔
- transport	✓	✓	✓	✓	✓	✓	✓	✓	✓
- environment standards (yes, implicitly/ qualitatively, no)	✓	⇔	⇔	✓	✓	✓	(⇔)	✗	✓
SEA should be pro-active									
- predetermined, formal PPP process? (yes, no)	✓	✓	✗	✗	✗	✗	✓	✗	✗
- SEA structures PPP? (yes/parallel SEA, indirectly, no)	✓	✓	✓	✓	✓	✓ ✗	✗	✓	✓ ✗
- socio-economic impacts? (yes, implicitly, no)	✓	✓	✓	✓	✓	✓ ✗	✗	✓	✓ ✗
- sustainable development (yes, implicitly, no)	✓	✓	✓	✓	✓	✓	✓	✓	✓
- sustainable development strategies (yes, indirectly, no)	✓	✓	✗	✓	✓	✓	✓	✗	✓
screening (yes/documented, checklist or similar, no)	✗	✗	✗	⇔	⇔	⇔ ⇔	✗	✗	⇔ ⇔
scoping (yes/documented/consultation, checklist, no)	✓	✓	✓	⇔	⇔	⇔ ⇔	✗	✓	⇔ ⇔
separate assessment report (yes, sheets, integrated)	✗	✓	✗	✗	✗	✗ ✓	(✓)	✗	✗ ✓
monitoring/follow-up (yes, ongoing/research/implicit, no)	✓	⇔	⇔	✓	⇔	✓ ✓	⇔	⇔	⇔ ⇔
Total score: <25% = □ ≥25% to < 50% = ○ ≥ 50% to < 75% = ⊙ ≥ 75% to < 100% = ● 100% = ■	27 of 32 = ● (84%)	27 of 32 = ● (84%)	20 of 32 = ⊙ (63%)	26 of 32 = ● (78%)	25 of 32 = ● (75%)	26 of 32 = ● (78%)	20 of 32 = ⊙ (63%)	19 of 32 = ⊙ (59%)	25 of 32 = ● (75%)

Benefits / PPP	SVVII	VINEX Review	Visie N-Holland	INVER-NO	RVVP N-Holland-N	RVVP ROA	Structuur-pl. A'dam	Visie Hilversum	RVVP Haarl.-IJ.
Benefit 3: strengthening project EIA, increasing efficiency tiered SEA/EIA									
- SEA commensurate with scope of PPP (yes, PPPs only deal with specific problem, no)	✓	⇔	✓	✓	✓	✓ ×	×	✓	✓ ×
- acceleration of projects (yes, potentially through comprehensive environmental information, no)	⇔	✓	⇔	⇔	⇔	⇔ ⇔	⇔	⇔	⇔ ⇔
- substitute (parts of) project EIA (yes, no)	×	✓	×	×	×	× ×	×	×	× ×
- do SEA and EIA assess different issues (yes, no)	✓	✓	✓	✓	✓	✓ ✓	×	✓	✓ ✓
mitigation (yes, need mentioned, no)	✓	⇔	⇔	×	×	× ×	×	✓	× ×
Total score: <25% = ▫ ≥25% to < 50% = ○ ≥ 50% to < 75% = ⊙ ≥ 75% to < 100% = ● 100% = ■	7 of 10 = ⊙ (70%)	8 of 10 = ● (80%)	6 of 10 = ⊙ (60%)	5 of 10 = ⊙ (50%)	5 of 10 = ⊙ (50%)	5 of 10 = ⊙ (50%)	1 0f 10 = ▫ (10%)	7 of 10 = ⊙ (70%)	5 of 10 = ⊙ (50%)
effective consideration of environment at higher tiers									
Legal provisions (yes, quasi/ indirectly, no) - SEA	⇔	×	×	×	⇔	⇔ ⇔	×	×	⇔ ⇔
- PPP	✓	✓	×	×	✓	✓	✓	×	✓
clear requirements (guidance: yes, research/ other studies, no) - SEA	⇔	⇔	×	×	×	× ×	⇔	×	× ×
- PPP	✓	✓	×	×	×	×	✓	×	×
accountability (initiating not approving body: yes, quasi, no) -SEA	⇔	✓	×	✓	✓	× ✓	×	×	× ✓
-PPP	✓	✓	✓	✓	✓	✓	✓	✓	✓
SEA considered in decision making (yes, reasonably, no)	✓	✓	⇔	✓	✓	✓ ×	(✓)	⇔	✓ ×
outside review of SEA report (yes, quasi, no)	⇔	✓	×	✓	✓	× ✓	×	×	✓ ✓
Total score: <25% = ▫ ≥25% to < 50% = ○ ≥ 50% to < 75% = ⊙ ≥ 75% to < 100% = ● 100% = ■	12 of 16 = ⊙ (69%)	13 of 16 = ● (81%)	3 of 16 = ▫ (19%)	8 0f 16 = ⊙ (50%)	11 of 16 = ⊙ (69%)	11 of 16 = ⊙ (69%)	9 0f 16 = ⊙ (56%)	3 of 16 = ▫ (19%)	11 of 16 = ⊙ (63%)
Benefit 5: public involvement and consultation of other bodies									
involvement (yes, after PPP approval, no):									
- public SEA	✓	✓	✓	×	×	× ×	×	✓	✓ ×
- public PPP	✓	✓	✓	×	×	⇔	✓	✓	✓
- consultations other bodies SEA	✓	✓	✓	✓	✓	✓ ✓	✓	✓	✓ ✓
- consultations other bodies PPP	✓	✓	✓	✓	✓	✓	✓	✓	✓
- reporting SEA	✓	✓	✓	✓	✓	✓ ✓	✓	✓	✓ ✓
- reporting PPP	✓	✓	✓	✓	✓	✓	✓	✓	✓
Total score: <25% = ▫ ≥25% to < 50% = ○ ≥ 50% to < 75% = ⊙ ≥ 75% to < 100% = ● 100% = ■	12 of 12 = ■	12 of 12 = ■	12 of 12 = ■	8 of 12 = ⊙ (67%)	8 of 12 = ⊙ (67%)	9 of 12 = ● (75%)	10 of 12= ● (83%)	12 of 12 = ■	12 of 12 = ■

✓ = yes or see information in brackets after criterion (scores 2), ⇔ = partially or see information in brackets after criterion (scores 1), × = no or see information in brackets after criterion (scores 0)

Policy-SEA
Plan-SEA
Programme-SEA

EVR Brandenburg-Berlin: Evaluation of SEAs: The Federal Transport Infrastructure Plan, *BVWP* (a=plan; b= risk assessment); Landscape Framework Plan for the Regional Plan, *Regionalplan* Havelland/Development Concept, *Kreisentwicklungskonzeption* Havelland; Road Development Plan (*Landesstraßenbedarfsplan*) Brandenburg; Integrated Transport Plan, *IVP* Brandenburg; Land Use Plan, *FNP* Berlin (a=environmental assessment, b= landscape programme); Integrated Transport Plan, *StEP* Berlin and the local Land Use Plan, *FNP* Ketzin

