

**Planning for Sustainable Development
– the practice and potential of Environmental
Assessment**

Proceedings from the 5th Nordic Environmental
Assessment Conference
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Nordic co-operation

takes place among the countries of Denmark, Finland, Iceland, Norway and Sweden, as well as the autonomous territories of the Faroe Islands, Greenland and Åland.

The Nordic Council

is a forum for co-operation between the Nordic parliaments and governments. The Council consists of 87 parliamentarians from the Nordic countries. The Nordic Council takes policy initiatives and monitors Nordic co-operation. Founded in 1952.

The Nordic Council of Ministers

is a forum for co-operation between the Nordic governments. The Nordic Council of Ministers implements Nordic co-operation. The prime ministers have the overall responsibility. Its activities are co-ordinated by the Nordic ministers for co-operation, the Nordic Committee for co-operation and portfolio ministers. Founded in 1971.

Stockholm, Sweden
2004

Foreword

The focus and aims of the conference

The important role of planning and environmental assessment in implementing the political goals of sustainable development has been underscored with the introduction of the EU directive on the '*Environmental Assessment of certain plans and programmes*' (EC/2001/42) and the introduction of requirements for Strategic Environmental Assessment (SEA) into national legislations. Furthermore, planning for sustainable development is now high on the political agenda in both the Nordic countries and in the EU context. In the Nordic context this is, for example, manifested in the action programme for 2001-2004, '*Spatial planning as an instrument for promoting sustainable development in the Nordic countries*', which complements the Nordic strategy for sustainable development.

The focus of the 5th Nordic conference on Environmental Assessment, held during the period, 24-26 August 2003 in Reykjavik, Iceland was '*Planning for sustainable development – the practice and potential of Environmental Assessment*'. The primary aims of the conference were to describe, analyze and discuss the role of Environmental Assessment with respect to planning and the political goal of sustainable development. The conference aimed to highlight experience thus far, as well as providing a forum for the showcasing of emerging issues with regard to the assessment of policies plans and programmes through SEA and the assessment of projects in Environmental Impact Assessment (EIA). Furthermore, the theoretical bases and assumptions of environmental assessment were also expected to be explored, in particular with regard to the existing theories of planning and policy analysis and to recent developments in the field of planning theories with relevance to the impact assessment field.

The conference was targeted at, and open to, practitioners, researchers, students and others interested in research and practice concerning EIA, SEA and planning. Participants from outside the Nordic countries were also welcome.

The final programme – plenary and parallel sessions – is presented in appendix 1. A one-day excursion highlighting issues in relation to environmental assessment and Icelandic nature and culture were also provided for the participants.

Organisation

The organizing committee consisted of:

Ásdís Hlökk Theodórsdóttir, (Chairman), Hólmfríður Sigurdardóttir, Matthildur Kr. Elmarsdóttir and Thóroddur F Thóroddsson from the National Planning Agency, Iceland and Hólmfríður Bjarnadóttir and Tuija Hilding-Rydevik from Nordregio.

An advisory group consisted of:

Hrafn Hallgrímsson, Ministry for the Environment, Iceland; Björn Gunnarsson and Júlíus Sólnes, University of Iceland; representatives from the various national planning authorities in the Nordic countries and a Nordic group of national Environmental Assessment officials.

Outcome

166 participants attended the conference. The participants came from 13 countries including 153 participants from the Nordic countries, 10 from other European countries and 3 participants from countries outside Europe. 43 presentations were given – including plenary and parallel sessions and a number of posters were presented.

This report, which includes 20 contributions, provides the proceedings from the conference. These proceedings as such represent the sheer variety of issues raised at the conference, from contributions that have a theoretical research perspective to more practice-oriented perspectives. This was in line with the conference intentions of being a platform of relevance for both researchers and practitioners in the field of environmental assessment and planning.

These conference proceedings are organized under three very broad themes. The first theme covers the general issue of the integration of environmental policy and the role of EIA and SEA in this context. The second theme includes contributions covering SEA from different perspectives, some of which also relate to EIA. Finally, in the third section, the contributions focussing mainly on EIA are brought together.

Stockholm, May 2004

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<p>The Nordic Environmental Assessment Network</p> <p>The Nordic countries have now had more than ten years of experience in research and development co-operation concerning Environmental Impact Assessment (EIA) and Strategic Environmental Assessment (SEA). The Nordic <i>Ad hoc</i> group on EIA, under the Nordic Council of Ministers, initiated and institutionalised this co-operation. Co-operation continues today across several arenas, for example through the Nordic EA Network, under the auspices of Nordregio. The Nordic EA Network mainly concentrates on co-operation in the context of R&D projects and connected seminars and conferences, while a home page is also maintained: www.nordregio.se (EA Network).</p>

Governance for sustainable development

The challenge of environmental policy integration in Norway

Audun Ruud¹

One of the most important policy references to emerge from the process following the United Nations Conference on Environment and Development in 1992 – the UNCED process, is ‘Environmental policy integration – EPI.’ Put simply, EPI involves the placing of environmental considerations at the heart of the decision-making process in other sectors. In the pursuit of sustainable development, the strengthening of EPI is thus a major governance issue. Significant efforts have been made to strengthen EPI within the Norwegian environmental management system (NEMS). This paper presents the main feature of this system. However, the recently published national action plan for Sustainable Development – NA21 – to be subsequently presented, is not fully tuned to the structure and logic of NEMS. Using the proposed indicators on horizontal and vertical environmental policy integration as a reference, this paper concludes that national efforts to strengthen the governance of sustainable development may become even more demanding.

Environmental Policy Integration: An analytical reference

The reference to EPI entails a systematic reframing of the way in which environmental issues are handled by governments. Traditionally, a particular ministry or agency was assigned the role of ‘environmental watchdog’, a role that involved continuous battles with powerful stakeholders, which perceived environmental concerns to be opposed to particular sectoral interests. The UNCED process, however, forms the basis for an alternative more complementary approach that argues that environmental and developmental issues need to be considered together as part and parcel of sustainable development. It is this integration of envi-

¹ Programme for Research and Documentation for a Sustainable Society – ProSus, Center for Development and the Environment, University of Oslo, Norway.

ronmental concerns into the mainstream of politics in general, which signals the emergence of sustainable development as the guiding principle of societal development (Lafferty and Meadowcraft 2000). As underlined by Hovden and Torjussen (2002:21): ‘With sustainable development, environmental policy has become much more than pollution control and protection of nature, it becomes a process of qualitative reappraisal of prevalent development patterns’.

Clarifying and defining the concept of EPI

Ute Collier’s work on EPI serves as a valuable point of departure as she is one of very few that have distinguished attempts to define the concept from other features of its application – such as strategies or indicators. She offers a three-point definition of the objective of EPI (Collier, 1997:36): It should aim to 1) achieve sustainable development and prevent environmental damage, 2) remove the contradictions between policies as well as within policies, 3) realise mutual benefits and the goal of making policies mutually supportive. While Collier’s definition places the principle of EPI in the right intellectual context and provides a number of possible indications as to what it might entail, the approach leaves us short of a more precise and applicable conception of EPI. What in fact really is EPI? As posed by Lafferty and Hovden (2002:14): ‘How will we recognize it when we see it?’

In trying to answer this question, Lafferty and Hovden (2002) found the early work of Arild Underdal helpful. Even though Underdal deals with policy integration in general, his approach to the *problematique* has the appealing feature that it concentrates on how the policy-making process can be characterised. For a policy to be ‘integrated’, three criteria need to be satisfied: comprehensiveness, aggregation and consistency. Underdal defines an integrated policy as one where: ‘all significant consequences of policy decisions are recognized as decision premises, where policy options are evaluated on the basis of the effects on some aggregate measures of utility, and where the different policy elements are in accordance with each other’ (Underdal 1980 – cited in Lafferty and Hovden 2002:15).

The definition proposed by Underdal is very well developed and precise, but it can in principle be used for any type of policy integration. It is not specifically tied to environmental policy and its relation to sustainable development. Consequently, we lack a value-hierarchy to guide the actual integration in question. In accordance with the reasoning embedded in the UNCED process, but inspired by Underdal (1980), Lafferty & Hovden (2002:15) propose the following definition of EPI:

‘Environmental policy integration implies the incorporation of environmental objectives into all stages of policy making in non-environmental policy sectors, with a specific recognition of this goal as a guiding principle for the planning and execution of policy. Further it is accompanied by an attempt to aggregate presumed environmental consequences into an overall evaluation of policy, and a commitment to minimise contradictions between environmental and sectoral policies by giving principled priority to the former over the latter.’

The proposed definition of EPI specifies the integration principle in terms of policy making, namely that the environmental objectives need to be part of the fundamental premises for the policy making at all stages. The second part of the definition refers to the crucial issue in defining EPI. Most discussions assume that conflicts between policy objectives can be resolved to the satisfaction of all affected parties. The significance of EPI refers to situations where environmental objectives become subsidiary. In accordance with the EPI definition, however, environmental objectives must become principal. This is the essential difference when compared to notions of policy integration conceived by Underdal (1980).

Are environmental objectives necessarily primary

While Collier (1997) portrays environmental policy integration as the balanced pursuit of environmental, energy-centred and economic concerns, EPI, in accordance with the reasoning of Lafferty & Hovden (2002), consists in the integration of environmental concerns into other sectoral policies. This refers to the value-hierarchy that must lie at the heart of environmental policy integration. This is also reflected in the Brundtland report and in Agenda 21. However, the conceptualisation of EPI is not just a matter of bringing environmental objectives into the policy making process in non-environmental sectors. Increasing recognition and acceptance of the fact that we are facing potentially irreversible damage to life-support systems clearly implies that environmental objectives – as a general rule – must be seen as primary. However in the words of the Brundtland report; ‘every ecosystem everywhere cannot be preserved intact (WCED 1987:44), and policy priorities must be decided “democratically.”’

As underlined by Lafferty & Meadowcraft (2000) the ultimate ‘trade-off’ with regard to EPI is not between economics and environment, but is rather that between existing democratic norms and procedures and the goals and operational necessities of sustainable development. A strong presupposition in favour of environmental concerns *vis-à-vis* other sectoral concerns, cannot be converted to what Lafferty & Hovden (2002)

term, an 'extra-democratic' mandate. This does not mean, however, that the 'mandate' for sustainable development cannot be considerably strengthened within the policy realm of existing sectoral interests. Clearly, we are a long way from a situation where environmental objectives have a position as commanding and central as those of finance or economic policy objectives. However, the basic notion of EPI is clearly formulated to bring policy making closer to such an ideal type situation.

The horizontal and vertical dimensions of EPI

Reflecting current political priorities, our applied emphasis is on the integration of policy making as a feature of governmental steering according to differentiated sectoral responsibility. We are thus focusing on process and policy and less on the actual consequences and effects of governmental initiatives

Vertical EPI indicates the extent to which a particular governmental sector has taken on board and implemented environmental objectives as central in the portfolio of objectives that the sector continuously pursues. In other words, vertical EPI refers to a 'greening' of sectoral policies and to what extent environmental objectives have merged to form an environmentally prudent decision-making premise at work. This may lead to significant EPI in a given sector. This will partly be a function of ministerial commitment as well as the ability of sectoral officials to balance internally derived environmental priorities with external demands for 'normal' sectoral policy outputs.

As underlined by Lafferty & Hovden (2002:20) it is important to stress that the term vertical is used in a functional sense, and not in the sense of vertical constitutional division of powers. The vertical axis of EPI, termed VEPI, signifies administrative responsibility 'up and down' within the arena of the specific ministerial sector responsibility in question.

Horizontal EPI refers to whether central authority has developed a comprehensive cross-sectoral strategy for EPI. This will be referred to as HEPI. This central authority can be the government itself or it could be a particular body or commission, which has been entrusted with the overarching responsibility for sustainable development. As noted by Lafferty & Hovden (2002:20) 'If 'who gets what, where, when and how?' is the essence of a political system, the relevant understanding of HEPI is to substitute 'environmental interest' for 'who', and to insist on at least equal treatment for the environmental as for other competing interests'. It is important to note however that HEPI also includes the central authority's communication to the sectors of a more detailed understanding of what the central authority aims to achieve through EPI, and what explicit

implications this has for the specific sectoral policy. The relevance to NA21 here is obvious.

The two dimensional model of EPI seen in terms of VEPI and HEPI is broadly in line with what Lafferty and Meadowcraft (2000) refer to as intra-ministerial integration [HEPI] and sectoral integration [VEPI]. Sectoral integration or VEPI entails that each ministry is separately responsible for relating sector interests to environmental objectives. The references to intra-ministerial integration or HEPI refer to 'the interdependency between sector specific dispositions and the norms of sustainable development' (Lafferty & Meadowcraft 2000:434). With explicit reference to studies on the implementation of sustainable development in nine highly developed OECD countries² as well as in the European Union, Lafferty and Meadowcraft underline that despite the fact that all have endorsed the Rio accords such as Agenda 21, it is extremely rare to see both the VEPI and HEPI dimensions of EPI operationalised. In general it seems that VEPI has been most actively pursued and in selected cases achieved. Examples of HEPI are thus much more difficult to document. Nevertheless, the relevant and crucial question is whether and to what extent VEPI alone is sufficient to achieve the general ambitions of policy integration within the sustainable development discourse.

How to measure coherence in terms of VEPI and HEPI?

Indicators for vertical EPI – VEPI must provide an indication of how a given governmental sector aims to integrate environmental concerns in its activities. Lafferty & Hovden (2002) propose the following indicators:

- An initial mapping and specification of the major environmental challenges relevant to the sector.
- Formulation of a sectoral environmental action plan.
- Consistent and regular employment of both environmental impact assessment (EIA) and strategic environmental assessment (SEA) for all sectoral policy decisions.
- Timetables and quantitative, indicator-based targets stipulated in the sectoral environmental action plan – or elsewhere.
- Regular reporting of the state of the environmentally relevant policies within the sector.

² The comparative study includes analyses of Australia, Canada, Germany, Japan, The Netherlands, Norway, Sweden, The United Kingdom and the United States.

The key initiative here is the existence of a strategic environmental action plan. However, the plan itself will be of limited importance if it fails to properly assess and identify the key environmental challenges for the sector of concern. Further it will be of limited value if it fails to stipulate realistic targets, benchmarks and measures for the objective assessment of implementation results concerning prevailing environmental challenges related to the sector or Ministry in question.

When it comes to indicators concerning horizontal environmental policy integration – HEPI, Lafferty & Hovden (2002) proposed the following:

- The existence of a long-term *national* sustainable development strategy.
- The existence of a central authority specifically entrusted with the supervision, coordination and implementation of the integration process.
- Relatively clear designations from central authority as to sectoral responsibility for overarching environmental goals.
- Timetables and targets for environmental policy.
- Periodical reporting of progress with respect to targets at both the central and sectoral levels.
- An active and monitored usage of EIA and SEA for all governmental policies.

With these indicators as explicit references, we may evaluate the strength of the Norwegian environmental management system towards the promotion of sustainable development.

The Norwegian environmental management system

Norwegian environmental public policy is based on the principle of sector responsibility. Consequently, all sectors and actors within specific Ministerial areas of concern have a separate responsibility to take environmental concerns within their policy domain. This principle was first introduced in White paper 46 (1988-89) and was further elaborated and formally acknowledged as part of White Paper 58 (1996-97); *Environmental policy for sustainable development*. White paper 58 further proposed a specific system to enable the set up of such a system. It states (1996-97: 26) ‘A cost-efficient and coherent environmental policy demands a solid base of knowledge and well developed management tools’. As a consequence a National Environmental Documentation System³ was

³ This term is translated from the Norwegian terms ‘resultatoppfølging’ and ‘resultatdokumentasjon’. No official translation has been proposed. In the latest

proposed as part of the first white paper 8 of 1988-99 on 'the state of the environment'. Included in white paper 1 of 2003-2004, the national budget, an action plan for sustainable development was presented. This draws heavily on policy issues dealt with in previous white papers concerning environmental policy-making – particularly white paper 58 of 1996-97.

This section describes how this documentation system is set up and intended to work. Further, the newly published national action plan for sustainable development – NA21 will be presented. The aim of this chapter is consequently to enable a better understanding of the formal setting of the current environmental management system in Norway.

The National Environmental Documentation System

The National Environmental Documentation System aims to provide the government with information and updates on the state of the environment such that it can then make a cost-efficient environmental policy possible. It is based on three interrelated elements:

- a) The bi-annual reports from the MoE
- b) The ministries Cross Sectoral Environmental Action Plans
- c) Sectoral Environmental reporting and the Result Documentation System (RDS)

a. The bi-annual White paper; the state of the environment

The series of bi-annual⁴ White papers on 'The Governments' Environmental policy and the State of the Environment' is the main publication and in many ways the cornerstone of the Norwegian Environmental Management System. It reports systematically on the trends on the eight environmental priority areas referred to below, and it presents the main elements in the environmental policy.

white paper on 'state of the environment' it is only referred to 'Monitoring the results of environmental policy'.

⁴ The original intention was to publish annual reports, but the Parliament subsequently asked the Ministry of the Environment to prepare only bi-annual reports.

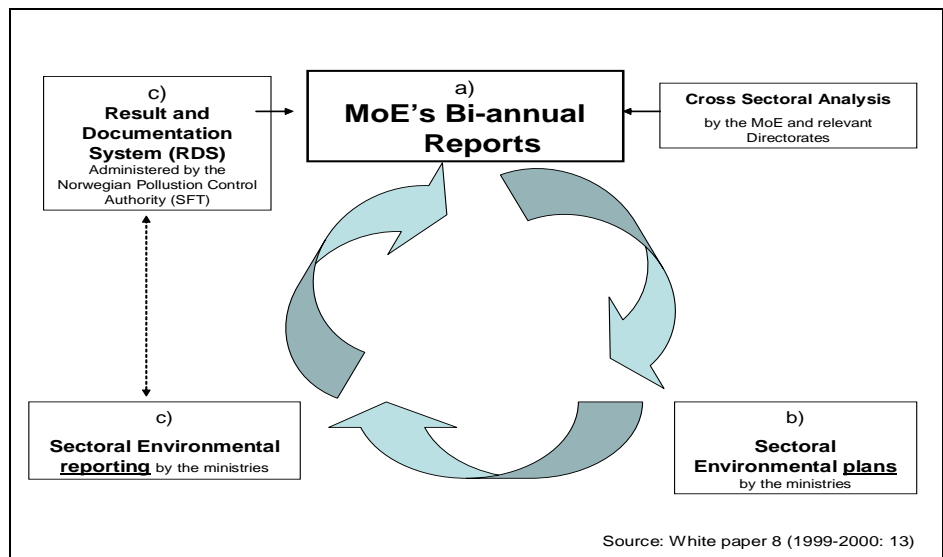


Figure 1. The main elements of the National Environmental Documentation System

Three bi-annual white papers entitled – ‘state of the environment’ – have thus far been presented. A fairly strict framework to systematise the reports has also been established. After opening with a short introductory section describing the environmental policy and its main principles, each report turns to a presentation of the sitting government’s main priority areas and specific cross-sectoral efforts. The main part of the report, however, describes the environmental trends in environmental policy along the following eight priority areas:

Textbox 1:

The eight priority areas in Norwegian environmental policy

1. Conservation and sustainable use of biological diversity
2. Outdoor recreation
3. The cultural heritage
4. Eutrophication and oil pollution
5. Hazardous substances
6. Waste and recycling
7. Climate change, air pollution and noise
8. International cooperation and the polar areas

Each priority area is structured in the same way and it presents the goals and targets of the specific area, the state of the environment and goals reached and the policy instruments and initiatives in use. The goals are divided into two levels; strategic objectives and national result goals:

The *strategic objectives* are the superior goals for the environmental condition one wants to achieve or sustain. The objectives generally express a political ambition to reach or maintain a certain level of environmental quality within a 'reasonable' time frame. There is, in general, only one strategic objective for each priority area. The strategic objectives are concretised by *national result goals* expressing results that shall be achieved within a shorter time frame. The result goals represent the highest operative level in the goal hierarchy. The result goals shall reflect the main environmental problems and challenges within each result area and shall, as long as there is sound scientific basis for it, be verifiable and present set time limits.

There are a varying amount of specific objectives formulated with respect to each priority area. The result goals comply with international environmental agreements and will thus often be cross-sectoral, demanding co-operation and coordination between the ministries. The result goals further the basis for so-called *sectoral working targets*, enabling the formulation of sectoral environmental action plans from specific Ministries.

b. Sectoral Environmental Action Plans

The sectoral environmental action plans are an important part of the government's environmental politics to ensure coherence. Each ministry is responsible for presenting a sectoral plan that covers the administrative domain of the ministry and its sectoral areas of responsibility. It shall present the environmental impact of the sector, the driving forces behind the impact, the sectoral environmental goals, and the use of instruments and efforts to deal with the identified challenges. The design and reasoning is very much influenced by the Drivers Pressures, State, Impact, Response – DPSIR framework –developed by the European Environment Agency.⁵

Moreover, as many sectors are often contributors to the same environmental challenge, the Sectoral Environmental Action plans are an attempt to illuminate the sectoral possibilities and responsibilities related to the eight priority areas. Furthermore, the plans may show how each min-

⁵ The PSR model is developed by the OECD and is a simplified version of the DPSIR (Drivers – Pressure – State – Impact – Response-model proposed developed by the European Environment Agency (EEA). For further details see: <http://glossary.eea.eu.int/EEAGlossary/D/DPSIR> .

istry can contribute to fulfilling the government's overall environmental policy with regard to sustainable development – as stated in white paper 58 of 1996-97. The sectoral action plans are updated every four years by the Norwegian parliament in accordance with white paper 8 of 1998-99.

In general the environmental action plans can be divided into three sections. They include an introductory section presenting a summary of the ministry's main environmental challenges, responsibilities and responses, as well as an overview of the government's environmental policy. In a second section a status report is included presenting those environmental issues that are particularly relevant to the ministry/sector in question. In a third section the eight policy priority areas presented in table 1 are presented. In this section, strategic objectives and national result goals are referred to, and the ministries are also asked to specify the particular sectoral challenges and responses on each priority area.

c. Reporting and documentation of environmental results

The reporting and documentation system is based on input from two main sources:

1. A Result and Documentation System (RDS)
2. Sectoral reporting

1. A Result and Documentation System (RDS)

The goal of the *RDS* is to assemble environmental data relevant for the follow up of the government's environmental policy, which can be measured, calculated or registered. The *RDS* is a web-based documentation system developed and administered by the Norwegian Pollution Control Authorities (SFT)⁶, and primarily based on statistics and information from SFT, the Statistics Norway (SSB)⁷ and other main 'environmental agencies' in Norway⁸. Data will generally be updated annually, though certain areas will be updated continuously, while reports will be delivered to the MoE on an annual basis. It is, however, possible for the environmental agencies and the MoE to assemble a wide variety of data whenever needed. As of the autumn of 2003⁹ SFT is developing a prototype including relevant data from all agencies to be submitted to the MoE for evaluation by the end of the year.

⁶ <http://www.sft.no/english/> (Accessed Sept 8th 2003)

⁷ <http://www.ssb.no/english/> (Accessed Sept 8th 2003)

⁸ For the full list of contributors to the RDS please consult: <http://www.environment.no/templates/TopPage.aspx?id=3142#B>. (Accessed Sept 10th 2003)

⁹ The project started in 1998 after a proposal in White Paper 58 (1996-97).

According to the plan and design, the RDS will contribute to the strengthening of environmental public policy making both at the sectoral level and by the government. Consequently a well functioning RDS may facilitate both vertical- and horizontal environmental policy integration as the assembling of data in RDS will provide a range of new possibilities for documentation and for the evaluation of environmental policy.

2. Sectoral Reporting

The sectoral reporting of results within the Ministries' sectors and administrative domains shall – according to NEMS – be done annually both in respect of the internal follow up of the Ministry's own Environmental Action Plan and with regard to the RDS in accordance with established routines, formats and standards. The Ministries are responsible for developing a reporting system that is compatible with the RDS and the NEMS design in general. However as of the autumn of 2003, no ministry had initiated this task, and in the subsequent chapter we will elaborate further on this challenge. A clarification from the MoE on the RDS and the NEMS in particular will be needed to fulfil the objectives stated in Whitepaper 58 (1996-97) and specified in the first 'State of the environment' published in 1999.

The National Action plan for sustainable development – NA21

The introductory section of the NA21 document was written by Prime Minister Kjell Magne Bondevik. He states here that the Government wishes that this task should be closely connected with the main political processes and documents in Norway. This is the reason for the inclusion of the action plan as part of the National Budget for 2004. The prime minister further noted that NA21 would oversee a more permanent position being made for sustainable development policy in Norway.

NA21 underlines the need to keep in mind the carrying capacity of the earth, the need for the de-coupling of economic growth from environmental protection. Global trends and challenges are presented for a number of issues ranging from global trade barriers to the protection of reindeer in Norway. In addition, the action plan forwards several principles that should influence political action. Explicit reference is made to the precautionary- and polluter pays principles as well as to eco-system thinking.

Indicators on four issue areas (Developmental aid; Green-house gas emissions and trans-boundary pollutants; Biological diversity; Sustainable economic development) are proposed. It was underlined, however, that the indicators presented were preliminary and that an 'indicator committee' was to be established during the autumn of 2003. A more

complete set of indicators and an annual 'indicator report' will subsequently be published, which will report on the development of the indicators. The proposed annual 'indicator reports' are considered to provide an important input into the follow up process to NA21, and it is hoped, will attract attention to the work of sustainable development in the future. The 'indicator reports' will also be a central part of a proposed information strategy for NA21 (White Paper 1 2003-2004: Ch 6.6.5).

Textbox 2:

Main policy areas presented in NA21

1. International cooperation for sustainable development and the reduction of poverty.
2. Climate, Ozone and Long-range Transboundary Air Pollution.
3. Biological Diversity and Cultural Heritage.
4. Natural resources.
5. Health and Hazardous Chemicals.
6. Sustainable Economic Development.
7. Sami (Nordic Indigenous people) perspectives on environmental- and resource allocation.

The NA21 also deals more explicitly with a policy for sustainable development. References are made to white paper 46 of 1988-89 as well as to white paper 58 of 1996-97, the section focusing on the government's *actions* for Sustainable Development. The Government has chosen to focus on seven 'main policy areas' and the actions discussed within each area are then discussed.

Norwegian 'governance' for sustainable development: In accordance with the EPI indicators?

As recently as 1999, the Office of the Auditor General of Norway (Riksrevisjonen 1999) pointed out that it was difficult to compare environmental efforts across Ministries because of the considerable variation in how each Ministry undertakes classification. Consequently, Ministries were asked to classify environmental issues only where the whole allocation was used for environmental improvement, where environmental concern were decisive for the implementation of initiatives, or where the allocation was intended to prevent new environmental problems from occurring (MoE 2001). The question then is whether the integration of NA21 into the 2004 national budget will strengthen Norwegian 'governance' with regard to sustainable development?

The action oriented section of NA21 and particularly section 1.5; A policy for sustainable development includes a promising structure reflecting the major national challenges. Specific references to the challenges reflecting the eight priority areas of NEMS are also discussed, but generally this section of NA21 is rather vague, with few specific policy efforts. Our overall concern however is the general lack of reference to other relevant steering documents and policy efforts, and in particular to NEMS.

It is not expected that all objectives should be specific, but without any reference to the eight priority areas that structures the documentation included in the NEMS, it is difficult to understand how the NA21 can provide a strengthening of the national environmental management system. Actually, the seven proposed areas of concern and the proposed indicators can challenge the status of NEMS as the authoritative terms of reference for sectoral environmental efforts. More importantly – as underlined subsequently – it can actually weaken environmental policy integration

The NA21 has recently been presented, but the Sectoral Environmental plans have already been evaluated by Statskonsult.¹⁰ They document the fact that all Ministries have issued a first generation Environmental Action Plan.¹¹ Moreover, as many as 12 out of 15 plans have been written in accordance with the NEMS structure and with explicit reference to the eight priority areas. However, only two Ministries have developed sector specific objectives in accordance with the eight priority areas. Only in one case did a Ministry actually present a total overview of policy instruments related to the priority areas, and none of the Ministries explicitly presented inter-ministerial collaborative environmental initiatives. The evaluation confirms that a number of the sectoral Ministries do collaborate with the Ministry of Environment, but no collaboration with other ministries on environmentally related challenges were documented. Finally, none of the sectoral environmental action plans include specified cost estimates on particular environmental initiatives or projects. Apparently there are a lot of challenges to be resolved with respect to the sectoral environmental actions plan.

¹⁰ Evaluation by *Statskonsult* (The Directorate for Communication and Public Management): <http://www.statskonsult.no/info/english.htm> (Accessed Sept 18th 2003)

¹¹ The Ministry of Health and the Ministry of Social affairs have submitted one plan together, while the Ministry of Foreign Affairs has not made their plan publicly available in print, though it can be obtained by contacting the Ministry.

Degree of environmental policy integration

As indicated by Lafferty & Hovden (2002), Environmental Impact Assessments (EIA) and Strategic Environmental Assessments (SEA) are introduced as relevant indicators both for the evaluation of horizontal and vertical EPI. Agenda 21, particularly chapter 8, recommends the use of both types of environmental assessment in national policy. EIA concerns the environmental impact of specific projects, while SEA relates to environmental consequences of policies, plans and programme initiatives. They could be related to the eight policy priority areas included in NEMS as well as to relevant policy priorities included in NA21.

Despite the fact that an expansion of traditional EIA principles to the policy-level may be somewhat problematic, Norway has also taken steps towards implementing SEA. In 2000 the administrative Order of 1994 was replaced by a new order, though significant room remains for interpretation with respect to what policies and projects should be subject to assessment (Torjussen 2002). As noted by Husby (1997) it is the environmental consequences of the policy areas rather than the proposal changes that appear to be in focus. With explicit references to our evaluation criteria related to vertical and horizontal environmental policy integration, it is thus questionable whether environmental assessment actually has any strategic character in Norway.

The evaluation conducted by Statskonsult confirms that all Ministries have formulated a sectoral environmental action plan. However, when it comes to consistent and regular employment of both EIA and SEA the picture becomes less promising. This is further confirmed when it comes to timetables and quantitative, indicator-based targets stipulated in the sectoral action plan.

With the action plan for sustainable development – NA21, the national strategy presented prior to WSSD has been made more specific and action oriented. Nevertheless, many challenges remain. One such challenge is to establish a central authority specifically entrusted with the supervision, coordination and implementation of the integration process.

The MoE's first bi-annual white paper (MoE1999: 9) states: 'Just as the National Budget describes the framework for the Government's economic policy and economic trends; this White Paper is intended to describe the Government's ecological policy and environmental trends. The White Paper will therefore be submitted at around the same time as the state budget is presented'. The sectoral responsibility is clearly defined, more recently in white paper 25 (MoE 2003), but this was not presented together with the state budget. On the other hand, NA21 was integrated as chapter 6 of the proposed state budget. Nevertheless few refer-

ences were made to either environmental principals or the NEMS in general. Rather, traditional sectoral concerns were prioritised. Times tables were also missing in NA21, and there was still no sectoral reporting. Moreover, in respect of vertical and horizontal environmental policy integration, a significant number of the relevant indicators relating to horizontal environmental policy integration are still missing. Thus, as long as the NA21 does not refer explicitly to the NEMS, we cannot therefore see how the action plan will actually promote a strengthening of governance structures of sustainable development in Norway.

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Environmental assessment and planning theory

Four short stories about power, multiple rationalities and
the need for situated ethical judgement

*Tim Richardson*¹

Abstract: This paper engages with recent debates in the EA literature about the lessons that can be learned from planning theory. It argues that the current communicative turn in EA, echoing a similar shift in planning thought in the 1990s, has failed to benefit from this earlier experience. Instead of following this trend, the paper examines EA from a perspective which is more closely aligned with some of the critics of the communicative approach, and which combines concepts of power, rationality and value in a different way. First, the paper briefly sets out how planning theory has engaged with questions of power, rationality and value. It then argues that EA needs to engage with competing multiple rationalities, and the inescapable presence of value conflicts within EA. It then turns to recent debates in EA to show how the question of value has become a very difficult issue for EA theorists. These issues are then explored by looking at four cases where EIA and SEA become dramatic sites of struggle, in very different ways: where the boundaries between facts, boundaries and opinions are defined through power struggles; where SEA is used as a process of brokerage between a fragile coalition of interests; where power defines rationality in the construction of an SEA instrument; and where EIA is challenged from the outside by civil society. The paper closes by discussing how EA practitioners can operate reflexively and ethically in a world of contested rationality.

Keywords: Power; rationality; value; planning theory; SEA

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Introduction

This paper reflects upon recent debates in the environmental assessment literature from a particular planning theory perspective. Rather than seeking to import ‘lessons’ from planning theory, the aim is to try and ‘see’ EA through the eyes of planning theory. This is a slightly different way of drawing connections between planning and EA – instead of advocating solutions to procedural dilemmas, for example, the idea is to see if these dilemmas might be thought about differently if they were addressed in the ways that planning theorists have thought about them. Can problems of participation, expertise, value and rationality in EA be unpacked differently, such that we can better understand the nature of the debate we are in?

Despite brave attempts (e.g. Lawrence, 2000), planning theory is not a field that can be assembled into neat typologies, with the contributions of various theoretical approaches set out in an overview paper. Lawrence argues that EIA has missed out by failing to engage with planning theory – essentially that it is still dealing with problems that planning theory has already resolved:

The limited and sporadic interaction between EIA and planning theory has meant that EIA has largely failed to benefit from planning theory insights and lessons. Obstacles and dilemmas already encountered and addressed in planning theory are still hampering EIA theory building and practice. (Lawrence, 2000: 307).

Rather than attempt to present a purely theoretical argument, this paper will draw on both theory and practice. Theoretical development has a lot to learn from practice (and from practitioners and other participants), and thus theory is relevant to practice (contrary to the views of some planning academics and practitioners). This follows a broader argument, that we should use practice to test whether theory is proving helpful. This does not necessarily mean that theory ‘works’ when it makes life simpler or smoother, but when it helps us to be usefully critical (rather than generally cynical) and appropriately positive (rather than naively optimistic) (Richardson, 2002).

The motivation to write this paper is grounded in the fact that there appears to be a problem in the progress of the theoretical debate around EA. It seems that the conceptualisation of EA is braced to go through a major change, reflecting a similar shift in planning theory in the 1990s. What has been described as the ‘communicative turn’ in planning seems to be repeating itself in EA. The reason this parallel experience is worth bringing to the attention of the EA community is that the communicative turn, whilst bringing about a lasting change on the way we understand

planning, did not decisively create the new paradigm that at least some of its proponents intended (e.g. Innes, 1995). The central theoretical concern with rationality in planning that the communicative turn sought to resolve remains disputed.

Whilst in agreement that there are insights to be learned from planning theory debates, and recognising that the communicative turn has a lot to offer, we should also acknowledge that planning theory remains a field of struggle between competing perspectives. The development of planning theory has not been about the adoption of a central paradigm, but about the gradual emergence of a more contested territory, where overarching theories have failed to convince the academic community that they are as universally relevant as they claim. Planning continues to make do with a wide range of parallel (and not so parallel), incompatible and competing theories. Theories (and theorists) do not see the world in the same way, and fail to agree on theoretical explanations of what is happening in the world, on the significance of various 'happenings', and on what to do about them.

As such, here we look at EA not from the perspective of communicative planning theory, but from a perspective which is more closely aligned with some of the critics of this approach, and which combines concepts of power, rationality and value in a different way. The argument is structured as follows. First, very briefly we set out how planning theory has engaged with questions of power, rationality and value. Then it is suggested that EA needs to engage with competing multiple rationalities, and that value conflicts, and judgements about them, are inescapably present in EA. Recent debates in EA are then explored to show how the question of value has become a very difficult issue for EA theorists. These issues are then further explored by looking at four cases where EIA and SEA become dramatic sites of struggle, in very different ways: where the boundaries between facts, boundaries and opinions are defined through power struggles; where SEA is used as a process of brokerage between a fragile coalition of interests; where power defines rationality in the construction of an SEA instrument; and where EIA is challenged from the outside by civil society. From these illustrations, it becomes clear that a shift of theoretical perspective, towards ethical values, is required. And it is here that the paper moves to its close, discussing how EA practitioners can operate reflexively and ethically in a world of contested rationality.

To do this, we will use illustrations drawn from a combination of personal involvement in some EA processes, and critical analysis of others, drawing on interviews with planners, politicians, and consultants in a

range of research projects. The cases, in different ways, are used to argue that the uses to which EA is put in the real world require a clear acknowledgment of the inescapable relationship between power and value. More particularly, they show that claims that values can somehow be separated from the EA process, or indeed that it is possible to treat these values in an *apolitical* way within EA, do not correspond to the reality of practice.

Still planning in the face of power

No longer does scientific rationality prevail in planning. The idea of the 'the rational mastery of the irrational' (Mannheim, 1940), of the separation of political process from rational policy (Mannheim, 1940: ; Davidoff and Reiner, 1962: ; Faludi, 1973a: ; Faludi, 1973b) has increasingly been exposed to critique. The limits it has placed on planning have been described by Patsy Healey as 'a modernist instrumental rationalism' within which 'the planning tradition itself has generally been trapped ... for many years, and is only now beginning to escape' (Healey, 1997). In response, communicative and deliberative theories of planning² have gained in popularity, and have been strongly asserted as a reaction against instrumental approaches. At the heart of the communicative turn is an attempt to resolve the 'problem' of power, by creating planning processes grounded in principles of free speech and rational argument. But this movement has triggered a critical response: that these are normative approaches that cannot lead to universal solutions: that there is no escape from power, instead power must be embraced. Other theorists prefer to explore how deliberative practices (and planners) can operate within a context of power (e.g. Forester, 2000), and to explore what has been described as the 'dark side' of planning theory – a body of theoretical and empirical work developed in the past few years by, among others, Yiftachel (1994), Flyvbjerg (1998), Huxley (1998), drawing on a long lineage of political theorists including Thucydides and Machiavelli, Nietzsche and Foucault.

This plurality of theory creates an environment where there are few easy explanations and fewer model solutions. Theory, in planning these days, rarely tells us what to do (one possible exception being the attempt to assert a communicative paradigm in the 1990s). Rather it is the engagement with theory, and the debate between different perspectives, that

² A number of theorists have framed this in different ways: Communicative action (Innes, 1995), 'communicative planning' (Forester, 1989, Sager, 1994), 'argumentative planning' (Fischer and Forester, 1993), 'planning through debate' (Healey, 1992a), 'collaborative planning' (Healey, 1997), 'deliberative planning' (Forester, 2000), and 'planning through consensus building' (Innes, 1996).

is gradually providing a set of theoretical reference points that can be used by astute planners and others to work out their basis for action.

In this light then, rather than attempting any sort of review or synthesis, it is worth bringing the sorts of approaches being used by planning theorists into contact with environmental assessment debates and practices. This has been taking place recently with a surge of interest in communicative approaches to EA. As a theorist who has been critical of the limits of possibility of the communicative approach, it would be interesting to explore how recent work on power, rationality and value being pursued by some planning theorists, has implications for EA which respond strongly to the current debates around communicative EA.

John Friedmann has argued that theorists' ambivalence about power is one of the biggest outstanding problems in theorising planning (Friedmann, 1997). What an increasing number of planning theorists are doing at the moment is placing power at the centre of inquiry, and in different ways exploring how power works, and how planning can be done in an environment shaped by power relations. Of course, planning theorists clearly recognise that it is not enough just to reveal power in an ever-increasing variety of cases. The point is to use the increasingly nuanced analyses of power at work to reflect on how planning can be done better:

We rediscover bureaucracy and politics and racism and selfishness until we are numb, if not cynical; but we need, now more than ever, along with the acknowledgement of political viciousness, corporate greed, systematic impoverishment and institutional racism, to articulate – more and less publicly, depending on the setting – the searching analysis of how to do better, pragmatically and critically, really, in a world of power (Forester, 1999).

So, in different ways, a new agenda has been set for planners, who need to work effectively in the face of power (Forester, 1989) towards what John Forester has called the organisation of hope:

'Planners, then, must not only listen critically to conflicting and ambiguous claims of value, but they must also shape hope by speaking to real possibilities of public action. They must learn to anticipate and respond in the face of power; they must work sensitively, not hide, in the face of value differences – and students of planning, planning theorists and analysts, must help them, theoretically and practically' (Forester, 1999).

Here, theory is not being used to provide answers to what is right or wrong, or to generate procedural theories about how planning should be done. It is rather better seen as a critical approach that intends to equip the planner to operate more effectively in challenging environments, through reflection. If EA wants to learn from planning theory, it could do

worse than to recognise the value of using analyses of practice that really do take on the dimensions of power, while perhaps expecting less from its theoretical debates over procedure:

‘It is important to ask ... whether expectations of “theory” are always well placed. As John Forester has observed, ‘Theories do not provide answers to problems: people do. But a theory can provide a framework of analysis’ (Forester, 1993: 1). Such frameworks, moreover, challenge planners to ask what or whom has been included and excluded from a process or decision, and perhaps even more profoundly to question the very basis on which better or worse courses of action might be judged or revealed. In raising questions as to why things happen as they do and how it might be otherwise the world of planning inevitably becomes more complicated and messy. However, it is in making planning issues messy that something profoundly important can take place. Alternative or new options and possibilities are opened up which previously seemed beyond the scope of discussion’ (Campbell, 2002a).

To further emphasise the relevance of these debates in planning theory to EA, we will make brief reference here to the work of Michel Foucault, which has been influential not just in planning, but across the social sciences. One of Foucault’s core concerns was the relationship between knowledge and power: his work reveals how the various ways in which we come to understand the world are shaped by power relations. Bent Flyvbjerg has referred to Foucault’s act of turning Bacon’s dictum that knowledge is power on its head, theorising that power creates knowledge, rather than vice versa (Flyvbjerg, 1996):

‘We should abandon a whole tradition that allows us to imagine that knowledge can exist only where the power relations are suspended and that knowledge can develop only outside its injunctions, its demands and its interests ... we should abandon the belief that power makes mad and that, by the same token, the renunciation of power is one of the conditions of knowledge. We should admit rather that power produced knowledge ... that power and knowledge directly imply one another; that there is no power relation without the correlative constitution of a field of knowledge’ (Michel Foucault, 1979: 27).

Central to Foucault’s project was the aim of unsettling the taken for granted, to destabilise hegemonies of thought, which protect and reproduce power relations. He particularly singled out for attention the ‘apparently humble and mundane mechanisms which appear to make it possible to govern: techniques of notation, computation and calculation; procedures of examination and assessment; the invention of devices such as surveys and representational forms such as tables; the standardisation of systems for training and the inculcation of habits; the inauguration of pro-

fessional specialisms and vocabularies' (Miller and Rose, 1993: 83). How do these practices reproduce certain modes of thought (e.g. the dominance of economic interests, and the consequent weakening of environmental protection arguments), and institutionalise the prejudices that are at their heart? This perspective makes it possible to think of how the practices of government (and environmental assessment falls squarely into this category) legitimise certain forms of knowledge whilst marginalising or excluding others.

The idea that knowledge is constructed through power relations requires a fundamental rethinking of the tools that generate 'knowledge', such as EA. From this perspective, EA is seen as a crucible for the construction of knowledge. The construction of EA methodologies becomes a moment where certain knowledges get framed as being significant, while others are sidelined or ignored (this is the construction of rationality). And if we think of EA as a field of practice, inhabited by EA practitioners among others, then these individuals become (if they choose) powerful players in processes of knowledge formation, which require continuous micro-level engagement with differences and conflicts of value. We begin then to sense a need for the EA community to engage with questions of value, which bear as much on individual action as on the frameworks and procedures that dominate much of the EA debate.

Flexibility, participation, and a misplaced sense of value

Let us begin then by entering the EA debate through engagement with Thomas Fischer's (2003) preoccupation with resisting what he sees as the postmodern challenge of flexible SEA. Fischer's argument includes clear indications that public involvement which allows the expression of 'NIMBY' and 'LULU' views should be somehow designed out of SEA, by using more technical methods instead of (it seems) public involvement. The logic here is that, if SEA is to bring about a 'better' environment (Fischer, 2003: 162), the process should not allow 'bottom up' expressions of position to interfere with broader, more strategic environmental aims. In this argument there seems to be a strong but undeclared sense that it is individual or local values that are the main barriers to creating good environments. However it might also be argued that often it is the 'big' interests that prevail in bringing environmental destruction or degradation against the interests of the (local) many. How do we resolve questions like these in cases like the Three Gorges Dam in China, or the Narmada reservoir project in India, where tens of thousands of people are being displaced by the rising waters of the new dams? Removing public involvement, and placing renewed reliance on technical procedures and expertise to deliver the 'right' top down environmental outcomes seems

to rely on a leap of faith away from the current shift towards participative SEA, which does not resonate with developments in planning theory. Stepping away from participation is a dangerous move in today's political and planning climate, which perhaps should only be approached on the basis of a thoroughly worked out position which must surely have something to say about the values that are being intentionally excluded.

Seen from a planning perspective, there seems to be a difficulty here: participation is being dealt with as a procedural issue rather than one of *value*. If the difficulty with SEA (or EA for that matter) is seen as being that a turn to flexibility and more participation creates an unwanted risk that 'good' (top down) outcomes will be overwhelmed by local opposition, it is not possible (or surely not acceptable) to simply design these supposed opposing positions out of the process. One of the issues that the EA community must sort out is how it deals with the presence of multiple and often conflicting values, and ways of valuing. The retrenchment in scientific procedure proposed by Fischer thus overlooks the fundamental problem that we do not yet have an accepted basis in planning for asserting, or deciding, that certain environmental objectives should in certain cases override locally expressed objectives. 'Sustainable development' does not do this for us, and we have a very poorly developed sense of justice (environmental, social, or spatial) to help us out of this difficulty. If we want to say that global environmental considerations (such as the greenhouse effect) are more important than local environmental considerations (such as landscape conservation) such that we should construct wind farms in sensitive landscape areas, we have made a value based judgement. It cannot be argued that SEA processes should somehow work in ways that automatically generate outputs that do this, *unless* this shift has been the subject of some recognised and legitimate process of decision making. Otherwise, are we not simply falling into a struggle where SEA is shaped by conflict between different communities of academics, policy analysts and process designers over what values should preside in society?

This short excursion illustrates a difficulty in the EA debate in engaging with theories (like those in planning), which deal with questions of power, rationality and value. Such talk, however, seems to provoke a reaction which echoes the rationalist response in planning to the communicative debate. It is difficult to perceive the range of motivations for wanting to resist participation in EA, but this type of reaction does bear some of the hallmarks of a resistance to the expression of 'wrong' values, which assumes either a strong sense of 'right' values (e.g. top down environmental priorities), or a strong belief in scientific and/or professional

EA procedures to achieve the ‘right’ outcome. One explanation suggests a difficulty in accepting that the values held by theorists may be subjective, the other explanation suggests a faith in ‘value free’ science and professional activity that is not borne out by critical studies of EA, or by the work of the planning theory community.

We have arrived at a problem of values, which is then a critical issue for the current EA debate. Rather than concentrating on procedure however the EA/SEA community should be debating where and how value conflicts and differences are being or could be dealt with. Lawrence has argued cogently for recognition of the significance of values in EA activity:

‘The role of values and ethics in EIA (more frequently in SIA) is sometimes mentioned (Mostert, ; Firth LJ, 1998: ; Satterfield and Gregory, 1998) in EIA literature. It has not been nearly as fully explored, as has been the case in planning theory’ (Lawrence, 2000: 621).

As such it would be more fruitful to move onto the terrain being established by those who are engaging more openly with questions of value.

Mediating conflicting values in EA (or not)

Within the EA literature, there is a growing awareness of the central importance of values in EA. However there are very different positions emerging over what, precisely, should be done about this. Should EA embrace the presence of values, and attempt to mediate value conflicts through the process, or should such decisions over values be completely removed from EA? There is disagreement within this literature however over not just how value differences and conflicts should be mediated within EA, but over whether this is even an appropriate thing to be attempting. On the one hand, a clear position emerges from the literature on mediation and conflict management, advocating that through public participation, EA should provide a political setting for value differences and conflicts to be mediated to reach decisions. An alternative position, still arguing strongly for increased public participation, argues for EA as an arena of deliberation between different opinions, values and interests, but where no attempt at mediation or settlement should be made – this is left to the politicians whose deliberations are informed by the outputs of EA.

The mediation approach to managing conflict between stakeholders within participative settings is typically advocated in this way:

‘Public deliberation should focus attention on a problematic situation, set norms to describe and assess that situation, and generate shared understandings about “the boundaries of the possible in public policy”

(Majone, 1988: 164; see also Majone, 1989). (Daniels and Walker, 1996: 74).

The emphasis here is on the settlement of conflicts. This approach resonates strongly with theories of policy making and planning as argumentation among plural interests, and sees mediation as a necessary activity (e.g. Healey, 1997: ; Forester, 2000). This mode of thought has pervaded planning practice so powerfully that in Britain, for example, planning's core business is now being branded as an inclusive endeavour of 'mediating space and making place' (RTPI, 2003). However it is at precisely this moment of settlement where Elling makes a different case (Elling, 2003). Grounded in an analysis of Habermas' work, he makes a clear call to separate the political process from the rational deliberation that he views as the proper role of EA. Politicians, who are elected to represent their constituencies, should make difficult judgements about trade-offs between interests, about the best solution to irreconcilable difference. This is not seen as the task for EA, which can create a forum for different voices, values, and interests to be brought to light, but which has no legitimate capacity to mediate between them.

But there seems to be an intrinsic problem with this idea that decisions over value differences and conflicts can somehow be taken out of the EIA process by creating new institutions and practices. This difficulty lies in the reality of EA activity, which involves constant micro-level judgements, which cannot help but deal with questions of value. Wilkins argues for the inherently value laden nature of EA:

'The values of the people engaged in an environmental impact assessment (EIA) play a significant role in its results due to the considerable subjective decision-making upon which EIA is based. From screening projects to final decision-making, discretion has a prominent role in determining the methodological and practical results of the process. Moreover, the central role of prediction in EIA makes subjectivity unavoidable due to politicized evaluations, narrow boundaries setting, data gaps and simplified assumptions. The attitudes and values of the actors involved in the process are critical to determining the results achieved.' (Wilkins, 2003: 401).

The point here is that values play a part not just in the final decision-making, once a deliberative EA report is made to a political body. At every stage in the process, values are critical in determining how EA is carried out, from (before) its inception, right through the process at every stage. So, EA is political to its roots:

'as part of a decision-making process, EIAs are political by their very nature (Bojórquez-Tapia LA and Garcia O, 1998: 233-234). Politicized

evaluations are fuelled by the fact that EIAs are often used to support, oppose or mitigate publicly controversial projects.’ (Wilkins, 2003: 404).

This is as true of designing environmental assessment tools and frameworks as it is of doing environmental assessment. Elsewhere, in terms of the political struggle analysis has been made of how to integrate environmental concerns into the policy for the trans-European transport network (Richardson, 1997), the approach taken was fundamentally shaped (and flawed) because of overriding economic and political interests and inter-institutional power struggles, none of which were openly addressed in the policy dialogue.

Value laden EA is a good thing (eventually)

The argument here is that we can neither argue for a retreat from subjectivity – a retrenchment into technical procedure and expertise – nor can we leave the values to the politicians. Though the separation proposed by Elling (not between facts and values, but between deliberation and decision-making) can well be argued from a political theory perspective, its application in EA practice would create a cleavage with current approaches in planning, as decisively as would a wholesale rejection of participatory approaches within EA.

Wilkins takes such issues head on and attempts to overturn the critical way in which such concerns are often presented. He argues that the subjectivity that is inherent in this value-aware conceptualisation of EA is in fact essential to achieving the broader aims of sustainability:

‘As a forum for discourse, EIA provides the tools by which changes in social values may evolve. Thus, the value of EIA may not solely lie in its predictive capacities (or lack thereof), but in its role as a mechanism for promoting sustainable development and social learning. Examined in this light, the legitimacy of the process is not in its assessment results, but in its abilities to promote public participation, transparency, discourse and sustainable development. The legitimacy of EIA, therefore, partly lies in the subjective basis upon which it is rooted’ (Wilkins, 2003: 413).

Setting out these positions in this way makes very clear that the EA community, and in particular its theoretical debates, are deeply divided on questions that are not simply about matters of degree. EA is either value-laden to its roots or it is not. Mediating values either takes place within EA or it does not. Moreover, there does not appear to be an easy way of resolving the differences between these arguments. Questions of value cannot be finessed through earnest discussion about alternative approaches to rationality, neither of which solves the problem of power.

Neither communicative theory (Elling, 2003), nor a retreat into ‘rational’ science (Fischer, 2003) will help here.

So how could EA’s problem with rationality be addressed? The debate between alternative instrumental and communicative rationalities alerts us to the inescapable presence of values in the activity of scoping, filtering, and assessing impacts of development. It does not, however, satisfactorily show us how to deal with them. The argument that we can somehow take the power out of EA by the double step of first recognising value differences and bringing them into the (communicative) EA process, but leaving actual decisions to politicians in the policy process ‘beyond’, depends on a crucial point: that stakeholders can bring different types of knowledge to the EA table, with transparency achieved through open deliberation about the values and beliefs underlying these knowledges. So the EA process becomes acknowledged as a site of knowledge-value gathering, and the link to decision-making is clear. Decisions about value conflicts should be left to politicians. But there is a problem here. It is not clear how relationships between values, facts and opinions will be brought into the open in communicative EA, but opening up delicate and complex questions about how ‘true’ certain ‘facts’ are must depend on actors being open and honest in their participation. Personal observation of the micro-politics of consensus building processes suggests that this relies on a leap of faith rather than the introduction of new practices.

Turning to practice

Case A: power defines facts, judgements and opinions

Let us try to illustrate the unavoidable presence of values by referring to a (anonymous) case, which opens up the question of how key/lead actors deal with problems of power and rationality. One situation in which the information introduced into EA is conditioned by power is the simple case where momentum and political support already exists for a particular project or plan outcome. It would seem likely that the subtle treatment of alternatives in such cases is likely to be heavily conditioned, such that (for example) the fair or balanced treatment of alternatives may be limited, certain forms of knowledge may become unduly foregrounded, and difficult questions may be pushed to the side or overlooked. These are observations based on participation in a real case, and detailed evidence exists of the events recounted below.

In case A, a group of local authorities had reached political agreement on a particular (road) transport infrastructure project, and had spent a number of years lobbying government, and also exploring the possibili-

ties for private finance initiative to support the project (the longevity of this campaign was eventually revealed when a confidential memorandum was made public as part of a submission to a public inquiry into the project application, where the Environmental Statement was the key proposal document). The ES dismissed non-road alternatives, and also dismissed alternative locations for the project, based on the logic of previous engineering studies, but without using the test of a new, less roads based national policy. In fact, for 10 years no alternatives had been considered afresh. So this very expensive and detailed EIA only tested a single 'alternative', and a defensible (and strongly defended) logic was presented: an engineering case, rather than a statement that a political decision had already been made. Here we had a rather unusual case (because of the nature of the specific infrastructure proposal) where the proposal went to a local public inquiry, and the final decision would be made by the Secretary of State. In theory, we had a separation between the EA process, its testing in a public hearing, and a final decision in a political domain. Undoubtedly however the pressures on the local authorities proposing the project created an overwhelming pressure to condition the 'facts' they presented.

This tendency can be further illustrated in this case by the complete omission from the EA of a potentially damaging ecological impact. Contaminated wastes from the construction phase would need to be disposed of away from the locality, but no consideration of this issue appeared in the documentation.

Furthermore, the project was considered to be of great significance to the regeneration of the sub-regional economy, because the existing poor infrastructure was acting as a 'throttle' on development. The possibility of the creation of as many as 50,000 jobs was argued to be directly linked to the completion of this single project. Yet in spite of significant amounts of information about this in the ES, the argument was rather tenuously based on a number of sites in the area that were either allocated for development, or were listed as possible future employment sites. In 'fact', inspection of the ES revealed the following analysis: 'it is not possible to determine exactly what proportion of this total would be achieved, or how many can be attributed to the [project]', yet based on the same analysis, it would be possible for this expert witness to state at the inquiry that: 'My best estimate is that ... lost growth opportunities will be roughly equal to 50,000 jobs.' Again, here, we see the tendency for the distinction between 'facts', 'judgements' and 'opinions' to become blurred through an apparent political bias running through the case.

We could go further here and discuss how, as an expert witness engaged by the opponents of the scheme, I found the entire process from initial analysis of the ES through to presentation of evidence, and in-depth cross examination at the inquiry, to be coloured by the vain attempt to separate *fact* from *value*. The nature of EA is such that from an outsider's perspective, it is felt very strongly that engagement in the process must be based on facts. Existing facts can be disputed, and new facts can be offered, but the impression that political bias existed could not be voiced. Here we can see where Elling, calling for recognition of values, is raising a key insight. But given the case set out here, we should properly question whether such new practices as might be invented to identify value relationships would actually militate against outsiders – opponents, 'NIMBYS' or 'LULUs', rather than proponents. We can see clearly in this case that struggles to define knowledge about a planning proposal are shaped by long established interests, which worked against an honest treatment of local or environmental concerns.

Case B: SEA creates a process for power brokerage

In this next case, I want to show how, far from removing politics from the process, those commissioning EA can be very interested in using the process for negotiation or mediation among different interests.

In the South Pennines, in England, an SEA was carried out as part of the strategic transport planning process, in an attempt to integrate environmental concerns into a process that had been driven by modelling traffic movements. The 'Strategic Level Environmental Assessment of Selected Strategy Options', carried out by Oscar Faber and RPS Clouston, analysed sustainable multi-modal transport options on cross-national park routes. The SEA was commissioned by the Peak Park Transport Forum, a political and technical partnership of local authorities and other agencies that has worked on strategic transport issues since 1994, and whose work is praised in the 1998 Integrated Transport White Paper.

The SEA was built on the concern that within a strategic package, certain transport corridors could benefit at the expense of others. Traffic restraint in one corridor, for example, might decant traffic onto other routes. The study therefore aimed to 'identify and compare the strategic environmental impacts of different strategy options' (RPS 1996). The study, rather than developing a completely new methodology, was, according to the consultant's report, carried out in accordance with national guidelines at the time for project level environmental impact assessment (EIA). In their original brief for the SEA, the Forum had envisaged 'possibly using as a basis the suggestions for SEA outlines in the 1992 SAC-TRA report... to compare environmental benefits/disbenefits of the vari-

ous options and to devise and equitable means of comparing landscape/ecological benefits/disbenefits against effects on people'. By the end of the process, they recognised that what they had was not that different to normal EIA, extended to the corridor level, rather than an area wide SEA.

The narrow range of infrastructure based policy options that have shaped a sequence of studies in the South Pennines appear to have had a constraining effect. The SEA methodology was shaped by its political setting, principally in the adoption of traffic modelling as the foundation of the study. The resulting approach might be described as 'what happens there if we build this here?' rather than 'what can we do to address this problem?' Despite the lack of resources available to the local authorities in the South Pennines, there has been a continued reliance on complex modelling. However the lack of substantial resources to invest in the creation of new transport planning frameworks means that existing models and existing technical staff are often being stretched to adapt to different solutions rather than new models or techniques being developed from scratch. In the South Pennines, complex modelling has provided the knowledge base of strategic policy development for nearly a decade, as a series of studies have refined and built on a traffic model which was constructed before the current policy turn.

Several transport planners involved in the process asked why so much effort had been spent on modelling when the emerging strategy was obvious. There was a shared feeling that the strategic options recommended by the studies are not very different from a 'common-sense' position that might have been achieved without detailed analysis. It was simply the obvious solution. The studies in essence then seemed to provide useful legitimisation of the process of strategic development, rather than actually guiding it. When pressed about whether the methodology could have been improved, a similar response was obtained: 'Maybe if you started the process again today, you would use different methods, but would you get a different result?'

These comments notwithstanding, the SEA process generally received a positive reaction from the Forum members. It had served as a useful means of facilitating political debate. Its technical correctness was in many ways less critical. The results, rather than being considered as definitive, should be of the right 'order', and could be used as a 'commentary', or 'steer' to decision-making. In the Peak District, the strategic studies focused the attention of professionals and politicians on the heated issue of cross-park traffic congestion, and the case for infrastruc-

ture investment. However the framing of the debate excluded any detailed focus on community transport needs, or on visitor traffic management.

The South Pennines SEA is a good example of a study process being used to facilitate, rather than simply inform, the strategic consensus building process. It is noteworthy that several Forum members were less interested in the outcome than in its political usefulness in maintaining the partnership: 'We had information there that probably confirmed what we thought, but it's useful for that anyway' (Forum Member). 'The strategy is not earth shattering' (Forum Member).

A major issue that arose here was the role of the study processes in shaping the emerging strategy. The consultants adopted a straightforward view of the SEA process: they had a technical job to do. Some representatives of the local authorities, however, saw things differently. As the study progressed, it became a vehicle for the debates over strategic options between Forum Members, as the impacts of different options on different corridors crystallised. The SEA was described as a medium for 'pushing and shoving' by one Forum Member. Others were more explicit:

'I was interested in the outcome of the more focused study in providing us with leverage... to argue with the National Park Authority if what they proposed was going to be damaging to our interests, but also as a lever either with the County Council or DETR¹ to get something done about our roads (Forum Member).

It allowed us to go forward and support the NPA strategy, but with a lot of if's, but's and maybe's' (Forum Member).

It is interesting to see how an environmental assessment process can become an arena for mediation between strategic partners, where knowledge is shaped by negotiations and tensions between positions. This is far from the idea of knowledge being negotiated within the evaluation process proposed by Voogd (1997), it is more that the process of knowledge making becomes an arena for achieving a political settlement, and it was the political settlement that shaped the assessment output.

Case C: power defines rationality

The next case study considers the integration of environmental policy at the EU level, focusing on the development of Policy Guidelines for the trans-European transport network (CEC, 1996). In this case, the construction of SEA methodology was the vexed issue which became a site of conflict between economic and environmental interests, played out in the Parliamentary Committees and Council Chambers of the EU institutions (Richardson, 1997). In the early 1990s, a key question was how environ-

mental concerns might be integrated into major strategic policy initiatives. Neil Kinnock, Commissioner for Transport, argued that the critical barrier to political agreement was methodological:

‘The problem is that nobody has done [SEA] before, so a methodology has had to be developed. Unless there is a degree of consensus about the adequacy of the means of assessment the value of the whole thing will be reduced, and it won’t stick.’

However the introduction of SEA was a highly contested issue, and an alternative view suggested that the positions around SEA reflected the playing out of interests, rather than a more reasoned evaluation of the procedure itself: ‘So this [was] a *realpolitik* as opposed to reasonable scientific approach’ (anon). As a result, proponents of TEN-T argued that SEA simply created a procedural bind, obstructing and delaying infrastructure projects, rather than providing any meaningful environmental input into decision-making:

‘SEA is a procedural thing. It offers endless scope to those who wish to object to things on procedural grounds. ... the concern is that it will just give more chance to those who want to make mischief, rather than to those who have genuine complaints ... It basically just makes the project more difficult to build, and it just struck us as being completely counter to the idea of TENs. The idea of TENs was to get these things going. I mean Kinnock keeps saying the aim is to get these things built, and we’re putting up hurdles.’ (anon).

As the debate became polarised between the European Council (driven by the interests of member states in securing more EU support for infrastructure investment) and the Parliament (concerned with the environmental impact of the proposals, and looking for opportunities to flex its muscles as an increasingly powerful political player, but also driven by concerns about job creation), the principle of SEA was subject to aggressive challenge, and a storyline emerged that the call for SEA was simply a desperate manoeuvre to introduce some measure of environmental protection. The tool itself was not really the issue it had in reality already become a political football:

‘They wanted an assessment of the whole of the TEN as a precondition for building. But too late folks, most of it is there already. And this was the thing that was most annoying to the Council. You had the Parliament saying “right, stop everything, we’re going to do SEA on the whole of the TEN”. There is no consensus on how to do this, in fact some of the methodology doesn’t exist. So we’re going to wait five years to do the methodology, we’re then going to stop the planning process and put all this into practice, then we’re going to carry out corridor studies for individual

corridors and decide what is the best modal solution for each individual corridor. So maybe we don't want a motorway here, we want a railway, a waterway or something like this. So you do all this, which is going to take 20 years, and yet they want the TEN delivered next year. Frankly this was just incoherent. Stupid. The kinder way of describing it was that they just thought they were going to push for some environmental protection all round, and they weren't too worried about the internal coherence of the actual measure, but they thought let's go for it. They realised that they weren't going to get a lot, but they were keen to raise the stakes and raise a flag for this thing. And they certainly did raise the profile of it in the Council (anon).

In the debate there was very little specific attention paid to what SEA could actually achieve in decision-making. A common view of SEA being that it was a device for creating an impression of meaningful progress on the environment, though its exact nature seemed to be very unclear:

'But I can tell you that it is pure philosophy. Nobody that I know in the Commission or elsewhere knows exactly what is meant by [SEA]. It is another nice word to keep politicians at bay' (anon).

SEA in this case can be interpreted as a procedural device that satisfied many interests by having something tangible to point at, beyond bland policy statements about conforming to environmental objectives. The vagueness of the concept, and its slow deployment, served to further the interests of expediting the TEN-T programme.

For those who were interested in SEA as an environmental tool, this power dimension, as SEA became a political football almost without concern for the final outcome, was frustrating: 'SEA in itself is a very, very simple tool for helping decision-making. So neither party should have been really so violent about it' (anon). However, given that SEA was at the crux of the strategy to green TEN-T, it is not surprising that positions for and against it were strongly expressed. For the environmental activists as well as policy insiders, there was a need to create a political, rather than technical, case for the adoption of SEA: 'The problem was, it was so late in the day, it was so pathetic the ways the Guidelines had been proposed in the first place that you had to find something rather dramatic to get the whole thing into the picture' (anon).

Those closer to the methodological debate were divided between advocates of early application and hands-on development of SEA, using best available methods, and advocates of a more cautious approach based on researching and improving methodology before application. Within the Commission the (more powerful) Directorate responsible for transport

infrastructure was keen to progress policy without delay, while the Directorate responsible for environmental protection was keen to secure some useful outcome on the environment. Further methodological work would ensure that emerging policies and network plans would not be adversely affected by environmental concerns. Unsurprisingly there was a clear feeling among environmental NGOs as well as policy insiders that the further studies on methodology were part of a strategy of delaying the application of SEA, particularly given the piloting work already carried out on the High Speed Rail Network.

The final formulation of SEA in the TEN-T Policy Guidelines failed to establish SEA as either a participative planning process, or as a useful analytical tool in strategic decision-making, with weaknesses in procedure, methodology and implementation. It called for further work to be done on methodology, and did not actually require SEA to be applied to the infrastructure networks that were defined at the time. The gulf between policy rhetoric and practical measure reveals the weakness of this construction of SEA. Its eventual implementation (still anticipated) is unlikely to ask basic policy questions, to veto any particularly harmful project, or to move transport in Europe towards sustainability. Furthermore, by failing to enable EU environmental intervention, SEA leaves the powers of environmental jurisdiction and competence largely at the member state level. Quite apart from the problems this raises in achieving EU environmental objectives, the opportunity to use SEA as a tool to achieve broader objectives of sustainable development by creating a more transparent, accountable, and participative approach to infrastructure planning was missed.

The political and institutional setting of SEA development shaped its scope, timing, methodology, and ultimately its impact. In this case SEA was shaped by the hegemonic interests of the single market and political integration, by inter-institutional politics, and by the actions of interest groups. Appreciating the constructed nature of techniques of environmental integration like SEA helps us to understand the dangers of regarding them simply as rational scientific tools. In the EU, the powerful discourses of the single market and political integration are deeply ingrained in the culture of the key EU institutions, conditioning the possibilities of the policy process, shaping the problems that need to be solved, the methods to be used in their analysis, and the solutions that can be considered. This powerful conditioning has resulted in a T-TEN policy process that has successfully assimilated environmental concerns by not only creating a suitable level of policy rhetoric, but also by constructing a

process which, at first sight, appears to allow positive environmental integration.

Case D: EIA as a means of democratising decision-making

The final case shows how environmental assessment can be used as a site of conflict over core values by civil society, regardless of the intentions of bureaucrats, practitioners and politicians. In the countries of Central and Eastern Europe (CEE) public participation is a relatively new phenomenon, which is being introduced to traditionally closed planning processes. In the face of inertia against the democratisation of decision-making, environmental non-governmental organisations (NGOs) are beginning to play a critical double role in both advocating the need for reform and in proactively establishing new practices in public participation. However in the Czech Republic the development of public participation programmes has been regarded by public authorities and developers as creating new difficulties for decision-making, exposing projects to additional risk, and generally upsetting the efficiency of decision-making, costing time and money (PEAC 1995).

Here, then, the application of EA becomes a moment to challenge the emerging democratic polity, as activists act reflexively on the question of whether to directly oppose development from their strong environmental perspective, or instead to put their energies into democratising the decision-making process, thereby encouraging and facilitating wider participation. Rather than using strategies of persuasion pointing out the bad impacts of development proposals, the NGOs opted to press for a communicative environment, creating opportunities for wider participation than that allowed by the formal process.

The action taken by NGOs was to organise *parallel public participation* (PPP) programmes alongside the formal EIA of proposals (Richardson, Dusik et al., 1998). This involved organising public meetings and other events designed to raise awareness, gauge attitudes, and generate debate. In this way, members of the public were supported in recording their responses within the formal EA process. In each case, as well as being resistant to public involvement, local authorities were resistant to identifying or examining development alternatives, because of strong commitments to a particular proposal. Parallel public participation was used to introduce public involvement as early as possible in the process, critically at the scoping stage when alternatives could be identified (and earlier than Czech law requires). The direct results were that the deficiencies of EIA were exposed, and in some cases they had to be revised, and that alternatives were given due consideration. This practice is interesting, because the environmental NGOs cannot know that the increased

participation resulting from their work will lead to more support for their positions. So while their fundamental aim was to stop what they saw as bad projects, they placed faith in the expression of the values held by local residents and other non-environmental NGOs.

So here we see a case of EA being used as an opportunity to democratise decision-making, against the wishes of developers and local authorities. Power, here, gives shape to the introduction of value-driven knowledge into the arena. The question of whether formal decision-making, or adjudication over value differences, takes place elsewhere, becomes redundant here, as the injection of values disrupts the formal process and pre-empts the anticipated decision. So EA, because it takes place in the real world, can be subject to deliberate strategies, which do not correspond with theories, or carefully designed processes which seek to separate values from process, or which seek to create hermetically sealed containers for making judgements over value conflicts. EA can, then, become an opportunity for those outside the EA process to visibly disagree with the decision-making process, and therefore to act to change it. The idea of separation of value politics from EA completely dissolves when we consider that such actions may take place for different reasons, which may well be poorly understood by those charged with carrying out EA. Defenders of non-value-political SEA would therefore need to resist and oppose such insurgent practices.

Towards ethics

In the cases of EA practice discussed above, it should be abundantly clear that value conflicts are present at every stage, beginning long before environmental assessment, or even formal decision making, begins. The value conflicts can here be seen to be played out in struggles to shape the form and content of EIA and SEA. In every case, rationality is at stake, as the ground rules of the process are defined, as certain claims of knowledge are made, and as interests are mediated. There are recurrent frustrations with these power struggles. Consultants see their work as analytical rather than brokering political deals. Expert advisors see their tools distorted by politicians and pressure groups. But most actors – planners, politicians, stakeholders, see the EA as an opportunity to persuade, to mediate, to contest. This is necessary because that is how planning is. EA would not be such a useful tool to actors in the real world if the EA community refused to accept that value conflict and mediation is part of the contribution that is needed.

In the cases above there is a tendency to concentrate on public participation as the key to working with difference and conflict. However, the extracts show clearly that in the fine grain of EA work, value conflicts

are present throughout EA: they are played out in the making of professional judgements, in the taken for granted ways of doing things, in the political considerations that limit and condition the possibilities for action. So alongside considerations of participation in EA, there remains a need to address how values are put at stake in the everyday actions and practices of EA practitioners and planners. This requires a different focus, on the *ethics of practice*.

As much as procedural approaches along the lines discussed above, contest the locus of value in EA processes and institutional forms, there is a parallel debate to be had about how EA professionals deal with issues of value within their daily practice. As an illustration of the challenges, work is being done in South Africa by the Certification Board for Environmental Assessment Practitioners of South Africa (CBEAPSA) to create a Code of Ethics for EA practitioners (2003). Within this comprehensive Code of Ethics, practitioners are instructed to avoid bias:

‘Bias, facts and opinion

6.2.4 Environmental assessment practitioners shall not conduct professional activities in a manner involving dishonesty, fraud, deceit, misrepresentation or bias.

6.2.5 Environmental assessment practitioners will clearly differentiate between facts and opinions in their work’ (CBEAPSA 2003).

The cases above should adequately show, in different ways, that, however well meaning a practitioner may be, the idea that facts are distinguishable from opinions does not flow from an acceptance that values, and conflict over values, is ingrained in planning practice. It is based on a rational framing of EA, which does not relate well to EA in its real world context. Mention of bias and misrepresentation creates an unenviable ethical dilemma for those practitioners who find themselves in the sorts of situations outlined in the cases above. Where is the line between fact and bias when one works for an authority that has built up political momentum behind a particular project? EA is a much more messy world than these ethical guidelines would suppose. They rely on a model of EA that cannot see the value-laden nature of practice, and they give no practical support to practitioners faced with the grey reality of everyday work in a highly charged setting.

Conclusions – reflexivity and ethics in a world of contested rationality

The field of environmental assessment is in a dance with rationality that mirrors planning debates. The weaknesses in EA that result from a form of rationality which is ‘often autocratic and technically biased, poorly designed to match contextual characteristics, and weak in fostering creativity, in facilitating dialogue, and in appreciating the political nature of planning. It, too, can be prone to artificial assumptions regarding comprehensiveness, a unitary public interest, objectivity, predictability, and control’ (Lawrence, 2000: 611)), have led to an upsurge of collaborative theory and practice in EA, to the extent that ‘fair dialogue and effective communications is a recurrent theme in EIA literature’ (Lawrence, 2000: 617).

The first difficulty is that these two expressions of alternative rationality do not easily co-exist. One is the product of a critique of the other. We have seen the weakness of instrumental, technical approaches through the eyes of the communicative theorists, but now, from the perspective of debates in planning, which have critiqued, in turn, the communicative movement, we see that we do not have an easy replacement. EA literature is becoming a field of engagement between two forms of procedural rationality, neither of which can decisively resolve the most fundamental questions that have been explored in this paper. Rationality is contested, and EA theorists and practitioners will not be able to rest in the knowledge that a single procedural rationality can delineate facts from opinions, provide comprehensive knowledge, and remove the possibility of bias or the distortions of politics.

Not being able to create ideal rational scientific or communicative processes means that we need to work with an understanding of power and contested rationality. But it has generally been argued that power has a negative effect on environmental assessment. For example, ‘when high political and economic stakes are at hand planning and EIA processes seem to become ‘distorted’ thus, in some instances, creating [below] average EIA processes and documents’ (e.g. Sager, 2001: 236).

So what should we do then, if EA is immersed in power relations, where:

‘There is no escape from manipulating fronts, seeking membership of communities, protecting fragile egos, manoeuvring for advantage and power, seeking to assert one’s ethic over others, deploying discourse and establishing spiked rules to dominate others, disputing methodology and therefore professional or disciplinary competence. This is all normal behaviour.’ (Wood, 1998, cited in Hilding-Ryevik, 2001).

Within EA, competing, poorly understood rationalities cut across each other. Practitioners are working with different rationalities, and have little reflexive capacity to deal with this because the literature does not really help them. In the South Pennines case cited above, the use of a technical study for normative purposes quite neatly shows the extent of misunderstanding over procedural rationalities. In other cases, we see rationality being shaped by powerful interests. Not surprisingly, individuals in different positions are angry or disappointed that EA in practice fails to achieve their expectations. In particular, the major tension between the alternative rationalities of EA frequently finds expression as dissatisfaction with process or outcome.

We need to see these alternative approaches to rationality as movements – they were not inevitable, and in fact the communicative turn is in itself a reaction to the perceived weaknesses of instrumental (or procedural rationality). So, once we see rationalities as social constructs, why do we restrict ourselves to a duality between two forms of rationality? Surely, as analysts we should be open to noticing different forms of rationality, and as a community conceptualising practice we should be open to a dialogue about what form(s) of rationality are appropriate in underpinning and shaping our practices. In thinking about how practitioners can respond to these challenges, perhaps we need to return to the idea of real life rationality, which moves away from the normative approach to rationality, and instead asks ‘how knowledge, rationality and power work in real life’ (Flyvbjerg, 1996: 384; 1998). Furthermore, it ‘becomes meaningless, or misleading – for politicians, administrators and researchers alike – to operate with a concept of rationality in which power is absent’ (Flyvbjerg 1998: 164-65). This critical approach to rationality, which does not follow a single normative approach, seems more likely to equip practitioners to work in the face of power (Forester, 1989). In a similar vein, Watson has argued that:

‘...planners and other agents of intervention continue to make assumptions about the values, beliefs, or rationalities of those for (or with) whom they plan, which frequently do not hold. The only way to counter this is to explore, in context, examples of planning intervention which illustrate the various rationalities at play and how they interact with each other in a planning or development process’ (Watson, forthcoming).

This turn to rationality and power suggests a need to take a fresh critical look at practice, and at the ideas shaping practice. Embracing power, and accepting that rationality is no longer singular, may be liberating. How, then, can EA practitioners work reflexively and ethically in a

world of contested rationality? How can they operate within an environment of contested knowledge? How can EA practitioners act?

The first response, as implied above, is that practitioners should build critique into their work. Critical understanding, supported by academic work, can maintain a perspective that is more aware of the clash (or subtle shaping) of ideas and practices than an approach that expects procedural models and norms to absolve the individual practitioner from responsibility:

‘If we can understand more clearly the forms of discursive interplay in the everyday activity of planning, we can become more proactive and more strategically effective in the process of discursive construction that we are all – planners, policy makers, lobbyists, politicians, academics – engaged in. We are all in the business of constructing and reproducing policy and planning discourses. It would be a shame to be passively or naively complicit in reproducing the wrong ones!’ (Richardson, 2002).

Finally, it is worth introducing two areas of inquiry in planning theory which, in different ways, are moving these debates forwards: storytelling and ethical judgement. The first is the idea of planning as persuasive storytelling (Throgmorton, 1992), strongly connected with the recognition that in a world of deliberative and discursive democracy, the possibility of creating better futures through planning relies heavily on the stories which are created in public arenas and processes of decision-making and plan-writing. And stories can be more or less persuasive, depending on whether we are able to understand who their authors are. Do they stand the test of legitimacy?

‘As a citizen reader I am confused about my own identity when the account of the authorial process doesn’t tell me who took initiative, how conflicts were articulated and then resolved, and who if anyone held a veto. At the simplest level, not understanding the author, I can’t tell whether the *Plan* is a binding legal prescription or a statement of aspirations’ (Throgmorton 1990, cited in Eckstein, 2003: 17).

Eckstein comments: ‘as a citizen-reader I, too want to be able to identify the authors of the stories planners use and tell so I can assess the bases of their claims to – or, in some cases, presumptions of – authority’ (Eckstein and Throgmorton, 2003: 17). These comments resonate strongly with environmental assessment as an expert process which generates faceless documents – concealing such issues as whether there were disputes over scoping, or over how significance should be attributed to certain impacts – yet which plays a persuasive role within planning debates, legitimising certain stories at the expense of others. Throgmorton’s challenge to planning, which applies equally to environmental assessment

is that we need to 'learn how our technical skills (forecasting, surveying, modelling) act as persuasive imagery within our texts, and to learn why those tropes help to persuade some audiences but not others' (Throgmorton 1992: 29). This paper has presented fragments of stories about EA that do not correspond with the stories reported in the formal documentation about rigorous objective analysis. The fragments explain attempts to use EA persuasively, in very different ways. One critical challenge is whether the EA community can 'own' such stories about its practices.

The second area of current inquiry in planning which bears directly on questions of 'what to do' concerns how we deal with questions of value. Heather Campbell is exploring how planners can make situated ethical judgements, based on a critical understanding that decisions have high stakes, and that some outcomes are better than others (Campbell, 2002b):

'In a world where we understand that knowledge can only ever be partial and transitory we must rely on judgement, and that fundamental to the process of judging between better and worse, is the question of value. Actions cannot be value-free, so rather than hiding, implying or side stepping such concerns, explicit consideration needs to be given to the nature of the ethical values our processes and outcomes are seeking to promote.'

Through such explorations environmental assessment may be better understood as a field of practice within which hard choices are made about questions of value. But where these choices are not made through scientific analysis alone, or through open public deliberation. The knowledge that is bound up with these choices gets shaped and contested in the fine grain of EA work, in the town halls where certain projects and plans are moulded according to pre-established agendas, and in civil society. This reality cannot be avoided by a retreat into one form of rationality or another. It requires facing up to power, using EA to articulate legitimate and honest stories about development and sustainability, and making explicit the ethical judgements made along the way.

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Modernity and communicative reflection in Environmental Assessment¹

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In environmental assessment words such as ecology, rationality, modernisation, and reflexivity are frequently used, but often without reflection. This is even the situation in much contemporary environmental sociology. Consequently, such words are not used as concepts in theories about society, about why environmental issues are part of society and about the possibilities and barriers to dealing with them at the political and planning levels. All of this has severe consequences for the way we address environmental issues in environmental sociology as well as in environmental assessment. It affects the solutions and how we communicate them to other interested parties. The claim made here is that in the long run, this situation blocks further developments in environmental assessment and makes environmental assessment an instrumental 'tool' that is simply part of a technocratic and expert ruled practice far from the original ideas of involving all democratic parties and legitimate interests in an attempt to avoid unintended environmental damage. To illustrate my criticisms, a model for environmental assessment, termed 'communicative reflection' is outlined, which is seen as an alternative to the current practice in EIA and SEA. The concept of communicative reflection used here is based on the theory of modernity expounded by the German sociologist Jürgen Habermas, and the current author's own interpretation of the notions of modernisation, rationality and reflexivity.

¹ The article is a slightly revised edition of my lecture notes for my speech at the 5th Nordic Conference on environmental assessment in Reykjavik 25-26 August 2003. It summarises my book *Modernitetens miljøpolitik (The environmental politics of modernity)* of 384 pages and thus the views and discourses in the article have a rather concise and summaric character. Readers interested in more profound discussions, discourses and references are recommended to read the book. It will be published in English in late 2004.

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Ecology, rationality, modernity and reflexivity in modern sociology and environmental thought

We will begin by briefly outlining the most important common perceptions concerning ecology, rationality, modernity, and reflexivity as expressed in environmental assessment. We shall then go on to provide an alternative interpretation of these concepts, one that is in accordance with Habermas' theory of modernity and communicative action. In addition to Habermas we will refer to, and criticise, modern environmental sociology as represented by the German sociologist Ulrich Beck, famous for his book on 'Risk Society', the British sociologist Anthony Giddens, known for his ideas about the self, identity and trust in what he calls Late Modernity, and the Dutch sociologists Arthur Mol and Maarten Hajer, known for their thoughts on 'ecological modernisation'.

Ecology

In ecology *nature* tells us how to act. Though ecological thought has many variants it can broadly be divided into modernist or neo-modernist ecology and romantic ecology. The latter argues for either *origin* (deep ecology) or *autonomy* (traditionalism and the new communitarians) to be the universal principles for action (Elling 2003: 64-69). In both cases, they comprehend nature as an extra-discursive reality to which actions in society should conform. Modernist ecology, such as that espoused by Barry Commoner, has the same vision of nature having a certain rationality of its own, which is in opposition to capitalism. Only neo-modernist ecology leaves this vision on the level of an extra-discursive reality, it does not tell us what to do, but instead *how* we should do it. They try to establish formal and procedural preconditions for actions so that, though fallible, privileged knowledge and outputs in relation to ecology can be achieved (e.g. sustainable development) (Elling 2003: 56-64).

Even though the basic idea of there being an ecological balance was already surrendered several decades ago, in environmental assessment and environmental sociology we still talk about ecology as if it can be a kind of final objective, an end or an aim. Confronting such a view, it can be demonstrated that using 'ecological balance' as an objective, whether we talk about modernist/neo-modernist or romantic views, will lead to a society of the past or an authoritarian society (Elling 2003: 69-103).

Rationality

The criteria for rationality we meet in environmental assessment is that of *efficiency* – to what degree does the assessment process lead to the de-

sired objective (Kørnøv & Thissen 2000). However, although normally used without discussion, this is a very narrow concept of rationality.

If we take just a quick glance at the concept of rationality Habermas employs in his *theory of communicative action*, a much more nuanced picture of what could be rational appears. Within his theory of communicative action Habermas identifies modernity – modern society – as a non-centred society with two main parts: *system(s) and lifeworld*, the system(s) being differentiated from the lifeworld. The lifeworld is composed of the processes of cultural reproduction, social integration and socialisation.

Modern sociological theory, and with it Habermas, divides human history into three: Antiquity, the Middle Ages, and Modernity. Modernity came into being with the enlightenment (1760-80) and with the emergence of the capitalist economic system as the dominant economic form.

Modernisation in Habermas' theory is the gradual differentiation (disembedding) of systems from the lifeworld. In this process modern society is born. The systems differentiated are:

- The industrial system (economy)
- The bureaucracy/administration (government)
- Expert cultures/systems for
 - science
 - morality
 - art

The point is that these systems work for their own exclusive goals/targets/objectives on their own premises. Free from other parts of society, for example free from religion.

Corresponding to this distinction between system and lifeworld, where systems have their own exclusive targets for action, Habermas differentiates between certain types of actions in relation to which rationality has specific substantive dimensions with their own specific validity criterion.

In terms of *teleological or strategic action* rationality is *cognitive-instrumental* and the validity for rationality is *efficiency*. In *normregulated action* rationality is *moral-practical* and the validity for rationality is *rightness*. In *dramaturgic action* rationality is *aesthetic-expressive* and the validity for rationality is *truthfulness*. And, finally, in *communicative action*, rationality is *communicative* and the validity for rationality is *truth, rightness and truthfulness* (Habermas 1981, Band 1: 369-452, Elling 2003: 111-149) (Table 1).

Table 1. Type of action, rationality and validity in different systems or the lifeworld

Type of action	Type of rationality	Type of validity	System, Expert system, or lifeworld
Teleological/Strategic	Cognitive-instrumental	Efficiency	Economy, government and Science
Normregulated	Moral-practical	Rightness	Moral
Dramaturgic	Aesthetic-expressive	Truthfulness	Art
Communicative	Communicative (cognitive, moral, aesthetic)	Truth, rightness, truthfulness	Lifeworld

All of the first three mentioned forms of action are derived (differentiated) from communicative action, in the process of the modernisation of society. So communicative action, its linked rationality and validity, takes place in the lifeworld and is basically the origin of modernisation.

Furthermore actions in this typology are either orientated towards an explicitly known objective or the implicit understanding of something. Respectively called *result oriented*, and *oriented to reach an understanding* (Table 2).

Table 2. Type of action and action orientation

Type of action	Action orientation
Teleological/strategic	Result-oriented
Normregulated	Oriented to understanding
Dramaturgic	Oriented to understanding
Communicative	Oriented to understanding

In outlining this concept of rationality Habermas builds on the first modern philosopher Emanuel Kant³ and the German sociologist Max Weber (1864-1920), famous for his writings about the rationalisation of society (see below).