Benefits / PPP	BVWP		Landscape Framework Pl.		Road Plan Brandenburg	IVP Brandenburg	FNP Berlin		StEP Berlin	FNP Ketzin
Benefit 1: wider consideration of impacts and alternatives	(a)	(b)	(a)	(b)			(a)	(b)		
environmental and other impacts										
- environmental impacts (directly, indirectly, no)	✓	✓	×		✓	✓	✓	×	✓	✓
- impacts on CO2/energy (yes, qualitatively, no)	⇔	×	×		×	✓	×	×	✓	×
- impacts on transport (yes, qualitatively, no)	×	×	×		×	✓	×	×	✓	×
- PPP wide cumulative (yes, indirectly, no)	⇔	×	×		×	✓	×	×	✓	✓
evaluation of significance (impacts compared with objectives; yes, only qualitatively, no)	⇔	⇔	×		⇔	n/a	✓	×	✓	✓
-intermodal, intramodal, no alternatives considered	×	⇔	×		✓	✓	⇔	×	✓	⇔
- zero alternative (yes, implicitly, no)	×	⇔	×		×	✓	⇔	×	✓	⇔
scenarios (in maps or figures, qualitatively discussed, no)	✓	×	×		⇔	✓	×	×	✓	×
Total score: <25% = ▫ ≥25% to < 50% = ○ ≥ 50% to < 75% = ⊙ ≥ 75% to < 100% = ● 100% = ■	7 of 16= ○(44%)	9 of 16= ⊙(56%)	0 of 16 = ▫ (0%)		6 of 16 = ○ (44%)	14 of 14 = ■	6 of 16= ○(38%)	0 of 16= ▫(0%)	16 of 16 = ■	8 of 16 = ⊙ (50%)
Benefit 2: pro-active assessment-SEA for sustainability										
early application of SEA (before/beginning, during, after)	⇔	⇔	✓	✓	⇔	⇔	⇔	✓	⇔	✓
consider environment (before/beginning, during, after)	✓		✓	✓	⇔	⇔	⇔		⇔	⇔
main objectives of PPP (yes, indirectly, no)										
- environmental	⇔		⇔	⇔	×	✓	✓		✓	✓
- economic	✓		✓	✓	⇔	✓	✓		✓	✓
- social	⇔		✓	✓	⇔	⇔	✓		✓	✓
- transport	✓		✓	✓	✓	✓	✓		✓	✓
- environment standards (yes, implicitly/ qualitatively, no)	⇔		⇔	⇔	×	⇔	⇔		✓	⇔
SEA should be pro-active										
- predetermined, formal PPP process? (yes, no)	×		✓	×	×	×	✓		×	✓
- SEA structures PPP? (yes/parallel SEA, indirectly, no)	×	×	×	×	×	×	×	×	×	✓
- socio-economic impacts? (yes, implicitly, no)	✓	×	×	×	✓	✓	×	×	✓	×
- sustainable development (yes, implicitly, no)	×		✓	⇔	×	✓	⇔		✓	×
- sustainable development strategies (yes, indirectly, no)	×		×	×	×	×	×		×	×
screening (yes/documented, checklist or similar, no)	×	⇔	×		×	×	×	⇔	×	×
scoping (yes/documented/consultation, checklist, no)	×	⇔	✓		⇔	⇔	⇔	⇔	✓	⇔
separate assessment report (yes, separate sheets, integrated)	×	⇔	✓		×	×	⇔	✓	×	✓
monitoring/follow-up (yes, ongoing/research/implicit, no)	⇔	⇔	⇔		×	⇔	⇔	⇔	×	⇔
Total score: <25% = ▫ ≥25% to < 50% = ○ ≥ 50% to < 75% = ⊙ ≥ 75% to < 100% = ● 100% = ■	13 of 32 ○(41%)	14 of 32 ○(44%)	22 of 32 ⊙(69%)	18 of 32 ⊙(56%)	9 of 32 = ○ (28%)	16 of 32 = ⊙ (50%)	17 of 32 ⊙(53%)	20 of 32 ⊙(63%)	18 of 32 = ⊙ (56%)	20 of 32 = ⊙ (63%)

Benefits / PPP	BVWP		Landscape Framework Pl.		Road Plan Brandenburg	IVP Brandenburg	FNP Berlin		StEP Berlin	FNP Ketzin
Benefit 3: strengthening project EIA, increasing efficiency tiered SEA/EIA										
- SEA commensurate with scope of PPP (yes, no)	✓	×	✓	✓	✓	✓	×	×	✓	✓
- acceleration of projects (yes, potentially through comprehensive environmental information, no)	×	×	⇔	⇔	×	×	×	⇔	×	⇔
- substitute (parts of) project EIA (yes, no)	×	×	×	×	×	×	×	×	×	×
- do SEA and EIA assess different issues (yes, no)	✓	×	✓	✓	✓	✓	×	✓	✓	✓
mitigation (yes, need mentioned, no)	×	×	⇔	⇔	×	×	✓	⇔	×	⇔
Total score: <25% = □ ≥25% to < 50% = ○ ≥ 50% to < 75% = ⊙ ≥ 75% to < 100% = ● 100% = ■	4 of 10= ○(40%)	0 of 10= □ (0%)	6 of 10 = ⊙ (60%)		4 of 10 = ○ (40%)	4 of 10 = ○ (40%)	2 of 10= □ (20%)	5 of 10= ⊙(50%)	4 of 10 = ○ (40%)	6 of 10 = ⊙ (60%)
Benefit 4: systematic consideration of environment at higher tier levels										
Legal provisions (yes, quasi/ indirectly, no) - SEA	⇔	⇔	⇔		⇔	⇔	⇔	✓	⇔	✓
- PPP	✓		✓	⇔	✓	⇔	✓		⇔	✓
clear requirements (guidance: yes, research/ other studies, no) - SEA	⇔	⇔	⇔		⇔	⇔	×	✓	×	✓
- PPP	⇔		✓	✓	⇔	×	✓		×	✓
accountability (initiating not approving body: yes, quasi, no)-SEA	×	×	⇔		⇔	×	×	×	⇔	⇔
-PPP	×		✓	✓	⇔	⇔	✓		✓	✓
SEA considered in decision making (yes, reasonably/marginally, no)	⇔	⇔	⇔		⇔	n/a	n/a	n/a	n/a	✓
outside review of SEA report (yes, no)	×	×	✓	✓	×	×	×	×	×	✓
Total score: <25% = □ ≥25% to < 50% = ○ ≥ 50% to < 75% = ⊙ ≥ 75% to < 100% = ● 100% = ■	6 of 18= ○(38%)	6 of 18= ○(38%)	13 of 16 ●(81%)	11 of 16 ⊙(69%)	8 of 16 = ⊙ (50%)	4 of 14 = ○ (28%)	7 of 14= ⊙(50%)	10 of 14 ⊙(71%)	5 of 14 = ○ (36%)	15 of 16 = ● (94%)
Benefit 5: public involvement and consultation of other bodies										
involvement (yes, only informal or after PPP approval, no):										
- public SEA	×	×	×		×	×	×	✓	×	✓
- public PPP	×	×	✓	✓	×	×		✓	✓	✓
- consultations other bodies SEA	⇔	⇔		✓	✓	✓	×	✓	✓	✓
- consultations other bodies PPP	⇔	⇔	✓	✓	✓	✓		✓	✓	✓
- reporting SEA	✓	✓		✓	✓	✓	✓	✓	✓	✓
- reporting PPP	✓	✓	✓	✓	✓	✓		✓	✓	✓
Total score: <25% = □ ≥25% to < 50% = ○ ≥ 50% to < 75% = ⊙ ≥ 75% to < 100% = ● 100% = ■	6 of 12= ⊙(50%)	6 of 12= ⊙(50%)	10 of 12 = ● (83%)		8 of 12 = ⊙ (67%)	8 of 12 = ⊙ (67%)	8 of 12= ⊙(67%)	12 of 12 ■	10 of 12 = ● (83%)	12 of 12 = ■

✓ = yes or see information in brackets after criterion (scores 2), ⇔ = partially or see information in brackets after criterion (scores 1), × = no or see information in brackets after criterion (scores 0)

policy-SEA
plan-SEA
programme-SEA

ANNEX 5

Conformity of case study SEAs with the requirements of the EC 'SEA directive' proposal

Conformity of case study SEAs with the requirements of the EC 'SEA directive' proposal