³ Kant (1724-1804) divided rationality into three types, each of which expounded in his three major books: 1) *Kritik der reinen Vernunft* (1781), 2) *Kritik der praktischen Vernunft* (1788), and 3) *Kritik der Urteilskraft* (1790).

In environmental assessment, only *one* dimension of this concept of rationality is commonly used – cognitive-instrumental rationality. When something is said to be rational, it is meant that it is *efficient* in fulfilling specific targets or objectives.

In his book *Risk Society – Towards a New Modernity*, Ulrich Beck distinguishes between *scientific* and *societal* rationality (Beck 1998/97: 40-42). By scientific rationality, he means cognitive-instrumental rationality, which he contrasts to societal rationality – something that is good for the entire society. However, the question arises as to what societal rationality is in a society without a centre – a society where many different stakeholders and interests claim to be supreme. Beck does not explain this, and we will return to the issue below.

Furthermore Beck, whether he talks about ‘university’, ‘laboratory’ or ‘alternative’ science, does not distinguish between *scientific* and *lay* knowledge, but on the contrary understands knowledge as being exclusively scientific (Elling 2003: 193-198).

This lack of distinction between scientific and lay knowledge is also to be found in the discourse of environmental assessment, where knowledge is usually perceived to be scientific knowledge (Elling 2003: 323).

Modernisation

Modern sociology and political science, except for Habermas, agrees with Max Weber’s theory concerning the of *rationalisation of society* and links *rationalisation* to the capitalist economy and the state in which rationalisation becomes a matter of institutionalising teleological or instrumental rationality.

In opposition to this, it is Habermas’ thesis that the rationalisation of society takes place via the structures of implicit knowledge in the life-world instead of explicitly known action orientations.

The process of modernisation in Habermasian terms is then a continued rationalisation of the lifeworld and growing system complexity. Where growing system complexity depends on the fact that the rationalisation of the lifeworld takes place. At the same time, system and life-world are increasingly becoming separated from each other.

In such a process of modernisation, the communicative co-ordination of action (rationalisation) continuously takes over at the expense of normregulated actions in the lifeworld, and from language released co-ordination of actions in systems. Instead, actions in the systems are co-ordinated by media – in two forms, one that replaces communication – the so-called steering-media (media-controlled), money and power,

and a second, where media condenses or relieves communication, so-called communication-media (Elling 2003: 133-143).

These media result in the formation of *public spheres*. This is the good and progressive side of modernisation.

The process of modernisation also results in *cultural impoverishment* and in the *colonisation of the lifeworld*. This is the bad side of modernisation.

Here it is important to notice that it is *not* the differentiation of expert-cultures (value-cultures) themselves that create these processes.

Cultural impoverishment becomes reality because of an élitist differentiation of the expert-cultures from the communicative everyday practice in the lifeworld. Only parts of the civilizing progresses, the formation of potential reason, returns to, and is utilised in the lifeworld. Therefore, the lifeworld becomes impoverished in relation to societal development.

Likewise it is important to notice that it is not the separation of the media-steered systems and their organisations from the lifeworld that leads to one-sided – instrumental – rationalisation or the reification of communicative everyday practice. Colonisation is the result of the systemic overruling of areas that are not appropriate for instrumental media-steering instead of communicative co-ordination.

The colonisation of the lifeworld is thus the penetration of economic and administrative rationality into action forms that are meant for action co-ordination by communicative mutual understanding. We can observe this process in, for example, education, childcare and elderly care, and in environmental care. Thus, the one-side or instrumental modernization of society has *structural causes*.

Both Ulrich Beck and Anthony Giddens lack a concept of modernisation. Besides this, they both, in practice, exclude economic development and its impact from their analysis. They view modernisation to be the same as the *renewal* of technologies, institutions, organisations, etc. (Elling 2003: 174-177). By so doing, they both lack a concept for the *dynamics* of modernisation. Thus they are unable to answer the question: what is the driving force of modernisation?

From a Habermasian perspective, the driving force is derived from the steering-media in the systems: maximum *profit* in business and maximum *legitimacy* in government. In addition, the rationalisation of the lifeworld – where mutual understanding established by communication takes over at the expense of norms and traditions – the so-called process of decentralising of world pictures, makes these media-controlled processes possible.

Furthermore, the use of the Habermasian concept of modernisation can demonstrate that *ecological modernisation*, as claimed by Arthur Mol and Maarten Hajer, does not lead to an emancipation of an ecology such that it is on a par with the economy. On the contrary, ecological modernisation, as they prescribe it, will lead to an *internalisation* of environmentalism into the economic development process. Thus having traditional criteria for rationality: namely *efficiency* (Elling 2003: 253-279).

Reflexivity

Interpretations of Habermas' theory can emphasise reflexivity as being inherent in modernity from its very beginning (Elling 2003: 123). Reflexivity is released in the process of the rationalisation of the lifeworld, in which the communicative co-ordination of action takes over from norm-regulated action in the lifeworld. Consequently, *traditions and norms* and their co-ordination of actions are replaced by *reflexivity*.

One of Beck's famous and widely used thesis is that we live in the epoch of *reflexive modernisation* that begun around 1970, taking over from the period of *simple modernisation* (Beck 1986/97: 16). The modernisation of tradition has been followed by the modernisation of industrial society itself. He talks about periods of first and second modernisation. Giddens has some similar views though they are not quite so rigid. They both however consider *reflexivity* to be something *problematic*.

However, in so doing Beck confuses cause and effect. He identifies reflexivity as something that creates problems, because experts in the formal systems focus on isolated objectives and because lay people's critical reflections erode the authority of modern institutions and, thereby, their ability to act. Moreover, he can be accused of considering reflexivity to be solely an individual phenomenon and to have a rational-choice interpretation of it (Wynne 1996: 56).

The theories of *ecological modernisation* consider reflexivity to be something *good* and even *necessary* for the modernisation process. Mol considers ecological modernisation to be a matter of the emancipation of ecological rationality such that it is on a par with economic rationality (Mol 1995: 28-34, 58). Nevertheless, ecological modernisation in Mol's interpretation does not recognise the institutional reduction of reflexivity in the process of modernisation. Mol excludes the purposive (target ruled) imperatives in the modernisation process (Elling 2003: 253-265).

Hajer recognises these reductions at the empirical level, but he wants to avoid such reductions by a *choice* of another reflexivity. In addition, he has no concept of rationality and thereby his 'socialisation of ecology' – which he claims to be the way ahead – becomes something undetermined (Hajer 1996: 265), (Elling 2003: 265-279).

Let us now summarise the argument up to this point:

- Beck: – new epoch with ‘reflexive modernisation’
– reflexivity erodes institutional capacity
– individual reflexivity – rational choice interpretation
- Giddens: – high modernity or ‘late modernity’
– reflexivity undermines trust
– individual reflexivity – rational choice interpretation
- Mol: – ecological modernisation with an ‘emancipation of ecology’
– reflexivity contributes to the ‘emancipation of ecology’
– excludes the purposive institutional reduction of reflexivity
- Hajer: – ecological modernisation with the ‘socialisation of ecology’
– reflexivity contributes to the ‘socialisation of ecology’
– requires a *choice* of the right form of reflexivity, but no concept of rationality

Even though both Mol and Hajer make it explicit that they are building on both Beck’s and Giddens’ concepts regarding ‘reflexive modernity’, they obviously use reflexivity in another sense. They even apply the concept in three connections: a) reflexivity as an individual act, b) reflexivity as something going on in institutions, and c) reflexivity as reflexive institutional arrangements (Hajer 1995: 287-88).

Applying Habermas’ concepts of system and lifeworld, one can interpret reflexivity as something practised by individuals but in very different circumstances or environments. The point is that reflexivity is not something chosen, but rather it is inherent in modernity in the lifeworld as well as in the systems. Having said this, we can distinguish between two basic forms of reflexivity (Elling 2003: 279-288):

Reflexivity on the basis of the lifeworld

- reflexivity in this form *opens up* the possibility of communicative rationality as it is oriented to reaching an understanding
- we can call it *socially communicated reflexivity*

Reflexivity with a systemic form of organisation

- reflexivity in this form *reduces* to cognitive-instrumental rationality as it is result-oriented
- we can call it *systemically mediated reflexivity*

On this basis, a third form of reflexivity can be exercised, when socially communicated reflexivity in an extraordinary communication is brought together with systemically mediated reflexivity. The point is not that persons representing institutions or systems (expertise) as well as persons representing the lifeworld (lay people) should *choose* a form of reflexivity other than that which they usually exercise, but that both basic forms of reflexivity are exercised jointly and thereby bring all types of rationality into the process of reflection. So this third type of reflexivity is exercised in:

Reflexive arrangements

- if the arrangement is oriented towards reaching an understanding both of the basic forms of reflexivity outlined can be exercised
- we can call it *socially communicated reflexivity that aims development going beyond systemic instrumental rationality*

It is this third type of reflexivity exercised in reflexive arrangements we require in *communicative reflection*. With this type of understanding of reflexivity, we want to challenge the existing practise within environmental assessment as outlined below. Before so doing however we will briefly characterise current practice and its understanding of environmental assessment.

Current practice and definitions used in environmental assessment

What is the problem with current practice? To put it very abstractly: there is a *contradiction* between the idea of public participation and the implicit use of the concepts rationality, modernisation and reflection. Explaining this highly abstract claim it can be said that the concept of rationality in current environmental assessment practice refers to cognitive-instrumental rationality, which again refers to scientific knowledge, thus excluding the lay-knowledge that comes from socially communicated reflections in the lifeworld. Consequently public participation does not lead to an inclusion of moral-practical and aesthetic-expressive rationality and thereby does not go beyond one-sided or instrumental modernisation.

To be less abstract: An analysis of the literature and definitions of EIA and SEA leads us to the conclusion that the following views are commonly and widely accepted (Elling 2003: 313-324):

- Environmental assessment is a procedure that can bring *full information* on the likely effects of a project/plan/policy on the environment.

- Such information can be achieved by scientific, interdisciplinary methods and is in its essence *scientific knowledge*.
- The public must first of all have *information* on effects and decision-making, though it is also said that *public participation* must be improved by environmental assessment.
- Proposals, whose likely effects on the environment at the time of decision are clearly reduced by an environmental assessment, are much easier to *legitimate*, than proposals whose effects are not, although they may be of a less severe character.

On this basis, we will characterise current EIA/SEA practise as a procedure for *internalising* environmentalism in the economic development process (Elling 2003: 304-308, 313-324). Thus, EIA and SEA are both designated to forward instrumental rationality, with efficiency as the criteria for validity.

In its self-knowledge, environmental assessment is therefore a typically modern form of understanding:

- Apparently open in the definition of problems and the aims of pinpointing them
- Apparently open in its use of knowledge
- Apparently open to participation

But only apparently – in reality:

- The issue for assessment is *defined systemically*
- The process is *oriented towards results*
- The knowledge involved is exclusively *scientific*
- The type of rationality involved is exclusively *cognitive-instrumental*
- The process is ruled by *experts*
- The function of the public is not to participate, but to be *available for information* and thereby to legitimate decisions

Thus the criticism here is not solely that environmental assessment is ruled by systems and experts towards specific results and with a rationality limited to cognitive-instrumental rationality, but also that the public is turned into an instrument of these systems and interests instead of being the lifeworld from which more profound discourses and criteria for rationality could be brought into the process.

Communicative reflection as an alternative

What is it then that we call ‘communicative reflection’ and what do we want from it? First of all, we will break with the one-dimensional or instrumental modernisation that the current practice of environmental assessment contributes to. In accordance with the arguments above this must be done by bringing the *ethical* and *aesthetic* dimensions of rationality into the process of environmental assessment. Not by involving experts in ethics and aesthetics, but by bringing *both types of basic reflexivity* into the process. As such, we have to create a process where the defined type of ‘reflexive arrangements’ can take place.

Involving experts or expert cultures is not an option for two reasons:

- Expert cultures in these fields are not developed adequately because of the one-sided or instrumental modernisation process that favours technology and economy.
- Using expert knowledge in a systemic context (developer – industrial system, public authorities – administration system) will incorporate such knowledge into teleological or strategic action and thus apply cognitive-instrumental rationality to it. It will instrumentalise it.

Thus promoting communicative rationality, and supplying cognitive-instrumental rationality with ethical and aesthetic dimensions can only be done by opening up the possibility of true *public participation*. It is only in the communicative everyday practise in the lifeworld that these dimensions are still inherent.

To allow for, and to encourage, both types of reflexivity to be brought into the assessment of environmental impact, the process of assessment must be *de-ontological*. It must be oriented towards reaching understanding, and not oriented towards a specific result (not being teleological or result oriented). Only then can discourses based on communicative rationality be brought into the assessment, without preventing discourses based on cognitive-instrumental rationality being stated. On the contrary, giving primacy to teleology will prevent communicative rationality.

An example of having one or the other type of primacy in trying to optimise *environmental care*, can illustrate the difference:

Deontological optimising of *environmental care*:

- Objectives and means are free to be chosen in the process
- Alternatives that optimise environmental care decide the means

- The environment becomes a *value* to be protected
- The process will seek objectives or homing

Teleological optimising of *environmental care*:

- Objectives defined beforehand by the developer or the administration/planners
- Alternatives that realise/implement the objectives with optimal environmental care are chosen
- The environment becomes a *means*
- The process will be goal-directed

To secure the principle of the primacy of deontological discourses in the assessment of likely environmental effects, the total process of EIA/SEA must be divided into two clearly separated procedures:

- An *assessment process* involving all parties: developer – authorities – the general public
- A *decision-making process* involving the politicians exclusively

What should be achieved in the *assessment process* is the illumination of all likely aspects of the proposed action. It should achieve an understanding of what a realisation of the proposal could be and what it could mean, identify all conflicts and interests connected to it, and record that information to its full extent, and place it before the politicians as the basis for their decision. Such an assessment should not be used *to reach a decision* on the best way to protect the environment. It should *not balance* pros and cons. On the contrary it should illuminate all likely effects and the conflicts and interests connected to them.

The purpose of the *decision-making process* is to create a decision. Not to take a proposal for a decision into account, but to *work out* a proposal for decision. On the basis of *a statement on the whole assessment process*. Thereby the legitimacy of the decision will be put under pressure because all aspects of the decision are known and fully illuminated for the public and other stakeholders.

Furthermore, to secure such a deontological *assessment process*, its conduction must be based on rules. Not for the purpose of controlling the process, but to assist in it being oriented towards the reaching of an understanding. The issue will be to create rules without institutionalising the assessment. The answer to this issue must surely be to use discourse ethics in the creation of some universal principles for discourses in the assessment process (Elling 2003: 358-361). Some examples of the require-

ments of the participants, and principles for priorities in discourses could be:

Requirements of the participants (examples):

- Communicate
- Truthful statements
- Oriented towards validity claims
- Justify their arguments
- Willing to leave individual perspectives
- Accept overruling of better arguments

Principles for priorities in discourses (examples):

- Dialogue overrules monologue
- Rational consensus overrules rational compromise
- Tolerance overrules intolerance
- Knowledge overrules meaning, attitude or belief
- Universal overrules particular

Finally, some code words on the reflexive forms, discourses and on the way in which expertise knowledge may be invoked by principle stakeholders and actors can illustrate 'positions' in the assessment process in an environmental assessment carried out as a communicative reflection:

Developer:

- Maximum profit as the goal
 - Arguing result-orientated
 - Use experts systemically – as a cognitive-instrumental action
 - Institutional or systemically mediated reflexivity
 - Administration
 - Maximum legitimacy as the goal for their decision
 - Arguing result-orientated
 - Use experts systemically – as a cognitive-instrumental action
 - Institutional or systemically mediated reflexivity
- have to make assessments – using reflexive arrangements *ad hoc*

Citizens:

- Oriented towards reaching understanding – on goals as well as means
- Use of experts socially – as a communicative rational action
- Socially communicated reflexivity

This should leave no doubt as to the fact that discourses based on a non-instrumental concept of rationality can only be carried out by the citizens, and thus it points to the *general public* being the likely ones to break the one-sided or instrumental development process.

Concluding remarks

To let public participation influence developments and decisions in reality is not just a matter of democracy. It is moreover a matter of bringing in substantive and crucial aspects into the decision-making process, such as the lost dimensions of rationality (morality, art). Communicative reflection in environmental assessment will swing the legitimacy of power to correspond to articulated public opinions. It will not look away from power, but put it under public pressure. On the other hand, planning in the form of communicative reflection will *not* be an exclusive process for experts, but a *dialogue between the administration and the citizens*. Politics will not be something for the few and privileged, *but communication in and between all segments of society*.

Obviously, there will be many barriers and problems to carrying out communicative reflection: the same developments that create the need for public participation also create the lines of separation and conflicts between citizens (Elling 2003: 361-366). Looked upon from the point of view of the general public, we can say that:

- What unites the citizens creates power for the public?
- What divides them, creates power for the developer or/and the administration?

In the first case, it will allow for communicative rationality to become a part of the assessment and put great pressure on the politicians to let it affect their decisions. Secondly, it will be difficult to realise communicative rationality in the assessment and the politicians will be put under pressure from systemic interests.

The Achilles-heel of EIA/SEA is public participation, especially when it is carried out as prescribed in the model of communicative reflection. The crucial question is simply whether public participation will take place or not.

It is difficult to see any other way of encouraging the general public to participate other than by letting them have *real influence on the final decisions*, rather than using a great deal of system energy to disguise their 'participation' as influence.

It is often said that it is naive to base decisions on reason and discourse ethics. That it is not based on reality. However, it should be em-

phased that – *there is no alternative to decisions based on reason, the problem is not reason, but the reduced concept of reason.*

To be based on reality is no alternative. We all base our arguments on reality, but reality has different levels. A development process based exclusively on *power* or *expertise* is not acceptable and will tear our society apart.

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Environmental justice – new fuel to the debate on planning for sustainable development¹

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Abstract: This contribution takes its starting point from a Nordic study on planning for sustainable development, which highlights that the debate in this area seems to have settled around a uniform picture of the sustainable society, and that this is therefore something that needs to be critically examined. The mainstream way of planning for sustainable development does not adequately address the issue of dependency or relationships with development in distant locations. In this chapter it is argued that an environmental justice perspective could add new depth to the debate on planning for sustainable development. This is done through highlighting just how different social groups, mainly based on income, ethnicity or gender, are exposed to, generate and interpret environmental qualities and risks. In the Nordic debate on planning for sustainable development such social justice and power-related aspects have in general not been studied or taken into account. This contribution is thus a call for research in this field, particularly as the populations of the Nordic countries are becoming increasingly heterogeneous.

Introduction

The concept of sustainable development became one of the catchphrases of the last decade, and is thus frequently used by planners as well as politicians and corporate leaders. The notion of sustainable development is in many ways a radical concept envisioning cross-sectoral integration, planning in the context of an extended time horizon (three or more generations) for an improved global environment, solidarity and justice (Lafferty & Eckerberg, 1998). However, the planning carried out in the Nordic countries under the sustainability headline over the last decade appears to be rather uniform, both in terms of the static picture of the sustainable society and the process designed to take us there. Moreover,

¹ The following contribution was originally written for Brockett, S., & Dahlström, M. (eds) *Trends in Modern Europe – Impacts on planning and development*, Nordregio, forthcoming 2004.

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widespread use of the concept of sustainable development has inevitably seen it's meaning become increasingly watered down.

The notion of sustainable development is said to embrace social, environmental and economic aspects, from a local to the global level. One may thus be misled into thinking that the concept is therefore 'complete', that all essential dimensions and issues have been included. However, in this chapter it will be argued that the debate on planning for sustainable development needs to be revitalised and that an environmental justice perspective can add new depth and fuel to the debate on planning for the good society, whether we call it sustainable or otherwise.

The image of the sustainable city

In the project 'New Bearings for the Nordic Countries – Planning and Sustainable Development' a considerable number of Nordic national reports, government bills, policy documents, research reports etc on the topic of planning and sustainable development have been studied (Bjarnadóttir & Bradley, 2003). The study shows that the notion of sustainable development seems to have had a significant influence on the planning rhetoric as well as the planning practice across the Nordic countries. In sum, it appears that the use of the concept of sustainable development has implied a rise in the importance of the ecological aspects of planning, for example in relation to transportation, heating and eco-cycling. Moreover, changes in the planning process, primarily efforts aiming at increasing public participation, 'bottom-up' approaches and cross-sectoral cooperation, seem to have emerged as a result of the debate that preceded the Brundtland report and the Agenda 21 process. However, the study also shows that the picture of the sustainable society appears to be quite uniform across the Nordic countries. It is an image of a city:

It is a compact city with an efficient public transportation system, biking and walking lanes. All groups, children, the elderly and the handicapped, can get around easily, do their errands and feel comfortable. The different functions of the city – working places, services, housing, and recreational areas – are mixed. The retail sector is small scale, varied, located in central areas and well connected to the public transportation system. There are high quality and accessible green areas in the city. The local cultural heritage is well maintained. The new buildings are characterised by high-quality architecture; they are energy-efficient and constructed with environmentally friendly materials. The economic base of the city is service oriented and the former harbour or industrial areas have been transformed into areas with new seaside dwellings, work

places and services, with good public transportation connections. The local ‘harbour’ cultural environment is still kept alive, adding flavour to the area. The city has a clear boundary to the hinterland, which is characterised by large unbroken green areas and land for cultivation.

As a whole, the city is competitive on the regional, national and even the international market, using its local characteristics and having developed its own competitive niche within industry, education or culture. In addition, the city is part of a network of cities, which are interlinked by high-speed railways, thus forming a larger functional and polycentric region.

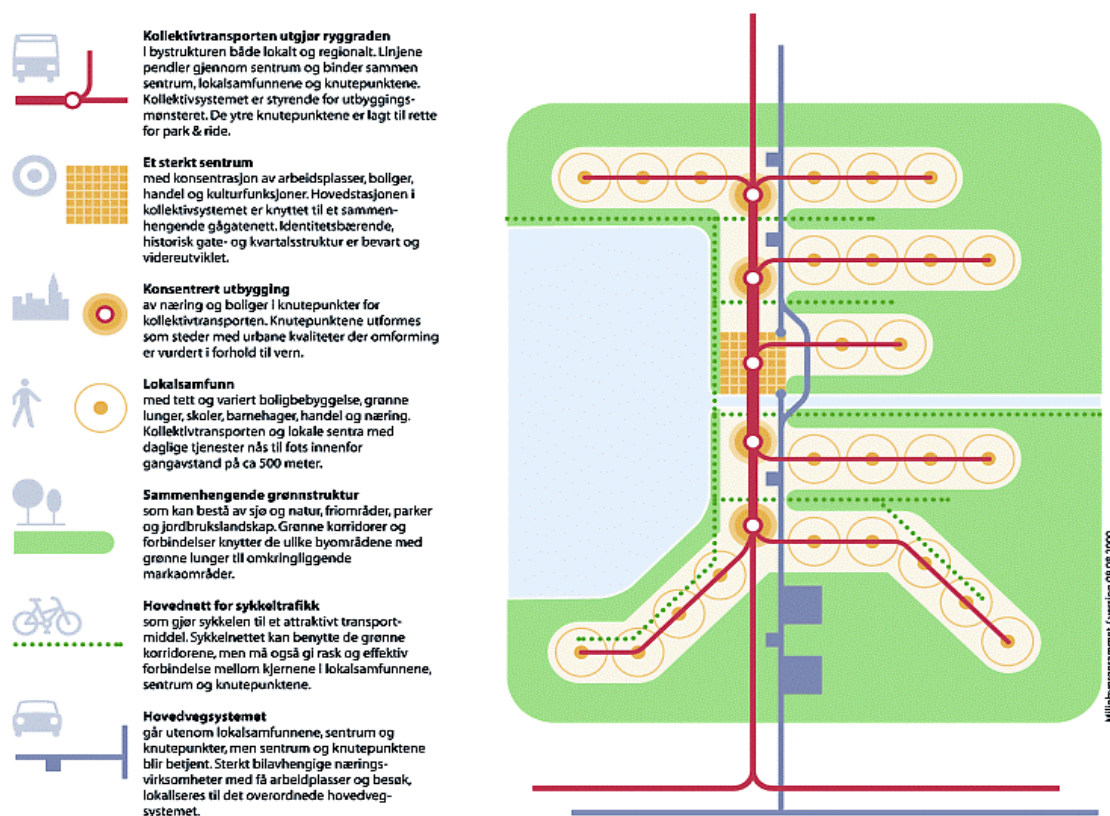


Figure 1. Principles for sustainable urban development. MD, St. meld. nr 23.

Similarly, as regards the planning process, there exists something of a ‘blue print’, which is thought to promote the sustainable city. It is a ‘bottom-up’ planning process encouraging wide public participation, local democracy and public-private partnerships.

There are of course explanations as to why interpretations of planning for sustainable development become uniform, and one could also argue that there are certain positive aspects to such unanimity, for example in relation to penetrating power. Nevertheless, unanimity remains problematic. The picture of the sustainable city described above contains an underlying critique of the package solutions of the post-war era, however there is a risk that such 'sustainable planning' itself becomes standardised and dogmatic in the same way as previous planning models, albeit with integrative and polycentric approaches. It is also worth noting that the sustainable society is almost always pictured as a (compact) city, which could be considered rather odd, as the Nordic countries have comparably large rural populations.

'Sustainable development' in one place – effects in other places?

The study 'New Bearings for the Nordic Countries – Planning and Sustainable Development' shows that the planning efforts aimed at sustainable development have primarily been focused on improving local or regional welfare. It is often said that the 'new economy' and the post-industrial society create possibilities for environmentally friendly businesses, societies and life styles. However, the 'old economy' with polluting and noisy industries that require hard physical labour, has not simply disappeared; a considerable part of it has moved. At the same time, the levels of material consumption, waste and emissions of carbon dioxide in the Nordic countries have increased over the last decade.³ So in this respect Nordic life styles seem not as yet to have become 'post-material.'

Consequently, if we are to promote sustainable development, including its global solidarity and justice aspects, we need to widen the scope of analysis. The impacts on other regions can be negative – as when environmental and social stress is exported – or positive for example in terms of less air or water pollution for neighbouring areas. When planning for, or assessing, the sustainability of a development in one city, municipality or region, it is important therefore to take into account the issues of development in and impacts on, other linked regions. This is of course a very complex task, if not impossible. For

³ In the Nordic countries carbon dioxide emissions, on average, increased by 13 percent between the years 1990 and 1997. This can be compared with the OECD average increase of 9,5 percent. Nordic Council of Ministers, 2000. Levels of private material consumption and household waste have also increased between the years 1995 and 1999. For figures see Nordic Council of Ministers, 2003.

example, the commonly used ‘sustainability indicators’, which generally only monitor the development of the governed region, would thus need to be supplemented with sets of indicators, or at least estimations, monitoring the development of other areas that are interwoven in the development of the governed region – it could be the neighbouring municipality or a region on the other side of the globe. One example of a tool used to highlight this local-global linkage is that of the ecological footprint (Wackernagel and Rees, 1996). This is a measure of the consumption of renewable natural resources by a person, region, country or the whole world. The ecological footprint of a population is the total area of land or sea required to produce all the food, wood, fibre etc needed for its energy consumption and infrastructure. As an example, the average Nordic citizen has a footprint of 7,7 hectares, which can be compared with the average African or Asian footprint of less than 1,4 hectares. In order for every person on the globe to be able to live like the citizens of the Nordic countries, we would thus need four planets to sustain our lifestyles.⁴

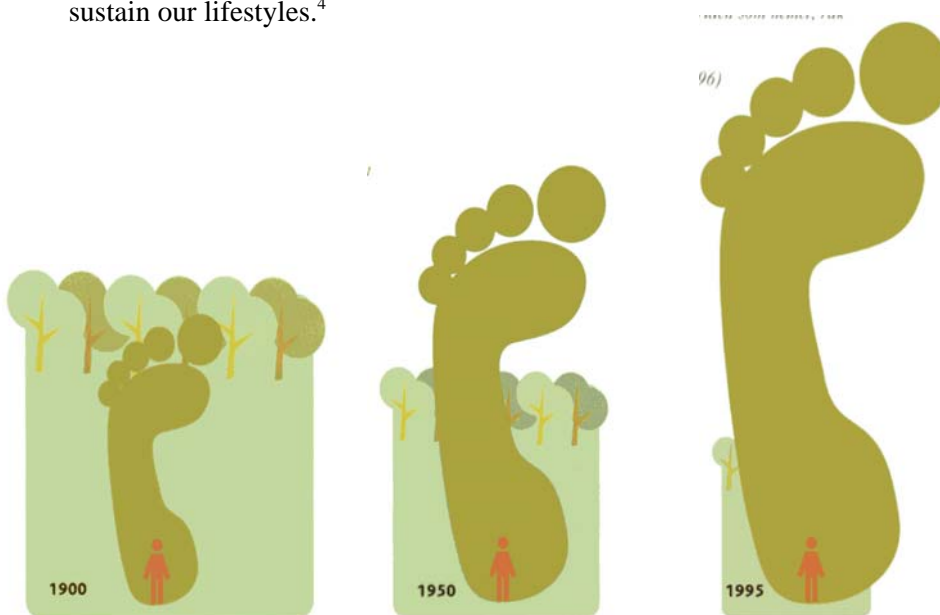


Figure 2. The growth of the North American ecological footprint 1900-1995. Source: Wackernagel & Rees. 1996.

⁴ See Redefining Progress, where you can calculate your own ecological footprint or the footprint of a municipality:
<http://www.redefiningprogress.org/programs/sustainabilityindicators/ef/>

The last decade of economic globalisation, for instance manifested in the augmented transport of people and goods, implies an increased need for bringing in such global-local inter-linkage perspectives. However, such perspectives appear to be absent in the Nordic debate on planning for sustainable development. One reason for this may be that in the commonly used Brundtland definition (1987) and the interpretations of sustainable development following Agenda 21 (1992), such dimensions are not emphasised, perhaps because these definitions were made prior to the onset of the economic globalisation of the 1990s and the considerable societal changes that followed.

To sum up, the societal changes of the previous decade, and the fact that sustainable development has now become such a widely used and popular concept, as well as the fact that it has now been used as a guiding principle in planning and development work for several years, suggests that it is time to look for new perspectives and new ways of working. One way of adding depth to the somewhat de-politicised debate on sustainable development is the use of an environmental justice perspective. In what follows, such a notion is introduced, accompanied by use of a social constructivist perspective.

Environmental justice

In the US and more recently also in the UK, the concept and discourse of 'environmental justice' has been placed in a central role in the academic and political debate. The background to this development can be found in a number of studies showing that certain social groups bear a disproportionate burden of environmental problems, for example in relation to waste incineration, industry, heavy transport etc. Two studies receiving broad attention in this regard were 'Toxic Wastes and Race in the United States' from 1987, which documented racial discrimination in the placement of hazardous waste facilities across the nation, and a study for 'The National Law Journal' in 1992 (Bullard, 2000). The latter study described how the US Environmental Protection Agency enforced environmental protection laws much more strictly in white communities than in communities of colour, with penalties for infraction of environmental laws being 500 percent higher in white communities. Moreover, the government responds more rapidly and utilises better cleanup technologies in white communities (ibid). In 1994, the Clinton Administration issued an 'Executive Order on Environmental Justice' requiring federal agencies to assess the impact of their environmental activities on low-income communities and communities of colour. In 2003, several British ministers stated that environmental justice should be a central theme in the policies and priorities to come (Mitchell & Dorling,

2003). This can for example be understood in the light of a recent study in the UK that showed that those communities that are most affected by air pollution tend to be among the poorest in the country (ibid). In addition it is noted that these communities generally emit the least pollution.

The urban sociologist Robert Bullard has described the environmental justice movement as follows:

‘Environmental philosophy and decision making has often failed to address the justice question of who gets help and who does not; who can afford help and who cannot;... why industry poisons some communities and not others; why some contaminated communities get cleaned up but other do not; and why some communities are protected and others are not protected....The grassroots environmental justice movement...seeks to strip away the ideological blinders that overlook racism and class exploitation in environmental decision making.’ (p. 206, Bullard, 1993)

The environmental justice discourse differs from the traditional environmental perspective as well as the sustainable development discourse in a number of ways:

1. Within the environmental justice discourse the focus is on the *distribution* and *production* of environmental risks over different social groups, primarily based on income, ethnicity and gender. In the debate on sustainable development it is common to distinguish between people in the North and people in the South and sometimes the socio-ecological imbalance between them. However, it is not common to link ethnicity, class or gender perspectives to environmental issues within a nation or region, or to highlight how such groups produce, and are affected by, environmental risks (Bjarnadóttir & Bradley, 2003).
2. In the sustainable development discourse, the focus is generally on the effects of the lifestyle of our generation on that of future generations, which could be called a quest for ‘inter-generational equity’. Within the environmental justice discourse the focus is primarily on the equity within the current generation, i.e. intra-generational equity (Haughton, 1997).
3. Compared to the traditional environmental discourse, which is predominantly concerned with the natural environment, i.e. forests, lakes, threatened species etc, the environmental justice discourse is concerned with the environments of people, which often tend to be urban environments (Harvey, 1996).
4. The traditional environmental perspective, in which the sustainable development discourse also has its roots, is generally

based on traditional quantifiable natural science knowledge. Within the environmental justice discourse this type of 'objective' expert knowledge is being questioned and more room for experience-based and local knowledge is being advocated (Di Chiro, 1998).

5. The first generation of environmental politics was characterised by 'end-of-pipe' solutions, not coming to terms with the deeper structures that actually caused the problems. In later years, policies and planning efforts were directed towards internalising external environmental costs, i.e. seeing to it that the ones causing environmental damage paid for it, and that they subsequently factored such costs into their initial cost calculations (for example the 'polluter pays principle', tradable emission rights, road pricing etc). The aim of this process of the internalisation of external environmental costs is the overall minimisation of ecological problems. The environmental justice discourse builds upon the same idea, but the rationale is twofold, to accomplish the equitable distribution and production of environmental risks, while in addition ensuring the overall survival of the planet.

Environmental qualities and risks as social constructions

In the reports and policy documents studied for 'New Bearings for the Nordic Countries – Planning and Sustainable Development', the overall aim is interpreted as being the creation or safeguarding of good environments and the minimisation of environmental problems. However, questions concerning what a good environment is, or how an environmental risk is defined, are very rarely addressed. The formulations generally seem to presuppose that we all know and agree on these matters and furthermore that we can measure the 'good' or 'bad' environment and present it in the form of indicators. This is for example manifested in the uniform image of the sustainable society described previously, as if all preferred compact urbanity from a human and social perspective. Questions concerning who defines the good environment and what parameters and presumptions are used when environmental risks are defined, are crucial, but for some reason neglected.

Undoubtedly it is not particularly controversial to state that what constitutes a good environment varies between social groups, individuals, places and times, primarily because of the aesthetic dimension. An urban environment with a lot of noise, neon lights, graffiti and 'decaying' concrete high rise buildings makes some people feel insecure and uneasy, while it makes other feel safe, happy and alive. The same goes for a wild

forest, parks, etc. However, this understanding, that we, as professionals and as private individuals perceive 'the reality' differently – what is good/bad, right/wrong, relevant/irrelevant, problematic or not – can also be applied to environmental risks such as acidification, eutrophication, ozone depletion, or the loss of biodiversity. Hannigan (1995) among others sees that the level of attention, the perceived urgency etc that such environmental risks are given by individuals and groups, with the help of scientific methods, media, politics, campaigns etc, is dependent on processes of social construction. However, this perspective is not used in order to depreciate environmental risks or to make them appear fictitious. The aim of this perspective is rather to increase the understanding of how, and by what groups, environmental risks are created, defined, negotiated and contested. In this way, a justice perspective would thus not only deal with addressing the production and distribution of environmental risks and qualities among different societal groups, but also highlight the different understandings of environmental issues, and study which environmental claims become dominant or subordinate, and the reasons for this order.

The need for socially, culturally and politically reflexive perspectives on planning for sustainable development

In the material from the Nordic countries studied for the report 'New Bearings for the Nordic Countries – Planning and Sustainable Development', the issue of the distribution and production of environmental qualities and risks over different social groups within each country or region remained un-addressed. Swedish researchers such as Eckerberg (1998), Anshelm and Hedrén (1998) point to similar experiences. They state that Swedish environmental research and policymaking 'are still mainly characterised by an apparent absence of socially, culturally and politically reflexive perspectives'. Contemporary theories on ethnicity, gender and post-colonial structures are fruitfully used in general planning matters, but thus far, very rarely in the planning geared to sustainable development.

Environmental justice is not only a research topic, but also a perspective useful to practitioners. It could for example be of use in decisions on the location of facilities relating to 'locally undesirable land uses' (such as waste incinerators, dump sites, refineries etc), in road pricing or when constructing or renewing green areas or other types of infrastructure. Using an environmental justice perspective would demand the inclusion of assessments on how infrastructure projects, such as those

mentioned above, affect different social groups, thus opening up multiple ways of understanding and defining environmental risks and qualities.

To conclude, the Nordic countries are in several respects each becoming increasingly diversified societies, populated by different ethnic, cultural and socio-economic groups. At the same time, there is a tendency for homogenisation to occur in the debate on planning for sustainable development as was outlined above. Thus, it is relevant to highlight how different social groups, based on ethnicity, class and gender, *generate*, are *exposed to* and *interpret* environmental qualities and risks. Such perspectives could add new fuel to, and thus help progress, both practice and research on planning for sustainable development.

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Value driven SEA

Time for an environmental justice perspective?¹

Tim Richardson², Stephen Connelly

Abstract: This paper argued that we cannot debate SEA procedures in isolation from questions of value, and that these debates should address qualities of outcomes as well as qualities of process. Value differences should not be left as a question of mediation between conflicting positions. As a means of introducing this perspective on SEA, the paper explores how theories of environmental justice might provide a useful basis for establishing how to deal with questions of value in SEA, and help in understanding when SEA has been carried out correctly and successfully.

From this perspective the paper argues that ‘good’ SEA is more than good process. Good SEA can take into account the distributional consequences of the assessment process, with decisions driven by the recognition that certain groups tend to systematically lose out in the distribution of environmental goods and ‘bads’. SEA therefore has a role to play in redressing this systematic imbalance.

Introduction

A critical current debate in environmental assessment, which seems likely to define the future path of development of both EIA and SEA, concerns the relationship between expert-driven and participative ways of thinking. A new participative turn is taking place, in part as a response to the perceived deficiencies of the expert approach, which in turn is triggering a critical reaction. This debate at the moment seems slightly stilted, as if some of its proponents are not prepared to ‘come out’. But recent public debates have shown that leading figures do seem to hold strong (and op-

¹An earlier version of this paper was presented at the 5th Nordic Environmental Assessment Conference, Reykjavik, Iceland, 25-26 August 2003. Sections of the text are adapted from Connelly, Connelly, S. (2002). Public involvement in Local Agenda 21: the impact of local authority policy processes. Dept. of Town and Regional Planning, University of Sheffield.

² Dept. of Town and Regional Planning, University of Sheffield, UK.

posing) convictions that either SEA should not be a participative tool, or that environmental assessment generally should be participative.

Some contributions to this debate seek to recognise the intrinsic presence of value differences and conflicts in environmental assessment, and the need to consciously give voice to these positions, and (for some) attempt to mediate or resolve the differences between them. Others argue, conversely, that EA needs to be reaffirmed as a scientific rational process, which can be weakened through participation.

These questions are interesting to us as researchers of planning processes more broadly. It does seem important to consider how and why participation can make an important contribution to decision-making, but also why participation often fails to achieve its aims. However we are concerned that there is a tendency to view these debates in a polarised way, played out between proponents of 'rationality' on the one hand and 'democracy' on the other. In this paper, we explore how the tenor of this debate changes dramatically if we introduce some hard questions driven by the logic of trying to use SEA as a means of delivering sustainable development. The argument proceeds by first identifying competing technocratic and participative discourses of SEA. One has its origins in a technocratic, expert process, where success is assured by the 'rational' consideration of objective evidence gathered by neutral experts. The other, in direct reaction, is explicitly integrative and participative, where the key criterion of success is the achievement of consensus amongst all stakeholders. Focussing on SEA we ask how, alternatively, these expert-led and participative perspectives deal with the challenges of sustainable development. We argue that neither approach can adequately deal with these challenges. Instead of achieving 'ideal' expert or participative models of SEA, we argue from experience and theorising in planning that both ideals are impossible to realise, and so practice tends to result in murky processes of bargaining – a situation in which success is measured by the achievement of politically acceptable outcomes.

Two separate strands of reasoning lie behind this argument. One draws on general considerations of the nature of policy making and participation and is rehearsed elsewhere (Richardson and Connelly, forthcoming). The complementary argument, which is the subject of this article, is that sustainable development itself, as the substantive content with which SEA is concerned, forces similar conclusions about the difficulty of integrating values, and the risk of seeing participation as a panacea.

Introducing sustainable development perspectives, then, reveals the inadequacy of current conceptualisations of SEA, and shows that the 'expert' versus 'participative' debates are not likely to lead to an acceptable

outcome. It suggests that because these questions of value difference are not clearly worked through, certain interpretations, or ways of thinking, will dominate SEA practice, without the SEA community itself being able to consciously identify the values that it believes should *drive* the assessment.

This tells us powerfully that we cannot debate SEA procedures in isolation from questions of value, and that these debates should address qualities of outcomes as well as qualities of process. Further, we cannot simply leave value differences as a question of mediation between conflicting positions. Instead of leaving this argument open-ended, we turn to environmental justice, and discuss whether here we might find a more useful basis for establishing how to deal with questions of value in SEA. The title deliberately poses the idea of environmental justice as a question, partly because our proposed approach is tentative, and partly because we use it as a rhetorical device. We attempt to use environmental justice perspectives to address critical questions concerning how we know when SEA has been carried out correctly and successfully.

From an environmental justice perspective, we will argue that 'good' SEA should be more than good process. Good SEA takes into account the distributional consequences of the assessment process, with decisions driven by the recognition that certain groups tend to systematically lose out in the distribution of environmental goods and 'bads'. Good SEA should recognise its role in redressing this systematic imbalance, or, at least, should not exacerbate and perpetuate this situation.

Sustainable development: an unstable foundation for SEA

SEA has been closely linked with concepts of sustainability since its early origins (Therivel, Wilson et al., 1992), and has been recognised as a mechanism for advancing sustainable development (Lawrence, 1997; ; Fischer, 2002). This constitutes a significant development from its roots as an extension of EIA into the assessment of the impacts on the environment of policies, plans, and programmes. This extension beyond what have been traditionally considered as environmental impacts to the embracing of broader sustainability issues needs careful consideration (Fischer and Seaton, 2002)³. It is increasingly recognised that any approach to sustainable development, and in particular to participatory sustainable development, runs into a number of problems since the concept of sustainable development is driven by ambiguities and tensions between incompatible goals and processes.

³ In this context SEA was seen as a key tool in Agenda 21 UNCED (1992). Agenda 21. New York, UN Division for Sustainable Development.

Sustainable development is often presented as a unitary concept, the implementation of which will resolve the tensions traditionally recognised between social and economic development and environmental protection. It is particularly presented in this way in the dominant understanding of 'sustainable development' as ecological modernisation prevalent in the EU (Hajer, 1995). Although the ideal is that economic, environmental and social goals should always be met - in so-called 'win-win-win' policies - policy making in practice involves balancing and making trade-offs between them. This is both because of the nature of the problems, and is inherent in the idea of sustainable development itself:

'the search for common interest would be less difficult if all development and environment problems had solutions that would leave everyone better off. This is seldom the case, and there are usually winners and losers' (WCED, 1987: 48).