PPP \ principles	environ -mental impacts	eval-uation	altern-atives	early applic-ation	sustain-able devel.	screen-ing	mitig-ation	SEA report	clear pro-visions	SEA con-sidered	clear re-quire-ments	SEA review	public particip -ation	consult-ation	report-ing fin-al SEA	average score	Overall evaluation
North West England																	
Lancashire Structure Plan	✓	⇔	✓	⇔	✓	×	×	✓	⇔	⇔	✓	×	×	×	✓	53%	⊙
Cheshire Structure Plan	✓	⇔	✓	⇔	✓	×	✓	✓	⇔	⇔	✓	×	✓	✓	✓	73%	⊙
Cheshire TPP	✓	×	✓	⇔	✓	×	×	⇔	⇔	⇔	✓	✓	×	×	×	47%	○
Merseyside Package Bid	✓	×	×	⇔	✓	×	×	⇔	⇔	⇔	✓	✓	×	×	×	40%	○
Merseyside Package Bid strategy	✓	✓	✓	✓	✓	×	×	⇔	×	⇔	×	✓	✓	✓	⇔	63%	⊙
Warrington Local Plan	✓	⇔	✓	⇔	✓	×	×	⇔	⇔	⇔	✓	×	×	✓	✓	57%	⊙
Oldham UDP	✓	⇔	✓	⇔	✓	×	⇔	✓	⇔	⇔	✓	×	⇔	✓	✓	67%	⊙
Noord-Holland																	
Transport Plan, *SVVII*	✓	✓	✓	⇔	✓	×	✓	×	⇔	✓	⇔	⇔	✓	✓	✓	73%	⊙
Spatial Plan, *VINEX* review	✓	✓	⇔	⇔	✓	×	⇔	✓	×	✓	⇔	✓	✓	✓	✓	73%	⊙
Vision, *visie* Noord-Holland	✓	⇔	✓	⇔	✓	×	⇔	×	×	⇔	×	×	✓	✓	✓	53%	⊙
Transport Plan INVERNO	✓	✓	✓	✓	✓	⇔	×	×	×	✓	×	✓	×	✓	✓	63%	⊙
Transport Plan, *RVVP* NHN	✓	✓	✓	✓	✓	⇔	×	×	⇔	✓	×	✓	×	✓	✓	67%	⊙
Transport Plan, *RVVP* ROA	✓	✓	✓	✓	✓	⇔	×	⇔	⇔	⇔	×	✓	×	✓	✓	67%	⊙
Structure Plan Amsterdam	✓	✓	✓	⇔	✓	×	×	✓	×	✓	⇔	×	×	✓	✓	60%	⊙
Vision, *visie* Hilversum	✓	✓	✓	⇔	✓	×	✓	×	×	⇔	×	×	✓	✓	✓	60%	⊙
RVVP Haarlem-IJmond	✓	✓	✓	✓	✓	⇔	×	⇔	⇔	⇔	×	✓	⇔	✓	✓	70%	⊙
EVR Brandenburg-Berlin																	
Transport Plan BVWP	✓	⇔	×	⇔	×	×	×	×	⇔	⇔	⇔	×	×	⇔	✓	33%	○
BVWP ecological assessment	✓	⇔	⇔	⇔	×	⇔	×	⇔	⇔	⇔	⇔	×	×	⇔	✓	43%	○
Regional Plan / Dev. Concept	×	×	×	✓	✓	×	⇔	✓	⇔	⇔	⇔	✓	×	✓	✓	53%	⊙
Road Development Plan Brandenburg	✓	⇔	✓	⇔	×	×	×	×	⇔	⇔	⇔	×	×	✓	✓	43%	○
Transport Plan, *IVP* Brandenburg	✓	n/a	✓	⇔	✓	×	×	×	⇔	n/a	⇔	×	×	✓	✓	50%	⊙
Land Use Plan, *FNP* Berlin	✓	✓	⇔	⇔	⇔	×	✓	⇔	⇔	n/a	×	×	×	×	✓	46%	○
FNP Berlin, Landscape Programme	×	×	×	⇔	⇔	⇔	⇔	✓	✓	n/a	✓	×	✓	✓	✓	57%	⊙
Transport Plan, *StEP* Berlin	✓	✓	✓	⇔	✓	×	×	×	⇔	n/a	×	×	×	✓	✓	50%	⊙
Land Use Plan, *FNP* Ketzin	✓	✓	⇔	✓	×	×	⇔	✓	⇔	✓	✓	✓	✓	✓	✓	77%	●
average score of 3 regions	89%	62%	77%	63%	81%	11%	27%	48%	40%	54%	51%	42%	36%	78%	88%		
Overall Evaluation	●	⊙	●	⊙	●	▫	○	○	○	⊙	⊙	○	○	●	●		

Scores: ✓ = 2: ⇔ = 1: × = 0:

Overall Evaluation: ▫ = under 25%: ○ = over 25% to 50%: ⊙ = over 50% to 75%: ● = over 75%. ■ = 100%

ANNEX 6

Comparison of targets of the Fifth Environmental Action Programme with national sustainable development strategies

Targets of 5th Action Programme and national sustainable development strategies

sustainable development strategy / target	EU	UK (DoE, 1994)	The Netherlands (Ministerie van VROM, 1994b) *transport sector specified*	Germany (BMU, 1994)
CO_2	1990-2000: no increase 1990-2005/10: progressive reduction	1990-2000: no increase	1986-2000: 0% to -3% 1986-2010: -10%	1990-2005: -25%
NOx	1990-1994: no increase 1990-2000: -30%	1987-1994: no increase	1986-2000:passenger transport (PT): -75%, goods transport (GT): -35%; 2000-2010: PT:-75%, GT:-75%	1986-1998: -30%
VOC	1990-1996: -10% 1990-1999: -30%	1988-1998: -30%	general target acknowledged, but not for transport sector	1988-1999: -30%
SO_2	1985-2000: -35%	-	general target acknowledged, but not for transport sector	1980-2000: -83% 1980-2005: -87%
N_2O	-	1990-2000: no increase	general target acknowledged, but not for transport sector	-
CxHy	-	-	1986-2000: PT:-75%, GT:-35% 1986-2010: PT:-75%, GT:-75%	-
noise levels	never > 85 dB(A) > 65 dB(A): to be phased out 55-65 dB(A): no increase areas now below 55 dB (A) not over 55 dB (A) in the future	-	maximum noise production of vehicles restrained; houses > 55dB(A): 2000: -10%, 2010: -50%; total area > 55dB(A): no increase from 1986	maximum noise production of vehicles restrained
land-take	• maintenance/ restauration of natural habitats • protection and enhancement of historical heritage, provision for green areas	• protect countryside for its landscape, wildlife, agricultural, recreational and natural resource volume	• prevent or reduce further fragmentation of countryside • reduce longer term fragmentation	• avoid severence • minimisation of land take and economic growth
waste/consumption levels	• halt and reverse current trend in waste generation • recycling paper, glas and plastics at least 50% • sustainable use of resources	• minimise natural resource consumption • minimise amount of travel required	• vehicles made of parts optimally suitable for re-use • mode choice leading to lowest possible energy consumption	• make producer responsible for waste • make producer taking back used cars • better recycling • reduce material throughflow
accident levels	-	1981-85 to 2000: -1/3	fatalities: 1986-1995:-15%; 1986-2010:-40%; injuries: 1986-1995:-10% 1986-2010:-40% casualties: 1986-2000:-25%; hazardous material transport: maintain at least current level of safety	-

EU target stricter or more specific than country targets

ANNEX 7

Interview results for seven good practice cases

note: all interview results for the cross-section of 36 PPPs were summarised as shown here for the seven good practice cases and sent to the interviewees for verification.