This is particularly so when the long term and global aspects are taken into account, and also when the idea of 'development' itself is examined critically. Luke asks the questions:

'Sustainable for how long: a generation, one century, a millennium, ten millennia? Sustainable at what level of human appropriation: individual households, local villages, major cities, entire nations, global economies? Sustainable for whom: all humans alive now, all humans that will ever live, all living beings at this time, all living beings that will ever live? Sustainable under what conditions: for contemporary transnational capitalism, for low-impact Neolithic hunters and gatherers, for some space-faring global empire? Sustainable development for what: personal income, social complexity, gross national product, material frugality, individual consumption, ecological biodiversity?' (Luke, 1995).

From these perspectives, determining both what policy is for, and the policies to address these goals, are not technical questions, but essentially require decisions about who should benefit and who should lose. They are inherently a matter of values (Owens and Cowell, 2002). This creates a series of conceptual, practical and political difficulties for any proposed mechanism for implementing sustainable development. The issues are not simply ambiguous, they are vigorously contested (Gallie, 1955; ; Jacobs, 1999). There is no well-defined, singular concept that can form a guiding policy principle for sustainable development. Rather, the term acts as a 'rhetorical envelope' (Richardson, 2001) within which different discourses compete to determine a locally dominant meaning of sustainable development. The point here is not merely to propose a semantic search for a more precise definition of what sustainable development 'really means'. The contestation over the definition of sustainable

development *is* the political process, whose outcomes are policies, plans and programmes with material effects and distributional (and therefore political) implications (Jacobs, 1999).

Moreover, there are strong grounds for believing that explicitly addressing different values involves hearing those who hold those values, and so to considerations of the involvement of the public in the process. However, 'the public' is not a homogeneous group – they are bearers of different values, different local knowledges – so the challenge facing SEA is one of how to deal with this plurality in principle and also practically. How should those affected be given a meaningful role? This was a problem recognised from early in the development of SEA (Therivel, Wilson et al., 1992). From this perspective we can see SEA not as generating a definable output, but as providing a framework for approaching the integration of difficult environmental risks, challenges, conflicts and trade-offs into everyday decision-making.

Thinking about the goals implicit in 'sustainable development' forces consideration of necessary trade-offs, or the possibilities of win-win-win policy making, and of whose goals will be pursued. These are difficult challenges for SEA. To explore the issues further, we will now discuss what happens if, taking these difficult questions into account, we conceptualise SEA as either expert-led or participative. We find difficulties in both directions, and conclude that instead of finding easy solutions, SEA is more likely to be shaped or driven by the necessities of local political power struggles.

Good SEA as rational, expert decision making process

Environmental impact assessment has its origins in a tradition of rational planning (Nelson and Serafin, 1995), within which quality is predicated on the objectivity of the process, ensured by confining its scope to scientific knowledge, collected and assessed by neutral experts:

Munn (1979), whose definition of EIA is probably the most often quoted, refers constantly to the 'comprehensiveness' of approach, of a 'systematic' process, of the need to ensure 'objectivity' (Weston, 2000: 189).

This tradition is far from defunct, and is arguably still dominant in EIA (Leknes, 2001). There are even signs of its reinvigoration, despite the increasingly powerful critique which argues that many aspects of the process are inherently subjective. Typical of this resurgence of a 'will to objectivity' are attempts to transform subjective values into terms that can be dealt with within a rational analytical framework, such as extending the use of cost benefit analysis to include 'environmental values'

through surrogate valuation and other paraphernalia of environmental economics (Weston, 2000).

The development of SEA has also been shaped by these tendencies, generally by adopting the technical culture of EIA and applying similar techniques to assessment in the broader scope of policy plan and programme development. This can be seen in early SEA desk studies, which led to calls for increasingly large and systematic databases (e.g. Dom, 1996), and is continued in more recent research evaluating SEA practice. For example, Fischer's (2002) analysis of SEA in transport and land use planning specifically counts the number of methods and techniques applied within SEA as a measure of its quality⁴. A general tendency can be seen as the preference for quantitative data over qualitative assessments.

However this technocratic view of SEA has attracted sustained critique, at the heart of which is the concern that SEA is not as coolly rational as it appears to be, leading to a 'rapidly growing acknowledgement that decision making is in effect not of a strictly rational nature' (Fischer and Seaton, 2002: 35). A first strand of critique is that the 'objectivity' of the knowledge created in SEA is increasingly subject to challenge. This is a familiar story from planning, where critiques of rational approaches have existed for at least forty years (Lawrence, 2000), most recently from post-structuralist perspectives (see, for example, Allmendinger (2002) for an overview).

A second strand of critique points to the limits of scientific knowledge, and also highlights the ways that defining scientific knowledge itself creates boundaries between what is included and what is not. Carpenter (1995), among others, argues that many environmental problems are too complex and uncertain for traditional scientific knowledge to comprehend, and so tools like SEA are prone to subjectivity, or necessary ignorance:

'our hopes of accurately predicting all the impacts of an action that impinges upon the environment are virtually nil. The more we learn about environmental systems the more we tend to be struck by our profound ignorance of the interactions and processes which govern their response to perturbations' (Jones and Greig, 1985: 21).

⁴ Where *methods* are explained as impact prediction, evaluation, intra-modal alternatives, scenarios, mitigation/compensation and *techniques* are field research, simulation, mapping, experts, matrices, checklists and workshops.

This leads to a view at one extreme that EA is intrinsically unworkable (Wilkins, 2003: 402), or into a different territory, where EA is accepted as a value-driven, subjective process:

'It is not a decision-making process in itself but a tool to aid decision-making. ... However, not only is EIA an aid to project authorization decision making, decisions are made at every stage of the process,' (Weston, 2000: 185).

Assessors are therefore forced to decide on how best to make predictions on future impacts. The personal values of assessors are used in deciding what methodologies to use and how to approach the assessment. Much too often, the assessor will rely on his or her own values to decide what is important in the EIA and what considerations to take into account in the process (Morgan, 1998: 180) (cited in Wilkins, 2003: 403).

However, once we recognise the subjective nature of judgements and micro-level decisions, we must also acknowledge that these judgements may (subjectively) mean that, for example, local knowledge and values are ignored, so excluding useful contextual knowledge and legitimate voices from the process (Jacobs, 1996). So the 'ideal' of expert led, objective, rational SEA does not stand up to close examination.

Good SEA results in consensus amongst stakeholders

In response to these weaknesses in the technocratic approach, an alternative approach has emerged, which is grounded in participation, deliberation, and often consensus seeking. This approach, which is beginning to assert itself as a new orthodoxy, explicitly recognises that aspirations of comprehensiveness imply public involvement and an openness to different views:

It is just because the scoping process relies so heavily on an understanding of 'significance', in political terms, that public participation and consultation is considered by proponents of EIA to be of such importance to the success of the process. (Weston, 2000: 199)

SEA's explicit concern with strategic level planning, continuity, and assessing options (Partidario, 1996) also leads towards more recognition of the need for participation than in EIA. This turn towards participation inevitably leads to a need to cope with different values and ways of valuing. The challenge is to establish processes, which can bring together stakeholders in ways that are fair and transparent, and so can command legitimacy.

Alongside these shifts towards participation within environmental assessment debates, the broadening of SEA into a sustainable develop-

ment tool led to the infusion of the normative values put on participation and consensus in, for example, Agenda 21:

‘One of the fundamental prerequisites for the achievement of sustainable development is broad public participation in decision-making. Furthermore, in the more specific context of environment and development, the need for new forms of participation has emerged. This includes the need of individuals, groups and organizations to participate in environmental impact assessment procedures’ (UNCED, 1992: §23.2).

Drawing together arguments from policy and academic analyses of sustainable development, Connelly (2002) summarised the rationales for public involvement in sustainable development, showing how they combine the instrumental and the political:

- Harnessing of local knowledge.
- Necessity of public definition of their ‘quality of life’, and so involvement in goal setting.
- Greater ‘ownership’ and legitimacy of decisions with public involvement.
- Subjectivity and value-laden nature of all ‘scientific’ inputs – need to be scrutinised and balanced with other values and knowledges.
- Political and value-laden nature of all policy decisions.
- History of state performance – democratic accountability as a way of protecting public interest.
- Education of the public about sustainable issues.
- Development of democratic civil society.

Following much of the same logic, SEA as a sustainable development practice similarly relies on public involvement (Morgan, 1998).

To achieve these ends, public deliberation is increasingly privileged over other forms of public involvement. The deliberative approach is characterised by an openness to different views, rational argument, and – usually – a presumption that the outcome should and will be a consensual decision, which incorporates gains for all those involved. This form of decision making, with its ‘positive-sum’ results, is contrasted with more traditional forms of decision-making, distinguished as bargaining to reach a compromise (Sidaway, 1998), and tending to ‘zero-sum’ outcomes. A key element of this is an emphasis on ‘social learning’ (Reich, 1988), resting on the principle that stakeholders can come together and in an equal and unforced way discover common ground between positions previously considered antagonistic or incompatible, and create new, shared understanding and common values.

Such deliberative processes are seen by many commentators as essential for legitimate policy making for sustainable development e.g. 'planning for sustainable development requires rigorous, inter-subjective judgement' (Owens, 1997) and hence the literature on sustainable development in general emphasises the development of institutions and processes which will allow for such debate and learning to take place (e.g. Carley and Christie, 2000).

This participative turn has been paralleled in the environmental assessment literature (Daniels and Walker, 1996: ; Blatner, Carroll et al., 2001) and to some extent in practice, where it is claimed that 'collaborative planning' (Healey, 1997) has become 'a central feature' (Lawrence, 2000: 617) of EIA. Thus the call that EA be 're-conceptualised as a form of transactive, civic exploration reliant on mutual learning by all EA participants' (Cardinall and Day, 1998). So we move to a conception of SEA where 'all relevant stakeholders are involved in an open participatory process' (Partidario, 1996: 40) at every stage (Fischer and Seaton, 2002). Central to this position is the assumption that such deliberative processes will lead to a consensus on an outcome which is recognisably 'sustainable' – an assumption is taken as given across most theorising on sustainable development.

But it is not at all clear that this assumption is valid. The arguments given above for the necessity of public involvement for achieving sustainable development appear convincing, and it can be plausibly argued as a matter of fact more democracy tends to lead to better environmental practices (Paehlke, 1988: ; 1996). However, there is no logical or necessary political connection between the two in this direction (Lafferty and Meadowcroft, 1996: ; Saward, 1996), despite the many attempts to make this link. Leaving aside those which simply assert the affinity between the ideals of democracy and sustainability (e.g. Gran, 1987), more sophisticated arguments, such as those of Eckersley (1992) or Gundersen (1995) rely on an environmental version of the deliberative democratic thesis that given processes of open debate and free choice humans will work for the collective good (Bohman, 1996: 16). Such faith may be misplaced, given the value and interest conflicts, generally anti-collectivist ethos and consumption levels of many contemporary societies, and it would seem that *all* theoretical attempts to develop a necessary link between democratic processes and sustainable development rest either on a pre-existing environmental ethic or the emergence of such from democratic debate. Since such an ethic is clearly not present across current society and the necessity of its emergence is exactly what needs to be demonstrated, these arguments are circular.

What appears to be required is the imposition of such an ethic (as for instance in Tam's communitarian theory (Tam, 1998), yet deliberative theorists have generally seen such imposition as coercive. As Palerm (2000: 585) put it:

'A fundamental problem in assuming prior shared understandings is that in modern plural societies these may not be present. If, on the other hand, a prior shared understanding is not assumed but rather taken as the goal of the discourse through the transcending of differences, then other mechanisms of exclusion may be triggered as oppressed groups are asked to put aside their differences for the sake of the 'common good' (Gould, 1996: ; Young, 1996).

However, in the context of deliberation for sustainable development, it is claimed that the reality and seriousness of environmental problems can break the circularity in a non-coercive way - at most 'the public' will need educating about the nature of environmental problems. The implicit claim is that all the traditional antagonisms and structural conflicts in society must be resolvable in the face of the overarching environmental imperative (see e.g. Beck, 1992: 36). Deliberative approaches to SEA rest on this assumption that the collective need for a sustainable solution will provide the grounds for a consensual agreement between stakeholders.

Again, this assumption is contestable. At any scale, from the global to the local, there may well be no consensus that a specific environmental problem exists, that collective action is the appropriate response even if it does, or on what appropriate action would be (see for example the contributors to Morris, 2002). Adopting sustainable development as a norm sets at most a general direction for policy, but leaves everything else open for debate - or conflict. 'Win-win-win' outcomes are often impracticable, and 'implementing' sustainable development is largely a matter of trade-offs between environmental impacts at different scales, between different groups and interests who will be impacted on differently by a policy, plan or programme, and where the interests of groups that are separated in location are affected by impacts at different scales, and separated in time.

We are therefore arguing that the very nature of sustainable development means that reaching consensus through collaborative planning is unlikely. This argument is reinforced by the general problems with such processes: of the power struggles and exclusion which prevent unforced consensus (Richardson, 2003), reported in environmental assessment by Sinclair and Diduck (2001) and Bruhn-Tysk and Eklund (2002), and the pragmatic problems of how to engage with distant and future stakeholders, and of finding effective ways of engaging the public in strategic,

large scale discussion at an early stage in policy making processes (Partidario, 1996).

These two strands of argument contribute to a single conclusion: that the ideal of genuine, unforced and inclusive consensus as a goal for deliberative processes within any sustainable development process, including SEA, is unrealistic and unattainable.

Consequently attempts to achieve consensus exhibit a strong tendency to revert instead to the kind of closed, exclusive process described in the preceding section. In common with much other public involvement, this means in practice that the scope of discussion will be limited by the use of expert definitions of 'the problem' to be addressed, that the views of 'the public' outside a relatively small 'insider' policy making group will be treated as consultative only or ignored altogether, and/or that the involved public are limited as far as possible to those who share the policy makers' understanding of the issues (Connelly and Richardson, 2004). Such practices of exclusion are often cloaked under a rhetoric of consensus – in contrast to the first, technocratic approach, in which political processes are presented as the outcomes of neutral, objective expert assessment, but with the same effect – that political processes are conducted in closed, non-transparent ways under the guise of a different, more publicly acceptable kind of policy making.

In recognition of this problem, it has been suggested that the primary value of inclusive, deliberative approaches to SEA is not as a decision making procedure, but as a means to facilitate the exploration of different values and understandings of a situation, (Daniels and Walker, 1996: ; Lawrence, 2000). Alternatively, Webler suggests that even where a consensual decision is impossible, a deliberative process is still acceptable if every participant has 'an equal opportunity to influence the choice of how the final determination of validity will be made' in such situations (Webler, 1995). Either approach merely displaces the problem to another decision-making arena where the same issues of power, exclusion and coercion will appear. We argue therefore that these problems cannot be addressed satisfactorily from within the decision making process itself, but require the addition of some external, independent criterion or criteria by which to make decisions.

Good SEA as a means to a politically acceptable (or driven) outcome

Life might be simple if either technocratic or participative models of SEA were universally accepted within the SEA community, *and* corresponded to the needs of developing sustainable policies, plans and programmes in

the real world. But we have argued that this is not the case. So what happens when ideal theories fail to match reality? We have already suggested that what actually happens in practice is a far murkier affair. This is a familiar view from planning, initially theorised as partisan mutual adjustment (Lindblom, 1965), and critiqued repeatedly. Recently planning researchers have scrutinised the unequal power relationships which structure such processes (e.g. Yiftachel, 1994: ; Flyvbjerg, 1998: ; Jensen and Richardson, 2004). The exclusion of stakeholders and interests (Connelly and Richardson, forthcoming) is particularly acute given the global nature of impacts, and spread of actors, which might reasonably be associated with SEA (Joao, 2002). While there is little published empirical work examining SEA from this perspective (though see Richardson, 1997) the preceding arguments and the available evidence suggest that similar processes take place.

SEAs, in the real world, are likely to be shaped by experts seeking to impose their version(s) of rationality, in competition with political and other interests who attempt to get their version of 'the facts' and the likely impacts of a process accepted. Knowledge is framed through these processes, and becomes partial and selective. SEA thus functions as a tool for mediating a politically acceptable outcome, though this may not be its public face. It becomes more than analysis and less than consensual arena, and has the failings of both the 'purer' approaches: it is inefficient because it fails to make the best use of available knowledge, and is undemocratic in that representation of stakeholders is unequal, with little opportunity for transparency and accountability. This may be a controversial view, but it seems unavoidable given the different ideals set out above, and the gulf between them, which creates an unenviable landscape for practice.

Good SEA has just outcomes

So we reach a point where science reaches its limits, and where deliberation does not guarantee that we can reach consensus about the things we do not fully understand, and the things we disagree over. Where can we turn for guidance on what to do? Here we argue that the missing element is an explicit consideration of *value*, and moreover that the concept of environmental justice can provide appropriate and desirable criteria for guiding decisions in SEA which can supplement process criteria. Whilst acknowledging that turning to environmental justice does not solve all of our problems of value at a stroke, we believe that it can at least help to refocus attention on what is put at stake when SEA is carried out. What, then, is environmental justice?

Although associated by many with its rather specific origins in campaigns by poor, often black, communities in the US against disproportionate levels of exposure and risk from hazardous facilities (Agyeman, 2002), environmental justice has taken on a far broader meaning in recent years.

‘Environmental Justice’s two basic premises are first, that everyone should have the right and be able to live in a healthy environment, with access to enough environmental resources for a healthy life, and second, that it is predominantly the poorest and least powerful people who are missing these conditions’ (Stephens, Bullock et al., 2001: i).

This embodies a procedural commitment as well as an outcomes element, since environmental injustice is seen often to go hand in hand with exclusion from decision making processes (Faber, 1998).

Why should we turn to environmental justice for guidance in SEA? It is, in a sense, a political, normative choice. However it arguably flows from the concerns that we have identified with concepts and delivery of sustainable development. If SEA is really seen as a tool for advancing sustainable development, then environmental justice needs to be considered as a critical intervention which should sharpen thinking about what it means to use an assessment tool to try and deliver what is, essentially a broad and contested concept.

If we return to the Brundtland definition of sustainable development, we find a core concern with justice for disadvantaged groups:

‘the concept of “needs”, *in particular the essential needs of the world’s poor*, to which overriding priority should be given’ (WCED, 1987: 43, emphasis added).

And so, although sustainable development is subject to a multiplicity of definitions, Langhelle has argued that ‘social justice is *the* primary development goal of sustainable development’ (Langhelle, 2000: 11, original emphasis), and Haughton emphasises ‘the interdependency of social justice, economic wellbeing and environmental stewardship. The social dimension is critical since the unjust society is unlikely to be sustainable in environmental or economic terms in the long run’ (Haughton, 1999: 64). ‘Environmental justice is concerned with ensuring the environmental part of this social justice goal’ (Stephens, Bullock et al., 2001: i), and so is an appropriate focus for SEA if it is to turn to justice as a criteria for decision making. Significantly, this shift to considering environmental justice tackles, and potentially overcomes, the traditional tensions between social justice and the environment. Focusing explicitly on environmental justice, however, addresses the concern that while achiev-

ing social justice is often intimately linked with environmental considerations, sometimes these interests do not run together, and environmental concerns are marginalised (Dobson, 1996).

The turn to environmental justice brings a commitment to just process *and* to just outcomes, which is clearly at odds with a purely procedural commitment to decision making by consensus. It puts boundaries on acceptable outcomes, ruling out certain outcomes even if they are developed through deliberation and consensus, and, further, recognising that consensus on an equitable outcome may not be possible (Connelly and Richardson, 2004). This is not, however, an argument against public participation *per se*. While the relationship between equity and public involvement is complex and has been the subject of much political theory, there is widespread recognition that direct representation of the interests of disadvantaged groups in policy making is an important route to more equitable outcomes. Thus a concern for justice adds a further rationale for public involvement to the list given earlier. However, in contrast to those instrumental and democratic rationales, the emphasis in this case is on quality rather than quantity. We would argue that not all public involvement is desirable – for example where opportunities to engage with a decision making process enable relatively privileged groups to defend their position against the interests of less articulate communities. In a complementary way, from this perspective direct public involvement is not the only desirable form of input into the decision making process. What is important is that interests do get represented somehow, not necessarily that actors bearing these interests are involved in the process (Parkinson, 2003). Dobson (1996) has argued persuasively for the need for some kind of representative democratic process in environmental decision making to enable the inclusion of the interests of distant, future or non-human groups.

Adopting environmental justice as a principle alongside sustainable development thus gives us an additional rationale for public involvement in SEA, and appears to raise rather hard questions about who should participate and how this should take place. It moves us away from the *naïveté* of much consensus building and the attitude that more participation is necessarily better. But can it provide a guide to making ‘better’ decisions? What would an ethic of SEA practice look like if it was grounded in environmental justice? As an example, one of the very few in the EA literature, we set out some criteria used to assess EIA in an Australian case:

- To bias decisions against irreversible choices.

- To bias decisions in favour of offering special protection to those who are especially vulnerable to our actions and choices.
 - To bias decisions in favour of sustainable rather than one-off benefits.
 - To bias decisions against causing harm, as distinct from merely foregoing benefits’.
- (Walker, 1994 ; cited in Saunders and Stephens, 1999).

Much more work is needed on how to operationalise the concept of environmental justice in the field of SEA, but this example suggests that it is possible in principle.

Conclusion

We are arguing, therefore, that the SEA community should begin to engage explicitly with issues of value. SEA can be conceptualised as an empty vessel where values are introduced by different participants in a more or less random way, or it can seize some ground by asserting that a set of core values needs to be at the heart of things. Instead of arguing between expert-led and participatory approaches to SEA, it seems appropriate to put value, and a commitment to justice, into the process. The relationship between expert judgement and public debate will be shaped by this reorientation of the debate. The implication for the SEA process is that environmental justice requires a shift in ways of thinking and acting. It demands the facilitation of greater public involvement, as implied also by the proponents of collaborative approaches. But it also requires *a*) an awareness of and preparedness to make judgements about the interests that such involvement brings to the process and *b*) a preparedness to act to represent other interests in the process and to ensure that disadvantaged groups’ interests are influential and reflected in the outcomes.

Taken seriously, this implies a very strong, substantive agenda for SEA. Any assessment should look at environmental ‘impacts’ as the distribution of environmental goods and ‘bads’ that follow from proposed policies plans and programmes, as well as being aware of how equitable the representation of interests is in the process. SEA then becomes a tool for identifying, avoiding and tackling *systematic* injustice, as urged by Pulido (2000). This will be especially challenging for practitioners, since as well as understanding what it means to adopt an environmental justice mindset, they will need to work to institutionalise this ethos into their everyday practice.

This is not an easy requirement to put on SEA. What is important is that it makes explicit the hard trade offs that are absolutely intrinsic to

the idea of sustainable development, and gives some guidance on what to do. Other approaches – whether attempting technocratic perfection or collaborative consensus, or falling into a political reality somewhere between the two – all make the same trade-offs, but they do so in less transparent, conscious and explicit ways. They exclude interests, and prevent the explicit use of value judgements in assessing the claims for priority of different interests that will be affected by proposed policies plans or programmes. This highlights the inevitably political and value-laden nature of environmental decision-making. The possibility of creating a form of SEA driven by the values of environmental justice will be influenced, often limited, sometimes encouraged, by political contexts. It will involve strategic acts and interventions by its proponents to move forwards. And like all progressive political change, it is likely to be a struggle.

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Applying good EIA practice criteria to SEA – the Öresund Bridge as a case

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Abstract: The paper is concerned with the evaluation of EIA and good EIA practice criteria. It also looks at the applicability of such criteria to SEA. This is done through a closer examination of three good practice criteria proposed by Westerlund: the basis for the decision criterion, the result criterion and the alternative criterion. A connection is made with the Swedish Öresund Bridge project and the criteria are problematized in light of this project. The discussion is also linked to the issue of rationality in strategic decision-making. The paper argues that seeing SEA as an EIA analogy is not purely straightforward.

Introduction

This paper will discuss the evaluation of EIA and, connected to this, it will also examine the issue of good EIA practice criteria, and their possible applicability to SEA. Three specific good practice criteria, proposed by Westerlund, will be discussed in a theoretical setting, and in connection with the Swedish Öresund Bridge project. Special focus will be put on three issues that relate to Westerlund's criteria, namely, the EA as the basis for a decision, the intended result of an action and the alternatives to an action. This is connected to the wider issue of rationality in decision making for large-scale and strategic projects (as well as plans, policies and programmes). The paper then attempts to shed light on the point that seeing SEA as analogous to EIA is not as straightforward as it might first seem – when considering SEA from a general perspective, or from a 'good SEA practice' point of view.

EIA and Evaluation

The need for the evaluation of any system of decision-making is obvious: to develop a system its present function must be understood. International studies of EIA have repeatedly found either a complete lack of or major deficiencies in evaluation and thus in development of methods and concepts (Sadler 1988; 1996). The object of our discussion however is to

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look at a set of evaluation criteria: Westerlund's criteria for 'genuine EIA' (Westerlund 1993; 1997). We will examine the criteria in relation to a major environmental assessment – the case of the Öresund Bridge – and discuss the theoretical and practical implications of using these criteria. The object is to examine whether the criteria are suitable and practicable at the SEA-level.

Sager (1995) claims that most studies of EIA deal mainly with theoretical systemic aspects such as their structure, intention, wording of legislation, administrative structures etc. rather than with the actual function of EIA systems. Although the systemic aspects may dominate, it seems that there are three common types of evaluation attempting to grasp both structure and function in varying degrees. In the first one finds that EIA systems are evaluated against a more or less explicit ideal such as that of the National Environmental Policy Act (NEPA) or the EU directive on impact assessment. Such studies can reveal interesting national or sectoral characteristics. The second category contains for example *ex ante* evaluations of EIA documentation against criteria for good documents or practice. This approach sees the documentation, normally the EIS, as a product where the quality of the product determines its usefulness in decision-making. The third prevalent type of evaluation deals with the function of the system based on statements by those more or less closely involved. International and national, systems wide surveys and case studies adopt this approach (see for example, Sadler 1996, Sadler & Verheem 1996). Thus it is important to distinguish between the two dimensions of EIA analysis. The first is a dichotomy of EIA systems structures on the one hand and implementation structures on the other. The second could loosely be called the dichotomy between 'theory' and 'practice'. Any EIA system might be said to have a theoretical side, which is also normative, in the sense that it is designed to operate on certain principles. On the other hand there is the practice of how it operates (Emmelin 1998a).

Good practice and criteria

One way in which to look at the problem of 'good practice' is indicated by the evaluation dimensions suggested by Emmelin (1998b). Good practice can be stated in systemic terms without regard to the actual practice of the systems. Moreover, criteria that relate to the main steps of an EIA, often modelled on the NEPA, have been common in international textbooks on EIA throughout the period that we are dealing with here. Wood (2003) uses the main steps as the analytic framework for a comparison of national systems. Hildén (2000) has criticised this approach, especially when applied to environmental assessment in a wider sense

than that of the impact assessment of projects aiming at decisions on the permissibility of the project; his view seems to be that 'good practice' is more complex, relating more to process and document content than to structure. He does not discuss the problems of regulation with such a view of 'good practice'.

Quality criteria for EIS are a way of codifying 'good practice'. Several sets of *ex ante* evaluation criteria for EIS exist. Among them are the 'Lee-Colley package' (Lee & Colley 1992) and a proposal for Nordic quality criteria (Hildén ed. 1996). The Lee-Colley package focuses more on document content whereas the Nordic quality criteria very explicitly also include an evaluation of the process as mirrored in the EIS. The Nordic package for evaluation is thus a set of criteria for good practice beyond the content of the EIS.

The prevalent Swedish way of defining 'good practice' in many areas is to publish 'good examples'. This is done by both the planning and environmental authorities as a means of stimulating local authorities in particular to develop their approaches to planning and to the environmental assessment of plans.

In this paper we have chosen to look at the issues of whether and how a set of normative EA good practice criteria are applicable to assessment of a more strategic nature. Westerlund's criteria, discussed below, are interesting in that they try to define a set of generic criteria, which on the one hand are supposed to be readily assessed, and on the other relate to more than document quality. Westerlund assumes that basic generic criteria for good practice at the project EIA level also apply to assessment at higher levels, i.e. to SEA.

The concept of genuine EIA: good practice criteria

In the context of good practice criteria for EIA, it will also be of interest to mention briefly two broad approaches to SEA – one can be called the 'EIA-mode' and the other the 'planning mode'. These approaches can be said to take two differing stances on the role and functioning of SEA – and this will naturally have implications for how SEA, and especially alternatives in SEA, are and ought to be viewed.

Working in the 'EIA-mode', the role and functioning of SEA can essentially be seen as being characterised by proposal assessment. The consideration of alternatives is made at a discrete, set point in time and often the aim of an assessment will be to increase the acceptability of a proposal. The SEA will, in these cases, be undertaken outside the planning or programme/policy preparation process and will be a separate assessment procedure that takes place following the submission of a (PPP) proposal.

In contrast, SEA operating in the 'planning mode' can be seen as being integrated into a planning or policy/programme preparation process, and therefore alternatives are considered in succession. One of the main aims of the 'planning mode' SEA would be to identify and highlight areas of problems and conflicts and to serve as guidance to future planning.

Westerlund (1997; cf. also Westerlund 1993; Carlman 1995) has one set of six clearly articulated formal criteria that he has described as criteria for 'genuine EIA'. These are advocated, among others, by the Swedish National Board for Housing, Building and Planning (Boverket 2000) and, at least in part, by the Swedish National Audit Office (RRV 1996) and can therefore be seen as an official view of good EIA practice in Swedish planning (insofar as one exists at all).

Westerlund's EIA criteria² are:

- The *Basis for the Decision Criterion*: the EIA is to be the basis for the decision at hand.
- The *Result Criterion*: the purpose or result of the proposal is to be explicit.
- The *Alternative Criterion*: alternatives to the proposal are to be presented.
- The *Environmental Impact Criterion*: environmental impacts of the proposal are to be described.
- The *Balancing or Compatibility Criterion*: it must be possible for the decision-maker to bring together environmental and socio-economic information from an EIA.
- The *Checking Criterion*: the EIA is to undergo public review before it is finalised.

The focus in this article is on three of Westerlund's more fundamental criteria – the Basis for the Decision Criterion, the Result Criterion and the Alternative Criterion. The remaining three criteria can be seen as more technical in nature and will not be discussed further in this paper.

The importance Westerlund and others (cf. Carlman 1995) place on the six criteria can perhaps be seen to go beyond that of 'good practice criteria'. The criteria are often seen as *decisive criteria*, and thus as what defines 'EIA'; if even one of the criteria is not completely fulfilled or

² English terminology from Westerlund (1997). Descriptions from Westerlund (1992).

⁴ The term EA is used here to denote both EIA and SEA. Neither Westerlund nor Boverket (2000) differentiate the applicability of these criteria to EIA or SEA.

met, according to Westerlund (1997) and Carlman (1995), the resulting process and document cannot be characterised as a 'genuine EIA'. In the context of the two broad approaches mentioned above, Westerlund sees SEA as operating in the 'EIA-mode' through the application of these criteria.

The three criteria state, firstly, that an EA⁴ has to be ready before the decision is made so that the EA can function as a *basis for the decision*. Secondly, the EA should also state the *intended result of the action*. Why ought a project to be undertaken, or a policy or plan accepted and implemented? What, and who, will benefit from this? Westerlund (1992) discusses the *objective* and *subjective* purposes of a project. The objective purpose is the more fundamental reason for action: 'One does not construct a bridge for the sole reason that a bridge shall be constructed – there is one or more reasons why the bridge is constructed' (Westerlund 1992, p. 108). The subjective purpose of building a bridge might in this case be for the developer to earn money, for the architect to earn fame, for the local authority to gain popularity and so on. The objective purpose, however, could be to transport people and goods from place *A* to place *B*. This reflects a rationalist view in that an action is not taken (or undertaken) without a clearly defined objective in mind and that behind every action there is an underlying purpose or objective, and that for every objective there is one correct means to achieve this.

Thirdly, the EA also has to *consider alternatives* to the proposed action. This criterion also states that these alternatives are to be based on the objective purpose; the assessment has to consider what other reasonable means⁵ to achieve the objective purpose exist. To return to the aforementioned example, if the objective purpose is to transport people and goods from *A* to *B*, then ferries might be an alternative to constructing a bridge. If one or a few (objective) purposes for an action are defined and pointed out the assumption is that it will be possible to investigate, design and analyse alternatives.

We will now look at these three criteria in connection with the Öresund Bridge case. Before this, however, it will be of interest to look at the historical EIA situation in Sweden, and it will also be necessary to give some very brief background details on the *realpolitik* of the Öresund Bridge decision.

⁵ Cf. Westerlund 1981a; 1992, for a discussion on the concept of 'Rule of Reason'.

EIA in Sweden

EIA as a formal process was introduced relatively late in the Nordic countries if seen from an international perspective. NEPA, which introduced EIA into the US came into effect in 1969 and the EU directive (85/337/EEC) on EIA dates from 1985, although in its present form it is from 1997 (revised as 97/11/EC). Denmark passed comprehensive legislation in 1989, Norway in 1990 and Finland and Iceland in 1994. A requirement in the Planning and Building Act (PBA) for environmental assessment came into effect in 1994⁶; however, the Öresund Bridge was not assessed in accordance with the PBA. At the time of the planning and decision-making on the Öresund Bridge no national legislation relating planning or environmental assessment to the international practice of EIA existed in Sweden. The lack of formalised EIA-procedures does not, however, mean that EIA was an unknown concept in Sweden. The Commission on natural resources and the environment in 1981 published three reports by Westerlund (1981a, b, c) containing a detailed analysis of NEPA and the Swedish legislation at the time. Westerlund concludes that no independent procedures similar to EIA existed in Sweden at the time⁷. Procedures similar to EIA but integrated into other processes were found, namely, the permit procedures relating to the Environmental Protection Act and the planning processes in accordance with the Building Code. The situation when the decisions on the Öresund Bridge were made was much the same with regard to EIA. The Natural Resources Act stipulated environmental assessment for permits under the Water Rights Act but there was no material regulation concerning the form of the assessment which would make production of a formal EIA according to international standards at the time mandatory. Furthermore the strategic decision-making on large projects regulated under the Natural Resources Act was not mandatory for the Government. In Westerlund's reports (1981a, b, c) generic criteria for EIA are discussed and several of these are similar or identical to the set of criteria for 'Genuine EIA' published later and applied here. There were other attempts to introduce or develop EIA at this time. In particular, a development project directly related to the previous

⁶ It is in fact still highly debatable whether Sweden does have legislation conforming to a reasonable degree with what is internationally considered to be EIA.

⁷ Westerlund (1981c) does not use the Swedish term corresponding to EIA (Sw: 'miljökonsekvensbedömning') but rather a term inspired by the term EIS: 'miljöeffektbeskrivningar'; literally 'environmental effect descriptions/statements'. This is because his focus is on how a requirement for a formal EIA can be introduced into Swedish decision-making.

decision process on the Öresund Bridge had made extensive attempts to develop impact assessment methods (SOU 1978).

The Öresund Bridge

We will now give a brief description of the decision making process relating to the Öresund Bridge, and then discuss Westerlund's criteria in light of this.

For over a century, proposals and ideas have existed to construct a fixed link of some kind between Sweden and Denmark. In 1973 the first agreement was signed between the two governments. For reasons relating, among other things, to the downturn in the global economy in the 1970s, this came to nothing. A number of committees investigated and reported on the fixed link issue in the 1960s, 1970s and 1980s (Blomquist & Jacobsson 2002).

In the mid 1980s the European Round Table of Industrialists (ERT) proposed and worked for improvements to the European transport infrastructure network. One of ERT's proposals included a fixed link across the Öresund. Following intense lobbying by various actors, including the Swedish motor industry (Blomquist and Jacobsson 2002; Falkemark 1999), the proposals finally found favour with the Danish and Swedish governments and eventually, in 1991, an intergovernmental agreement was signed. On the Danish side of the Öresund, the issue was more or less clear and decided with the signing of the intergovernmental agreement and the subsequent parliamentary approval (Law 590 on the construction of a fixed link across the Öresund). In Sweden, however, the agreement and proposal to construct a rail and road bridge was to be tried and assessed in accordance with Swedish legislation. Eventually, in 1994 final permissions were granted by the Swedish Government to construct the Swedish section of the bridge. By this time the construction of parts of the access routes on the Danish side was already underway.

The basis for the decision

This very compact description of the decision-making process will in itself indicate that the first of Westerlund's criteria was not fulfilled. The EIA was clearly not available as a basis for the decision (the intergovernmental agreement of 1991). However, perhaps it is also possible to question whether this Basis for the Decision criterion would ever have been fulfilled for a project of this type. In 1991, politicians in Sweden perceived a time pressure to finalise an agreement on the Öresund Bridge. A general election was coming up in September 1991 and there was a strong possibility that the Centre Party, an outspoken 'anti-Bridge' party, would be part of the new government. The agreement between Denmark

and Sweden was therefore rushed through (Falkemark 1999) and although Swedish legislation would require an environmental assessment of the proposal, the Swedish Minister for Transport assured his Danish counterpart during negotiations that this assessment process would not stop the actual construction of the Bridge – at most it would alter technical details (Falkemark 1999).

Even if these political time constraints and lobby groups had not played an important role, it would have been very difficult to define the exact moment when the plan to construct the Öresund bridge was finalised, and when the *de facto* decision was made. Certain large-scale projects, such as the Öresund Bridge, can, in Etzioni's (1967) words, be seen as 'contextuating decisions'. Although the Bridge project was formally a construction project, it exhibits many characteristics of a plan or policy formulation, and it was frequently referred to, for example, in terms of the realisation of an Öresund Region (cf. e.g. Idvall 2000; Blomquist & Jacobsson 2002). For a project of this magnitude a number of decision-making levels and points in time can be seen to exist – some authorities assess certain parts of the proposal and other authorities and courts are concerned with other issues. The Bridge decisions were complex and decisions on parts of the process were taken by the Government, the Parliament, the National Licensing Board for Environmental Protection, the Water Court, and again by the Government. This complexity also led to conflicts and contradictions in the decision making process; for example, the validity and applicability of a negative decision by the National Licensing Board for Environmental Protection was belittled in Parliament by the Prime Minister Carl Bildt (Blomquist & Jacobsson 2002). It will therefore be difficult to identify a discrete specific decision before which an EIA should have been ready in accordance with the criterion. Like a policy, such a large project evolves and changes (cf. Hall 1980).

Furthermore, the formal decision to build the Bridge was preceded by an informal or *de facto* decision. The project was changing and evolving, even while the formal assessment process went on; new and altered assessment documents and reports on the Öresund Bridge were submitted in a relatively haphazard fashion to the authorities throughout the ongoing assessment procedure. It was perhaps unavoidable then that proposals of this magnitude would change and evolve during the decision making process, and thus it became difficult also to determine *what* it is that the EIA ought to assess.

Results and alternatives

We will now look more closely at the linked Result and Alternative Criteria in conjunction. These Criteria state that it is necessary to specify an objective purpose for a proposed development so that it will be possible to assess alternatives. In the rationalist tradition, alternatives are seen as giving the decision maker a wider spectrum of information such that s/he can make the most (environmentally, or otherwise) correct decision.

For the Öresund Bridge, the EIA that was produced did not state why the Bridge should be built and only a few alternatives are mentioned briefly, on seven pages out of 182 in the EIA report (Öresundskonsortiet 1994). Alternative locations such as the construction of a bridge or tunnel between Helsingborg and Helsingör were not discussed, with reference to the fact that the intergovernmental agreement had already determined the location of the Bridge. Furthermore, a rail-only tunnel between Copenhagen and Malmö that had many proponents and supporters was not assessed at all.

Looking at the issue of the objective purpose from a wider perspective, it is possible to see difficulties with it for strategic decisions, such as the Öresund Bridge. To return to the example mentioned earlier – the generic bridge where the objective purpose was to create a means to transport people and goods between points *A* and *B* – it is also possible to ask oneself what the *underlying* purpose of the transport of these people and goods was. In other words, *why* is it desirable and/or necessary to carry out these transportations?

For the Öresund Bridge, it is possible to discern several different purposes in the arguments that were presented. For some actors, primarily at the national and/or central level, the bridge was a goods transport link between Gothenburg, Stockholm and the Continent. For other actors, mostly at the local and/or regional level, the Bridge was a manifestation of the creation of a new international region in the Öresund area.

The issue of the *purpose* of the bridge will naturally affect the *alternatives* that are considered. It seems that if the objectives for a project are widely dispersed, varying, fluid, and changing over time then the search for alternatives will naturally be problematic. The same can also apply when the purposes of a project are manifold or very diverse. Thus, if the purpose is the transport of goods to the Continent, perhaps ferries between Sweden and Poland are a better alternative? Alternatively, the bridge or tunnel could perhaps be constructed between Helsingborg and Helsingör (at the narrowest point of the sound) instead? If the point is to create an Öresund Region, then perhaps tax and employment policies are a preferable means to do this.

Looking at how good practice issues were perceived in the Öresund Bridge project and EIA, the emphasis seems to be on the width of background material and reports. In the Öresund Bridge EIA, little mention is made of EIA process-related issues, whereas it is stated that 'the research reports that form the basis for the EIA are very extensive' (Öresundskonsortiet 1994, p. 3). That is, the focus is placed on the contents and findings of the EIA document and the corresponding background material.

We can see that for a contextuating⁸, or strategic, decision – such as that of the Bridge – a number of so called objective purposes can be identified, but that the purposes behind any action can also be vague or unspecified, or they can change over time. These characteristics will also apply to many plans, policies and programmes that SEA will affect – not least in spatial planning. A clear-cut search for one or a few objective purposes and a rationalist design of alternatives based on these will therefore be less than optimal.

Good practice criteria and strategic decisions

The purpose of this paper was not to re-prove or discuss the failings of the decision-making process in the Öresund Bridge case, this having already been done by others (cf. e.g. Carlman 1993; Falkemark 1999; Westerlund 1993). Instead, the point was to discuss the relevance of Westerlund's (main) good practice criteria in light of a large project – to what extent these criteria can be seen as relevant to large-scale (strategic) projects.

It is possible to see large-scale contextuating decisions as evolving and developing. This will also have implications for an EA of these decisions. It is thus possible to question whether 'grand projects', such as the Öresund Bridge, are designed and decided upon 'all in one go', or whether their coming into existence is a sort of gradual step-by-step process. In other words: can there be identified a specific point in time when the blueprint, design or plan for the bridge was complete 'on paper', or was the bridge's development indeed a more piecemeal form of development where the plans and designs changed during the actual decision-making process (and construction)?

This paper has discussed how there may be difficulties in defining a discrete time for a decision. Furthermore, it may be difficult to identify an objective purpose for taking an action – such as constructing the Öresund Bridge. A number of desired objectives can co-exist and these objectives may vary over time. This will, in turn mean that reliance on a

⁸ Cf. Etzioni (1967)

rationalist and systematic search for alternatives is somewhat problematic.

Conclusions and discussion

It is also possible to question what strategic decision-making is. Can strategic decisions be arrived at through careful, rationalist⁹ calculation and consideration, or is a strategic decision one that lies outside the framework, structure or possibilities of an EA? Are strategic decisions somehow politically intuitive or are they rationally calculated? These are of course recurrent questions, and the issues touched upon in this paper indicate that they continue to be valid.

Stenstadvold (2001, p. 50) notes, based partly on the writings of Flyvbjerg (1991) and Falkemark (1999), in a discussion of the Gardermoen EIA-process that 'politics and power can pervert or disrupt any attempt at instilling rationality into a process, seemingly regardless of regulations, formal procedures and organisation'. He claims that the accelerated pace of the processes tends to reduce the quality of planning and the influence of democratic processes, resulting in the reduced legitimacy of the project. Although this is a general observation, which seems to be supported by experience from other large projects (Hall 1980; SOU 1998), it is important to note that in individual cases such a conclusion rests on the assumptions of rationality concerning a planning process made, and the criteria used to assess it. One such assumption is that it is possible *ex ante* to know what an appropriate plan for a complex project is.¹⁰ As Hall (1980) shows in his classic study: projects evolve as new complications are uncovered and both the external context and the internal problems change and develop.

Our discussion indicates that seemingly straightforward criteria of rationality such as those propounded by Westerlund's for 'genuine EIA' rest on problematic theoretical and practical assumptions concerning both the decision-making structure and the nature of complex projects. The assumptions on rationality become theoretically simpler if strategic environmental assessment is seen as an analogy of project EIA. However, as we have discussed, this assumption may not hold good in many cases. There are many actors with varying objectives; the bridge is a means to different ends. And while the changes in European political geography

⁹ Rationality is used here to approximate 'instrumental rationality' rather than Habermasian 'communicative rationality'. See, for example, Sager (2001).

¹⁰ The *ex post* showing up of deficiencies in a process needs to be complemented by making a counterfactual case for the possibility of designing a better process *ex ante*. (Beckman 1990; Emmelin 2003)

may have changed the function of the bridge as a Scandinavian link to the continent, its function, perhaps symbolic, as a link between two regions remained a rational motive for some actors. Furthermore the contention that politics and power pervert decision-making rests on an assumption that the regulations, formal procedures and organisation are in fact geared to rational decision-making. This seems to be a somewhat dubious assumption concerning the Swedish planning system particularly with regard to environmental assessment at the time.

Another valid point here is the question of whether SEA can be an aid to 'doing the right things', or whether SEA is a tool to 'doing things right – preferably from the beginning' – to put it crudely, whether SEA is a leadership tool or a management tool? Looking at the Öresund Bridge case, the point is whether SEA could have been a determinant to the decision to build or not to build the bridge, or if the policy decision to build a bridge was essentially one that came from beyond the EA process, and one which an EA could only influence as a mitigatory 'doing things right, from the beginning'-tool.

This questioning of the EIA mode of thinking is not to say that good practice criteria in general, and Westerlund's criteria in particular, are not useful. They *are* useful in that they force a clarity of reasoning for EA. However, it may be more difficult to apply these rigorously in practice: decision making, especially for large-scale projects such as the Öresund Bridge, is more complex than formal good practice criteria perhaps allow for. Instead, it may be useful to try to envision an approach that somehow combines both a formal assessment with the realisation that large-scale projects (and PPPs) change and evolve over time and even during the actual decision-making process. Perhaps a mixed scanning approach would be more optimal. This way strategic decision-making would not be impeded by a system of rigid and rationalist formal criteria. At the same time, however, a rational and structured way of thinking on issues and decisions could be maintained.

Perhaps it will be more useful to apply a 'planning mode' of SEA for the kinds of decisions that have been discussed in this paper; decisions where the purposes are manifold and perhaps change over time. The attempt to apply Westerlund's best practice criteria to SEA has however illustrated some of the more general problems of seeing SEA purely as an EIA analogy.

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The introduction of strategic environmental assessment to national level planning in Iceland

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Abstract: The EU Directive on strategic environmental assessment (SEA) is to be introduced into legislation in the EU and EEA countries by the summer of 2004. The Directive applies *inter alia* to national level sectoral and comprehensive spatial planning, and sets certain requirements for such plan making, e.g. on documentation, consultation, the assessment of effects and on decision-making.

This paper presents a preliminary analysis of SEA with reference to the EU SEA Directive and the prevailing SEA and planning theory literatures, as well as a discussion of SEA's potential to influence national level spatial planning in Iceland.

Introduction

The EU Directive on strategic environmental assessment (SEA) will be introduced into legislation in the EU and EEA countries by the summer of 2004. The Directive applies *inter alia* to sectoral plans made by different ministries or state agencies at the national level, as well as comprehensive spatial planning at the national level. The Directive sets certain requirements for such plan making, e.g. on documentation, consultation, the assessment of effects and on decision-making.

In this paper a preliminary analysis of SEA with reference to the EU SEA Directive and the prevailing SEA literature is undertaken, as is a discussion on SEA's links to the literature on planning theory. The paper then goes on to discuss the plan-making environment at the national level in Iceland and the introduction of SEA in accordance with the EU Directive. This is followed by a discussion on SEA's potential to influence national level spatial planning in Iceland.

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The paper forwards some of the preliminary analyses and presumptions that have emerged from an ongoing research project on national-level plan making and the introduction of SEA to national level plan making. The research project seeks to identify what preconditions, in respect of institutional frameworks and processes are likely to be necessary in the realm of national level spatial planning in order to make plan making and the introduction of SEA effective and successful. The study aims to combine lessons from the SEA literature on the one hand and from planning theory literature on the other. The research is based on a review of the relevant literature, as well as on a study of national level planning in Iceland, including a comparison of national level planning in the other Nordic countries.

SEA, what is it really and what is it to deliver?

It is widely accepted that integrating the environment into strategic decision-making is an essential prerequisite for moving towards sustainable development, while within this context, SEA is considered to be an important tool in integrating the environment into decision-making (Sheate et al 2001). This can for example be seen in the EU SEA Directive². In the Directive's 1st article the objective of the Directive (and thereby of SEA) is stated, which is to provide for a high level of protection for the environment and to contribute to the integration of environmental considerations into the preparation and adoption of certain plans and programmes with a view to promoting sustainable development (European Parliament & Council 2001).

Given that SEA is to accomplish this, it may be of interest to examine what SEA really is, i.e. what the actual components and ingredients of a SEA process are.

The ingredients of SEA

According to the EU Directive (European Parliament & Council 2001) and the prevailing SEA literature (see for example Therivel & Rosário Partidário 1996, Rosário Partidário & Clark 2000, Sheate et al 2001), SEA is composed of the following elements and components:

- Screening of which plans are likely to have significant environmental effects and do therefore need to undergo SEA.

² Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment.

- Deciding on the scope of the assessment, i.e. what policy objectives and policy options need to be assessed and what methods and information will be applied in the assessment.
- Collection and analysis of baseline information, both on the current state of the environment, environmental characteristics and environmental problems of the plan area, and also the existing environmental protection policies that may be relevant to the plan in question.
- Identification, analysis and assessment of the likely significant environmental effects of the plan in question.
- Preparation and publication of an environmental report, where the assessment is documented, including a non-technical summary.
- Information to and consultation with environmental authorities and the public at certain moments in the process.
- The taking into account of the environmental report and the results of consultation in succeeding decision making.
- Provision of information on the planning decision and how the environmental report and consultations have been taken into consideration, and finally the
- monitoring of the significant environmental effects associated with the implementation of the plan.

Impacts of SEA

Having established what the aims and ingredients of SEA are, let us then look more closely at some of the qualities the SEA literature attributes to the introduction of SEA, as well as to what success factors have been identified in the SEA literature (based on Therivel & Rosário Partidário 1996, Rosário Partidário & Clark 2000, Verheem & Tonk 2000, Sheate et al 2001, European Parliament & Council 2001).

The requirements on screening are expected to ensure that those plans that will have significant environmental effects will undergo SEA prior to their adoption. Similarly, the requirements for scoping are expected to ensure that all of the relevant aspects of the plan making in question are assessed, that all relevant information is used and that the appropriate assessment methods are applied. This of course opens up questions such as: How do we measure, decide or judge what is significant, relevant or appropriate? Should such decisions and judgments primarily rely on expert knowledge, or must they take onboard values and judgments elicited from those outwith traditional scientific circles? In

addition, how does the SEA process have to be constructed to ensure that screening and scoping properly serve their roles in the process?

The baseline information requirements, among other elements of the SEA process, are to secure the wide use and dissemination of baseline and assessment information, while the scoping consultation is designed to secure the high quality and rigorous application of assessment methods, both qualitative and quantitative. Such issues have been extensively documented and discussed in planning research and planning theory texts in recent years, while quantitative scientific information and analysis has traditionally prevailed in planning practice over lay knowledge and qualitative methods. As the technical steps in the SEA process are generally familiar to conventional spatial planning, it is thus of interest to consider just how the SEA process needs to be constructed in order to better deliver the qualities mentioned above.

The requirements for public consultation at certain moments in the process are to secure what is generally recognised to be one of the key benefits of SEA, namely, the widespread involvement of stakeholders, policy makers and the general public. The requirements on consultation and decision-making are introduced to ensure that stakeholders are able to influence the decision-maker, and that the decision-maker is able to raise awareness of the strategic dimensions of the plan. Again, it is here that experience gained from planning practice opens up questions over what considerations and tools SEA will introduce to conventional planning in order to provide this form of wide ranging public involvement and influence.

Other important and beneficial qualities that the SEA literature and the EU SEA Directive attribute to the introduction of SEA are:

- Efficiency, which is primarily raised in the EU Directive in provisions on avoiding duplication in the assessment by taking into account that the assessment will be carried out at different planning levels and in provisions on information in environmental reports, e.g. that information demands shall be reasonable, taking e.g. into account current knowledge, methods of assessment, the contents of the plan and its stage in the decision-making process.
- Quality, which is primarily raised in the EU Directive in respect of the requirement that member states shall ensure that environmental reports are of sufficient quality to meet the requirements of the Directive. In the literature on the other hand, quality is often related to the establishment of independent review bodies to provide accountability and

sufficient incentives to carry out the SEA. Effectiveness, which is primarily raised in the EU Directive relating to the requirement that the environmental assessment shall be carried out during the preparation of the plan.

- Transparency, which is raised in the EU Directive, for example in the Directive's preface, where SEA's role is said to be to contribute to more transparent decision-making.
- To conclude, the main question relates to whether the elements and components of a SEA process are likely to produce the successes and qualities (outcomes) discussed above, and thereby successfully integrate the environment into planning and contribute to sustainable development.

SEA & Planning – how are they related?

Judging from the list of the elements and components of SEA presented above it may seem obvious to those familiar with planning theory or planning practice that SEA and planning must have much in common. We should not of course forget however that SEA primarily originated from the environmental assessment of projects, even though it continues to have strong ties to planning and policymaking.

Planning theory has provided a lively arena for debate in recent years. Much of this literature has to a greater or lesser extent contained a critique of the rational planning model, the formerly dominant planning paradigm, which though challenged however still maintains its mark on current planning systems and planning practice, though current discussion is now centred on issues of communicative planning (Allmendinger 2002, Campbell & Fainstein 2002, Healey 1997).

Several authors writing on SEA have addressed the linkages between environmental assessment and planning theory and practice in their work. Some of them have suggested that SEA has more to learn from planning theory and practice (Lawrence 2000, Brown & Therivel 2000, Therivel & Rosário Partidário 2000). Others claim that environmental assessment has successfully identified and taken on board the similarities with, and the lessons of, planning theory and practice (Fischer 2003). Among those to have written about the linkages between environmental assessment and planning theory is David P. Lawrence (Lawrence 2000). Lawrence claims that environmental assessment has largely failed to benefit from planning theory. Therefore, the obstacles and dilemmas already encountered and addressed in planning theory will still hamper EIA theory building and practice. Moreover, Lawrence believes that the environmental assessment process generally parallels the

rational planning process and shares many of its characteristics, while environmental assessment theory and practice also share some of the characteristics attributed to communicative planning approaches, such as recognising the need for fair dialogue and effective communication. He identifies the following negative aspects of rational planning as common to environmental assessment:

- To be often autocratic and technically biased.
- To be poorly designed to match contextual characteristics.
- To be weak in fostering creativity, in facilitating dialogue, and in appreciating the political nature of planning.
- To be prone to artificial assumptions regarding comprehensiveness, a unitary public interest, objectivity, predictability, and control (Lawrence 2000).

Planning theory – a few presumptions & considerations

As noted above, the prevailing approach to planning in the literature today is that of communicative planning. Even though environmental assessment, and thus SEA, maintain strong ties to rational planning approaches, environmental assessment nevertheless also has important ties to communicative planning.

Planning theory texts have in recent years dealt extensively with those aspects of a planning process that SEA is being introduced to address e.g. transparency, wide public involvement and inclusion of concerns that have not previously been sufficiently addressed.

Thus in what follows we will attempt to deal in turn with some of the aspects, common presumptions and considerations commonly dealt with in the prevailing planning literature that seem to be of the greatest importance to SEA systems and practice (based on Allmendinger 2002, Blanco 1995, Flyvbjerg 1998, Flyvbjerg 2001, Healey 1997, Richardson 1996).

Public interest

The ‘public interest’ has been the *leitmotiv* of spatial planning for a long time. The debate over sustainable development in recent decades and the role of planning and SEA in sustainable development can be seen to be related to the concept of the ‘public interest’ in planning.

The main shift that has taken place in planning thought regarding the concept of the ‘public interest’ has been the shift away from the rational planning idea of one public interest that can be objectively decided, to the idea that the public interest, or *public interests*, are a product of society at different times. In a similar fashion, sustainable

development has, for some, been seen as simply one particular direction to move towards, while others have seen it as a social product of society at different times, dependent on the knowledge and values of the society in question and thereby dependent on an open discourse about the economic, social and environmental development of society.

Rationality & reason

One of the main criticisms of rational planning relates to the central role it prescribes to instrumental rationality, as one form of reasoning that excludes all others. Its toughest critics claim that planning practice based on this view is reduced to one form of reasoning, where everything that can be, is transformed into mathematical abstractions and everything that cannot, is ignored or suppressed. In this manner scientific and technical material, expressed in quantitative analytical modes based on technical jargon, have been privileged over other inputs in planning, thus effectively excluding those from the planning process who do not have a professional training.

Within the post-modern strand of the communicative planning school, it is claimed that such rationality can create and reinforce power relations. In this fashion, Bent Flyvbjerg (1998) argues that political decisions that have significant implications for 'who gets what' are rationalised afterwards as being rational. Thus, planning, and for that matter environmental assessment, may be used to present a rational and logical front to powerful relations between different competing interests.

Communicative planning theorists argue that there are other forms of rationality that do not seek to replace instrumental forms of rationality in this way, but instead seek to complement them – rationality based on values and on moral, emotive or aesthetic reasoning.

Knowledge and truth

Knowledge and truth are seen as critical elements in planning and policy making by post-modern writers within the communicative planning school. While rational planning ideas view planners as building their work on instrumental rationality and objective reason, where arguments in the planning process are supported by 'facts', post-modern writings within the communicative planning school argue against such manifestations of scientific objectivity leading to ultimate or absolute truth, and claim that truth is socially produced, essentially that each society has its own regime of truth.

One of the key emphases of Patsy Healey's communicative planning approach is to recognise that all forms of knowledge are socially constructed and that knowledge of science and the techniques of experts

are not necessarily all that different from practical reasoning. Thus reason, values and power influence what knowledge and information is actually gathered, and also then what knowledge is translated into action.

Power

Bent Flyvbjerg has written about the power of power in planning. He goes as far as saying that power procures the knowledge that supports its purposes, while it ignores or suppresses that knowledge which does not serve it. Flyvbjerg claims that power influences planning decision-making in ways that may never enter the public domain, may never be expressed, visible or recorded, and may in fact be subliminal to most actors in the process.

Democracy

Communicative planning theorists state that planning practice may merely reproduce inequality. In response, they argue for a more open, democratic approach that is concerned with opening up planning to a greater plurality of voices and opinions. They do however emphasise that the implementation of the requirement for public consultation cannot alone secure effective public involvement. In reality, the success of any consultation process is dependent on where discussion takes place, how community members get access to it and in what style such discussion takes place.

The planning scene at the national level in Iceland

Iceland is a country of 100,000 km² with a population of nearly 300 thousand people, who live in 105 municipalities, of which around 70 have less than 1000 inhabitants.

In general it can be said about the planning scene at the national level in Iceland, that there is little tradition of planning at the national level, both in comprehensive spatial planning³ and in sectoral planning. It can however also be noted that there is an increased awareness of planning as such, in particular about the weight and importance of land-

³ Comprehensive spatial planning is here used in the same way as that defined and discussed by Alterman: 'Comprehensive planning ... seeks to take as integrated and multi-sectoral a view as is feasible, both geographically and subject-wise, and seeks to guide the use of land for all types of needs in a coordinated fashion. ... [it is a] planning or policy-making perspective that uses the integrative potential of a spatial, land-use view, to develop policies that go beyond the areas of responsibility of any particular sectoral government ministry. ...' (Alterman 2001, pp. 3-4)

use decisions, the need for co-ordination, horizontally and vertically, and of planning's role in guarding the public interest and promoting sustainable development. Similarly, planning is less and less seen as a purely technical exercise, and thus is now increasingly viewed as an essentially political activity.

When it comes to comprehensive spatial planning, Iceland has a decentralised planning system, where the municipalities play the key role regarding spatial plan making, but where the role of the state is less clear. A formal process or tool for the co-ordination of spatial plans and policies at the national level has not been established. This has been viewed as having drawbacks that make the planning system less effective. Currently, there are signs of increasing awareness of the need for horizontal and vertical co-ordination and for the creation of a national planning vision or strategy. In addition, improved tools and processes designed to deal with conflicts in respect of strategic planning matters are also sought.

As regards sectoral planning, it can probably be assumed that such planning is still seen primarily as a technical activity. There is a very limited tradition and experience of sectoral plan making, which does however vary, having existed longest in the individual transport sectors: i.e. road, airport and harbour. The planning tools that are in place are in most cases rather ill-defined, with often no, or only limited requirements on e.g. consultation, reporting and decision-making.

Discussion

SEA seems in its most basic form to be a planning tool of the rational planning family, and is therefore in danger of falling into the fallacies exhibited by rational planning alluded to above. However, SEA also exhibits a communicative planning spirit, but in order to equip SEA to be better able to develop as such, careful consideration has to be given to the issues surrounding the systemic and cultural conditions that the individual SEA in question is to be implemented in, and on what terms, and how, the actual SEA is implemented.

Lessons from planning theory seem to indicate that there are many factors that can influence a planning process, e.g. different forms of reasoning and knowledge, how consultation is conducted and the power relations involved and interests at stake. Moreover, this literature also suggests that undertaking basic technical requirements for certain steps in the planning process are, in themselves, not enough to ensure delivery of the qualities that SEA promises in respect of these issues.

Regarding the implementation of SEA in respect of national level plan making in Iceland, one can distinguish between two possible routes. On the one hand, a basic approach to the implementation of SEA can be chosen, where we simply endeavour to ensure that all the technical tools of the EU SEA Directive are put in place in the relevant plan-making. On the other hand, the lessons of planning theory more generally, may give grounds for aiming a little higher, in order to make SEA implementation more likely to contribute meaningfully to environmental integration and sustainable development. Aiming for more in this sense would involve both consciously writing into legal requirements aims and provisions that, for example, the utilisation of different forms of reasoning, rationality and knowledge is to be encouraged in SEA practice. Aiming higher does also involve issues that lie beyond the act of writing legal texts; as such issues concern the planning culture as such.

The basic requirements of the EU SEA Directive alone are likely to pose a challenge to sectoral planning in Iceland and probably alone raise the profile of the respective plan-making approach, by making it more transparent and accountable to the environment than previously. It is also more than likely that a rather basic implementation of SEA to national-level sectoral planning will gradually entail the need for further co-ordination by exposing the current lack of guiding principles, thereby increasing awareness of a need for some sort of a comprehensive spatial planning forum at the national level, for the formulation of a planning vision and the co-ordination of different plans and policies.

For real and long-term benefits regarding the inclusion of the environment in planning and sustainable development, it seems, judging by the planning theory literature, that a more conscious effort may be needed in order to make SEA truly effective. This may involve, on the one hand, carefully building into the formal requirements explicit aims that qualitative decisions for example on 'appropriateness', 'relevance' and 'significance' can build on. And, on the other, it has to do with being aware of the political nature of spatial planning, the pressures that planning and environmental assessment processes can face, and how planning and environmental assessment professionals can build a culture that can deal with these pressures, in order to make land-use decision making, and thereby, SEA successful. Many of the qualities at stake, such as transparency, rationality and reasoning, knowledge, communication and dialogue, have in common the fact that they cannot be rendered effective simply by being written into legal texts. They do all call for professional and political awareness, guidance and professional development. They call for an ongoing debate about why and how we

plan, they call for the public to have knowledge about what the planning system is, what interests are at stake, where the information is available, how the system works and, ultimately, how one can participate in it.

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Endangered Impact Assessment?

EIA in a changing environment

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Introduction

This paper concerns the issue of project EIA in a changing (legal and technical) environment.

The paper will thus not discuss the issue of the internal challenges to EIA, such as prediction, data, quality and the link between knowledge and decisions. Neither will it address the issue of EIA in a political setting, or how EIA may, or may not, play the role of debate distorter.

Instead I will focus on EIA as an environmental tool, and the challenges EIA faces as the environment and the surroundings, change.

EIA is a venerable tool. It has existed now for more than 30 years. Even though age is not sufficient reason in itself to suspect that an instrument is outdated, already in the late 1980s, researchers started to hint that perhaps other tools would be more able to face up to the emerging challenges. Moreover, it is quite true that during the period that EIA has been a leading environmental tool, the structures that regulate decision-making and the attitudes towards central elements in EIA, such as the environment and the issue of transparency, have changed. The question is then whether this is good or bad – whether these changes weaken or strengthen EIA as a method of protecting the environment.

An 'endangered species' is one that is at significant risk of extinction due to environmental change, predation, habitat loss, climate shift, disease, or anything else that threatens its existence.

In our terms, then, the world is changing in important ways, and subsequently, EIA is being challenged from above (SEA), from the side (biodiversity, sustainability appraisals), and from within (bureaucrats' eagerness to integrate EIA with other tools such as land use planning).

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Is then, EIA in danger – or indeed, endangered? The question is then firstly; can EIA withstand the coming of other, perhaps more specific, instruments? By ‘instruments’ here I mean both *technical* instruments, such as strategic environmental assessments and sustainability appraisals or tests, and *legal* instruments such as the Aarhus and Espoo conventions and EU directives on related topics. And secondly; will EIA survive integration with land use planning?

Given the amount of EIA legislation, at the international (Espoo convention), regional (EU-directives) and national levels (most countries with environmental legislation have procedures requiring EIA), one would perhaps, initially at least, be hard pressed to find that EIA is in significant risk of extinction.

Depending on ones’ viewpoint, it is nevertheless possible to argue that there is a perceptible and ongoing element of procedural or legislative poaching and predation, which surely may result in future legislative and procedural ‘habitat loss’ so to speak. This poaching or predating of the legislative and procedural space that EIA so far has occupied occurs at the decision-making level. Earlier project EIA was being used in connection with strategic decisions but is now encroached from above by SEA and policy assessment. Poaching also occurs at the content level, as the broad content of environmental statements become specified and limited by the specialised assessments of biodiversity, sustainability (i.e. economic and social factors), and risk (risk assessment). EIA is moreover challenged at the procedural level by objectives led processes and land use planning. Finally, perhaps even the transparency principle of EIA is now to be found specified, and even enlarged, in the Aarhus convention.

Looked at this way, EIA may have originally occupied too broad a space, and acted like a mono-cultural legal and procedural lawn covering interesting and valuable biodiversity in the field of environmental management tools.

When challenged, one reaction is to adapt. The concern in the ‘EIA world’ is whether EIA will mutate rather than adapt, and thus change out of all recognition.

Structure

In this paper I will discuss EIA in a changing environment. In order to do this, I will discuss what EIA is, and what the changing environment consists of. I will then discuss the challenges to, and the contributions of, EIA.

Why EIA?

The reason for conducting an EIA, which is in many cases (but not all, as a recent Danish example shows us) both time consuming and expensive, is to protect the environment from unnecessary and avoidable damage. EIA should therefore highlight the reasons for refusing consent if there are any, give the basis for choosing the best, or at least the least offensive, alternative, and to lay ground for mitigating measures. EIA is also about keeping the general public and decision-makers informed, as well as creating common ground for meaningful discussions, even though opinions about the project may vary significantly. This common ground of information would, of course, rest on the assumption that the environmental statement is of sufficient quality and contains the relevant information. EIA has thus both an environmental and a democratic rationale, and has thus contributed both to a higher level of environmental awareness as an increased democratisation of decision-making.

What is EIA?

The question 'what is EIA' has been posed a number of times in various circumstances, and it is undoubtedly a lot easier to discuss EIA in the abstract than it is to discuss the practical implementation and implications of EIA. I would therefore like to begin with an illustration.

The EU commission has recently published its five-year evaluation of the latest EU directive on environmental impact assessment. In this rather interesting report, there is a table that shows the amount of EIAs conducted in the member states before the new directive came into force that is 1999, and the estimated increase in EIAs conducted after the new directive came in to force. The estimates range from 20 to 6000. The table has a footnote warning those who wish to use the information, stating that reporting problems may skew the results. This is quite believable. However, even given the problems with reporting, the table begs the question: when talking about EIA, are we talking about the same thing?

EIA in principle

In principle, we are usually able to agree that EIA is the systematic assessment of the impacts of a planned project. The assessment is prepared before the project decision, made available to the decision-maker and the public, and should demonstrate the impacts of both implementation and operation. EIA is thus a careful implementation of the precautionary principle.

EIA is primarily a decision support tool. The goal is to ensure that environmental issues are taken into account when a decision is reached

about whether, and under what conditions, a project should be allowed to proceed.

EIA should include the following steps: selection of projects with possible environmental impacts (screening), selection of relevant impacts to assess (scoping), public access to and review of the documentation of the impact of the project and reasonable alternatives, and follow-up/monitoring.

EIA in practice

One important aspect of EIA in practice is what is EIA, and for who is it designed?

If we look at EIA as a practical tool and as legislation, it is often either integrated as a whole into existing legislation, or the effectiveness of EIA rests on the presumption that other legislative instruments exist, not least in connection to the decision-making process itself, and thus to the possibility of setting the conditions for operation. Moreover, matters concerning access to justice are often based on the possibility of testing the decision itself in court or by administrative systems rather than via the ability to challenge parts of the EIA process itself.

Thus, some EIA regulations and processes lead to a pure environmental consent, whereas other EIA processes serve as the basis for consent based on broader considerations – for instance planning decisions with the possibility of setting conditions on environmental grounds, or processes leading up to concession or license.

Clearly, the kind of information that it would seem relevant to include in the EIA process or statement would vary in such cases, depending on whether the decision is taken on purely environmental grounds or whether it includes a trade off between economic, social and environmental factors.

EIA in the world

In addition to looking at what EIA *is*, we should also look at what EIA *does*, or is believed to do. According to the research literature, EIA works in two primary ways; as a source of environmental information, and as a procedure that requires specific behaviour from actors and institutions. How EIA works through the production and presentation of information is fairly easy to grasp. How EIA may work in other ways, mainly in terms of how the process influences institutions and actors, was rather aptly illustrated by Riki Therivel² when she reported that the formal procedural

² Riki Therivel's keynote speech preceded this keynote speech at the 5th Nordic EA Conference.

requirement for consultation with the environmental authorities could serve as a basis for the application for more resources. Also, it is important to remember that this approach points out that EIA works whether we like it or not, though perhaps not in the way we want.

This is however a purely academic distinction; in practice it is extremely difficult to distinguish between these two. EIA is in its nature both focused on information and reliant on procedure – how to collect what information, who should be able to see the information, who should decide what information is relevant, and when is it sufficient both in terms of quality and mass. The focus of both review and legislative changes may be one or the other of the two main functions.

Whichever way EIA is examined, there seems to be agreement on one aspect at least: EIA cannot, and will not, function in a vacuum. This fact is highlighted in several articles on how to measure the effectiveness of EIA.

The most cited external factors are:

- Legal system and tradition.
- Democratic tradition.
- Attitudes toward, and perception of, the environment and its protection.

The latter is sometimes explicitly turned into goals or objectives for the environmental policy.

As mentioned above, EIA is increasingly challenged in three ways: by the SEA, by other impact assessments, and by integration. How EIA rises to the challenge, and the subsequent contributions of EIA, will vary according to the legal system, democratic traditions and planning system in place. The expectations of EIA will largely vary in the same manner.

Changes from above: SEA

It is perhaps useful to remember that SEA has evolved primarily as an answer to the shortcomings of project EIA. Of these shortcomings the most notable are that the premises for the adoption of projects are laid down beforehand, that is earlier in the decision making chain than when the project EIA is undertaken; and that cumulative impacts are difficult to tackle one project at a time. Cumulative impacts are probably hard to tackle in any situation, but that is another story entirely.

The main challenges posed by the introduction of SEA are firstly, the risk of overload, and secondly the practical task of deciding upon the division of labour, i.e. which issues should be treated where, and how detailed should this treatment be? The two challenges overlap and inter-

twine in the sense that if the second problem is not solved, the first will become acute. Whereas our colleagues, the public and the decision-makers are now used to, and to some extent tolerate, EIA (a few has even come to like it!), a predictable reaction to SEA is: will we now do environmental assessment ALL THE TIME?

If, however, we do solve the division of labour, SEA and EIA can complement each other, and hopefully contribute to the discussion of the relevant issues according to the present decision-making situation.

Changes alongside?

EIA is not alone in the field of impact assessment. A glance at the programme for any annual meeting of the international association for impact assessment (IAIA) will tell us that. Health impact assessment, social impact assessment, biodiversity assessment, and risk assessment are only a few of the specialised assessment tools now available.

It is interesting to note, though, that they all seem to offer new opportunities mostly with regard to method and content, and not in respect of process. Thus the challenge from these assessments is one of adaptation to new issues rather than a risk of EIA being 'crowded out' of the decision making process.

As mentioned above, EIA serves many purposes. The substance of EIA rests on the answer to the question 'what is environmental'? From the outset of course decisions must include discussions on 'new' environmental topics, such as biodiversity and genetic modification. Similarly, it is important to update the concept of sustainability in connection with decision-making when such concepts are changed 'elsewhere', that is to say outside the territory of EIA.

The question is then whether it is important and necessary to update and include new topics in EIA. However, whether all new topics and concepts are in fact included in the EIA regulations, or whether new instruments are added, seems to be a matter of taste. Needless to say, many EIA regulations include quite a wide variety of topics under the all-embracing umbrella of 'environment'.

Keeping the decision-maker, as well as the general public in mind, we would have to ask whether they would thank us if we gave them several separate assessments rather than including all of the important aspects in one single assessment? Would the decision-maker appreciate attempts to paint a broader picture, or would they view that as taking political license?

It should now be quite clear then that SEA and the new impact assessment topics should be seen as positive contributions and as such, necessary updates to a tool that has served us well for a number of years. In

essence, the treatment of the challenge is a matter of taste and is fundamentally related to the decision-making system, while the most important threat this poses is to the concept of EIA itself and to our ability to discuss it in a meaningful way. It should however be clear that this may already be the situation.

Changes from within: Integration into land use planning

The last challenge is of a slightly different nature. It is also one that is difficult to discuss disconnected from one's own experience; one may have to adapt this section of the paper to fit one's own experiences.

The desire to integrate EIA into land use planning comes from numerous sources. One significant 'push' factor is SEA: if one performs SEA in connection with the master planning, from a legal effectiveness point of view it seems useful to carry out an EIA at the detailed planning level/building consent phase. Whether this integration is total or the integration means that the SEA/EIA serves as the basis for a planning decision is probably not such an important point.

However, the demand for the total integration of the planning system and the EIA/SEA regulations comes when the benefit of using two different procedures as the basis for the same decision no longer seems to be there, or is deemed insufficient. And in fact most EIA projects would require a land use plan or similar consent. An additional rationale for full, legislative integration is that an integrated EIA would be less inclined to be a *pro forma* process that functions as window dressing and would thus perhaps have a greater influence on the outcome.

When discussing the integration of EIA and land use planning, it is interesting to note the similarities and differences. Looking at the procedures for planning, and those for EIA, we can see in fact that they are quite similar. And as a planning procedure would often include both the documentation of the impacts and the involvement of the public, integration of the two is sometimes quite seamless. As such, the integration of EIA and land use planning should pose few problems.

Thus, when EIA was introduced in Norway, a standard reaction from land use planners was that EIA *is* planning, and that they had been doing this all along. In practice, though, this seemed not to be the case, as EIA was blamed for the fact that planning now took longer and required more resources.

This may, to some extent, be explained by looking more deeply at the rationale of EIA and of land use planning. Here you will find marked differences. Whereas an EIA starts when somebody wants to build something, land-use planning starts (at least traditionally) with the municipality's desire or duty to manage land use within a geographical area. Even

when the plan is a plan for a specific project, the rationale differs, as the planner looks at the site and its surroundings and asks what they could tolerate, whereas the proponent (or her consultant) looks at the project and wonders what impacts it would have.

In practice these rationales may actually co-habit well enough. When dealing with the issue of localisation however there are obvious differences. Whereas a planner would seek various activities to 'fill the map', a proponent would most likely look at the various sites in which to put her project. And those sites may not be within the same planning jurisdiction. Thus, one practical loss that may occur when EIA is integrated into land use planning is that the site selection process must be handled in a different way, and this may well entail less environmental impact assessment and less public involvement.

On the other hand, EIA is likely to contribute to the careful focus on the selection of what impact information is required for this plan, as well as on the follow-up and monitoring issues. This includes a process in which information requirements are discussed and decided upon, and hopefully with the result that even though various actors will still have a different view of the plan itself, it will not be easy to hide these behind a veil of ignorance about the outcomes and impacts. These are valuable contributions.

Conclusions

The EIA process currently faces a number of challenges, as indeed it has done for the last 20 years. The question is then, how should EIA rise to those challenges, and what will be the likely result?

Using a biodiversity metaphor, this is a question of adaptation versus mutation, and these are quite different entities. It is however rather difficult to conclude definitively on this point at present, as this largely depends upon what EIA was perceived to be before these challenges occurred, and before the subsequent changes appear. It has been argued here that EIA faces challenges from above, alongside and within. To respond to the challenges and changes from above, we need to draw up a careful and workable division of labour between EIA and SEA in order to avoid duplication and a sense of overload from both the general public and decision-makers.

To respond to the challenges and changes from alongside, EIA needs to change according to the ever-evolving views on the environment and matters of sustainability. Far from weakening EIA, this should actually strengthen it. Whether these changes complement or are incorporated into EIA is mostly a matter of taste, that is to say, it relates to the nature

of the decision to be taken, the decision situation and the decision-maker's needs.

The challenge of integration comes from within – in the sense that the challenge comes from our political superior's view on legal effectiveness as well as our own ideas on substantive effectiveness. As such, EIA may in fact benefit from integration, though, as we have seen, the differences between EIA and planning may in fact be larger than the procedural similarities lead us to believe. What we should be aware of is that we may well lose useful elements of both if integration occurs, and thus we should be prepared to respond to this.

EIA does not work in a vacuum. The success of EIA rests to a large extent on external factors such as attitudes toward environmental matters relevant to other matters, the legal system and development, and political support. Therefore EIA should, as an instrument, and in terms of its ability to protect the environment effectively, benefit from the new instruments developed in part, though not only, based on the shortcomings in EIA.

EIA will probably change when it is integrated into the land use planning system. So will planning. The combination of EIA and planning will presumably further sustainable development; to establish this is however more a matter for history and for research than for prediction.

We should hope, though, that EIA meets the challenges outlined here with a certain elegance and ease, and not in a way that makes decision-making harder. Without the political will and the public support EIA will not move forward.

Great Expectations

The contribution of Environmental Impact Assessment (EIA) to decision-making in Alberta, Canada

Anke Seifried¹

Abstract: This paper will present and evaluate decision-making, fostered by the environmental impact assessment (EIA) process in Alberta. The EIA process evolved from informal beginnings. It is now legislated and has encouraged several new outcomes in decision making for Alberta's environment, leading to a renewal in how decisions are reached that allow different stakeholders to agree to a common view of the future.

Acknowledgements: This paper reflects the dedicated work of many people – the Alberta public, the private sector and industry, the research community, public servants and decision makers at the municipal, the provincial and the federal levels of government. Without their collective work, this paper would not exist. Although the credit for this paper goes to many contributors – the responsibility for any errors rests with the author.

Introduction

Alberta extends from the 49th to the 60th parallel north. Hence, it is not quite as northern as the Scandinavian countries but its location in the interior part of the North American continent creates some very northern conditions with winter temperatures well below freezing from November to March and cold spells of -20 °C to -40 °C. Alberta's area of 640,000 km² is in the same order of magnitude as a large European country.

Alberta's population increased 10% between 1991 and 2000 and passed the 3 million mark in 2001. A population density of 4.6 persons per km² and wide variation of densely populated urban areas and large tracts of lands with few permanent residents make it comparable to some Scandinavian countries.

¹ Alberta Environment, Canada.

In 2001-20022, the Alberta EIA process reviewed projects mainly in the northern part of the province representing more than \$25,000,000,000 (16,000,000,000 EUR) in capital investment.

The background information needed to understand Alberta's population growth and its need for consistent and circumspect environmental decision making to ensure sustainable development pertains to the wealth of natural resources contained in the province. Energy-related natural resources, conventional oil and gas, oil sands and coal and unconventional gas have been found under large tracts of the province's land and water.³ Above these non-renewable resources are the wildlife and vegetation resources of the boreal forest, predominantly in the north and agriculture including crops and cattle grazing in the centre and south.

The paper concentrates on the EIA process in Alberta from 1971 to 2003. It highlights selectively those features of the decision making process, which could be interesting for further discussion and it describes the EIA work within the frame of the Alberta commitment to sustainable development. The Alberta Government has recognized the need to balance opportunities for growth with the need to preserve and maintain the environment for future generations. Alberta's vision for sustainable development states: Alberta, a member of the global community, is a leader in sustainable development, ensuring a healthy environment, a healthy economy and a high quality of life in the present and future.⁴ Alberta links this vision to its Government Business Plan, which emphasises people, prosperity and preservation. Individual Alberta Government Departments address sustainability in their business plans under the umbrella of the Provincial Government Business Plan.

The Nordregio conference takes on the challenges for the EU countries with the EU Directive for Strategic Environmental Assessment

²http://www3.gov.ab.ca/env/dept/reports/annual/2001-02/2001-2002_Annual_Report.pdf

³ Alberta Energy, Alberta's Energy Industry Overview, Crude Oil Resources 2000

In '000,000,000 barrels	Oil Sands*	Conventional Oil	
In Place	1,631	60.3	*Oil Sands consist of a black, tar-like mixture of sand, clay, water and bitumen (not recoverable commercially through a conventional well).
Cumulative Production	3	14.2	
Remaining Established	175	1.8	

⁴ <http://www3.gov.ab.ca/srd/info/sustainable.pdf>

(SEA). The Directive is to ensure that the environmental consequences of plans and programmes are identified and assessed during their preparation and before their adoption, integrating environmental considerations and achieving the goal of sustainable development. The conference about the role of SEA and the assessment of plans and programmes in sustainable development is of great interest to Alberta. The economic and environmental baseline conditions in European countries and in Canadian provinces, particularly in Alberta, may differ but the interest in a productive interchange of ideas on leading edge thought and action for the efficient and effective achievement of sustainable development including environmental quality are important to Alberta.

Alberta Highlights for 1971 to 1993

Alberta created the first Environment Ministry in Canada in 1971; however, the 1971 legislation did not define environmental impact assessment requirements for specific projects. Syncrude Canada Ltd. ('Synthetic Crude oil') submitted the first Alberta EIA report in 1973 for a new oil sands plant north of Edmonton. Syncrude prepared a voluntary EIA because a co-ordination process for government departments and their various approvals was needed. The mine and plant used a technology, the Clark Hot Water Process (to separate the bitumen from the sand) which had been recently upscaled to commercial size. The facility required a large number of approvals, which had not been developed with the new technology in mind. This situation suited the EIA process – high uncertainty about potential environmental impacts, a lack of precedence, an innovative company and a committed and confident government.

Provincial government guidelines were established in 1986 and in 1993, after several years of gaining practical experience with EIAs and following formal public consultation, the *Environmental Protection and Enhancement Act* came into force. It created a new framework for environmental decisions integrating the protection of air, land and water under a single act. In one streamlined package, the *Act* consolidated several *Acts* such as the *Agricultural Chemicals Act*, *Clean Air Act*, *Clean Water Act*, *Ground Water Development Act*, *Hazardous Chemicals Act*, *Land Surface Conservation and Reclamation Act*, and the *Litter Act*.

Why did anybody go to the trouble to generate EIAs when this was not a legal requirement? Projects needed a permit to construct and after that a licence to operate. It became accepted practice to require an EIA as a pre-condition for such a permit/licence for controversial and large industrial projects, which were likely to have major impacts on the environment. It only required government support and determination to make the assessment and review of the environment in full public view a condi-

tion of projects being allowed to proceed before permits and licences were issued.

The voluntary EIAs had triggered a cross-ministerial pooling of expertise and resources for the work needed and they laid the foundation for co-ordinated decision-making. The 1993 Act states that environmental impact assessment was to 'support the goals of environmental protection and sustainable development'.⁵

From 1973 to 1993, an estimated 100 to 150 EIAs were performed. The estimated number varies because of varying definitions as to what an EIA was. We count environmental screening reports and full scale EIAs but does a project have to actually be built so impacts can be monitored, performance outcomes audited, and approvals adjusted? What about projects that withered en route or those that never had a formal EIA call but do include a full slate of publicly reviewed environmental assessment reports?⁶ How about the project where public participation went to the extent that the public formally decided on the project and the province *de facto* abided by that decision although *de jure* the decision belonged to the province?⁷

⁵ Alberta Government, RSA 2000, updated August 2003; Alberta Environmental Protection and Enhancement Act, Section 40: 'The purpose of the environmental assessment process is:

- (a) to support the goals of environmental protection and sustainable development,
- (b) to integrate environmental protection and economic decisions at the earliest stages of planning an activity,
- (c) to predict the environmental, social, economic and cultural consequences of a proposed activity and to assess plans to mitigate any adverse impacts resulting from the proposed activity, and
- (d) to provide for the involvement of the public, proponents, the Government and Government agencies in the review of proposed activities.'

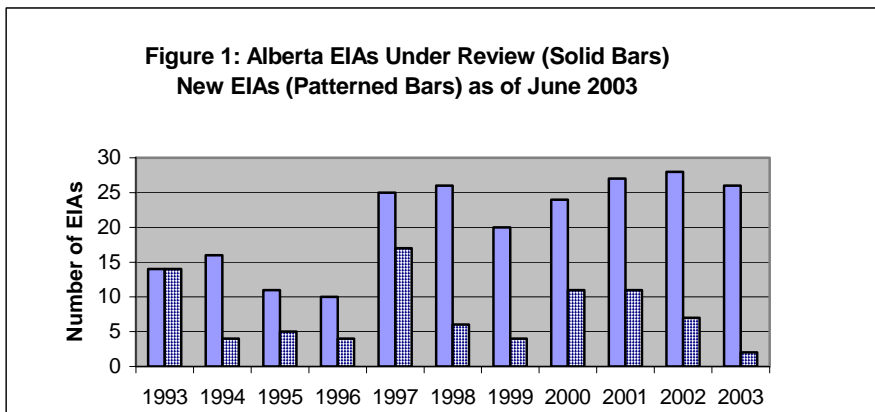
<http://www.qp.gov.ab.ca/documents/acts/E12.cfm>

⁶ Oldman River Dam, 'Once Upon an Oldman' – by Jack Glenn, 1999 contains an extensive (nine page) bibliography of the environmental reports prepared from 1976 onwards.

⁷ Hazardous Waste Treatment Facility, Town of Swan Hills, accessed August 3, 2003 <http://www.townofswanhills.com/aswt.html> 'The Alberta government was basically the leader in the site selection process, and they used an innovative approach of requesting volunteer communities. Swan Hills volunteered as a potential host community and a referendum was held in the town, with 79% of the people voting in favour of hosting the treatment Centre; there's been an ongoing positive relationship between the town and the Centre ever since.'