PPPs / questions	Lancashire Structure Plan, Environmental Appraisal	Merseyside Package Bid (+ MERits strategy)	Second Transport Structure Plan (*SVVII*)	National Spatial Plan (*VINEX*) review	Vision (*visie*) Hilversum	Development Plan Transport (*StEP*) Berlin	Land Use Plan (*FNP*) Ketzin, Landscape Plan
1. What is legal status of the PPP?	statutory structure plan, deposit draft Town & Country Planning Act, 1990, sections 30, 32, amended by Planning & Compensation Act 1991	non-statutory resources bid, following transport acts, annual process, referring to non-statutory transport strategy (MERits) and 5-year investment programme (quasi-mandatory)	statutory national transport PPP, following *pkb-procedure* (Art. 2a *WRO*)	statutory national spatial PPP following *pkb-procedure* (Art. 2a *WRO*)	non-statutory strategic development outlook for the city of Hilversum	non-statutory framework for possible development according to construction act, *AGBauGB*, art. 3, para. 1, non-mandatory	5 statutory preparatory land-use plan to be prepared, quasi-mandatory according to construction act, *BauGB*, para. 5
2. Who is responsible for the preparation ?	Cheshire County Council, Planning Department (+ environment department)	partnership of Merseytravel and 5 district authorities	Ministry of Transport and Water Management (*ministerie van verkeer en waterstaat, MVW*)	Ministry of Housing, Spatial Planning and Environment (*VROM*) + *MVW*, Ministry of Agriculture, Ministry of Home Affairs, Ministry of Economic Affairs, Ministry of Finance	*gemeente* Hilversum, *stuurgroep* project Hilversum 2015	Authority for Construction, Dwellings & Transport (*SBWV*)	*Amt* (authority) Ketzin, Planning Department
3. formal or informal process?	formal, according to legislation as under 1. and PPG 12	formal, according to DoT circular 2/96	formal process (Art. 2a *WRO*)	formal process (Art. 2a *WRO*)	informal process	informal process	formal process (*BauGB*)
4. Please name the stages of the PPP preparation process and the integration of SEA	**[SEA]** public consultation draft **[SEA]** ("new thoughts for the next century"; lists provisional schemes) -> deposit draft **[SEA]** -> adopted plan **[SEA]** (early 1998)	MERits 15-year strategy (2011) & studies for schemes before they get included in TPP **[SEA]** -> working group prepares draft -> technical approval by a group of 6 chief officers of partner authorities -> approval by commitee of councillors -> submission to DoT **[SEA parallel to general appraisal]**	part a: central government proposal -> part b: reaction of population and statutory & non-statutory bodies -> part c: inspection, approval & adoption of plan -> part d: final conclusions **[SEA parallel/ integrated]** document is structured as follows: yellow part: highest legal status to be followed by national government, *provincie & gemeenten* yellow rim: to be followed by *provincies & gemeenten* others: explanations	cabinet publishes part I **[SEA]**-> discussions with *gemeenten, provincies* and organisations, public participation -> part II -> cabinet takes final decision -> part III -> parliamentary discussions -> approval -> adoption -> part IV, final conclusions	*opstartfase -> blok program* -> scenarios determination -> most preferred examinations ->approval by *gemeente* Hilversum **[SEA parallel/ integrated]**	mandate Berlin parliament (in connection with *FNP*) -> "materials for *StEP*" -> "Transport Policy Structure Concept" (to be prepared with *SUT*) -> *StEP* draft **[SEA integrated]** -> consultations -> *StEP* final version	early public participation -> 1991 decision to prepare *FNPs* Tremmen and Ketzin, later decision to prepare *FNPs* Zachow, Etzin & Falkenrede (*Aufstellungsbeschlüsse)* -> public notice of decision (*Auslegungsbeschlüsse*) -> display of drafts -> consideration of comments (2-3 times) -> final decision **[SEA parallel]**

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5. Does the PPP have a sectoral specific or a more integrative approach?	integrative approach: •heritage conservation •'recycle' previously used land •energy •minerals and waste •general needs •industry and business •housing •town centres and retailing •transport •tourism and recreation	all modes of transport were considered without referring to each other (sectoral approach): MERits has an integrative approach, as general development scenarios are considered	integrative approach; common goals with *VINEX* and *NMP*: •environment & amenity •managing & restraining mobility •accessibility •support measures	integrative approach : •daily living environment •urban area •mobility & transport •raw materials •energy •waste •rural areas •national spatial development •water •regions	integrative approach: 4 scenarios are compared: •*wonen* +, *werken* + •*wonen* +, *werken* - •*wonen* -, *werken* +. •*wonen* -, *werken* - [wonen = living; werken = working]	integrative approach: •walking •cycling •public transport •road transport •railways •goods transport •transport management •long distance transport	integrative approach: •construction areas •living conditions •economy •areas for special use •"green areas" •transport areas
6. What are the overall objectives of the PPP/ what are the objectives concerning transport?	•sustainability •characteristic habitats •landscape •wildlife •open spaces •man made environment •air quality •water •land resources •economic well being •quality of life •regenerate urban areas •encourage alternatives to the car •reduce waste, fuel & mineral use	objectives refer to strategy which is of particular importance since there is no structure plan for Merseyside •need to spur economic regeneration, whilst seeking to minimise the need to travel by car and the adverse traffic impacts •improve accessibility •enhance efficiency in use of resources	•addressing problems of: -environment and amenity -accessibility •tackling problems at their sources •managing and restraining mobility •improving alternatives to the private car •selective accessibility on roads •strengthening foundations with support measures	•well maintained physical environment •clean environment •safe surroundings •spatial choice •spatial diversity •strengthening international competitive metropolitan environment while retaining & improving quality of country's green heart (*groene hart*)	• stability of society (stabilisation of population development) •living •economy •traffic/ mobility •nature/ landscape •development structure	•equal chances of mobility •good performance of public transport •technical improvement of transport means •better use of public transport •extent railway system •relieve city centres from through traffic •rail use for long distance transport •only one Berlin airport •shift goods transport from road to rail & water	•as many housing areas as possible (in order to stop out migration) •as many business areas as possible (most investors are from the region) •increase tourism •create cycling concept (tourism) •try to deal with problems of unresolved property (major problem in new *Länder*)
7. Does the PPP consider the entire administrative area of reference?	yes (only a small area in the Peak Park to the east of the County is not covered by the Structure Plan)	yes, Package Bid & strategy cover entire region	yes, entire country is considered	yes, entire country is considered	yes, entire *gemeente* of Hilversum is considered	yes, all of Berlin is considered	5 FNPs & 1 landscape plan cover whole area

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8. What transport modes are covered? Scale of main map?	all modes of more than local importance, diagrammatic map (no scale) showing *main* policy proposals (infrastructure)	all modes except trunk roads and motorways, no map of schemes (infrastructure; public transport service mentioned)	all modes of national transport infrastructure; national roads, waterways, railways, harbours: no scale given (scale of regional maps 1:100.000)	all modes (infrastructure) in a general way, main transport axes, project specific, scale 1:750,000	cars, public transport, cycling, walking, several maps, no scale given, (infrastructure & public transport service)	all modes, no local roads, maps of different scales; infrastructure and service regarded	all modes (infrastructure, taken from other plans and programmes); access roads responsibility of 5 municipalities, main map 1:10.000
9. Are a) specific projects/ site specific information or b) just a general outline presented (policy options compared)?	•general outline for development (test framework given) •some major projects are presented, as well, binding to certain extent	specific projects; binding decisions, project proposals from authorities	a general outline is given and specific specific projects are presented (infrastructure developments are indicative in nature), only little binding; [but: binding decisions in *MIT*]	site specific information is given, to a certain extent binding decisions for further planning	4 scenarios are compared (general outline), main infrastructure projects are discussed (e.g. intercity train stations, trunk roads, important parts of public transport); only little binding	a general outline is given, projects from other plans are presented, plan is only framework for further planning, not binding	site specific information is provided; a general outline is given, as well, compatibility with *Land* planning objectives; binding for participating authorities and other public bodies
10. Is there a ranking of projects? Are any definite decisions made re location and timing?	yes, some projects are phased through the 1996 to 2011 period (e.g. major industrial developments)	major schemes over £2 M: yes, ranking	no ranking in *SVVII*, but ranking in annual *MIT* with 3 stages: 1. scan problems, define problems that need to be solved 2. define solutions 3. realise projects	no ranking, *VINEX* defines ground rules for development	no ranking	no ranking (ranking done by other plans and programmes, e.g. by *BVWP*)	no ranking within *FNPs*, but in new *Länder* the possibility for advanced *B-Pläne* (master plans) exist in form of *VE-Pläne*
11. Are environmental issues considered, when were environmental issues first considered: prior, during or after preparation?	prior to preparation (environmental concerns considered prior, during and after PPP preparation)	prior to preparation •MERits •scheme design before integration into TPP considers environmental aspects •appraisal of schemes by each partnership authority according to DoT guidance (1995)	prior to preparation, *SVVII* combines transport & the environment & is the first national transport plan within which environment was considered extensively,	prior to preparation according to objectives of the National Environment Policy Plan, *NMP* (present day spatial planning highly supportive of environment policies)	right at the beginning	during preparation of plan: different scenarios in "materials for *StEP*"; in workshops (with draft *StEP*) effect analysis will be carried out, following example of city of Hamburg transport plan	prior to preparation; parallel process of *FNP* and *Landschaftsplan* (*Landschaftsplan* has to be confirmed before *FNP* is adopted), then integration into *FNPs*