Alberta's Legislated EIAs, 1993 to 2003

The formal, legislated Alberta EIA process is reserved for large scale and/or controversial projects. Since 1993, between 10 and 28 projects have been under review at any one time and there have been between two and 17 new projects annually (Figure 1). The average time for completing EIAs is 15 months; the record fastest time is under a year and some projects take several years. The time variations are due to the presence or absence of baseline data, an existing sufficient biophysical database, including rare plant surveys, can save a season or more. A well-defined project description will save time because the content of the EIA (Terms of Reference) will only need to be discussed publicly and across government once. Clear leadership in the community around the issues being raised and good communication amongst all participants (proponent, stakeholders and the general public) will also move the EIA process along.



Expectations and the Legislated Alberta EIA Process

From 1993 to 2003, EIAs were required mainly for projects in the oil and mineral and mining sectors (48), power plants (9), chemical plants (7), pulp and paper mills (6), recreation developments (3), waste facilities (4) and water resources projects (2). Industry sector specific requirements were developed creating a level playing field and building on the experience gathered – both the environmental impact experience and advances in technology. There is, however, another side to the level playing field. Once created, the EIA requirement becomes a barrier to entry, a hurdle that ought to be there for all newcomers from the viewpoint of the established industries. The expectation is to have the same rules for everybody.

The regulator can be of two minds over this, as outlined in the two bullets below. In the following, the term ‘regulator’ is used to describe the government administration. The term provincial (or federal) government is avoided in the context of administrating the environmental assessment process as a government agency or department can be the proponent (for example, Alberta Infrastructure for water resources reservoirs) and the term ‘government’ can refer to the proponent, the regulator, elected officials or members of the administration.

- The regulator reaches a very clear understanding of impacts, mitigation and outcomes with few, if any surprises and increasing certainty about the exact nature of impacts from projects and industry sectors, the success of mitigation measures, residual effects and acceptability of projects. Is an EIA still warranted for the 6th pulp mill or 15th oil sands plant – or should we move on from individual EIAs to regional strategies, industry class specifications and even go straight to approvals if the proposed projects fit the sustainable development strategy? After all, EIAs are not the only game in town – approvals still have environmental information requirements and also the opportunity for public hearings⁸.
- The regulator becomes very comfortable with ‘his/her’ EIA process and takes ownership. Roles become entrenched; job descriptions are adjusted accordingly, checklists and planning steps with an intricate structure of committees and levels of decision-making are developed.

The expectations of the public under the legislated process are for a decision making process which incorporates opportunities ‘to be heard’ before decisions are made.

⁸ <http://www3.gov.ab.ca/env/protenf/approvals/factsheets/approv.html>
<http://www3.gov.ab.ca/env/water/approvalviewer.html>

Decisions and the Alberta EIA process – provide all relevant information

The Alberta EIA process (figure 2) has the customary steps, found in other jurisdictions, such as:

- Initial Project Review, # 1 to 4 (deciding in house if an EIA is required).
- Screening, # 5 to 7 (deciding on the need for an EIA with public input).
- Scoping, # 8, 9 (what the EIA should address).
- Assessing, # 10 (project impacts on the environment, mitigation, residual impacts).
- Reviewing, # 11 to 13 (one or more cycles of clarification and additional information being requested and provided; recommendations as to the significance of impacts) until the EIA is ‘complete’ plus hearings.
- Decision # 14 by an independent Board if the project is in the public interest and subsequent approval # 15. This decision usually includes conditions.

The proponent needs to find out if an EIA is required (# 1-6.9), supply a project description and the proposed terms of reference (# 8), notify the public that its input is welcome (# 8.1), observe the final instructions (Final Terms of Reference issued by Alberta Environment, # 9), have the EIA report written accordingly (# 10), assure a public and regulatory review by publishing the report (# 9.1), respond to requests for supplementary information from the public (# 11.1) and the regulator (# 11) and prepare for and participate in public hearings (# 13).

Public input must always be considered and requirements for initiating and assuring that this input is received are laid out from the screening phase to the public hearing and beyond during any subsequent approval (# 15) and appeal process. There are different roles for the proponent (initiator of an activity), the regulator and the public. The public is invited and can contribute to the decision to screen a project into the EIA process (# 6.1; 6.5). It can add issues after seeing the proponent’s project description and proposed terms of reference (# 8.1); participate in the assessment and review phases of the project (# 11.1) and the public hearing (# 13.1). There is a provision for funding to prepare for and appear at the public hearing.

The key decisions of the regulator are to ensure that an EIA is warranted (# 2 – 6.6) and all potentially significant issues are included in the

Final Terms of Reference (# 9). The EIA is declared 'complete' (# 12) after a thorough review and further information requested from and supplied by the proponent (# 11). Finally, the regulator prepares for and participates in the public hearing to bring all relevant information to the attention of the decision makers for their decision about the proposed project being in the public interest or not.

Figure 2 demonstrates that the regulator, the proponent and the public each have a distinct role in the EIA process. Delays can be caused by a lack of baseline data, overlooking an emerging issue, and the insufficient involvement of the public, for example in the scoping of the proposed project. The provincial government is committed to both an efficient and effective EIA process. All pertinent information must be brought before the decision maker and the public hearing so that decisions on the proposed project will be effective and no significant aspect of the project, impacts and mitigation are overlooked. In the Alberta EIA process, proponents are encouraged to start with early and open discussion of their project with all stakeholders including the general public. This discussion will include issue definition, appropriate baseline data collection, public participation and identification of regulatory requirements. Some proponents are capable of performing these tasks to the extent that all matters, which could possibly be of concern, are resolved. Perhaps the most successful recent example was a hazardous waste landfill project when not a single letter was sent to the media or ministers and there was no call for a formal public hearing. Public acceptance of the project was helped because there was a potential regional problem with the waste from several small areas (drilling sites from the past), which the landfill was to address (waste collection, separation and safe disposal or storage). The proponent introduced state of the art measures and had all project aspects pre-assessed by one of the leading environmental NGO groups in Alberta – the Pembina Institute, a cross-Canada organisation, who happen to have their head office in the home community of the proponent, near the landfill.

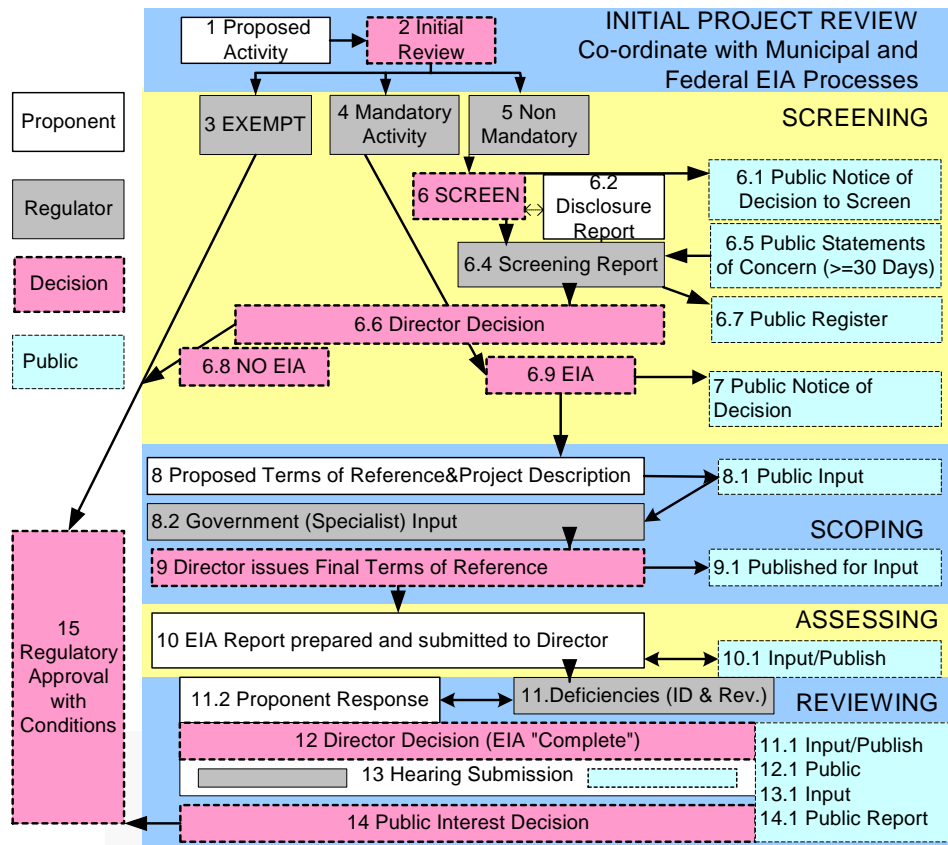


Figure 2. The Alberta Environmental Impact Assessment Process 2003

Acting as the universal conscience

In Canada, EIA legislation is observed in each province and territory and – in Alberta – also at the municipal level, in the City of Edmonton through by-laws for developments in the North Saskatchewan River Valley. The City of Edmonton is unique in having a formal municipal EIA process in Alberta.⁹

⁹ Federal link: http://www.ceaa.gc.ca/0009/index_e.htm Provincial links: http://www.ceaa.gc.ca/0006/prov_e.htm http://www.gov.edmonton.ab.ca/planning_dev/planning_policy_services_branch/environmental_planning.html

All EIA reports and legally required documents of the review process are part of the public record. This includes the review results from all levels of government, stakeholders and any letters from the public. The expectation is that justice must be seen to be done. The public has high expectations that environmental protection and sustainable development will occur in full public view in a legally transparent process. This starts with the regulator encouraging the proponent to inform the public as early as possible about the project and work with the stakeholders. The regulator also needs to ensure that opportunities are provided for the public to become familiar with not only the potential impacts but also the management tools for dealing with them to ensure environmental protection and sustainable development.

Projects that require approval or evaluation under federal jurisdiction (e.g. under the Federal Migratory Birds Act), those with federal funding or projects where there is joint federal/provincial jurisdiction, are subject to the federal environmental impact assessment process as well as the provincial or any territorial processes. The reason for 'dual' federal/provincial legislation is the shared jurisdiction over the environment. Additionally, the province has jurisdiction over resource management. The discussion about how environmental responsibility is executed, practiced and harmonized – is ongoing.

Across Canada, each EIA report and review has a very good chance of coming before an independent panel or board at the federal and/or provincial level. Experts present information from the EIA report and supplementary information and their evidence is subject to cross-examination. So, the EIA report and process provides information for the decision makers and the credibility of the EIA information is the subject of the hearing as well. Federal-provincial cooperation agreements are in place for all parts of Canada or are under renegotiation (e.g. in the western-most province of British Columbia). The agreements provide opportunities for coordination of the information requirements; they create channels of communications and lay out responsibilities. This ensures a streamlined and efficient process for environmental assessments. It avoids unnecessary duplication and confusion in particular for public participation. In all of Canada, public involvement is required at least by guideline. In the Alberta and in the Canadian federal process, public participation in the EIA process is not only required by guideline but also prescribed in legislation. Joint hearings and joint Federal Panels/Provincial Boards can satisfy federal and provincial legal requirements simultaneously. Two such hearings are scheduled this fall for oil

sands developments. There will be joint federal provincial boards/panels following the joint EIA review of the projects.

The decision of the federal panel and the Alberta provincial board are routed as follows: Federally, the panel recommends to the minister leading the particular project review if the project impacts can be mitigated or if the project has significant residual effects, which will likely cause the minister *not* to issue an approval.

In Alberta, the provincial boards – the Natural Resources Conservation Board (NRCB) for renewable and the Energy and Utilities Board for energy projects (EUB) – will hear all the evidence provided by the proponent, the potentially affected public and the regulator regarding a project undergoing the EIA process and then render a decision.

Alberta provincial legislation allows the Minister of the Environment to call for an EIA – even if none is required by regulation or screening decision. The Minister can also terminate a project proposal at any time by advising the proponent that no approval will be granted (for example denying the proposal to make ice cubes out of a glacier or introducing a major recreation development in a provincial park).

Be neutral and follow the law

Under the traditional project EIA, the regulator acts primarily within the framework of enacted legislation and within the regulations under the legislation. A regulator must be impartial and fair and cannot appear as an advocate or opponent for a particular project. In the case of government projects undergoing the EIA process, such projects are placed under one department or under an independent agency. Other departments, under the leadership of Alberta Environment, will be responsible for the review.

The results of the EIA review from all stakeholders are presented to an independent and sometimes specially constituted panel – which has to be neutral and be seen as being neutral by all stakeholders and at arms length from government. For energy projects, the EUB has a long-standing history of being such a board. The NRCB was created for renewable resources following the experience with some potentially controversial projects.

The continued success of the EIA process and that of the EUB and NRCB can be measured in the continued community acceptance of this process. It is also measured in the environmental improvements of a project from its original concept plan (description/proposed terms of reference) compared to the ‘post EIA-report project’ with mitigated impacts through environmental improvements to assure sustainable development.

With the enactment of legislation for environmental impact assessment for the explicit purpose of assuring sustainable development, we

observe a shift from the traditional project EIA to a policy driven process. This shift has been particularly successful in the forestry sector. Water quality objectives were established for river systems with public input and the participation of all stakeholders. The area pulp and paper mills were required to achieve these objectives (e.g. dissolved oxygen levels in the river that received the treated effluent), make a commitment that they would be able to do so in the EIAs and had to adhere to the objectives because of approval conditioning, monitoring and enforcement. The objective driven EIA process is well suited to generate improvements in the state of the environment and achieve sustainable development objectives under the leadership of the cross ministerial Sustainable Development Coordinating Council of Deputy Ministers (these are the highest ranking civil servants in each ministry).

Provide opportunities for more efficient and effective use of information and decision-making processes

The 1993 regulations outline what projects have to undergo mandatory EIAs and those that are exempt. The regulations provided clarity; they set uniform limits for projects in particular industry sectors. In 2003 and over eighty EIAs later, our knowledge base has increased and we may wish to re-deploy our efforts to reflect this. We understand the risks and what needs to be done about them better – particularly with regional monitoring and a regional strategy for sustainable development in place. Policies and objectives are developed to assure environmental quality. This better understanding and increased database is triggering a new look at the regulations and assessment/approval processes to streamline decision-making. All regulations in Alberta are subject to sunset clauses and have to provide an assessment of their environmental impact to be considered for renewal.

A second new approach is being pioneered by the federal Canadian Environmental Assessment Agency under the title ‘Model Class Screening Report’. Similar projects are assessed as a group and/or all development affecting a particular area, for example in Banff, a resort in the Rockies within the National Park of the same name.¹⁰ Subsequent indi-

¹⁰ Federal Government – Banff (in Banff National Park) Model Class Screening Report. The screening of some routine projects may be streamlined through the use of a class screening report. This kind of report presents the accumulated knowledge of the environmental effects of a given type of project and identifies measures that are known to reduce or eliminate the likely adverse environmental effects. The Agency declares such reports appropriate for use after it takes into account comments received during a period of public consultation.

vidual project applications can be dealt with under the umbrella assessment and do not require individual project assessments.

Be innovative to allow for new ways to deal with impacts and impact management

This opportunity is perhaps the most difficult to deal with. Estimating the ratio of successful innovation to other attempts at innovation leaves one only with the conviction that we must keep trying. Some very practical synergies may be possible through, for example, combined effluent treatment (industrial/municipal). However, from here on in we cannot deal with only one partner without the potential to severely affect the other.

We have a new discipline, adaptive management (in essence seeking continuous improvement – building our expectations as our understanding of environmental science and technological opportunities increase). Alberta has chosen to decentralise environmental assessment and review to bring it closer to the region, where potential impacts are to be managed. Strategic aspects of environmental assessment and policy matters are dealt with cooperatively.

Deal with new issues and limitations of the process

Summing up the collective experience with individual project EIAs, we can measure the overall success of the EIA process by the attempts or demands to apply the process to new issues – problems looking for solutions. Imitation, after all, is the most sincere compliment.

Historically, the EIA process has been used to introduce the precautionary principle in a formal way. The EIA process has also been an excellent tool to bring stakeholders (including the public) together and provide them with a non-adversarial process for information exchange. In the case of controversial projects (hazardous waste, commercial recreation in parks), the process has been particularly useful in understanding the tolerance limits of both the environment and the public.

The traditional EIA dealt with uncertainty – it was not enough to follow the prescribed air emission or water effluent standards, the proponent had to predict impacts and propose mitigation. There is the shift from the traditional project EIA with its toolkit of alternatives, baseline data, project impacts and the evaluation of residual effects for their significance to a policy driven process with objectives, indicators and monitoring as the cornerstones. Any uncertainties are dealt with at the policy

http://www.ceaa.gc.ca/0009/0004/0006/pc030630_e.htm

level in Alberta; public consultation through the public review of position papers, the formation of expert advisory task forces and opportunities for discussion at conferences. Elected officials and Cabinet committees have the authority over all new policies, strategies and programme initiatives that may impact on the environment and sustainable development. In Canada, concern with SEA has been part of an explicit federal policy, the Strategic Environmental Impact Assessments, 1999 Cabinet Directive (Federal Guideline) calling for the self-assessment of the environmental impact of strategic measures of federal agencies.¹¹

Emerging framework of strategies for sustainable development

Before 1999, Alberta had legislation dealing with the allocation of water, but this legislation only set out priorities for water use.¹² It did not address the issue that there was a finite capacity for the amount of water for human, industrial or irrigation use while respecting in stream flow needs for fish and wildlife. The limits to the environmental capacity to sustain development had been recognised, e.g. through the Northern River Basin Study, and the four-government (British Columbia, Alberta, North-West Territories and Canada) commitment to cap environmental loadings.¹³ The discussion of capacity continues with the development and public review of Alberta's Water Strategy, *Water for Life: Alberta's Strategy for Sustainability*.¹⁴

A similar strategic direction has emerged for air sheds.¹⁵ Several regional air shed non-profit associations have been formed in Alberta. These are composed of diverse stakeholders from government, industry, and non-government organisations, such as health and environment groups. 'The primary responsibility of a multi-stakeholder air quality management zone is to develop a management plan to deal with air quality concerns in the region. The issues are defined broadly, reflecting the vision and principles of the Clean Air Strategic Alliance. The success of a zone is largely dependent on the co-operation and dedication of all stake-

¹¹http://www.ceaa.gc.ca/0011/0002/dir_e.htm

¹² <http://www3.gov.ab.ca/env/water/Legislation/WaterAct.html>

¹³ <http://www3.gov.ab.ca/env/water/nrbs/response/index.html>

¹⁴ Alberta <http://www.waterforlife.gov.ab.ca/> *Water for Life: Alberta's Strategy for Sustainability* is the Government of Alberta's new water management approach. The draft strategy outlines key directions, specific strategies and actions to manage Alberta's water resources more effectively: 'Fluctuating and unpredictable water supply has stressed the need to make some major shifts in our approach to managing this renewable, but finite, resource.'

¹⁵ <http://www.casahome.org/>

holders including governments, industries, environmental organizations and the public.’¹⁶

A renewal in how decisions are reached and allow different stakeholders to agree to a common view of the future

In Alberta, the EIA process has been practiced using two approaches:

- The science based precautionary EIA process where impacts are evaluated against baseline data.
- The policy oriented EIA, where objectives are met, indicators are established and monitoring takes place.

The policy oriented EIA shifts assessment from work on the precautionary principle to proof of due diligence. Decisions required to satisfy the precautionary principle are dealt with during policy development under the guidance of elected officials. The discussion about acceptable risk and direction for sustainable development has led to the 1999 document, Alberta’s Commitment to Sustainable Resource and Environmental Management. The document sets out a shared vision for sustainable development, provincial direction for the public, industry and government as to how Alberta’s resources are to be managed and protected, effective decision-making and an up-to-date legislative/regulatory regime.¹⁷ The Alberta approach to sustainable development includes a commitment to continued dialogue with Albertans.

¹⁶ <http://www.casadata.org/zones/index.asp>

¹⁷ <http://www3.gov.ab.ca/srd/info/sustainable.pdf>.

Enhancing the ‘substantive’ effectiveness of EIA

A case for the reform of the EIA research agenda?

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Abstract: This research critically reviewed current knowledge on the substantive outcomes of EIA (i.e. its contribution to design and consent decisions, and sustainable development) to identify future research priorities. There is remarkably little empirical research on the substantive outcomes of EIA, but it indicates that EIA is generally perceived to exert a ‘moderate’ influence on both design and consent decisions (e.g. Wood & Jones, 1997; Sadler, 1996). When assessed against specific, result-orientated criteria (e.g. its contribution to minimising adverse impacts), however, the outcomes of EIA appear limited. It is suggested that greater research attention should be devoted to analysing decision processes and decision-makers’ needs (broadly defined) in the development of a decision-orientated theory of EIA. The research agenda must also address more adequately the plurality of substantive outcomes of EIA: including, its contribution to institutional capacity development and to changing value systems (Bartlett & Kurian, 1999; Cashmore *et al.*, 2004).

Keywords: Environmental Impact Assessment, effectiveness, theory, decision-making, research.

Introduction

Environmental Impact Assessment (EIA) is a decision tool employed to identify and evaluate the probable environmental consequences of certain proposed development actions. The first formal EIA system was established in 1970 by the US National Environmental Policy Act (NEPA). Despite its brevity and apparent simplicity, not to mention the numerous problems encountered in implementing its goals and aspirations, NEPA was innovative, visionary and radical. Not only did it establish in EIA

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what could be considered an essentially new form of environmental management, but it also articulated concerns that were formalised some 15 years later in definitions of sustainable development (Sadler, 1996).

Nonetheless, those involved in formulating NEPA could not have anticipated the global impact it would have. EIA procedures have been adopted by more than 100 nations and by numerous bilateral and multilateral aid and funding agencies (Petts, 1999a). The rapid internationalisation and institutionalisation of EIA led to NEPA being described as one of the major policy innovations of the twentieth century (Bartlett, 1988). It is also viewed as having caused the greatest international impact of any US legislation (Caldwell, 1998). However, the speed at which EIA emerged and spread internationally produced predictable limitations in procedural provisions for, and effectiveness of, EIA systems in different jurisdictions. Thus, while there is a general consensus that EIA has led to enhanced consideration of environmental factors in decision-making, its achievements appear most favourable when compared with past neglect and failings, rather than when measured against sustainable development goals (Caldwell, 1993).

One argument advanced to explain the observed limitations of EIA is that the theoretical basis of the subject is poorly defined and inadequately developed (Lawrence, 1994, 1997). The administrative framework for EIA emerged from a political imperative, not a scientific background, and practice commenced prior to the development of adequate scientific capacity (Lee *et al.*, 1995; Rosenberg *et al.*, 1981). Theory originated primarily from evaluative research and the adaptation of theoretical frameworks taken from the numerous disciplines EIA encompasses. The resultant 'state-of-the-art' EIA some three decades later has been described as an uneven mixture of planning theory, traditional scientific theory and discipline-specific social, economic and biological theories, with the conceptual whole amounting to considerably less than the sum of all parts (Lawrence, 1997).

The apparent neglect of EIA theory does not reflect a paucity of EIA research. There is a voluminous literature on EIA, a considerable proportion of which focuses on the issue of effectiveness (Sadler, 1996). However, research has tended to concentrate on the practical and procedural aspects of EIA, rather than the substantive purposes, substantive outcomes and the advancement of theory. Frost's (1997, p. 141) comment that '*it is almost as if those involved with EIA would rather concentrate on the procedures than dare look at the end result*' appears particularly apt.

Furthermore, in certain jurisdictions with comparatively advanced EIA systems it is increasingly recognised that the principal constraints on effectiveness relate to issues of purpose rather than inadequate legislative provisions or poor practices (Deelstra *et al.*, 2003). Technical issues, whilst significant, amount to less of a barrier to effective EIA than issues pertaining to its role and form in relation to societal debates that fundamentally concern values and priorities (Caldwell, 1991; Deelstra *et al.*, 2003; Beattie, 1995). Implicit in this statement is an assertion that a comprehensive understanding of the purposes of EIA, and the causal pathways which can be utilised to achieve these purposes, are prerequisites to effective practice (Doyle & Sadler, 1996; Cashmore, 2004). Yet while the research agenda has broadened considerably over time (Wood, 2003), most notably to encompass more holistically all aspects of the social sciences, the process of EIA continues to overshadow its substantive purposes (Caldwell, 1993; Ensminger and McLean, 1993). This article thus aims to contribute to the advancement of the theory, practice and (ultimately) effectiveness of EIA, through a critical review of what is known about its substantive outcomes, and an assessment of the consequential implications for the EIA research agenda.

The substantive purposes and outcomes of EIA

It might be presumed, given that EIA is an established and globally practised decision tool, that a reasonable consensus exists concerning its purposes, and this is certainly the case at a generic level of consideration³. It is broadly accepted that the basic intention of EIA is to anticipate the significant environmental impacts of development proposals before a commitment is made to a particular course of action (Morgan, 1998; Wathern, 1988; Wood, 2003). The information generated by this predictive process contributes (broadly defined) to the environmental design of development proposals and the formulation of decisions on whether, and potentially on what terms, development consent should be granted. Since the late 1980s, these goals have increasingly been portrayed as the proximate aims of EIA (Sadler & Jacobs, 1989; Sadler, 1996). In the longer term, anticipatory assessments should collectively contribute to a more sustainable form of development, wherein an equitable balance is achieved between economic, social and environmental imperatives (Glasson *et al.*, 1999). These aims are collectively referred to as the substantive purposes of EIA in this article.

³ It is when more detailed consideration is given to the precise meaning of these superficial statements of purpose that the consensus disintegrates (Cashmore *et al* 2004).

The principal findings of empirical research concerning the substantive outcomes of EIA identified through a review of the literature are summarised in Table 1. The data focuses on the contribution of EIA (variously defined) to consent and design decisions because there is a paucity of research on the substantive contribution of EIA to sustainable development goals. It is important to emphasise, when considering the influence of EIA on decisions, that the process is usually intended to affect a number of decision processes (e.g. design and consent processes) and many individual decisions (e.g. screening, scoping and significance evaluation decisions) (Glasson, 1999; Weston, 2000; ten Heuvelhof & Nauta, 1997). Furthermore, EIA only occasionally forms the basis of the consent decision (e.g. in Western Australia); more frequently, findings from the EIA process are considered alongside information on the economic and technical case for the development, and relevant development policies (Wood, 2003; Glasson et al., 1999). It is also difficult to formulate generalisations based on these results due to, *inter alia*, differences in research methodologies, varying interpretations of the precise way in which EIA should contribute, and the limited quantity, and restricted geographical spread (i.e. predominantly Eurocentric), of the research. Nevertheless, the data clearly indicates that the majority of stakeholders surveyed believe EIA does influence consent and design decisions, but to varying degrees.

In relation to the influence of EIA on consent decisions it would appear that while EIA does affect these decisions, the contribution typically made is moderate (i.e. categories such as 'some', 'important' or 'medium') rather than substantial. A general trend of moderate influence is also evident in research concerning the effect of EIA on project design, although the results are more ambiguous. A number of studies have found that modifications are made to project design, either before or after submission of the EIA report, in approximately one half to two thirds of cases in the UK (Kobus & Lee, 1993; Lee *et al.*, 1994; Frost, 1997; Wood & Jones, 1997). It appears that this might be broadly representative of practices in a number of jurisdictions. For example, stakeholders surveyed in the International Study of the Effectiveness of Environmental Assessment indicated that EIA was felt to be 'very' or 'moderately' influential in affecting project design in 56% of cases and EIA was found to have caused design changes in 52% of plans and projects sampled in a study of practices in the Netherlands (Sadler, 1996; ten Heuvelhof & Nauta, 1997).

Evaluations of the effectiveness of EIA, however, appear considerably more favourable when based on broad definitions of substantive

outcomes (e.g. contributing to consent and design decisions) than when assessed against more specific, result-orientated criteria (Emmelin, 1998). For example, Wood and Jones (1997) report that more than one third of planning officers stated environmental issues were the overriding consideration in decision-making and EIA had a 'substantial' or 'considerable' influence on their recommendations (37% and 35%, respectively). Yet in only one case (3%) did a planning officer believe the consent decision would have been reversed if an EIA had not been undertaken. A substantial number (47%) of planning officers felt that EIA made no difference at all to the consent decision, whilst the remainder (50%) suggested that although the decision would not have changed, EIA produced other benefits. These benefits pertained to the provision of additional information for consideration in decision-making and the provision of information that could be used to establish consent conditions.

These findings are broadly reflected in the results of the International Study of the Effectiveness of Environmental Assessment (Sadler, 1996). Overall, 69% of respondents thought EIA had a 'very' or 'moderately' influential affect on decisions. The data in Table 2, however, illustrate that EIA was relatively inefficient at ensuring: impacts were minimised; irreversible impacts were avoided; and, sustainable development was facilitated. Furthermore, EIA was considered 'always' successful at informing decisions and preventing damage that would otherwise have occurred in a relatively small proportion of cases (28% and 16%, respectively). This study also highlighted the important role of EIA in establishing conditions governing the construction and operation of developments: EIA was thought to be 'very' or 'moderately' influential in establishing consent conditions by almost three quarters of respondents (72%).

Similarly, EIA may result in the modification of many projects, but there is evidence that the modifications are relatively minor in many instances. Environmental analyses appear to predominantly result in the 'fine tuning' of designs and proposals for impact mitigation, rather than fundamentally affecting such issues as location (see, for instance, Kobus & Lee, 1993; Sadler, 1996). The actual influence of EIA on project design might be more substantial than is implied by this data, as there is evidence that the presence of an effective EIA system acts as a deterrent against proposals for intrinsically environmentally unsound developments (Netherlands Commission for EIA, 1996; Glasson, 1999). It is thus somewhat paradoxical that, whilst this would indicate EIA is having a significant preventative effect, such an influence would be extremely difficult to accurately quantify.

It is important to emphasise that the accuracy of data concerning the influence of EIA on decisions is uncertain given that there can be no objective quantification of influence and no unequivocal standard for deeming a decision right or wrong. Furthermore, there is evidence that EIA stakeholders may overstate the influence of EIA when asked questions concerning its broad outcomes. For example, Wood and Jones (1997) observed that where EIA was stated to have more than a marginal influence on a decision, this was not reflected in decision makers' summary reports on development proposals. Furthermore, despite environmental factors being deemed the single most important factor in the consent decision, the eventual impact of EIA on consent decisions, as discussed previously, appears limited (Wood & Jones, 1997).

Decision-orientated EIA theory and EIA-orientated decisions

The literature indicates that the influence of EIA on consent and design decisions in the UK has been '*gradual rather than revolutionary*' (Wood & Jones, 1997, p. 1254), and there is evidence (mostly anecdotal rather than empirical) that this conclusion is probably representative of the influence of EIA in a number of other jurisdictions (Sadler, 1996; Lee, 1995; Wood, 2003). It appears that rather than altering the substantive outcomes of authorisation decisions or avoiding irreversible perturbations, EIA exerts a subtler influence by affecting stakeholders' perceptions through the provision of information (McDonald & Brown, 1995; Bartlett & Kurian, 1999). It is also used, and perhaps with increasing regularity, to establish the parameters within which a development can operate (Wood & Jones, 1997). Comparable findings are evident in research on the influence of EIA on project design: rather than promoting genuine consideration of a wide range of fundamental alternatives, EIA, at least in some jurisdictions, results in comparatively modest 'fine tuning' of developments. Thus, it often appears to operate more as a tool for negotiation than a preventative mechanism in that it assists decision makers superficially to reduce the negative consequences of development and maximise the benefits (Abaza, 2000). This analysis supports assertions made by Bartlett and Kurian (1999) and McDonald and Brown (1995) that EIA functions predominantly as a passive tool for information provision and, as such, is relatively inefficient and ineffective. Yet there is limited evidence that decision makers believe EIA should have a significantly greater influence than it does at present (Gwilliam, 2002).

These findings do not necessarily mean that an information provision model of EIA based on rational decision theory is *de facto* ineffec-

tive at promoting sustainable development. Conversely, neither does the existing research necessarily support the oft-cited conclusion that EIA is having a largely positive influence, but its effectiveness could be improved through such factors as enhanced resource allocation, process strengthening and commitment to methodological innovation (e.g. Sadler, 1996; Doyle & Sadler, 1996; Wood *et al.*, 2000; Barker & Wood, 1999). As Emmelin (1998, page 139) provocatively suggests '*[w]hat else would one expect an emerging profession to state?*'

Rather, it is hypothesised that the primary barriers to enhancing the contribution made by EIA to project design and consent decisions are its passive integration with decision processes (in particular, the emphasis placed on the production of a stand-alone EIA report) and the parochialism of EIA research. The importance of improving the centrality of EIA to decision processes has been recognised (e.g. Wood, 2003), but too often this has been viewed as a problem to be addressed through increased political support (Wood, 2003), reform of planning practices (McDonald & Brown, 1995) or stronger EIA legislation (Leu *et al.*, 1996). Whilst these are valid assertions, there is also a need to consider how EIA itself can evolve to interact and interface more effectively with decision processes. Greater research attention must be given to such factors as: the nature and form of decision processes; the needs and requirements of decision makers, in terms of input timings and types; and, the broader institutional, political and socio-cultural context in which decision-making occurs. The development of decision-orientated theory, it is suggested, is an essential, but rarely considered, prerequisite to effective practices.

The limited amount of research attention given to the interactions and interfaces between EIA and decision processes is clearly evident in the literature. Although the rationalist underpinnings of EIA have always been acknowledged, albeit generally in a low key manner, it is only relatively recently that the strengths, limitations and implications of competing decision theories have been purposefully contemplated (e.g. Weston, 2000; Nilsson & Dalkmann, 2001; Krønøv & Thissen, 2000; Bond, 2003). It is self-evident that the development of decision-orientated environmental assessment practices assumes greater significance at strategic tiers of decision-making (particularly at the policy level), but the principle is equally applicable to environmental decision-making for individual projects. This should not be interpreted as an argument against rational decision theory. As a minimum, however, proponents of the rationalist model must develop a more comprehensive appreciation of real-world decision processes if only, perhaps, to improve their rationality (Emmelin, 1998).

EIA procedures thus have been based overwhelmingly on a largely uncritical and implicit application of one particular decision theory. Similarly, the scientific method of EIA has evolved as a consequence of the dominance of certain philosophies of science amongst those individuals who contribute to the literature (Cashmore, 2004). The needs of decision-makers have received minimal attention in the development of process, procedures and methods, and the resultant theory of EIA is unlikely to be particularly efficient or effective at contributing to decision processes.

EIA research can also be criticised for focusing excessively on the consent decision and neglecting the requirements of developers and their design teams. It is recognised that administrative procedures in many jurisdictions limit EIA to the role of an audit tool based implicitly on a false assumption that the design process will remain in stasis while the EIA report is being prepared (McDonald & Brown, 1995; Brown & Hill, 1995). The resultant scientific 'snap shot', no matter how comprehensive or detailed, can rapidly become redundant due to the iterative nature of project planning (Frost, 1997). It is also highly unlikely that this model of EIA makes a particularly efficient or effective contribution to sustainable environmental design and engineering practices (Abaza, 2000).

It is not suggested that EIA theorists have been entirely incognisant of the needs of decision-makers. There has been a moderate level of speculation in the literature about how EIA can better address the requirements of decision makers (and particularly those responsible for consent decisions) and a major international conference (IAIA'02) was convened around this issue in 2002. Suggestions for improvements cover procedural (e.g. the importance of scoping), technical (e.g. the development of improved modelling techniques) and communication issues (e.g. the importance of concise reports and writing as a narrative) (Sadler, 1996; Duinker, 1985; Bendix, 1984; Miller, 1984; Gwilliam, 2002; Crawley, 2003). Yet the suggestions appear to be based primarily on the perceptions of the EIA community, with little empirical investigation having been undertaken of how they are received by decision makers themselves. The research literature has been dominated by environmental assessment practitioners '*communicating amongst themselves*' (Nitz & Brown, 2001, p. 329).

The importance of stakeholder involvement to decision makers in the UK is an issue that clearly emerges from certain studies. Research has shown that consultation (to use the researchers' phraseology) on an EIA report and a planning application are generally perceived as slightly more influential than the information contained in the EIA report (Kobus &

Lee, 1993; Wood & Jones, 1997). There is limited evidence that the influence of consultation declined over time (Lee *et al.*, 1994; Wood & Jones, 1997), which may suggest that reliance on consultation reflected early recalcitrance to EIA in the UK, but further research would be required to establish whether this trend continued after the initial years of EIA implementation.

The emphasis placed on stakeholder involvement might reflect decision makers' desire to ensure that democracy is being 'seen to be done'. It might also reflect the issue of trust to a certain degree. Decision-makers possibly place greater trust in the opinions of consultees, who might be viewed as 'independent' and 'expert' in certain cases, than information contained in a report sponsored by the developer. Gwilliam's (2002) research provides support for this hypothesis in that it indicates many decision makers treat the results of EIA circumspectly due to concerns about bias. However, decision makers have been found to place greatest emphasis on the results of consultation with major interest groups and local action groups, rather than (technical) government agencies (Wood & Jones, 1997). The dichotomy between expert and lay input into the EIA and consent decision processes might not be as significant as has sometimes been supposed (Liebow, 1993).

In addition to the requirement to develop decision-orientated EIA theory, there is a concurrent need for purposeful consideration of capacity development in decision-making institutions; that is, the development of EIA-orientated decisions. Legislative provisions for EIA have often been introduced without due consideration of their institutional requirements in terms of organisational structure and staffing (Morgan, 1995; Dixon *et al.*, 1997; Duthie, 2001). This undoubtedly limits the capacity of EIA to contribute to decisions, but frequently has been viewed as an issue to be addressed by politicians and bureaucrats (Wood, 2003), not EIA theorists.

Yet it is conceivable that there are instances where developing institutional capacity might represent a more appropriate strategy for enhancing effectiveness than reform of EIA practices. For example, a frequently cited recommendation for good practice is to ensure EIA reports are written concisely and in a style which can be understood by the plethora of stakeholders affected by economic development (e.g. Department of the Environment, 1995; Weiss, 1989). This is partly a response to the encyclopaedic EIA reports produced in the USA to mitigate against litigation (Wathern, 1988) and the complex technical phraseology that frequently is employed in these documents (Gallagher & Patrick-Riley, 1989; Sullivan *et al.*, 1996). Research shows that decision makers rarely read the entire EIA report and that length and language are issues (Glas-

son *et al.*, 1999; Crawley, 2003). Gwilliam (2002), for instance, found that decision makers felt EIA reports were too long in 44% of cases and the principal constraints that prevented them reading more were time (41%) and technical expertise (46%). Focused documentation is extremely important, but it might be that improved resource allocation (in terms of the availability and expertise of personnel) is a more meaningful way of enhancing the substantive contribution of EIA to decision-making than concentrating solely on reducing complexity or length.

At a more fundamental level, however, the restricted contribution of EIA to decision processes, in part, might result from decision makers limited understanding of its purposes and potential. The 'moderate' contribution of EIA to decisions (see the previous section) could reflect an interpretation of EIA as a tool to provide *additional* environmental information. Improving effectiveness, therefore, might involve replacing the image of EIA as a tool for passive provision of additional information with that of a positive, dynamic and creative tool for environmental management (Abaza, 2000; Brown & Hill, 1995; Clark, 1999).

Conclusions

The issue of effectiveness has been an overarching theme of EIA research ever since this environmental management tool was first enacted (Sadler, 1996). Nonetheless, research has focused overwhelmingly on issues concerning procedure and process, and remarkably little is known about the degree to which EIA is achieving its substantive purposes.

The reasons why process and procedure have been prioritised over theory and purposes are undoubtedly multifarious. The interpretation by the US Supreme Court that NEPA, in essence, is procedural legislation (Woods, 2003) undoubtedly contributed to this phenomenon. Most other jurisdictions that have subsequently implemented EIA systems have also focused on procedural provisions rather than substantive outcomes. The preoccupation with procedure is also symptomatic of a more general problem affecting decision tools and processes: evaluation of substantive outcomes can produce uncomfortable results, with implications for individuals (Petts, 1999b). Of greatest significance, in respect of the objectives of EIA, is that its substantive purposes are difficult to translate into definable outcomes. It is not possible to determine whether a decision to grant development consent is 'correct' when there is no objective standard by which to do so (Willis, 1995). It is also complicated to define precisely what influence EIA should be expected to exert on various decisions.

This article has analysed those research studies that have focused on the substantive outcomes of EIA in an attempt to identify opportuni-

ties to advance theory, practice and (ultimately) effectiveness and identify priorities for the research agenda. It appears that, when questioned about the broad outcomes of EIA, many stakeholders state it typically exerts a moderate influence on both consent and design decisions (e.g. Wood & Jones, 1997; ten Heuvelhof & Nauta, 1997). When compared with more result-orientated evaluation criteria, however, the outcomes of EIA appear considerably more limited (e.g. Sadler, 1996; Wood & Jones, 1997). This does not mean that EIA is *de facto* ineffective, but it is suggested that passive integration with decision processes, in part a result of the preoccupation with the EIA report, has significantly reduced its substantive outcomes. Thus, design teams' information requirements over time have received minimal conceptual consideration and remarkably little empirical research has been undertaken on the 'needs' of those individuals responsible for the consent decision. Greater consideration must now be given to the development of a decision-orientated theory if EIA is to fulfil its theoretical potential for contributing to consent and design decisions, and to sustainable development. Conversely, however, it is equally important that theorists concurrently consider measures to promote more EIA-orientated decisions.

Nevertheless, some researchers (e.g. McDonald & Hill, 1995; Bartlett, 1986; Bond, 2003) contend that the greatest contemporary impact of EIA might result from its influence on causal pathways other than consent and design decisions. This may well be true, but it has clearly resulted from EIA practice not theory. It is, therefore, reasonable to contend that the contribution could be enhanced if greater attention was given to deliberate and purposeful targeting of a broader range of causal pathways, including institutional environmental capacity development and changes in the value and belief systems of developers and their design teams (see, for example, Bartlett & Kurian, 1999; Cashmore *et al.*, 2004). This will necessitate reform of the research agenda to encompass outcome-orientated research studies that are bedevilled with conceptual, methodological and analytical challenges for the research community (Bond, 2003). The importance of redefining EIA as a purposeful tool for sustainable development, it is suggested, necessitates that such challenges begin to be confronted.

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Table 1. The contribution of EIA to decision-making

Study	Jurisdiction	Basis of analysis	Contribution to the consent decision	Contribution to project design
Kobus and Lee, 1993	UK	22 EISs reviewed; 19 questionnaire responses; and, an unspecified number of telephone interviews.	0% 'very important'; 55% 'important'; no further data.	47% 'minor changes'; 11% 'major changes'; no further data.
Lee et al., 1994	UK	Utilised results of the above study in combination with previously unpublished work giving a total sample of 47 projects.	44% 'important'; no further data.	51% of projects modified; no further data.
Nelson, 1994	UK	30 consent decisions studied by questionnaire survey.	23% 'much assistance'; 60% 'some assistance'; 14% 'little assistance'; 3% 'no assistance' ⁽¹⁾ .	Not assessed.
Ministry of Housing, Spatial Planning and the En-	the Netherlands	Review of 10 EIAs and interviews with competent authority and development initiator.	<u>Visible effectiveness</u> : 20% directly or indirectly effec-	50% influence on project development; 40% no influence on project

<p>Environment and Ministry of Agriculture, Nature Management and Fisheries, 1994</p>			<p>tive; 50% ineffective; 30% uncertain. <u>Apparent effectiveness:</u> 40% directly or indirectly effective; 50% ineffective; 10% uncertain. <u>Perceived effectiveness:</u> 60% directly or indirectly effective; 20% ineffective; 10% uncertain; 10% no authorisation decision ⁽²⁾.</p>	<p>development; 10% not known.</p>
<p>Jones and Wood, 1995</p>	<p>UK</p>	<p>10 public inquiry decisions studied by questionnaire survey of planning inspectors and interviews with various stakeholders ⁽³⁾.</p>	<p>20% 'major weight'; 40% 'some' or 'moderate weight'; 30% 'considerable weight'; 10% 'substantial weight' ⁽⁴⁾.</p>	<p><u>Planning inspectors:</u> 0% of projects modified prior to or during the inquiry on the basis of EIA findings. <u>Developers:</u> 10% of projects modified prior</p>

				to or during the inquiry on the basis of EIA findings.
Netherlands Commission for EIA, 1996 (cited in Glasson, 1999)	International survey	Questionnaire responses received from 14 jurisdictions.	Not assessed.	<u>Approved with no/minor modification:</u> 0% of projects in 1 case; 1-20% in 4 cases; 41-60% in 1 case; 61-80 in 2 cases; 81-100% in 6 cases. <u>Approved with moderate/major modification:</u> 0% of projects in 3 cases; 1-20% in 5 cases; 41-60% in 1 case; 61-80% in 2 cases. <u>Rejected:</u> 0% of projects in 6 cases; 1-20% in 8 cases.
Sadler, 1996	International survey	324 completed questionnaires received from EIA stakeholders: 170 responses from members of the International Association of Impact Assessment, with the	23% 'very influential'; 46% 'moderately influential'; 25% 'marginally influential'; 2%	<u>Redesign of proposals:</u> 14% 'very influential'; 42% 'moderately influential'; 32% 'marginally influential'; 8% 'no

		remainder coming from EU EIA networks, UK local authorities and consultants, and New Zealand and Australian practitioners.	'no influence'.	influence'. <u>Siting of proposals:</u> 12% 'very influential'; 36% 'moderately influential'; 33% 'marginally influential'; 15% 'no influence'.
Wood <i>et al.</i>, 1996	Europe	Analysis of 18 EISs undertaken in the UK (6), Germany (6) and Spain (6).	Not assessed.	Modifications made in 95% of cases. 75% of UK modifications of 'major significance'; 'most' German modifications of 'moderate significance'; 'most' Spanish modifications of 'minor significance' ⁽⁵⁾ .
Department of the Environment 1996	UK	Interviewed 15 planning officers and 22 consultees.	<u>Planning officers:</u> 20% 'much influence'; 60% 'some influence'; 20% 'little' or 'no influence'; 0% 'don't know'. <u>Consultees:</u> 5%	Not assessed.

			<p>'much influence'; 32% 'some influence'; 27% 'little' or 'no influence'; 36% 'don't know'.</p>	
<p>ten Heuvelhof and Nauta, 1997</p>	<p>the Netherlands</p>	<p>More than 600 telephone 'questionnaire' responses from EIA stakeholders for 100 projects.</p>	<p><u>Direct impact:</u> 79% 'clear impact' (52% impact on development design and 68% impact on opinions); 21% no impact. <u>Indirect impact:</u> 65% indirect impact; 35% no indirect impact ⁽⁶⁾. <u>Net beneficial impact:</u> 14% 'large impact' 26% 'reasonable impact'; 30% 'small impact'; 30% 'no impact' ⁽⁷⁾.</p>	

Wood and Jones, 1997	UK	40 consent decisions studied by reviewing relevant documentation and interviewing planners, developers and consultants.	35% 'substantial' or 'considerable influence'; 26% 'some' or 'moderate influence'; 29% 'marginal influence'; 5% 'no influence'; 5% 'no comment' ⁽⁸⁾ .	21% of projects modified before or after EIS published; 31% modified solely prior to EIS publication; 16% modified solely after EIS submission; 32% not modified.
Gwilliam, 2002	England and Wales	58 questionnaire responses from planning officers in England and Wales. Follow-up telephone interviews with 10 planning officers.	28% (67%) 'large influence'; 46% (29%) 'medium influence'; 24% (2%) 'small influence'; 2% (2%) 'no influence'. ⁽⁹⁾	Not assessed.

Table 2. The contribution of EIA to environmental management

	Always	Often	Sometimes	Seldom	Never
Contributes to more informed decision-making	28%	42%	27%	3%	0%
Prevents environmental damage/ social losses beyond what would be achieved without assessment	16%	38%	38%	6%	1%
Minimises impacts of development 'to as low as reasonably practical'	5%	28%	44%	19%	2%
Avoids irreversible changes	3%	15%	50%	25%	4%
Ensures development is placed on a sustainable basis	4%	15%	39%	31%	9%

Source: Sadler, 1996

Notes referring to tables

- (1) Level of assistance provided by the EIA findings in reaching the consent decision.
- (2) Key: Visible effectiveness – impact reflected in project documentation and related sources; Apparent effectiveness – impact evident in documentation and from reconstructing the case; Perceived effectiveness – interpretation(s) of effectiveness made by stakeholder(s).
- (3) Subset of the sample discussed in Wood and Jones (1997).
- (4) Weight given to EIA findings in recommendations made by planning inspectors.
- (5) Different researchers examined practices in each of the three countries considered. Although a standardised review method was used, there is potential for inconsistency in the interpretations of the nature and extent of modifications. The results from a number of other Member States detailed in the annexes to this report are not considered here due to concerns about the methodology used and the accuracy of results.
- (6) An indirect impact was defined as one where EIA had an impact on processes other than those, which it was undertaken for (e.g. capacity development or changing value systems).
- (7) Net beneficial impact of EIA taking into consideration whether added value of EIA for decision-making processes adequately compensated for the costs and time involved. Sample of 98 EIAs because two development initiators were unable to answer the question.
- (8) Results relate to planning officers' perceptions of the weight given to EIA findings in drawing up their recommendations.
- (9) Those figures not in brackets relate to the influence EIA has in practice compared with (those figures in brackets) perceptions of the influence EIA should have.

The Influence of EIA for decision-making and the formulation of alternatives

*Pekka Hokkanen*¹

Introduction

Scriven (1991,¹) has defined evaluation as, *'the process of determining the merit, worth, and values of things'*. The growth in the popularity of environmental policy evaluations is well documented in many countries, with an increasing amount of evaluation studies in the environmental field now becoming available (see e.g. Mickwitz 2000). There is also increasing interest in environmental policy evaluations in the Finnish environmental administration (Hildén et al. 2002). This trend also includes a requirement to focus evaluations on policy instruments, such as environmental impact assessments. Policy instruments can be defined as: *'the set of techniques by which governmental authorities wield their power in attempting to ensure support and effect or prevent social change'* (Vedung 1998, 21).

The aim of this paper is to examine the influence of environmental impact assessment (EIA) procedures on decision-making in three projects. The main question relates to how the EIA process effects the formulation of alternatives of certain projects. In addition to the three reviewed cases, a theoretical framework of evaluation and theoretical models of influence relating to EIA-procedures are presented. The paper is based on the final report (Hokkanen & Kojo 2003) of the research project concerning the influence and the role of EIA for decision-making, financed by Finnish Ministry of Environment.

An evaluation is usually based on an input-output model, which can be seen as a heuristic tool including essential elements of public policy: inputs, administration, outputs and outcomes. Evaluation always requires the criteria, i.e. the viewpoint for the evaluation (see figure 1). There are several criteria available for evaluations (Hildén et al. 2002, 17-

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18; Nagarajan & Vanheukelen 1997, 18), though perhaps the most often used criteria are those of effectiveness and efficiency. It is also possible to use multi-criteria evaluation.

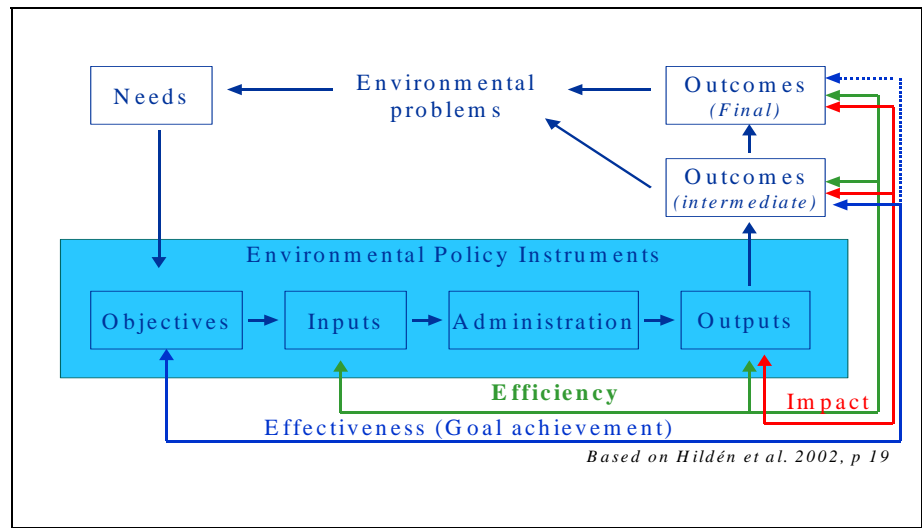


Figure 1. The input-output model of policy instruments. Examples of criteria for evaluation

In this study the chosen criterion is that of *impacts*. The most important question for this impact-criterion is, whether such impacts may be caused by the policy instrument in question. According to Rossi & Freeman (1993, 214) such impacts should be seen as net impacts caused by certain policies or policy instruments, after all other impacts are excluded. Thus the impact criterion links the outputs and outcomes of the input-output model (Kautto & Similä 2002, 3). The EIA process creates many kinds of outputs during the EIA procedure: EIS, reports, statements, written opinions, public meetings, etc. In evaluation approaches there is a clear difference between the terms ‘effectiveness’ and ‘effects’, which are easily misused and confused. The impact criterion concentrates on the impacts (outcomes) that outputs of policy instruments have caused, while the effectiveness criterion tests the correspondence between intended policy goals and achieved outcomes. As Sadler (1996, 37) has put it: ‘*effectiveness refers to whether something works as intended and meets the purpose(s) for which it is designed.*’

The cases that the study deals with are those of Fingrid Ltd's 400 kW power line between Muhos and the Swedish border, where the influence of the EIA is related to the provincial land use plan for northern Ostrobothnia; the Posiva Ltd's nuclear waste deposit, where the influence of the EIA is related to the statement by the local council in Eurajoki and to the government's decision-in-principle; and the Central Finland road district's project for improving trunk road 59, where the influence is related to road planning.

Theoretical framework and models of influence

The main problem with the chosen evaluation approach is the separation of different impacts. The challenge is thus to recognize those impacts that have been caused by EIA, and then to separate them out from other impacts. In this light, a theoretical framework based on a planning and decision-making process was used in the research project. This was then used as a methodological tool to analyse the dynamic of the planning and decision-making process, as well as to recognize different elements and levels of influence.

The decision-making process was divided into three time periods (*prior to, during, and after*, the EIA), and a comparison between these made it possible to pinpoint changes in the alternatives and the decision-making process of the project. In addition to the results of the EIA, the framework was also able to handle the main factors associated with the wider context. The framework includes two objects of influence; effects on the alternatives of the project and effects on the decision-making process. The evaluation focused on the micro level, such macro level and long-standing impacts as social learning were thus not included in the evaluation. The theoretical influence of the EIA on decision-making can be illustrated as in figure 3. This is a simplified description of the four main models (A, B, C, and D) of impacts relating to EIA.²

² Naturally, in practice, there are several variations and combinations of these models.

Table 1. The framework for the influence of EIA on project formulation and decision-making

	MICRO LEVEL The development of the project with regard to local decision-making	
	Effects on the alternatives of the project	Effects on the decision-making process
<i>Prior to EIA</i>	<i>A. Consideration of the environmental impacts</i> e.g. assessment of local features, former conditions and definition of the project	<i>B. Consciousness of environmental legislation obligations</i> e.g. timeout in decision-making, presentation of decision-making, other parallel processes
<i>During EIA</i>	<i>C. Practical advancement of the project</i> e.g. recognition and valuation of environmental impacts	<i>D. Adaptation of environmental legislation principles</i> e.g. consideration of environmental issues, make public participation and public debate possible
<i>After EIA</i>	<i>E. Adaption of the project to the local level</i> e.g. prevention or mitigation of environmental impacts	<i>F. Realisation of environmental policy</i> e.g. supporting decision-making, acceptability

In table 1, the direct impacts of EIA are shown as thin arrows, while the ongoing decision-making process is shown as a thick dark arrow. The central stream of influence flows from the main EIA documents into the preparation and the decision-making stages.³ It is important to notice the direct impacts occurring during EIA, which may have a very important indirect role for the formal decision-making. This phenomenon may be included in models A and C.

³ EIA Act (267/1999, 13 §) includes a formal note on how EIS and the statement of competent authority should be taken into consideration in the decision-making of different authorities.

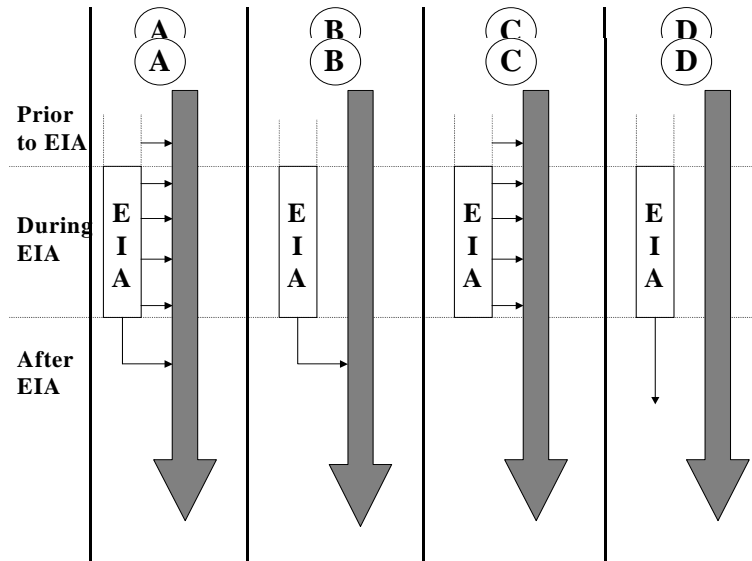


Figure 3. Theoretical models of the influence of EIA for decision-making

Model A emphasizes the influence of the outputs and impacts of EIA throughout the decision-making process. In other words, the EIA is closely integrated with the decision-making process and its impacts have an influence on all major actors in the decision-making process. In model A however it is possible that the EIA may have already induced such impacts before the commencement of the EIA-procedure.⁴ In model B however we can see that EIA only has a one-time impact. In such cases the EIA has influence only after the EIA-procedure and the target of influence is the formal decision-making procedure and the decision-makers themselves, not the preparation of the decision. The main factor in model B is that of the final output of the EIA, i.e. the EIS and the statement of the competent authority. In model B the EIA has been carried out separately from that of other planning and decision-making procedures. In

⁴ Expanding the evaluation process to the phase prior to EIA was a fruitful methodological solution. In this way it was possible to understand the planning history of the cases and the conditions under which the formulation of alternatives was connected to the juridical and historical context. As Steinemann (2001, 4) has put it: 'by the time EIA begins, analysts often face a narrow set of alternatives, determined by earlier decisions that often did not consider environmental effects'.

practice, model B seems to be a fairly unlikely occurrence. Thus, model B is seen as being highly theoretical in nature.

In model C the EIA may have influence on the formulation of the project, on the preparation of decision-making and on the actors taking part in the EIA, but the direct influence of the EIA does not reach into the formal decision-making process after the EIA phase. In model C, formal decision-making is based on factors from the political and economic context of the project while the role of EIA is more or less negligible. On the other hand, EIA may have had an important role during the EIA procedure in formulating the project and its alternatives. In such a situation, the influence of EIA on decision-making may thus seem indirect. In the fourth theoretical model the outputs of the EIA process do not have any kind of influence on the decision-making process. In model D, EIA has an isolated role without a direct impact on decision-making. There could be many reasons for such situation. One may be the lack of suitable links between EIA and the decision-making process. The definition of the project may be strong, and thus the stable definition dominates the whole process. The explanatory factor may also relate to the poor quality of the EIA or the unwillingness or incompetence of the decision makers to properly utilise the EIA.

The case study findings

The evaluation of three cases showed that the most important effect, prior to the EIA, was in all cases that of the projects' *anticipation*. In the power line case the most obvious effects were the discussions between the main actors concerning the utilisation of the results of the EIA, and the preliminary work of the developer to find the most suitable alternatives. In the nuclear waste case, 'anticipation' was clearly seen as the significant re-construction of relationships between developer and local decision-makers and inhabitants. In other words, the EIA transformed the planning style of the developer. The developer also determined the question of alternatives, which was clearly focused on the site selection between four candidate municipalities, not on the basic alternatives of nuclear waste management. In the road case the EIA procedure began at a favourable phase of the decision-making process while the alternative question remained open and without any dominant conditions. The main actors had a mutual understanding of the necessity of the EIA. In addition, the EIA was seen as a suitable instrument for the examination of all of the alternatives as well as for the assessment of the environmental impacts.

In all three cases, anticipation was seen as an integration of EIA procedures and decision-making and public discussion. In particular, the connection between the preparation with regard to the decision-making

and the formal decision-making was one of the key points in the power line and the nuclear waste cases. Nevertheless, the role given to EIA was rather different in each case. In the power line case the original plan was to address the choice of alternatives in the EIA, while in the nuclear case, the assessment of environmental impacts was emphasized instead of a comparison of alternatives.

During the EIA the main effect was that of comparison. In the power line case the provincial author decided to choose one alternative during the EIA procedure based on the EIA information. The comparison between three alternatives was made in the EIA. In the nuclear waste case the site selection was made beyond the EIA. Instead of EIA or assessed environmental impacts, the economic reasons and negotiations between the developer and Eurajoki municipality were the main factors in site selection. In the nuclear waste case the role of EIA was linked to the building of local acceptability. On the other hand the developer obviously wanted to use EIA as an informational policy instrument, which can be utilised in constructing social acceptability and in the control of the publicity surrounding such a sensitive project. The EIA delimits the public discussion to the detailed questions of the impacts generated rather than the fundamental issues relating to the alternatives to nuclear waste management.

The EIA procedure of the road case was based on the examination of alternatives. During the EIA the environmental impacts of the two main alternatives was conducted in the light of the ongoing public debate. The developer was thus able to react to new information and to public opinion, which produced strong pressure to transform the then existing plans. In practice, a new compromise alternative and road line was produced in the context of the EIA without any parallel or competing arenas of planning.

After the EIA the most relevant influence of EIA was the justification of existing plans and decisions made during the planning process. One can see that in the power line and the nuclear waste cases that the important selections and decisions had already been taken during the EIA. In such a situation, formal decision-making merely confirms previous decisions. In both cases the social impacts of the decision, and public opinion were presented as important reasons for the taking of such decisions. In other words, social impacts and public views assessed and collected in the context of the EIA provided the main arguments deployed by the developers in both cases. Even if the conclusive decisions in the nuclear waste site selection were made in other arenas, rather than in the EIA, the EIA nevertheless showed to developer which candidate munic-

pality displayed the largest social acceptability among inhabitants and decision-makers. During the ‘national level decision in principle’ process, the status of EIA was even more insignificant than in local level decision-making.

In the road case the EIA was used to justify decisions already made by the developer in road planning. The new alternative, generated by the EIA, was however finally included in the road plan and decisions. The significant difference between the road case and two other cases is the timing of the decisions taken. In the road case the developer chose the final alternative long after the EIA. The essential effects of the EIA in the case studies discussed here are collected in table 2 including the three-time period of the evaluation

Table 2. The influence of EIA in each of the case studies

	The power line case	The nuclear waste case	The road case
Prior to EIA (anticipation)	<ul style="list-style-type: none"> • ‘a contract’ concerning the role of the EIA • preliminary examination of technical alternatives 	<ul style="list-style-type: none"> • controlling the public-city • connecting the EIA to the planning of ‘basic model’ 	<ul style="list-style-type: none"> • preliminary formulation of road line alternatives • linking the EIA to the decision-making process
During the EIA (comparison)	<ul style="list-style-type: none"> • absorbing of alternatives to the land use plan • the alternative choice of the developer 	<ul style="list-style-type: none"> • examination between candidate municipalities • building social acceptability 	<ul style="list-style-type: none"> • a new compromise alternative • the identification of the polarisation of environmental impacts
After the EIA (justification)	<ul style="list-style-type: none"> • the alternative choice of land use authority • justification • subjects for follow-up examinations 	<ul style="list-style-type: none"> • justification 	<ul style="list-style-type: none"> • alternatives for follow-up planning • justification

There were significant differences in attitudes to the EIA procedure as an instrument for planning and decision-making across each of the cases. This makes it clear that the role of EIA is by no means fully established, and that its influence depends on the context of decision-making. The history of each project also suggests preconditions for the formulation of alternatives. In the power line case the EIA provided a natural arena for the discussion of alternatives because of the common preconception of main actors concerning the role of EIA. The developer and the authorities achieved a mutual understanding such that alternatives to the power line were to be assessed in the EIA. In the nuclear waste case the developer made conclusive decisions and choices in other arenas outside that of EIA. Even if the developer itself emphasised that the final choices and decisions were made in the 'decision in principle' phase, site selection had already been made during the EIA-procedure, and thus the role of EIA, as an arena for formulation of alternatives was not particularly effective. In the road case the developer and the competent authority held similar views as to the necessity and the role of EIA as a planning tool. The utilisation of the outputs of EIA was natural in the situation where there was no strong pressure for decisions. In other words, the timing of the EIA was successful as regards the influence of the EIA.

The most significant factors behind the emerging differences between the cases are thus the context of the decision-making and the planning history of each project. In particular, the economic interests and legislation play a key role in evaluating the influence of the EIA (Hilding-Rydevik 2001). In the power line and the nuclear waste cases the EIA-procedure was integrated with the representative decision-making system, where the relationship between developer and decision-makers becomes more important than that between developer and citizens. In both cases the strong definition of the project eliminated the effects produced during the EIA procedure. If the developer was not ready to see the basic elements of planning under discussion in the EIA procedure, then the phase prior to EIA is conclusive for the formulation of alternatives. In other words, one of the most important questions relates to, what the developer actually includes in the EIA, i.e. what are the issues to be assessed. EIA has a better chance of having an influence on the possible alternatives if the planning process preceding the EIA is open in nature and does not bring to a close the definition of the project. Disagreement concerning the object of EIA and the definition of the project thus emphasizes the relevance of SEA in large development projects. Without the SEA the project EIA may be too weak and too late an instrument to effect the basic alternatives and environmental impacts.

Conclusions

The EIA legislation is based on the idea that EIS and the statement of competent authority are the documents that affect formal decision-making. In addition to this view, the most relevant and important information and opinions with regard to environmental impacts are collected in these documents. This assumption of the influence of EIA is nevertheless however imperfect.

The analysis of the three projects highlighted here shows that influence is not a one-time impact occurring after the EIA procedure, but rather that its effects are manifest all along the decision-making process. The EIA influences the EIA process such that alternatives are prognosticated, compared and justified. With regard to the formulation of alternatives and to the consideration of environmental effect, it seems that the direct influence of EIA on the preparations for decision-making are even more important than its direct influence on decision-making itself. Asplund and Hilding-Rydevik (1996, 190), for example, argue the same point, namely that the main impact of the EIA is in the preparation phase. When the empirical findings of the case studies are examined together with the theoretical models, one can see that 1) EIA is the most effective instrument during the EIA-process, i.e. the EIA has a significant influence on the preparation of decision-making, and 2) there are only small direct effects on formal decision-making, while model C (figure 3) is usual way for EIA to have an effect on decision-making. The dynamic of influence was as in model A in the road case, but in the power line case and in the nuclear waste case model C is the most descriptive.

If the planning of the project has occurred over a long period, and formal decision-making is close, it is obvious that it is more likely that the EIA is used to strengthen choices and decisions already made. The EIA can be seen as a legitimating instrument of decision-making. On the other hand, if the EIA is located in the earlier phase of the open planning process, it can be seen as a prognostic planning instrument of the varying interests of different actors. The risk of the first alternative is that of the exploitation of the EIA for a certain project alternative without reasonable comparison, as happened in the nuclear waste case. An example of latter alternative is that of the road case, in which the EIA was simply used to challenge the alternatives set out in the early planning phase.

Even if formal decisions are not made in EIA, the EIA procedure can turn out to be a far more notable decision-making instrument than one may initially think possible. The main actors of the EIA can make such choices and definitions during the preparation of formal decision-making that the 'final result' of the EIA is only one alternative to be ap-

proved in the formal decision-making process. In such a situation, the purpose of the EIA becomes something else than that of strengthening decision-making with many equal assessments of the environmental impacts of different alternatives. In this light, it is a misconception to view that no decisions were made in the context of the EIA. Instead, from the viewpoint of the formulation of the project and its alternatives, decision-making should be seen as a much wider process than merely that of the formal judgement. In addition, criticism relating to the ineffectiveness of EIA is often based on too narrowly focused an evaluation. Usually, EIA effects through the preparation phase which occurs before the formal decision-making and when the direct impacts to formal decision-making seem to be invisible. This also emphasises the role of the competent author as a guarantor of the influence of the EIA.

Primarily then, EIA affects the formal decision makers through the interpretations made by the developer (EIS) or the competent authority (summary of public opinions and its own statement). The competent authority in particular has a central role, as does the developer, who may however try to effect the interpretations of decision makers by its activity.⁵ The EIA is just one source of information for decision makers who have many alternatives to look at, such as the EIS and the statement of the competent authority. The verifiable quality of the EIA procedure is without doubt one way to minimise controversial interpretations and to improve the comparison between project alternatives, but the high quality of the EIA procedure cannot guarantee the influence of EIA on decision-making alone. At the end of the day the influence of EIA is dependent upon the whole political context and all other factors influencing the design, contents and the outcome of the decision-making process.

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⁵ For example, in the Posiva case the developer sent directly to the local, provincial and national decision makers' information concerning the final disposal of nuclear waste, and arranged some special meetings for members of municipality councils.

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EIA in Parliament

Environmental sustainability and Norwegian offshore petroleum developments

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Abstract: This paper investigates the influence of recommendations from the Parliamentary Energy and Environment Committee and the debate in Parliament on the environmental sustainability of all petroleum field developments on the Norwegian Continental Shelf.

Environmental matters gained more attention in the Parliament after the restructuring of the committee system in 1993 and the transfer of responsibility for the petroleum PDO to the new Energy and Environment Committee, which replaced the Industry and Energy Committee in this regard.

Another important finding is that the Parliament has changed the focus of environmental attention from concern mainly with 'blow out' and discharges into sea in the two first election periods towards emissions into air in the third and fourth periods. Disagreement between committee members has also increased during the two latter periods.

The paper ends with a discussion on the circumstances and institutional arrangements that will respectively promote and hamper Parliament's involvement for environmentally friendly petroleum field developments.

Keywords: Environmental impact assessment, petroleum projects, Norway, decision-making.

Introduction

The Norwegian Parliament approved thirty Plans for Development and Operations (PDO) of petroleum fields on the Norwegian Continental shelf during the period 1985-2002. The total capital investment exceeded 100 billion euro. The consideration of environmental issues (EIA) is an integrated part of the approval of the PDO.

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The overall subject of this paper is the influence of the parliamentary handling of the PDO on the environmental sustainability of the petroleum offshore developments. The subject of sustainability is in this context delimited to two environmental matters: (1) the emission of carbon dioxide (CO₂), nitrogen oxides (NO_x) and volatile organic compounds (VOC) and (2) the discharge of cuttings, produced water (containing oil) and chemicals into the sea. These two issues with their concomitant impacts are, in addition to acute discharges into the sea (blow out), viewed by both governmental bodies and environmental stakeholders as the most important environmental issues for the offshore petroleum industry. The departure questions posed are:

- Does the parliamentary handling of the PDOs have any influence on the environmental sustainability of the offshore petroleum developments?

The investigation covers PDOs submitted to parliamentary handling for a period of 17 years (more than four election periods). This means that five different parliamentary committees have considered PDOs. The factual and political context regarding social (e.g. employment rate), economic (e.g. oil price) and environmental issues have also changed during the investigation period. In searching for explanations for the nature of Parliament's handling of the PDO two assumptions are forwarded:

1. Parliamentary decision-making with regard to environmental matters reflects the stability (or change) of institutional frameworks (tradition, laws, committee and agency structures).
2. Parliamentary decision-making with regard to environmental matters reflects the actual economic and political situation in the Norwegian petroleum industry (oil price, discovery rate, employment situation).

Section three elaborates upon these assumptions, outlining the theoretical perspectives and methods used for the investigation. The following section (section two) describes the formal handling and decision-making process for offshore petroleum developments. The actual documentation of the parliamentary handling of the PDO and the answer to the question of the influence of parliamentary decision-making on the sustainability of offshore petroleum developments is the content of section four. Section five discusses these findings in relation to the theoretical assumptions. The paper ends with a discussion on the issue of what circumstances and institutional arrangements will respectively promote

and hamper Parliament's involvement in sound environmental petroleum development.

Decision-making procedures for offshore petroleum developments

Before opening up new areas on the Norwegian continental shelf to exploration activities, the Norwegian Parliament undertakes, in accordance the Petroleum Act, an overall evaluation of the environmental considerations, i.e. fisheries interests, the interests of other affected industries and the benefits of extracting oil and gas. The evaluation is based on impact studies, which have been circulated for comments to public interest groups. Areas where it is deemed that the drawbacks outweigh the benefits are subsequently not opened up to exploration activities. Parliament can also impose special restrictions on certain areas in order to limit conflicts of interests between environmental and fishing interests.

Once an area has been opened up to exploration activities, blocks in the area are made available on offerings organised by the Ministry of Petroleum and energy (MPE). Production licences are awarded to the companies that the government, on the basis of an overall evaluation, believes can best realise the estimated assets of the area. After commercially viable finds have been located, the next phase is that of field development and operations to realise the natural resource assets. Before the participants taking part in the production licence can develop a discovery, the Petroleum Act requires that the authorities approve a plan for development and operation (PDO). As a part of the PDO process, the developer must submit an Environmental Impact Assessment (EIA).

Procedures concerning public approval of petroleum projects

Public approval of a project is usually combined with a list of the various requirements and conditions that the project is supposed to meet. EIA constitutes one important basis for making such conditional decisions and covers both environmental impacts (emissions into air and discharges into sea (including uncontrolled ones such as blow-outs), impacts concerning natural resources (fisheries) and social impacts.

The flow-chart illustrates the formal process of conducting the EIA, the review and consultation process and the decision-making process concerning both the EIA and the PDO.

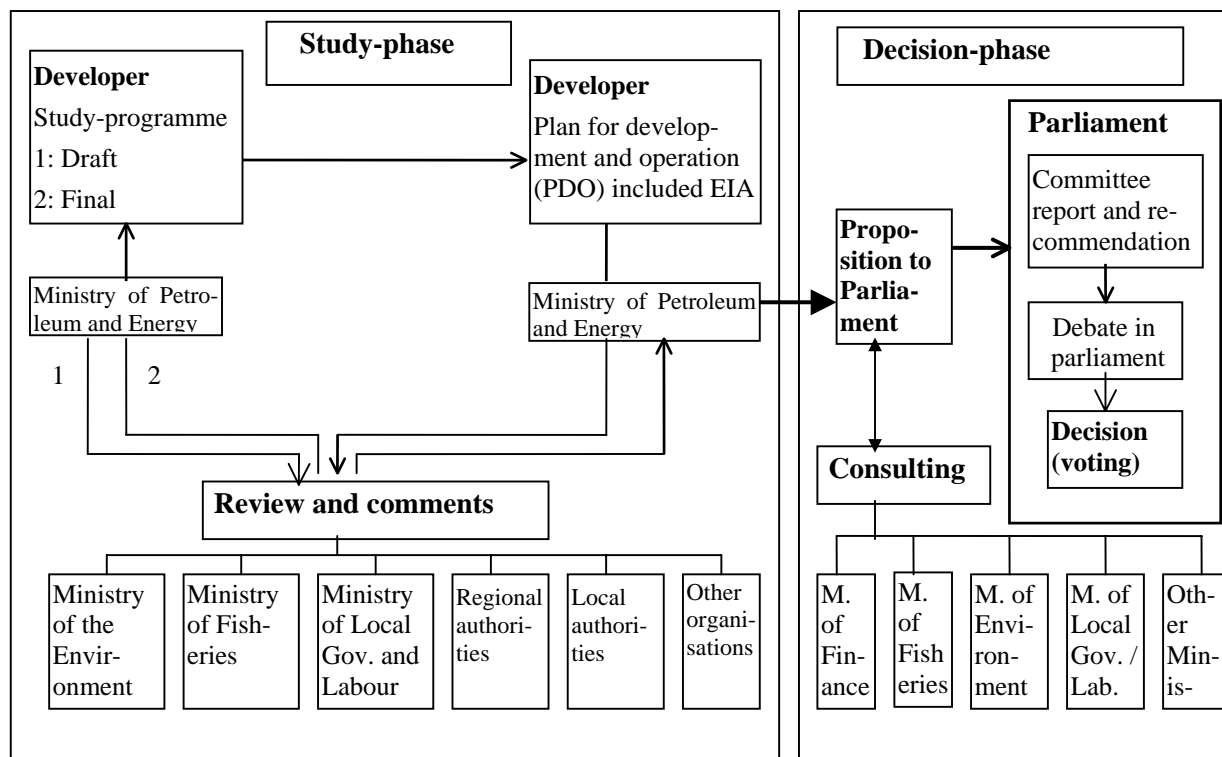


Figure 1. Formal procedure for EIA, public review and decision-making²

² The figure is based on guidance documents from MPE March 1987.

The flow chart below illustrates the formal study- and decision-phase a plan for development and operation (PDO) of a petroleum field should follow.

The study-phase consists of the following elements:

1. The developer prepares a draft study programme (what questions will the EIA cover?) and submits the programme to the Ministry of Petroleum and Energy (MPE). The draft study-programme is then submitted for comment to the relevant ministries, regional and local authorities and the NGO. The final study-programme is then, on the basis of the comments obtained from the consultation bodies and remarks from the MPE, prepared by the licensee.
2. The next step is the preparation of the EIA by the licensee. The EIA is submitted to the MPE who submits the document for a second round of consultations. On the basis of the comments thus obtained the MPE states whether or not the EIA fulfils the requirements. If not, additional reports must be made by the licensee.

The decision-phase consists of the following elements:

1. In co-operation with other ministries the MPE prepares the proposition to Parliament based on comments from all of the relevant bodies, the EIA and the PDO. The Government formally submits the proposition to Parliament. Various questions regarding the impacts on the environment, natural resources (fisheries) and society that the implementation of the plan and its relevant condition will create are discussed at this stage.
2. The Parliamentary Energy and Environment Committee provide its own report concerning the PDO and its conditions for approval.
3. Finally, there is a general parliamentary debate regarding the project and its attached conditions, which are presented in the proposition and the recommendation from the committee. A final decision is made, based on votes for alternative proposals.

Parliament completes the procedure with the principal decision as to whether the project (field development or pipeline) should or should not be approved. Inherent to this principal decision are many conditions regarding different aspects of the project development, for instance approval of estimates of the production rate, technical solutions regarding the type of platform and treatment processes, and how the oil and gas are to be transported to the petroleum refinery.

In addition, decisions will be taken about the conditions that the project has to meet in order to avoid or minimise negative or undesirable impacts on the environment, the fisheries industry or society. Such conditions may consist of special technical solutions or procedures that must be met.

The sections above dealt with the formal procedures regarding the consultation processes prior to the decision phase and the decision procedure. In the section that follows, different theoretical principles on decision-making will be discussed. The purpose here is to illustrate the variations in how decisions (about the conditions that the project has to meet) can be explained.

Theoretical perspectives and assumptions

There are many theories that deal with decision-making. The development of assumptions is based here on two broad theoretical perspectives that are useful in explaining and understanding decisions. The first perspective is that Parliament's decision making with regard to petroleum developments and the incorporation of environmental requirements will be economically rational. The assumptions are further that the decisions in Parliament will reflect the actual economic context for the Norwegian petroleum industry. In this perspective it is assumed that Parliament acts strategically by taking into consideration both the specific economic circumstances and the ability different petroleum developments have to comply with environmental requirements. General economic factors of significance for the petroleum industry and the willingness to invest in field developments are:

- *Oil price* (a low oil price or the expectation of a low oil price will reduce profit feasibility and also the ability to implement expensive environmental requirements)
- *Employment level in the Norwegian petroleum industry* (a low or declining level will increase the pressure on Parliament to approve petroleum development without requirements that can imply a postponement, or in the worst case, no development)

The discovery rate (the magnitude and the number of new oil and gas discoveries) or the expectation of discovery can also influence the decision-making process. A high discovery rate will result in an increasing expectation of new field developments and in increasing petroleum employment and as such is, to a certain degree, included in the employment factor.

Organisations are, in the strategic economic perspective, regarded as instruments to achieve objectives and not as an independent explanatory factor for decisions. In the theory of organisational and political science, organisations have a much more vital role to play when it comes to explaining decisions³. Through the new institutional perspective⁴ attention is directed upon the organisations that participate in the decision-making process. The decisions and actions of organisations are explained by formal rules, the legal framework, gained experience / established action patterns, and norms and values linked to how one should act in certain situations. Broad assumptions drawn from this perspective are:

- Stability in the institutional setting for the parliamentary decision-making process with regard to petroleum developments will result in similarity in decisions.
- Major changes in the institutional setting for the parliamentary decision making process with regard to petroleum developments will result in changes in the decision-making pattern.

Empirical results

During the period 1985-2002 (more than four Parliament-election periods) a total of 44 plans for development and operations (PDO) of petroleum fields on the Norwegian continental shelf were approved either in the Parliament (30) or by the Government via royal decree (14).⁵ All of the field developments approved in Parliament are included in our investigations although a few of these have investments below the upper limit for governmental decision. Seven of the field developments were approved in the first parliamentary election period (1985-89), eight in the second (1989-93), seven in the third (1993-97), seven in the fourth (1997-2001), with a further one being approved thus far in the present election period. The empirical data basis of the research includes both documents and interviews and comprehends the total sample of development plans.

³ In relation to the decision-making processes that EIA is a part of, this perspective does appear particularly relevant since these decision-making processes take place within a regulatory framework of stable procedures and legal rules, and with a stable set of participating organisations. In this perspective the documents (study programmes, EIA, PDO, comments, review, propositions to Parliament, Parliamentary committee recommendations) and the process both in the study phase and the decision phase constitute an institution.

⁴ See f.ex. PoWell, Walter W. and DiMaggio, Paul J (red.) 1991, March, James G. & Olsen, Johan P. (1989) or Koelble, Thomas A. 1995.

⁵ The government has the authority to make decisions regarding field developments if the investment amounts to less than NOK 5000 millions (1996 prices).

The main sources for each field development are however (1) the propositions to Parliament, (2) the committee's report and (3) minutes from the parliamentary debate.

In order to assess whether Parliament had any influence on the sustainability of these offshore petroleum developments or not, the first step is to investigate the wider issue of Parliament's attention to environmental matters. The second step is then to further assess whether the proposals and decisions made by Parliament had any influence on the technical solutions for the developments.

Attention in Parliament to environmental issues

Figure 2 illustrates the amount of space allocated to environmental aspects (proposals and comments) in the committee report on the different field developments.

Figure 2 illustrates that the committee emphasised environmental aspects to a much larger extent in the periods after 1993 than in the two preceding periods. (Note that the intervals get larger as one move from left to right in the figure. This means that the increase in the attention given to the environment is actually larger than it might at first seem.)

In the committee's report with regard to the seven oilfield developments handled in the parliamentary period 1985-89, environmental issues were not mentioned at all; neither in the preliminary discussion of the development projects nor in the comment and proposals section. In their recommendations, the committee focused *inter alia* on economic issues and on the location of the support functions for the fields (Sleipner East, Snorre and Draugen).

The government's proposition regarding these field developments includes a summary of environmental consequences (regular and accidental emissions into the sea) and the consulted Ministries' comments. On average, a little less than one page from an average total of 22 is allocated to the presentation and discussion of environmental issues in the propositions. All of the governmental propositions suggest that environmental concerns may be addressed further in the committee deliberations. This may involve a discussion of *divergence* between the environmental evaluations conducted by the operating companies on the one hand, and the Ministry of the Environment and the Ministry of Fisheries on the other. In addition, it may incorporate the comments made by the consulted institutions regarding *deficiencies* in the operating companies' evaluations, which implies an inadequate response to the evaluation requirement. The committee's lack of reaction to this type of disagreement

Field Development	Year	Total N of pages	Number of pages in committee's report containing remarks and proposals regarding environmental concerns							
			0	0 - ¼	¼ - ½	½ - 1	1 - 2	2 - 4	4 - 6	> 6
Troll I	1986	2								
Sleipner Øst	1986	2								
Gyda	1987	2								
Veslefrikk	1987	2								
Snorre	1988	20								
Draugen	1988	14								
Brage	1990	4								
Statfjord Ø/N	1990	2								
Heidrun	1991	14								
Tordis	1991	1								
Loke	1991	1								
Troll II	1992	6								
Frøy	1992	2								
Sleipner Vest	1992	4								
Norne	1995	8								
Njord	1995	4								
Visund	1996	6								
Åsgard	1996	6								
Troll Vest	1997	8								
Oseberg Sør	1997	4								
Jotun	1997	3								
Snorre 2	1998	2								
Gullfaks Sat 2	1998	1								
Huldra	1999	2								
Ringhorne	2000	2								
Kvitebjørn	2000	2								
Grane	2000	18								
Kristin	2001	19								
Snøhvit	2002	22								

Figure 2. Number of pages for environmental issues in the committee's report

and inadequacy may be further explained by the fact that the Ministry of Petroleum (MPE) usually comments upon the operator's positive environmental involvement (participation in environmental surveys etc) in the propositions, or that the MPE will investigate these issues further in co-operation with the Ministry of the Environment.

A further eight oil and gas field development cases for the *parliamentary period 1989-93*, are included in our comparative analysis. Two cases in particular had their associated environmental considerations addressed by the committee in this period. The first concerned the issue of how to handle the gas from the Heidrun field (re-injection and storage or leading it ashore for further processing). The greenhouse gas question was discussed in a wider policy context and became the key issue in the discussion of alternative utilisation methods. The recommendation was however more concerned with how Norway could meet its international obligations and less with specific CO₂-abatement measures. Such issues were however addressed in the next case, Troll II, where the committee considered the possibility of reducing CO₂-emissions by means of supplying the field with electricity generated onshore. The attention given to the CO₂ issues resulted from an initiative from the Christian People's Party.

In other words, in the latter half of this parliamentary period we notice an increase in the amount of attention given to the greenhouse gas question in the energy and environment committee. Other environmental aspects of the oilfield developments and deficiencies in the operating companies' own evaluations were not however, emphasised.

In the committee's field development recommendations in this period, environmental concerns are not raised at all. In the Brage and Statfjord E/N cases, the propositions invite the committee to react to environmental questions in the form of relatively exhaustive overviews of impacts, diverging opinions on these, and deficiencies in the impact studies. The invitation is somewhat restrained in that the Ministry of the Environment and the Ministry of Fisheries' demands were met to a larger degree than in the cases put forward in the previous period. Loke is a small satellite field with only marginal environmental issues to discuss, and there are no comments regarding environmental matters in the proposition to Parliament. The committee was however invited to react to the development plan for Tordis by comments from the Ministry of the Environment on several matters though the committee did not have any comment. In the two last cases in the period 1989-93 environmental issues were not discussed in the proposition. The parliamentary committee was thus not invited to address the relatively forceful and extensive comments

concerning regular and accidental emissions into sea and air, which the Ministry of the Environment incorporated into the Sleipner West development plan.

In the *parliamentary period 1993-97*, environmental interest seems to 'erupt' in the recommendations from the new *committee on energy and the environment*. This occurs as early as the first recommendation concerning the Norne oilfield development. At least certain parts of the committee had shown a relatively strong environmental concern in the deliberations of the Report to Parliament no. 26 (1993-94) on challenges and perspectives for the petroleum activities.