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12. Formal/ informal consultations during the preparation of the PPP? What statutory/ non-statutory bodies were involved?	yes, formal with: •individuals •adjoining counties •statutory and non statutory bodies •organisations	yes, formal with: •district councils; informal on strategy (on advice of DoT) with: •Merseyside environment trust (umbrella organisation) •chambers of commerce •Government office of NW England	yes, formal (*inspraak*) following requirements of *pkb-procedure (WRO)*; statutory and non-statutory bodies are involved	yes, formal •set of implementation agreements between national, provincial regional & local governments until 2005 •*rijksplanologische dienst & commissie* •*raad ruimtelijke ordening*	yes, informal; statutory and non-statutory bodies were involved	yes, informal • information meetings and discussions within workshops, e.g.: different Berlin planning authorities, *UBA*, *DIFU*, *Wup.-Institut*, *GL*, *LUA*, *IHK*, *DIW*, housing authority Hamburg, NGO representative	yes, formal with *TÖBs* and authorities
13. Are there any provisions for receiving comments from the public during or after the preparation of the PPP?	yes, public consultation during September and December 1995 on document 'new thoughts for' which set out 3 strategy options; further public consultation on deposit draft early 1997; examination in public 10/1997	no public participation on package bid, but public participation on transport strategy (MERits), developed 4 years ago (1992)	yes, following *pkb-procedure* (*inspraak* according to *WRO*) [during]	yes, wide ranging public participation after first draft: sessions organised in different parts of country [during]	yes, public participation is most important aspect and takes place at every stage of the process [during]	yes, public participation is planned; not clear, yet how results of workshops to be presented to public [during]	yes, according to *BauGB*, early and late public participation [during]
14. Was there any guidance to be followed?	yes, PPGs; especially PPG 12, RPG 13	yes, DoT circular 2/96, PPG 13, PPG 6, RPG 13	yes, *WRO*	yes, *WRO*	no guidance, own pre-structured process is followed	no guidance	yes •*Runderlaß* •*BNatSchG* •*BbgNatSchG* •*BauGB*
15. How long was the PPP preparation process?	≈ 4 years (1995 to 1998)	preparation of document 1 to 7 1996 (≈ 7 months) schemes also examined before inclusion in package bid [strategy: 2 years]	≈ 3 years (1987-1990)	≈ 4 years (1990-1993); review started in 1995 (will probably be finished in 1998)	≈ 1.5 years from original idea to the final product; ≈ 9 months for plan making process	≈ 4 years, (1994 to 1998)	≈ 2-3 years, (some take longer) *BauGB*, para 246a only valid until the end of 1997 (simplification of planning in new *Länder*
16. who approved the PPP? When was the PPP approved?	adoption by councillors in 1998, government office for North West (SoS of DoE) involved at all stages	package officer's approval; councillors' approval, DoT submission (in July 1996)	*SVVII* adopted by 1st and 2nd chamber of national parliament in 1990	*VINEX* adopted by 1st and 2nd chamber of national parliament in 1993 (*VINEX* review adopted in 1998	adopted by the *gemeente* Hilversum, *gemeenteraad*	Berlin parliament takes notice, approved by Berlin government (≈1998)	*LBBW*, municipal parliaments Potsdam (under auspices of *MSWV*) different time scales, *Landschaftsplan* confirmed by *UNB* (≈1996) / *FNP* Etzin approved; Falkenrede & Zachow 12/97; Tremmen & Ketzin 12/97)

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17. How long is the PPP valid?	1996 to 2011 (15 years)	1 year validity (1997 to 1998), programme outlook 1996/ 97 - 2001/02; strategic outlook 15 years [2011], to be reviewed every 5 years)	20 years (1990 - 2010); currently pre-parations for 3rd *SVV* (*pkb- procedure* probably to be started in 1999; intention for integrated transport, spatial and environment plan	25 years (1990-2015); objectives and broad outlines; detailed level until ≈ 2005; validity of review until 2010	≈ 17 years (1998 - 2015)	the same as preparatory landuse plan (*FNP*); 10-15 years (≈ 2005 /2010)	10-15 years (*BauGB, Art. 7)*, review probably a lot sooner ("property question" in the new *Länder*)
18. Was there any co-ordination between the preparation of the PPP & other PPPs?	neighbouring counties and district councils through consultation process	neighbouring counties concerning schemes that cross county borders	•part d of *SVVII* issued simultaneously with tightened up *NMP+* •*VINEX*, •SGR (*structuurschema groene ruimte)*	•*SVV II* •*NMP+* •advice by *rijksplanologische commissie*	•new *streekplan*	*FNP*	•*Landschaftsrahmenplan* •*agrarstrukturelle Vorplanung* •*LEPeV* draft •*Regionalplan* •*Kreisentwicklungskonzeption*
19. Did the PPP have impact on decisions taken in another decision area?	local plans & project level of decision making (for example Altrincham/ Chester line)	project level	•annual *BER* •agreement between national transport ministry, *IPO* & *VNG* •*MIT* •*nota samen werken an bereikbaarheid (SWAB)* •*nota TiB* •*MPV IV*	*VINEX* is guideline that must be converted by statutory procedures into: •provincial plans •regional plans •local plans	•projects •decisions at *provincie* level	•*StEP-Verkehr* will have an impact on decisions on the project level •next *FNP* Berlin	• master plans *(B-Pläne)* •*VE-Pläne*
20. Were there any other policies, plans and programmes that influenced the preparation of the PPP?	•PPGs •RPG 13 •Cheshire Agenda 21 & Sust. Transport Strategy •government circulars • TPPs •Regional Economic Strategy (updated 7/1996) •National Roads Programme, also mentioned: UK Sustainable Development Strategy, 5th Env. Action Programme •previous Structure Plan	•UDPs basis for package •NW Transport Strategy •National Roads Programme •Merseyside 2000 economic assessment •single regeneration programme •regional, city and capital challenge initiatives • UK sustainable development strategy • Transport Green Paper	•*Rail 21*	• *NW3 (derde nota waterhuisvesting)* •*NMP2* •*SVVII* •*SGR (structuurschema groene ruimte)* •*MT (structuurschema militaire terreinen)* •*nota ruimte voor regios* •*pkb Schiphol* •*wet milieubeheer*	•*VINEX* (determination of the borders of the *groene hart*)	•*BVWP* •TENs •*LEPro* •*LaPro* •*FNP* Berlin •climate protection strategy of Berlin government	•*LEPeV* •*Regionalplan* Havelland-Fläming •*Kreisentwicklungskonzeption* Havelland

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21. sustainable development considered?	yes (1998)	yes (currently)	yes (1990)	yes (1993)	yes (1998)	in principle yes, 'how' to be determined in workshops [1998]	no, concept not used, yet, at the local level [1997]
22. is sustainable development based on a sustainable development strategy?	yes, Cheshire's Agenda 21 (published in January 1997)	yes, Environmental Strategy Merseytravel (based on Agenda 21)	yes, even though there was no sustainable development strategy when *SVV II* was started. *NMP I*, part a was prepared simultaneously to *SVVII*, part d	yes, *NMPI*	no	no sustainable development strategy	no sustainable development strategy
23. Are the following aspects considered: a) climate change	implicitly	yes (through MERits)	yes (CO_2-emissions)	yes, according to *NMP*; CO_2, CH_4N_2O	no	yes, climate gas emissions to be reduced according to Federal and *Land* aims	no
b)acidification	implicitly	no	yes (NOx emissions)	yes, according to *NMP*; SO_2, NOx, NH_3, VOC	no	implicitly	no
c) air quality	implicitly	yes	yes (impacts of pollution by cars)	yes, according to *NMP*	no	implicitly, according to valid limits	no
d) nature/ biodiversity	implicitly	no (task of UDPs)	yes (remedying fragmentation)	yes, according to *NMP*, e.g. emissions, severance	yes	yes, compatibility of *StEP- Verkehr* with environment and city is assessed	yes (landscape plan)
e) water	implicitly	no	implicitly	yes, according to *NMP*. eutrophication	yes	implicitly	yes (no support of Havel extension for "Euroships")
f) urban environment	yes	yes	yes (emissions, noise levels)	yes, according to *NMP*; emissions, nuisances, local air pollution	yes	yes •reduce noise • Compatibility of *StEP-Verkehr* with environment and city is assessed	implicitly (according to existing laws)
g) waste management/ raw materials	implicitly	yes (Merseytravel involved in Euopean Union programme)	implicitly	yes, according to *NMP*: sustainable use	no	implicitly	no

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h) other objectives	yes •more walking, cycling & public transport •reduce environment impact of freight transport •minimise environment impact of airport expansion •industry and businesses to be accessible by all transport means •improve transport safety •reduce need to travel •reduce impact of transport on sensitive areas •environmental improvements/ refurbishment of town centres	no	no	no	yes •shift from car to cycling (currently traffic pollution is not a problem; train noise is a problem)	no	no
24. Any targets for sustainability criteria: a) emission levels	qualitatively	no	yes •CO_2 emissions 1986-2010: -10%; •NOx: 1986-1995: -20% 1986-2010: -75%	implicitly, according to *NMP*, e.g. •CO_2: -3 to -5% (1990-2000) •CH_4: -10% •N_2O: +/- 0%	no	qualitatively •reduction of emissions •advantages for users of low emission vehicles	no
b) noise levels	qualitatively	no	yes •total area exposed to noise levels > 55dB (A) as result of through traffic in 2010 not greater than in 1986 •external walls exposed to noise levels > 55dB (A) cut by half by 2010 (5% by 1995)	implicitly, according to *NMP*, e.g. no increase in noise nuisance (1990-2000)	no	qualitatively (reduce noise)	no, task of *B-Pläne* and *VE-Pläne*)

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c) land take	yes •reduce transformation from rural to urban land from 0.075% to 0.05% by 2011 •retain total number of houses •no significant allocations for housing, industry, business in certain areas •higher density of residential development	no	implicitly, prevent further fragmentation (± 0%; following *SGR*)	implicitly, according to *NMP*; ±0%, prevent further fragmentation	no	qualitatively •best possible spatial-transport system •integrative regional development •reduce severence & area problems	qualitatively (para. 1, *BauGB* is considered: careful management of land and soil)
d) waste/ consumption levels	qualitatively	qualitatively	no	implicitly, according to *NMP*; sustainable use of resource stock	no	qualitatively (increase efficiency)	no
e) accident levels	no	qualitatively	yes, 1986-1995: fatalities: -15%; injuries: -10%; 1986 -2010: fatalities: -50%, injuries: - 40% (see *MPV IV*)	implicitly, according to *NMP*; e.g. no major hazards in 2000	no	no (task of transport security programme)	no
f) other targets	yes, achieve by 2011: •10% bicycle journeys (now 4%), public transport 14% (now 7%); targets in Agenda 21: •increase public transport kms from 12% to 20% (1993 to 2005) •reduce work journeys by car to 60% (70% in 1991) • freight tonnes transported by rail, water, pipeline +100% •double bike use by 2002, quadruple by 2012	yes, proposed targets (1991 to 2011) by MERits: •restrain overall use of car to a maximum increase of 16% •maintain bus patronage at current level, increase rail use by 10% by 2011 •increase number of cycle trips in total number of trips from 1.5% to 4.0%; •targets for following year: -reduce road accident casualties -restrain vehicle emissions	yes (1986-2010) •maintain safety of transport of hazardous materials at present level •ratio public transport/ private car for home to work journeys over 5 kms in urban nodes: 1.5 or less •20-30% quicker rail journeys between main cities •reduce proportion of trains arriving more than 5 minutes late to 2% •40% of air travellers and workers of Schiphol airport to take public transport	no	no (but: qualitative target: reduce transport growth)	yes, modal split: central area 80:20(PT:IT) other inner city 60:40(PT:IT) outer city 40:60(PT:IT) PT = public transport IT = Individual transport	no

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25. specify which of the following kinds of measures were used to achieve objectives/ targets: a) land-use planning	yes •concentrate developments in and around towns •use brown field sites •reduce length of travelling (houses within 1km of shops, industry, business, leisure sites) •improve accessibility by foot, rail, cycle	no (task of UDP)	yes (proposals) •compact city •location policy •accessibility profiles •from 1995 onwards every major housing development to be served by high grade public transport •from 1992 onwards land use plans should ensure that industrial development takes place at locations served by public transport	yes •combine urban functions •create functional urban regions •location policy that keeps travelling distances and number of trips down to a minimum (A, B, C locations) •superior amenities for slow traffic & public transport •promote use of public transport by strict parking policy	yes, different scenarios of possible future land-use are presented	yes (proposals) •parking space management; mentioned are also (from *FNP* Berlin) •site developments •integrative regional development	yes, use areas close to towns for development
b) infrastructure investment	yes (proposals for investment)	yes, directly; main purpose of Package Bid	yes, in *MIT*: •funding of urban road projects (mobility funds, 50km/h zones) •improve roads, tunnels •combined transport terminals	no	yes, proposals for new roads and light railway between Utrecht and Almere	yes (proposals) •modal shift •park & ride •bike & ride •extension of cycle lane network •development of criteria to determine 'necessary' traffic	no (improvement of access roads is not decided on in FNPs)
c) infrastructure charging	no (task of local authorities)	yes (for example tunnel tolls; partly already existant; proposals by MERits on road charging & parking charging)	yes (proposals) •fuel taxes •road pricing •tolls •peak hour charges	no	yes, proposals for parking fees and road tolls are made	yes (proposals) •free parking in inner city as exception •analysis of scenarios is planned (considering also infrastructure charging)	no
d) incentives to use environmental friendly transport means	no	yes (through c)	yes •shift relative costs of travel public transport/private car in favour of public transport •capping income-tax relief for commuter	no	yes, proposals for parking fees and road tolls are made	no; not responsibility of authority	no

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e) regulation changes	no, not task of Structure Plan	no	yes, proposals for speed limits, financial support of *gemeenten*, parking policies (accessibility profiles)	no	no	yes (proposals)	yes, proposals for traffic calming; roads authority of *Kreis* responsible for other regulation changes
f) information and education	yes, through public consultation	no	yes, proposals for publicity campaigns (seatbelts, drinking and driving, standards of driving instructions	no	no	no, not responsibility of *StEP* Berlin	no, not responsibility of *Amt* Ketzin
g) interactive communication	no	yes (smart bus; real time information)	yes •research & support of tele-working •tele-learning •tele-shopping •traffic management •public transport coordination	no	no	yes, proposals	no
h) public transport improvement?	yes, improved public transport facilities	yes, for example better bus stations	yes •improving public transport infrastructure •offer better services •develop integrated fare and ticket system	no	yes	yes (proposals) •extent public transport •preference for development of public transport •improve access to rail •improve intermodal opportunities •quicker public transport	yes (pledge to improve public transport)
i) others	yes •increase green belts at appropriate sites •pedestrian priority •improve park & ride facilities •support rail, water & pipeline transport	yes •control of parking in major centres •traffic management	yes •promote cycling •improve efficiency of freight transport •limit commuting distances / job exchange •benefits for car sharers •shop opening hours •flexible working hours •parking policies •transport regions	yes •accessibility profiles of urban locations •closer connection between planning policy, traffic & transport policy	no	yes •support non motorised transport •integrated transport management	no

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26. Are there any provisions for the consideration of the environment in PPP making?	need for appraisal highlighted in PPG 12	through DoT Guidance	indirectly	no	no	quasi	yes, provisions formulated by *BNatSchG*, *BbgNatSchG* and *Runderlaß*; para. 1, *BauGB* requires weighing
27. Any formal or informal SEA? If not, why not? Is there a separate SEA or an inte-grated assessment covering several subjects?	Informal environmental appraisal (EA)	(1) Informal assessment provided for the package bid, integrated into overall assessment (2) internal evaluation of CO_2 in strategy	yes, informal "overall integrated assessment" is carried out	yes, informal SEA carried out of *VINEX* -review (experiment for assessment on strategic level); procedure based on project EIA	yes, a qualitative integrated assessment is carried out	no formal SEA, but informal impact analysis (follows example of Hamburg)	no formal SEA, but: landscape plan (separate document) which achieves legal status through *FNP*
28. Who is responsible for SEA preparation? Any consultants involved?	Cheshire County Council; structure plan team	(1) partnership authorities for own schemes; no consultants involved (2) partnership authorities & consultants	*MVW*, consultant involved	*VROM*, consultant used for assessment as such, report prepared by *VROM*	*gemeente* Hilversum, *stuurgroep* project Hilversum 2015 and consultant	*SBWV* & consultant prepare impact analysis concerning noise, air, accessibility	*Amt* Ketzin (under commission of municipalities), consultant involved
29. At what stage of the PPP preparation was the SEA started?	EA on each step of Structure Plan preparation •previous Structure Plan •"New Thoughts..." •draft plan •final version	(1) during preparation (part of overall assessment) (2) before preparation	during the preparation of the plan, consultants and other organisations involved	after part I of review (during), social and economic effects were considered as well (can be called sustainability assessment)	during the preparation of the plan	SEA will be carried out after workshops	before process
30. Are socio-economic impacts considered?	indirectly (consistency analysis)	1) yes (1 sheet) 2) yes	indirectly, in particular through monitoring programme (*meten=weten*)	yes, SEA serves as a sustainability assessment	yes	yes	no
31. Are impacts of the whole PPP considered?	no	1) + 2) yes (of measures that are proposed in strategy)	yes	no (only selected sites are compared)	yes	yes	yes
32. are impacts on transport assessed	no	yes, strategy assesses impacts on transport of 3 development scenarios	yes	yes (*VINEX*-review)	yes	yes	no
33. Is SEA linked to any other environment initiatives?	yes, state of the environment project from 1992 and Local Agenda 21 (later in process)	(1) no (2) indirectly through UK strategy on sustainable development	yes, linked to *NMP* (same targets)	yes, *NMPII* to derive criteria for assessment	no	Indirectly, via NGO-representative (further public participation planned)	no

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34. Which of the following stages of the SEA process were carried out: •screening •scoping •assessment report preparation •assessment report review •monitoring	•screening according to PPG 12 •scoping according to good practice guide (different PPGs and SoE report) • appraisal report: New Thoughts = 65 pages, draft = 72 pages •report review: consultation meetings, discussions of Environment Appraisal •monitoring: ongoing	•screening: (1) & (2): according to circular 2/96 •scoping: (1) according to circular 2/96; (2): no, ad-hoc assessment •assessment report: (1) yes (1 sheet for 1 scheme); (2) yes, only informal •assessment review: (1) DoT, (2) no •monitoring: not on 'SEA' aspects	•screening & scoping: *MVW* together with *VROM* (internal and consultation, scoping report part of *pkb* procedure) •no separate assessment report (integrated in main document at different points) •assessment report review: internal •monitoring: yes, through multi year infrastructure transport programme "*meten = weten*" (appear in annual *BERs*)	VINEX-review: •screening & scoping according to *VINEX* criteria •assessment report with 140 pages •assessment report review: internal •monitoring indirectly through: a)spatial monitoring by *rijksplanologische dienst* b) environment monitoring by *RIVM* (state of environment report)	• screening (see Q23) and scoping: internally and consultation •SEA-report: assessment integrated into overall qualitative assessment •review: public, statutory and non-statutory bodies and the *gemeente* Hilversum •monitoring: through *gemeente*	•no screening •scoping: in workshops •SEA report: in the form of an impact analysis, fully integrated into the PPP •review: no •monitoring: open	•screening: *BNatSchG* + *BbgNatSchG* •scoping: *Runderlaß* determines what factors are to be considered •SEA report preparation takes place •report review: *UNB* •monitoring: lower env. protection authority (*UNB*) monitors development
35. does SEA structure or run parallel to PPP making?	yes (at each stage of plan preparation is an EA prepared)	(1) + (2) no	yes	yes	no	no	parallel to the PPP
36. does scope of SEA commensurate with scope of PPP?	yes	(1) yes (2) no	yes	indirectly (impact screening)	yes	yes	yes
37. is there a separate SEA document?	Yes, environmental appraisal	no, SEA and PPP integrated	no, SEA and PPP integrated	yeas	no, SEA and PPP integrated	no, SEA and PPP integrated	yeas, Landscape Plan (*Landschaftsplan*)
38. Does the SEA follow a policy oriented or project (site) approach?	integrative (policy) approach	(1): single project approach (2): integrated assessment approach (policy oriented)	policy oriented	site specific approach (e.g. assessment of different areas)	policy oriented approach	impact analysis in the form of an integrated assessment policy analysis, scenarios consider different policies	landscape plan refers to impacts of *FNP* (rather project related)

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39. Are the following methods applied: a)prediction of environmental impacts a1) consideration of different scenarios b)objectives/ problems, evaluation c)intra-modal alternatives c1) intermodal alternatives d)mitigation	a) yes •local environment •natural resources •global environment a1) yes (in "new thoughts..." b) yes c) yes (different sites) c1) no d) yes (for example airport policy) SoE topic reports, environmental action strategies, good practice guide	a) (1): yes, prediction of significant environmental impacts (besides transport and economic development impacts): •land take •noise and vibration •air quality •visual intrusion •community severance (2): yes, but only CO_2 a1) (1): no (2): yes, 3 scenarios b) (1): no, (2) yes c) (1) no, (2) yes c1 (1): no, (2): yes d: (1+2):no	a) yes, effects of measures on use of cars, NOx and CO_2 emissions a1) yes, unchanged policies and reduction policies b) yes, via reduction scenario c) yes, cleaner engines, efficiency improvement, better driving practice c1) yes, modal shift, tax, parking tolls, improvement public transport, bicycles, car sharing d) no	a) yes impacts are assessed on: •human beings •fauna •flora •soil •water •air •climate •landscape •material assets •cultural heritage • sustainability (environ.) •cycling &public tr. share •extra car km / work day •accessibility of rail and water transport •use of energy, space and water a1) no b) yes ('green heart' of *Randstad*) c) yes (sites) c1) no d) mentioned	a) yes a1) yes b) no c) yes (different roads) c1) yes (shift to cycling) d) yes (green bridges	a) yes (CO_2), other emissions a1) yes b) yes c) no (remains open) c1) yes d) no Hamburg's integrated transport plan: • land use • emissions • landscape • recreation areas • noise • accidents • severence • raw materials • water • soils	a): yes •air/ micro-climate •geology and soils •water •biotopes and protection of species •landscapes •recreation •cultural aspects a1): no b): yes c): yes (site alternatives) c1): no d): yes (proposals for compensation according to "*Eingriffsregelung*", § 8 *BNc:SchG*)
40. What techniques were used to assess environmental effects?	assess policies against environmental criteria, matrices, checklists	(1): estimation of impacts with matrices (symbols are used), checklists (2): traffic model (START): simulation, expert consultation, checklists	simulation, expert consultation	mapping, field research, expert consultation, checklists, matrices (3 symbol scoring system (+,o,-), tested are: environment, economy & costs)	expert consultation, mapping, workshops, simulation, qualitative assessment	workshops, simulation, expert consultation, checklists, matrices	impact analysis following "*Eingriffsre-gelung*", § 8a *BNatSchG* (checklist) mapping, field research, matrices, external expert consultation
41. Any formal or informal consultation of other bodies?	yes	(1): no consultations (2): yes	yes, same as in 9	yes, same as in 9 & EIA Commission	yes, same as in 9.	same as in 9.	•*LUA* •*UNB* •*anerkannte Naturschutz-verbände* •businesses

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42. Any public participation?	yes, EA was open to public comment together with main document	(1): no public participation (2): yes, as in main document	yes, same as in 10	yes, information meetings and discussions with general public (same as in 10)	yes, same as in 10.	no public participation	yes, public comments are considered together with main document (no formal requirement)
43. public reporting	yes	(1): yes (2): no	yes	yes	yes	yes	yes
44. Any SEA guidance followed?	yes, DoE Good Practice Guide	(1): yes, DoT guidance 2/96 (2): no	Indirectly (internal guidance)	indirectly (own propsals on how to proceed were followed; consultations with EIA commission)	no	no	yes, *Runderlaß*
45. Who approved SEA report?	internal evaluation	(1): six partnership authorities and DoT(internal) (2): (internal)	*MIW* [internal], to some degree also externally through consultation process of *NMP*	EIA commission (same criteria as in project EIA are applied) [external]	internal evaluation by the *gemeente* Hilversum	evaluation by *SWVB* (internal)	*LUA* and *UNB* check landscape plan, but no official approval (external)
46. How long did the SEA process take?	3 months, 1 person (3 person months)	(1): not very long (under 1 year) (2): under 1 year	not possible to say (integrated into whole process)	1 year (30 person months) (2-3 person years)	not possible to say (integrated process; *ontwikkelingsvisie* 9 months)	not possible to say, yet	≈ 1 year (≈ 2000 hours, more than one person year
47. how influential was SEA?	marginally influential	(1) + (2): marginally influential	very influential	very influential, results are direct basis for discussions (Rotterdam region follows proposals already)	very influential	not possible to say, yet	reasonably influential
48. What was the quality of assessment report	fair	(1): poor (2): very good	very good	very good	very good	not possible to say, yet	reasonable
49. Do you think there are any deficiencies in the assessment?	yes, EA should be carried out earlier	yes (1+2)	no deficiencies	yes, current EIA law is not really suited for SEA; as such it is too complex	no, it is a new integrated approach which is better than traditional formalised planning	not possible to say, yet	yes, humans should be the centre of interest, environment protection may not be end in itself, public participation should be improved

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50. Could a formal SEA be integrated in the PPP preparation process?	yes	don't know, environment assessment of individual schemes car ried out before inclusion in TPP; this assessment should be made more explicit; monitoring is more important; SEA should be part of an overall strategy (such as MERits)	yes, integration of formal SEA possible; but it should also be looked at other criteria, such as economy and social aspects (see review of *VINEX*)	yes, *VINEX* and SEA procedures should be synchronised (current EIA law umbrella law for all other laws)	yes, there is a possibility, but the contact with society is more important	not convinced that a formal procedure is possible, very sceptical if integration of SEA is possible	yes, there should be one common procedure for *FNP* and *Landschaftsplan*, integration of SEA possible
51. Do you think formal SEA would lead to a better consideration of environment concerns?	yes, no doubt about it	don't know; DoT have tried hard to develop scheme assessment procedures, but so far there is is little outcome	yes	yes, more systematic attention is given to environment issues	no, the new way of integrated non-formalised planning is better	only supplement to current planning, thus probably no	yes, in the form of a landscape plan that considers *Eingriffsregelung* it leads to a better consideration formal EIA-based SEA would not lead to a better consideration, it also would be too expensive
52. Do you think formal SEA would lead to a delay of the preparation of the PPP?	certainly a delay, even though this is not necessarily a problem	don't know	no delay, as a whole there might even be an acceleration; at the beginning of the process there might be a delay, but later an acceleration is possible	depends, as soon as anything goes wrong, there is a delay	no delay	maybe no longer process, but more comprehensive and expensive	yes, there would be a delay
53. What effects do you think SEA has on later decisions? (e.g. at project level) May it lead to an acceleration of project preparation?	difficult to say, but the answer might be an acceleration	it might lead to an acceleration of a particular project	yes, an acceleration will result	yes, an acceleration is achieved at the project level; EIAs only to be carried out for additional impacts that are not covered by SEA	yes, it might lead to an acceleration at the project level	no, EIA of projects won't become simpler, easier or quicker. No believe that questions can be resolved in advance. There will always be resistance against new roads	difficult to say, but probably no!

Glossary 'interviews for seven good practice cases'

ABC locations: Locations Policy - The Right Business at the Right Place
AGBauGB: Implementation Act for Construction Statute Book in Berlin
Amt: Public authority
Anerkannte Naturschutzverbände: Statutory bodies for nature protection
Aufstellungsbeschluß: Public notice of intent to prepare plan
Auslegungsbeschluß (Auslegungsbeschlüsse): Public notice of decision
BauGB (Baugesetzbuch): Construction Statute Book
BbgNatSchG (Brandenburger Naturschutzgesetz): Environment Protection Act Brandenburg
BER (beleidseffectrapportage): Policy Effect Report
BGB (Baugesetzbuch): Federal Construction Act
BNatSchG (Bundesnaturschutzgesetz): Federal Environment Protection Act
B-Plan (B-Pläne)(Bebauungsplan): Master Plan
Brb: Brandenburg
BVWP (Bundesverkehrswegeplan): Federal Transport Infrastructure Plan
CC: County Council
DIFU (Deutsches Institut für Urbanistik): Federal Institute for Urban Studies
DIW (Deutsches Institut für Wirtschaftsförderung): Federal Institute for Economic Promotion
DOE: Department of the Environment
DoT: Department of Transport
Eingriffsregelung: Nature and Landsacpe Intervention Rule
EVR (engerer Verflechtungsraum): Berlin-Brandenburg Planning Region
FNP (Flächennutzungsplan): Preparatory Land Use Plan
Gemeente: Municipality
Gemeenteraad: Municipal Parliament
GL (gemeinsame Landesplanung): Common Planning Department Berlin-Brandenburg
Groene hard: 'Green Heart', open area within Randstad with planning restrictions
IHK (Industrie- und Handelskammer): Chamber of Commerce
Inspraak: Public Consultation
IPO: interprovincial Committee
Kreis (Kreise): Rural District
Kreisentwicklungskonzeption: Development Concept of the Rural District
Landschaftsplan: Landscape Plan
LaPro (Landschaftsprogramm): Landscape Programme
LBBW (Landesamt für Bauen, Bautechnik und Wohnen): Land Authority for Construction, Construction Techniques and Settlements
LEPeV (Landesentwicklungsplan EVR): Land Development Plan of Berlin-Brandenburg Planning Region
LEPro (Landesentwicklungsprogramm): Land Development Programme
Locatiebeleid: Location Policy (ABC locations)
LUA (Landesumweltamt): Upper Land Environment Authority
MBP (milieubeleidsplan): Environment Policy Plan
MERits: Merseyside Integrated Transport Study
Meten = weten: National 'to measure is to know' monitoring programme
MIT (meerjaarenprogramma): Multi-Year Programme
MPV (nota meerjaarenprogramma verkeersveiligheid): Multi-Year Programme 'Traffic Safety'
MSWV (Ministerium für Stadtentwicklung, Wohnen und Verkehr): Brandenburg Ministry for City Development, Settlements and Transport

MT (structuurschema militaire terreinen): Structure Plan Military Areas
MVW (ministerie van verkeer en waterstaat): National Ministry for Transport and Water Management
NMP (nationaal milieubeleidsplan): National Environment Policy Plan
Nota ruimte voor regios: Note 'Space for Regions'
Nota vraagen: Starting phase in the preparation process of visions
NW 3 (derde nota waterhuisvesting): Third Note 'Water Managment'
NW: North West
Ontwikkelingsvisie: Development Vision
Opstartfase: Starting phase of PPP process
Pkb-procedure (plankernbeslissing): Statutory procedure for national PPPs
PPG: Planning Policy Guidance
Provincie: Province
Raad ruimtelijke ordening: Committee for Spatial Organisation
Rail 21: National Rail Development Plan
Randstad: Utrecht-Amsterdam-The Hague-Rotterdam area
Regionalplan (Regionalpläne): Regional Plan
Rijkplanologische Commissie: National Planning Commission
Rijkplanologische Dienst: National Advisory Body on Planning
RIVM (rijksinstituut voor milieubeheer): National Environment Agency
RPG: Regional Planning Guidance
SBWV (Senatsverwaltung für Bauen, Wohnen und Verkehr): Berlin Authority for Construction, Settlements and Transport
SGR (structuurschema groene ruimte): Structure Plan 'Green Spaces'
SoS: Secretary of State
StEP (Stadtentwicklungsplan) Verkehr: City Development Plan Transport Berlin
Streekplan: Regional Plan
Stuurgroep: Policy Making Group
SUT (Senatsverwaltung für Stadtentwicklung, Umwelt und Technologie): Berlin Authority for City Development, Environment and Technology
SVVII (Tweede Structuurschema Verkeer en Vervoer): Second Transport Structure Plan
SWAB (Nota Samenwerken an Bereikbaarheid): Note 'Working Together Towards Grater Accessibility'
TENs: Trans European Networks
TiB: Note 'Transport in Balance'
TÖBs (Träger öffentlicher Belange): Statutory Bodies
TPP:Transport Policy and Programme
UBA (Umweltbundesamt): Federal Environment Agency
UDP: Unitary Development Plan
UNB (Untere Naturschutzbehörde): Lower Environment Protection Agency
VE Plan (Vorhabens- und Erschließungsplan): Master plan with simplified preparation procedure (in the new Länder).
VINEX (Vierde Nota Over de Ruimtelijke Ordening Extra): Fourth National Spatial Plan
Visie: Vision
VNG (Vereniging Nederlandse Gemeenten): Association of Dutch communities
VROM (Ministerie van Ruimtelijke Ordening en Milieubeheer): National Ministry for Spatial Planning and Environment Management
WRO (Wet Ruimtelijke Ordening): Spatial Planning Act
Wup.-Institut: Wuppertal Institute