The Norne field is the northernmost field development project on the Norwegian continental shelf. The field is situated in one of the most environmentally sensitive areas ever opened for oil and gas exploration. The recommendation from the energy and environment committee is appropriately enough centred on the environmental aspects of the development. Both the majority group and several minority constellations within the committee noted the project's consequences with respect to emissions into the air, besides regular and accidental emissions into the sea, and any abatement measures that might be considered. Individual committee members' stress – independently of each other – deficiencies in the operator's own environmental impact assessment, and choose to emphasise statements from consulted parties such as the Ministry of Fisheries, the Ministry of the Environment and different pressure groups.

The broad and detailed deliberation on environmental impacts found in the recommendation from the energy and environment committee is new in relation to the former committee's handling of the development cases. The new committee's focus is, to a large extent, on environmental aspects. The Norne case seems to be in line with other contemporary developments, both in relation to its character and to the quality of the evaluation. However, the criticism from consulted parties seems to be stronger than usual. The environmental impacts were accordingly a dominant factor in the ensuing parliamentary debate.

Common to all field developments in the period 1993-97 was the fact that environmental impacts, particularly emissions into the air of CO₂ and NO_x respectively, constituted the principal theme in the committees' recommendations. Approximately half of the committees' recommendations were dedicated to environmental issues.

The EIA-reports in this period (with the exception of the Norne-report) were acknowledged by both the Ministry of the Environment and the Ministry of Fisheries, in spite of the fact that they contained proposals for improvements regarding both the analysis and the technical solutions.

The approved developments in this period are, seen from an environmental point of view, of a better standard than developments approved in earlier periods. Although the need for the committee to act as a watchdog should be less, the empirical evidence illustrates that the opposite has in fact happened. The committee have used every opportunity to influence the developers planning in order to improve the environmental performance of the field development. The committee demonstrated a high degree of detailed knowledge with regard to environmental impacts and the measures needed to reduce them, and a strong willingness to change the field development. This was demonstrated either if the question was about measures to reduce emissions of CO₂ and NO_x or about measures for the treatment of oil contaminated water. The way in which the committee treated these petroleum developments seems to have had a constructive effect on the MPE, but also on the developers (oil companies).

Based on the number of pages dedicated to environmental matters in the committee's report to Parliament, it can be assumed that the attention paid to environmental matters has continued to rise in the two latter parliamentary periods (1997-2001 and 2001-2005) with the exception of the two first satellite developments. There are some critical remarks particularly from the Ministry of the Environment on the Snorre 2 development, but these comments were exhaustively answered in the proposition by MPE and the developer, thus the committee did not have any further comments on this development.

Characteristically for the committees' treatment of most field developments in this period is the fact that it has taken notice of the comments from the environmental stakeholders and the developer's effort to meet the environmental requirements. The answers from MPE (and the developer) to the comments from other Ministries or directorates were generally more comprehensive and direct in the propositions to Parliament in this election period than in previous periods. This change in the formulation of the proposition may thus have softened the need for specific reactions from the committee.

The majority of the committee members did not accept the invitation in most propositions to strengthen the environmental requirements of the developments. One specific exception to this pattern was the treatment of the Kristin development, where the committee set out a number of definite premises for the development and gave some recommendations. Generally the committee drew attention to a number of technical solutions for the reduction of CO₂- and NO_x-emissions, and on how to meet the new requirement on zero-harmful discharges into sea. A minority of the committee members were also occupied for a considerable pe-

riod of time in implementing CO₂-free power plants for energy generation on the platforms during this period.

Compared with the committees' active and instructive performance versus the specific petroleum developments in the last parliamentary period (1993-97) the committee's performance during this period has been based on the close monitoring of the developments with regard to compliance with superior directives and environmental targets.

Environmentally related proposals in the committee's report to Parliament

The above review demonstrates that environmental impacts associated with the oil and gas field developments were given far more attention in the report from the committee in the last two parliamentary periods than in the first two periods. The qualitative character of the attention from the committee has also changed. This can best be illustrated by looking at the proposals recorded in the committee recommendations. The table below includes proposals to reject or delay the development project, as well as other environmentally related proposals. The table illustrates that there was only one party – the Socialist Left – that, throughout the period 1989-93 actively 'opposed' certain field development projects, or who came up with more 'environmentally friendly' solutions. Both in this period and in that of 1985-89 the committee could almost be deemed as being ignorant with respect to the information provided in the government's propositions on the inadequate evaluation of the different environmental impacts carried out by the operator, besides the diverging opinions on these among the operator, the Ministry of Oil and Energy, the Ministry of Fisheries and the Ministry of the Environment respectively. It is possible to infer this as the committee did not make any effort to demonstrate its awareness of this matter.

Particularly in the period 1993-97, a lot more proposals were put forward in the committee's recommendations. The committee members from the Socialist Left, the Centre Party and the Christian People's Party were commonly seen as the proponents of the minority group recommendations. The Socialist Left alone moreover continues to maintain its 'no development' position, though the Christian People's Party and particularly the Centre Party argue in favour of delaying developments. The Christian People's Party is particularly active in the field of promoting environmentally friendly technology (with respect to emissions into the air). Several proposals were recommended to the government by a united Parliament.

Table 1. Environmentally – related proposals in the committee’s report

Field	Year	Delay development		No development		Other environment proposals	
		Proposed by*	Votes: For –Against	Proposed by*	Votes: For – Against	Proposed by*	Votes: For - Against
Tommeliten	1986						
Troll I	1986						
Sleipner E	1986						
Gyda	1987						
Veslefrikk	1987						
Snorre	1988						
Draugen	1988						
Brage	1990	Socialist Left	16 – 107				
Statfjord E/N	1990						
Heidrun	1991			Socialist Left ⁱ	12 – 112		
Tordis	1991						
Loke	1991						
Troll II	1992					Socialist Left ⁱⁱ	10 - 99
Frøy	1992						

Sleipner W	1992						
Norne	1995	Centre, Christian People's Party ⁱⁱⁱ	45 – 70	Socialist Left	13 – 102		
Njord	1995	Centre, Socialist Left	33 – 79				
Visund	1996	Centre	27 – 72	Socialist Left ^{iv}	8 – 91	Christian People's Party ^v	Submitted to the government
Åsgard	1996			Socialist Left	9 – 104	Centre, Christian People's Party ^{vi}	Submitted to the government
Troll II	1997					Socialist Left, Centre, Christian People's Party ^{vii} Conservatives ^{viii}	45 - 77 65 - 56
Oseberg S	1997	Centre, Socialist Left	34 – 88			Conservatives ⁸	65 - 56
Jotun	1997	Centre, Socialist Left	34 – 88			Conservatives ⁸	65 - 56

Snorre 2	1998						
Gullfaks Sat.2	1998						
Huldra	1999						
Ringhorne	2000	Socialist Left	6 - 90				
Kvitebjørn	2000						
Grane	2000					Socialist Left ^{ix}	5 - 100
Kristin	2001	Socialist Left ^x	12 - 86			Socialist Left ^{xi}	12 - 87

In the period 1997-2001, only committee members from the Socialist Left put forward proposals on either delaying developments or incorporating more environmental measures. One possible explanation for this absence of proposals from the Christian People's Party and the Centre Party could be that these parties held ministerial rank for most of this period.

Even though most of the proposals were turned down, and therefore cannot be judged to have influenced development plans directly, there are indications suggesting that the committee's strong environmental focus, particularly during the period 1993-1997 had an indirect influence on later projects. An official from the Ministry of Oil and Energy moreover gave us the impression that the Norne development was problematic for the Ministry, particularly due to the fact that statements from the Ministry of the Environment and the Ministry of Fisheries were used against the government's proposition.⁶ This is believed to be the one of the reasons why discussions of environmental impacts, statements of consulted parties and the ensuing actions received greater attention in later propositions from the government. The committee's focus on environmental impacts thus seems to have had a constructive effect on the Ministry and thereafter also on the operating companies. Several minority proposals also provoked the government into implementing environmentally friendly technology, and into deciding which evaluations were to be carried out.

According to employees in the State Pollution Control Authority and the Directorate for Nature Management, the energy and environment committee's environmental involvement contributed to making the environmental impact assessments more effective as an environmental policy instrument.⁷ It appears as if the committee through its general environmental commitment and specifically through its references to statements from the Ministry of the Environment's sub-authorities, as well as those from environmental organisations has enhanced the authorities' capacity to influence the operators' development plans.

Parliament's contribution to sustainable petroleum developments

While the amount of space used for environmental matters in the proposition to Parliament and the committees' report and minority proposals are indicators of the attention given to environmental issues, a majority proposal for an environmental requirement can be understood as a victory for

⁶ Interview in the Ministry of Oil and Energy, 15 November 1995.

⁷ Interviews in the State Pollution Control Authority 13 May, and the Directorate for Nature Management 14 May 1997.

the environmental interests. In most cases the majority proposals from the committee are approvals of the plan for development and operation (PDO). A PDO, where environmental measures and environmentally friendly technical solutions are included, can thus be looked upon as a declaration of support from Parliament to the environmental interests and thus as a contribution to more sustainable petroleum developments. In cases where the Parliament imposes even more environmental measures, the Parliament has contributed directly to more sustainable petroleum developments.

Parliamentary support for the requirements concerning discharge into the sea

The environmental requirements with regard to discharges into sea i.e. the discharge of mud, cuttings and produced water, have to a significant degree been fulfilled in all four parliamentary periods. One explanation for this is that it is the same authority (The State Pollution Control Authority) that makes demands and treats the discharge application from the developer. The investigation of the propositions to Parliament and the committees' report does however illustrate that the requirements have become stricter and more comprehensive over time. The use and discharge of oil phase drilling fluid and mud has gradually become prohibited, and the allowed quantity of oil in produced water has gradually been diminished. Re-injection of the oil contaminated water into the reservoir has in some cases been required. Parliament has supported this increase in the requirements particularly during the two latter parliamentary periods.

The focus in the latter period (1997 – 2001) has been directed on the containment of environmentally harmful chemicals⁸ and measures to reduce the discharge of this kind of pollution both for new developments and existing platforms in operation. In some petroleum developments such environmental measures imply large capital investments in the re-injection of produced water that not could be used to increase the pressure and thereby the oil recovery. Parliament has supported these requirements in principle. In the current author's opinion, Parliament has thus contributed to more sustainable petroleum developments, though the pro-activeness of this contribution can of course be discussed. At least some of the political parties (Socialist Left, Centre and partly also the Christian People's Party) have been active in their support for more envi-

⁸ The level of harmfulness to the marine environment of the discharge of produced water containing chemicals is uncertain, but the precautionary principle is used here.

ronmentally friendly developments concerning the reduction of harmful discharges into the sea.

Parliamentary support for the requirements concerning emissions into the air

The environmental authorities have not however been able to show the same ability, through the legal framework (laws and directives), to control emissions into the air as they have in controlling discharges into the sea. Formally the control of and permission to undertake emissions into the air from offshore petroleum developments has been conducted through the approval of the PDO.

The attention of the authorities regarding emissions from the offshore petroleum installations resulted in specific measures in 1990. In December 1990 a CO₂-tax was introduced for petroleum activities offshore. Beyond this there were no specific measures concerning emissions into air imposed on petroleum activity by Parliament in the periods 1985-89 and 1989-93. In connection with the treatment of white paper 41 (1994-95) on Norwegian policy for climate change and the emission of NO_x, Parliament decided on a number of requirements to be implemented in respect of new offshore petroleum developments, among them that the costs for re-injection of CO₂ from produced gas and platforms and turbines must be assessed. Another requirement was that a summary of the power demand and the costs of electrifying the platforms instead of using gas turbines should also be assessed. Through these general requirements, Parliament imposed significant pressure on the developers to find more environmentally friendly solutions, and thus made a contribution to more sustainable petroleum developments. But did the requirements stipulated by Parliament work? The table below illustrates the fulfilment of the above-mentioned requirements in addition to introducing a third requirement on the reduction of NO_x by low-NO_x turbines and burners.

Table 2. Environment requirements / measures regarding emission to air

Field	Year	Energy optimization / reduced flaring		CO ₂ -cleaning of exhaust / re-injection		Low NO _x burners / low NO _x turbines	
		Requirement	Measure	Requirement	Measure	Requirement	Measure
Tommeliten	1986						
Troll I	1986						
Sleipner E	1986						
Gyda	1987						
Veslefrikk	1987						
Snorre	1988						
Draugen	1988						
Brage	1990						
Statfjord E/N	1990						
Heidrun	1991						
Tordis	1991						
Loke	1991						
Troll II	1992	Consider	Partly ²⁾				Yes ¹⁾
Frøy	1992	Consider					
Sleipner W	1992		Partly ²⁾			Yes	
Norne	1995	Yes ³⁾	Partly ²⁾			Yes	Yes

Njord	1995		Partly ²⁾		No ⁵⁾	Yes ⁴⁾	Yes
Visund	1996	Yes	Partly ²⁾	Yes	No ⁵⁾	Yes	Yes ⁶⁾
Åsgard	1996	Yes ⁸⁾	Partly ²⁾	Yes	No ⁷⁾		Yes ⁶⁾
Troll II	1997	Yes	Partly ²⁾	Yes	No ⁹⁾		Yes ⁶⁾
Oseberg S	1997	Yes	Partly ²⁾	Yes			Yes ⁶⁾
Jotun	1997	Yes	Partly ²⁾	Yes		Yes	Yes ⁶⁾
Snorre 2	1998		Yes		Consider		Yes
Gullfaks Sat.2	1998	Not relevant because all emissions from production will occur at Gullfaks A and C					
Huldra	1999	No	Partly	Not relevant		Not relevant	
Ringhorne	2000	Yes	Partly	Yes	No	Yes	Prepare for
Kvitebjørn	2000	Yes	Partly	No	No	Yes	Prepare for
Grane	2000	Yes	Partly	Yes	No (cons.)	Yes	Yes
Kristin	2001	yes	Partly	Yes	No (cons)	Yes	Yes

- 1) Low NO_x-burners will be installed when these are available.
- 2) Energy optimising measures are proposed, electrification (cable from land) is considered, but was assessed to be too costly.
- 3) The possibility of electrification should be considered.
The Ministry of Environment asked the developer to consider the possibility of installing low NO_x -burners already in the start-up phase.
- 4) Re-injection of CO₂ in the reservoir is considered, but assessed to be too costly.
- 5) Preparation for low- NO_x burners in the turbines.

- 6) Cleaning of CO₂ from exhaust gas and deposit in the reservoir is considered, but cleaning technology has not yet been developed.
- 7) The developer was asked to assess the possibility of base parts of the power supply on combined power plants on the platform.
- 8) The cleaning of CO₂ from exhaust gas and deposit in the reservoir was considered, but too costly.

The table illustrates that no requirements were imposed on the developments during the first parliamentary period, and that the requirements first occurred in 1992 in relation to the treatment of the PDO for Troll. For PDO's in the latter two periods the requirements and also the planned measures to reduce emissions into the air were included for almost all of the developments, or at least such measures were considered. The table illustrates that the approved developments were more environmentally friendly during the latter two periods than during the first two. It can thus be argued that Parliament made a substantial contribution to this change both by deciding upon general requirements in the white paper and by following this up in decisions regarding the specific petroleum developments. The level of environmental support from Parliament could, of course, have been stronger, especially in the last parliamentary period, since the consideration of costs, cost-efficiency and the technological feasibility of these environmental measures did also result in some field developments without fulfilment of the requirements on reduced emissions of CO₂ and NO_x.

Explanations for the change in Parliaments' decision-making

The answer to the initial question posed: '*Does the parliamentary handling of the PDOs have any influence on the sustainability of the offshore petroleum developments?*', can from the result of the investigation documented in the previous sections be said to be *yes*. The influence of Parliament has however not been stable over all parliamentary periods. Particularly in the third parliamentary period (1993-97), though also in the fourth, Parliament was active in imposing environmental requirements on the petroleum developments. There are further differences between the active and on occasion, instructive decision-making that Parliament has exercised on the question of emissions into the air and the supporting approval of requirements regarding discharges into the sea. The differences between parliamentary support and active contribution with regard to these two environmental issues can however best be explained by the lack of a legal framework as regards the administration of regulating emis-

sions into the air⁹. The change in Parliament's contribution with regard to the sustainability of platform development remains however to be explained. Two alternative explanations will be investigated (1) stability and change in the institutional framework and (2) economic factors such as oil price and employment expectations in the Norwegian petroleum industry. There are also many other possible explanations that have not been investigated, for example that the general consciousness regarding environmental conditions has increased substantially as regards public opinion or the pressure from international green agreements and conventions on the politicians.

Institutional explanations

During the four parliamentary period's one major change in the institutional framework has occurred, namely the reformation of the parliamentary committee system in 1993. An important element of the committee reform in 1993 was the setting up of a new *Standing Committee on Energy and the Environment*. In the former committee on energy and industry, petroleum issues were coupled with industrial policy. The members of this committee were responsible for matters within the scope of the Ministry of Petroleum and Energy and the Ministry of Industry. The new committee took over matters that had been dealt with by the former standing committees on Energy and Industry, and on Local Government and the Environment. According to § 12 of the parliamentary Rules of Procedure, the new Standing Committee on Energy and the Environment is responsible for matters related to petroleum activities, hydroelectric power, environmental protection, regional planning, etc. This could mean that the members in the new committee would be responsible for specific solutions that took care of conflicting interests such as the environment and industrial development.

The system of standing committees, with its detailed regulations regarding the responsibilities of the committees and their members, is characterised by highly specialised decision and access structures. Nearly all decisions made by the Parliament are based on recommendations from one of the standing committees. MPs are members of one – and only one – standing committee. The committees have fixed areas of specialisation. In other words, a limited set of participants with more or less firm interpretations and ideas regarding problems and solutions are responsible for the preparation of matters dealt with by the Norwegian Parliament. This

⁹ Another explanation could be the increasing global attention on the climate issue and the pressure on reducing CO₂-emissions. The Norwegian follow up after the Brundtland report came out in 1988.

could explain the limited protest on approval of the PDOs in the Parliament during the first and particularly in the second parliamentary period. (It was nobody else's business).

The functioning of committees can be assessed on the basis of the degree of unanimity versus dissent. A substantial increase in the level of dissent in the recommendations of the Norwegian parliamentary committees in the 1980s and 1990s indicates the poorer functioning of the committees. The parliamentary party groups seem to have strengthened their position at the expense of the committees. There is little doubt, however, about the fact that the standing committees still play an important role in the Parliament.

The first thing that strikes one is the simultaneity of the major change in the committee system and the growth in environmental awareness, attention and supportive decision-making. Thus the change of responsibilities in the committee system after the 1993 election could provide an explanation for the change in support for more sustainable petroleum developments. The fact that only a few (three) of the members from the former committee on energy and industry continued in the new committee on energy and the environment could however also be a part of this explanation.

Strategic economic explanations

The assumption here is that a low oil price or the expectation of low oil prices will weaken the Parliament's tendency to impose environmental requirements on the proposed petroleum developments. Decline or the expectation of declining employment in the petroleum industry is assumed to have the same type of effect on Parliament's decision making.

Figures 3 and 4 below illustrate developments in these two economic factors over the last thirty years.

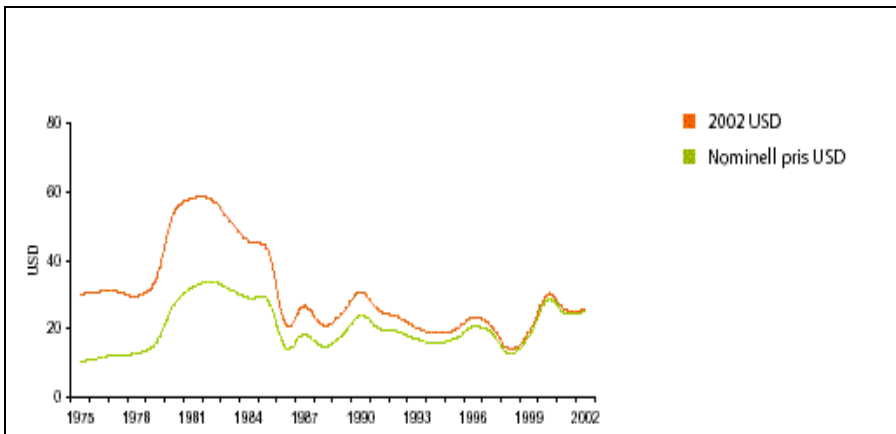


Figure 3. Oil price 1975-2002 USD/barrel (fixed 2002 prices and current price)

According to the assumption that the Parliament should be willing to spend more money on environmentally friendly petroleum developments when the oil price rises, one should expect environmental measures to be included in PDOs approved in 1987-89, 1995-97 (small rise) and in 1998-2000. Looking both at the attention and at the specific approvals of the PDO, it is however difficult to find a correspondence between parliamentary decision-making patterns and the oil price movements.

What then of the potential for correspondence between employment developments and environmentally friendly decision-making by the Parliament?

The upper curve displays the total number of those employed in the petroleum industry in Norway, while the lower curve displays the number employed within the platform construction and maintenance sub-sector. Employment in the petroleum industry is 3-4 % of the total employment in the country. Approximately half of this employment is occupied with the construction of new platforms and other installations offshore.

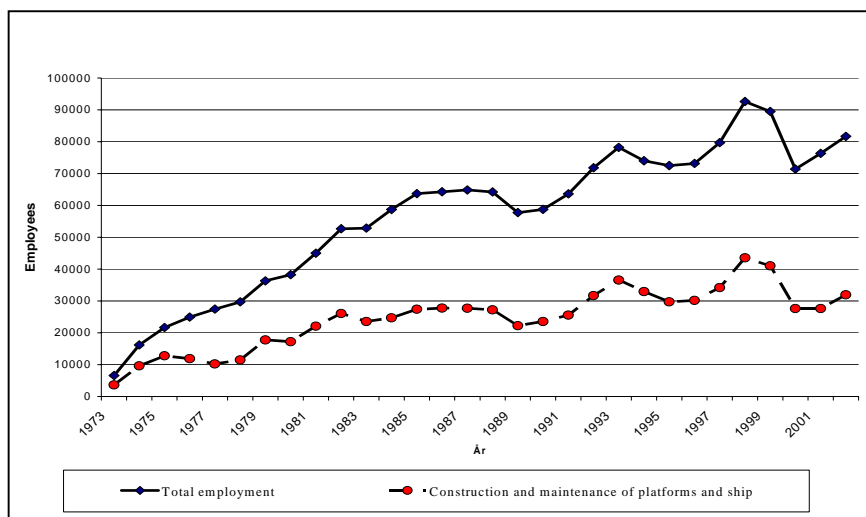


Figure 4. Employment in the petroleum industry

According to the assumptions outlined above then one should expect that environmental measures were to a higher degree included in the PDOs approved in the periods 1989-92 and 1996-97 than in the periods 1993-95 and 1998-2000. Looking both at the level of parliamentary environmental 'attention' and at the specific PDO approvals, it is again however difficult to find a correspondence between parliamentary decision-making and these curves for employment in the petroleum industry.

Thus, both of these attempts to find some measurable form of correspondence between Parliament's tendency to approve or require environmental measures in PDOs and (1) oil price movements, and (2) employment in the petroleum industry, have been negative. This does not necessarily however prove that a connection between the expected development in oil prices / employment in petroleum industry does not exist. Some of the committee reports and some of the minutes from the debates in Parliament prove that members are occupied with the employment situation and the oil price development. Moreover, particularly in some projects the employment situation has been an important element in the discussion of the approval of the PDO. If there has been a trade-off between employment and the environment however it has not yet been identified. Inevitably, more research is needed on these issues.

Conclusions

Research has thus far given us these results:

- The parliamentary handling of plans for the development and operation of offshore petroleum fields in Norway during the period 1985-2001 has contributed to more sustainable developments in the period 1993-2001, proactively concerning the reduction of harmful emissions into the air and supportively concerning the reduction of harmful discharges into the sea.
- Changes in the institutional framework i.e. the reformation of the parliamentary committee system in 1993, and the fact that the new Standing Committee on Energy and the Environment was given responsibility for both environment and industry (while the former committee had only responsibility for industry) appear to provide a reasonable explanation for the change in Parliament's handling of the PDOs.
- An institutional arrangement that gives the involved decision-makers (the actual committee) the responsibility for both the environmental impacts and the development can promote Parliament's involvement with regard to sound environmental petroleum development.
- Based on some preliminary and limited investigations either the oil price or the expected development in petroleum employment could explain or correspond with Parliament's tendency to approve or require environmental measures in PDOs.

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End notes

Referring to Table 1. Environmentally-related proposals in the committee's report

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- i Socialist Left voted against the recommendations from the committee and did put forward a proposal on alternative application of the capital.
- ii *“The power supply to Troll phase II should be solved by connecting to the hydro-power net onshore”*
- iii The proposal was: *‘Development of the Norne-field should be postponed until satisfactory Environmental Impact Assessment exists and the question regarding localisation of operation-centre and supply base has been considered’.*
- iv The proposal was: *“The Visund-field shall be developed if the gas from this field can contribute to fulfil Norway’s gas-sales obligations in accordance with contracts already entered into. The Åsgard-field should not be developed”.*
- v *‘It is suggested for the Government to provide for new gas-turbine technology that reduces the emissions of CO₂ significantly is used on Visund and future developments on the Norwegian continental shelf when these technology is available for utilisation’*
- vi *‘It is suggested for the Government to provide for new gas-turbine technology that reduces the emissions of CO₂ significantly is used on Åsgard and that it is arranged for post- installation of these kinds of gas-turbines.’*
- vii *‘The Parliament take for one’s basis that it is a long-term objective to reduce the emissions from Troll C as soon as qualified technology is available. The Parliament proposes to the Government to consider different solutions to separate and inject CO₂ from exhaust gas and put forward a proposal for the Parliament as soon as this technology is commercial available and latest in year 2002.’*
- viii *“The Parliament asks the Government to put forward proposals on different measures to stimulate the development of improved and less expensive cleaning technology for CO₂-cleaning, including an assessment of allowance-possibilities for the oil-companies in the CO₂-tax for investments or contributions to such development costs.’*
- ‘The Parliament asks the Government to carry on with the investigation on the possibilities for more cost-efficient solutions for whole- or partly electrifying of production platforms on the shelf: a) from shore, b) from “regional” off-shore based gas-power plants with reinjection of CO₂.’*

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- ^{ix} *'The Parliament asks the developer to include so called CO₂-fri gas power plant in the plans for development of the Grand field, and plan for start of production earliest in 2004.'*
- ^x *'The Parliament asks the Government to make a new consideration of the plan for development, construction and operation of the Kristin-field, especially to consider possibilities of making the Kristin-field more environmental- and climate-friendly, and with the purpose of treatment in the Parliament in April/May 2002.'*
- ^{xi} *The Parliament asks the Government to arrange for that a pilot-plant for so called CO₂-emission-free gas-power plant on the Kristin-field can be constructed.'*

Scoping in EIA

Theoretical strengths and practical weaknesses

Paulo Pinho¹ and João Margalha¹

Abstract: This paper presents the results of a research project aimed at assessing the effectiveness of Portuguese scoping procedures. An extensive survey was carried out to analyse all EIA processes that took place in a one and a half year period ranging from May 2000 to November 2001. The selection of this study period made possible the consideration of a number of scoping cases with the new legislation (DL 69/2000) but before the new regulations (MO 330/2001) came into force, and thereafter, with both the new legislation and the new regulations in force. Significant evidence was gathered to support the view that the new regulations had a positive impact on scoping, which was entirely voluntary. Nevertheless, a number of weaknesses still remain in current practices. These weaknesses are threefold in nature. They relate to: 1) the technical contents of the scoping report; 2) an inconsistent interpretation of the new administrative procedures; and finally, 3) the insufficient attention paid to the potential benefits of the early involvement of the public in scoping. Although it will be difficult to fulfil all expectations raised by the new scoping system – a conclusion that is in line with some criticisms produced elsewhere and identified previously in our literature review – significant room for improvement was identified, and a number of practical measures accordingly proposed.

Introduction – a decision centred view of scoping in environmental assessment

Scoping, the keyword of this paper, can be simply defined as a set of methodological and procedural steps designed to support the preparation of an EIA tailored to the final decision making process. From their earliest experience with EIA in the 1970s, practitioners already felt the need to take decisions about the contents of the EIA report (Ross, 1993). By

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1978, NEPA (US) regulations introduced a formalised procedure involving the different parties engaged in the EIA process and aimed at the identification of the main subjects to be dealt with by the EIA study (CEQ, 1981, Gilpin, 1995, Morgan, 1998). This procedure – *scoping* – was expected to reduce costs and delays by ending the practice of collecting and analysing *irrelevant* information with regard to decision-making (Beanlands, 1988). At that time, most EIAs ended up as bulky documents, they were becoming increasingly expensive, and more often than not they produced a mass of information that was, at best, of limited value or use.

Looking back to the first 20 years of scoping experience, in Canada and in the USA, Ross (1993) identified three stages in the evolution of the scoping concept. Initially, scoping was essentially a technical procedure designed to identify the subjects that should be dealt with by the EIA report, bearing in mind the particular needs of decision-making. In what can be seen as its second stage, scoping evolved towards a consultation process, with specialists, interest groups and the public all playing a part in the process. As such, debates over the consequences of a development proposal were likely to be conducted in a wider or more ‘open’ context, so much so in fact that focus was on occasion, lost. Indeed, it was often the case that discussions did not necessarily follow the short list of issues relating to the final decision making process. More recently, it was generally felt that there was a need to make the scoping procedure more cost effective and efficient, bringing it back to focussing on the identification of the main issues to be dealt with by the EIA report, and ensuring that it was accompanied by clear indications of the subjects to be totally or partially exempted from analysis. In this third stage, the public participation input was nevertheless retained, although it was strictly tethered to the main issues of the case under analysis.

Throughout this period scoping benefited from the technical and methodological developments that have been steadily taking place in EIA, particularly those developments relating to impact prediction and baseline analysis, as well as impact management and public participation techniques (Kennedy and Ross, 1992). Current practice also includes the definition of the nature and level of detail of each analysis included in the EIA, and the spatial and temporal boundaries, the social and ecosystem contexts or the jurisdictional frontiers most adequate in the carrying out the environmental assessment study (Kreske, 1996, Jones, 1999). Some authors suggest that the ultimate objective of the scoping exercise should be the definition of the terms of reference of the EIA study, defining in

this way the general organisation, structure and table of contents of the EIA report (Erickson, 1994, Partidário and Pinho, 2000).

There is now a general consensus on the benefits and advantages of scoping (see, for instance, CEQ, 1981; Ministry for the Environment, 1992; Sadler, 1996; Morgan, 1998; Weston, 2000; EC, 2001). Barker and Wood (1999) consider scoping to be one of the five key factors of an EIA system responsible for its overall quality. Many practitioners and researchers would agree with this position. Our position in this paper will not be to question this general assertion, particularly from a theoretical point of view, but rather to point out that in practice, some advantages of scoping tend to be overshadowed by weaknesses and deficiencies related to the *modus operandi* of the EIA system in which scoping takes place.

Indeed, our more cautious position is not an isolated one. Indeed, in a number of different country contexts difficulties with scoping are readily perceived. The same authors that stress the advantages of scoping (e.g. Sadler, 1996 or Wood, 1995) or others such as Gilpin (1995) or Weaver *et al* (1999) also point out that the process of scoping is one that is not conducted without difficulty, stressing difficulties related to the definition of priorities, the exclusion of peripheral subjects, the organisation of the involvement of the public, or the actual meaning of impact significance in each practical case. In any case, scoping has been widely used, albeit based rather more on specialist's judgements than on the actual input provided by the participation of the public (Haklay *et al*, 1998).

According to Kennedy and Ross (1992) a scoping process should include the following three sequential phases: 1) an initial phase of public and scientific identification of the main issues related to the project under analysis; 2) an evaluation phase to exclude non significant subjects and to focus on the most important impacts; 3) a planning phase to manage the most important impacts that may include a monitoring and a mitigation plan covering key impacts.

The characterisation of the project subject to EIA should also be part of the scoping exercise (Glasson *et al*, 1994; Jones, 1999; Weston, 2000). After all, environmental impacts derive directly or indirectly from the specific characteristics of the project and its location, or alternative locations. As a result, the main features of the baseline survey have also to be considered as a part of the scoping report (EC, 2001). Scoping is, indeed, a preliminary assessment of the environmental impact of a development proposal, carried out with the help of traditional EIA methods and techniques, ending in six steps, as follows:

- Project characterisation to identify all of the actions likely to generate environmental impacts.

- Identification of the impacts related to project actions.
- Impact evaluation to determine their importance.
- Exclusion of the least relevant impacts.
- Identification of the environmental factors related to the selected impacts.
- Preparation of the terms of reference of the EIA in accordance with the main environmental issues raised in the previous steps.

Given that the key question in a scoping process is always the decision to include or exclude particular types of environmental impacts, Weston (2000) points out that the overall success of the exercise depends entirely on the meaning of impact significance which, in turn, depends on the difficult realisation of value judgements and subjective interpretations of a wide range of factors under analysis. Irrespective of the methods, tests or openness of the public participation exercise associated with the scoping procedure, significance criteria have to be clearly established from the onset of the scoping exercise, and a consensus reached among all of the stakeholders involved (see Wood, 1995, Sadler, 1996, Jones, 1999, Weston, 2000; EC, 2001).

Another sensitive question as regards scoping is the nature and extent of public participation. Although many argue that scoping is more effective when it includes some sort of public participation (Wood, 1995), and its potential benefits are widely recognised, even in systems where such involvement is not mandatory (Weaver and Caldwell, 1999), public consultation and participation is not always synonymous with positive results, as is pointed out by McNab (1997). Issues such as confidentiality, political sensitivity, or simply poor *timing* may jeopardise the potential benefits of participation. According to this author, there are available reasons for justifying a number of different approaches to public participation, whether we are dealing with public sector projects or private sector projects. For the former group of projects the participation exercise can be more open and all-embracing as far as the nature of the issues is concerned, whereas for the latter it should be more restricted and narrowly scoped.

In any case, scoping tends to be carried out in the latter stages of project preparation, after most relevant decisions on the nature, dimension, technology or location of the project have already been taken. Ecclestone (2000) advocates the realisation of a *pre-scoping* phase, occurring before the traditional scoping exercise, to identify the main decisions associated with the emergence and early shaping of a particular development project. In this sense, only when the scope of the project actions and

project alternatives have been identified can one say that the foundations have been put in place to support the carrying out of the identification of the most relevant environmental impacts.

This is not an entirely new idea. In the mid 1990s, Brown and Hill (1995) presented a methodology to integrate environmental assessment and project planning, as a natural extension of the scoping concept. The methodology was intended to identify the main decisions within the processes of planning, design and project approval and, subsequently, all of the environmental information needed to address those decisions. In practice, these decisions are currently taken by different actors such as the proponents, the designers and engineers and the licensing officials, all of whom have different values and interests. The overall goal of this methodology was to come up with an environmentally friendly project instead of a document, the EIA report, allegedly intended to support the final approval of a project. Not questioning the good intentions of this methodology, one has to recognise the fact that it departs from traditional EIA procedures and scoping practices.

Scoping in the Portuguese EIA system

With the passage of the Decree-Law (DL) no. 69/2000 from the 3rd of May and of the Ministerial Order (MO) no. 330/2001 from the 2nd of April, the first Portuguese EIA legislation and regulations, dating back to 1990, were replaced, and scoping formally introduced in the new EIA system. The Portuguese scoping process is outlined in Figure 1.

In line with Directive 97/11/CE, scoping is not compulsory. Instead, the proponent has the right, but not the duty, to present a scoping proposal to the EIA authority. This proponent's right applies to both Annex I and Annex II projects. The EIA authority has the duty to analyse the scoping proposal. An EIA Commission is formally constituted for this purpose, for each and every case.

The scoping procedure may include an institutional and public consultation process, which, again, is optional and depends upon a formal request submitted by the proponent to the competent environmental authorities. Thus, it is entirely a proponent's decision. Based on the EIA Commission's appraisal, the EIA authority issues a statement on each and every scoping proposal received, as well as a detailed recommendation on the contents of the subsequent EIA report, within 30 working days, or 60 (Annex II projects) to 70 (Annex I projects) working days if public participation took place.

Evaluation of scoping practice

Generally speaking, the aim of our research was to verify to what extent scoping is improving the contents of EIA reports and the effectiveness of EIA decision-making in Portugal. This general aim can be expressed in three related objectives, as follows:

- To investigate the operational dimension of the scoping concept.
- To verify whether the Portuguese EIA system offers sound scoping procedures.
- To assess recent scoping practice in Portugal.

We focused our analysis on all scoping proposals formally submitted to the Environmental Administration throughout a study period of eighteen months, from May 2000 to the end of October 2001. This study period was divided into two distinct parts. In the first eleven months, the Decree Law 69/2000 was the only piece of legislation in force. In the remaining seven months, this Decree-Law was accompanied by the new regulations referred to previously, the Ministerial Order 330/2000, which had in the meantime been approved and had thus come into force. The first period comprised 17 scoping proposals, with the second period providing a further 10 scoping proposals.

Bearing in mind the fact that throughout the whole study period the Ministry for the Environment, at the national and regional level, received 108 project EIAs, and that scoping is not compulsory in Portugal, approximately 25% of project proponents decided, freely, to try the new scoping procedure. The following table presents the typology of projects for all of the scoping proposals received.

Table 1. Typology of projects with scoping proposals

Agriculture	1
Fuel Storage	1
Dams	3
Energy production	5
Pipelines	3
Manufacturing	3
Extractive industries	5
Transports	2
Urban / tourist developments	4
TOTAL	27

Of these proposals, 22% refer to Annex I projects and 78% to Annex II projects; 37% came from the public sector and 63% from the pri-

vate sector. After the conclusion of the scoping process, 78% of the initial scoping proposals had been accepted and 22% rejected. The final decision by the Environmental Authority was issued in time in 85% of all cases. However, all of that 15% of the cases issued beyond the legal deadline did subsequently have a favourable decision. Finally, the large majority of proponents, about 78%, did not request public participation in scoping. These figures may not be surprising if one bears in mind that our study period coincides with the first 18 months of scoping in Portugal.

We looked at all of the 27 scoping proposals of our study, in an attempt to assess to what extent the following evaluation factors had been considered (see Table 2). In cases where they had been considered a three level standard of performance was added: 3 – *High* stands for a well developed and technically solid consideration of the evaluation factor; 2 – *Medium* for a less developed and/or technically fair consideration and 1 – *Low* for an incomplete and/or technically poor consideration of the particular evaluation factor.

Table 2. Evaluation factors of scoping proposals

- Characterizes the project
- Presents alternatives
- Describes project actions
- Identifies impacts
- Defines impact significance
- Proposes the exclusion of particular impacts
- Addresses key issues (impacts)
- Plans the EIA report

In figure 2 an overall picture of our research results is presented. The two parts of the study period, with and without specific scoping regulations, is clearly portrayed on the left and right hand sides of the figure. Two columns present the aggregate results for each of these sub periods of analysis, while in the final column, on the far right, the general trends are identified for the study period. Looking at the figure along the rows, it is possible to compare the overall performance achieved in each evaluation criterion. The differences are substantial. Of particular importance to our research was the modest results observed in the first sub period in the criteria dealing with impact significance and the exclusion of impacts, two essential aspects of any scoping process.

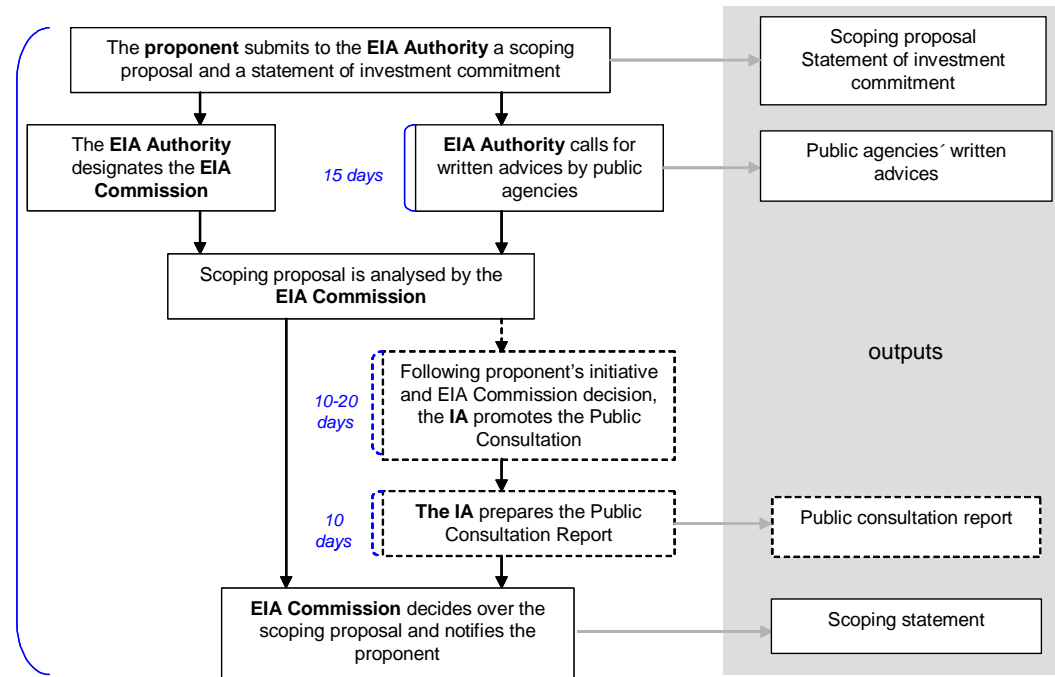


Fig 1: Scoping in Portugal (adapted from Partidário and Pinho, 2000). Note: IA stands for Instituto do Ambiente and it is the main EIA Authority in Portugal

Scoping Proposals	2	3	5	6	7	8	9	10	11	12	13	14	15	16	17	Overall Score by evaluation factor (%) May, 2000 to April, 2001	18	19	20	21	22	23	24	25	26	27	Overall Score by evaluation factor (%) April, 2001 To Nov. 2001	Change tendency
1. characterises the project	1	1	2	2	1	2	1	1	3	3	3	3	3	3	3	71	2	3	2	3	3	3	3	3	3	3	93	↗
2. presents alternatives					2				1	2	3	1	1		2	29		3		1	2	1	1	1	2	3	47	↗
3. describes project actions									1	1	2	1		1	1	20	3	1	1	2	3			1	2	1	47	↗
4. identifies impacts						2			1		2	1	1	1	1	16		2		2	3	1	1	2	3		47	↗
5. defines impact significance											2		2			9		1		2	3	1	1	1	2		37	↗
6. proposes the exclusion of impacts											1		1			4				1				1	3		13	↗
7. addresses key issues			2	2	1	2	2	2	2	2	3	2	3	2	2	60	2	3	1	2	3	1	1	2	3	1	63	=
8. plans the EIA report			1	2	1	2	2	2	2	2	3	3	3	3	3	64	1	3	2	2	3	2	2	1	2	3	70	=
Overall Score of each Scoping proposal (%)	4	4	21	25	21	33	21	21	42	42	79	46	58	42	54		33	67	25	58	83	38	38	46	79	46		
Overall Score (%)	34																51											↗

- Considered (3, 2, 1)
- Not Considered
- 50% < Overall Score < 75%
- Overall Score > 75%

Figure 2. Matrix of research results. Note: Cases 1 and 4 are not included in this final matrix because they correspond to scoping proposals that were not considered by the EIA Authority. They failed to be submitted within the time schedule.

Conclusions and recommendations

The practice of scoping, as revealed by the analysis of the technical quality of scoping proposals, has steadily improved in Portugal, throughout the study period. Our research shows the positive impact of the detailed regulations of 2001, intended to complement the general legislation of 2000. Generally speaking, and as far as scoping is concerned, the present regulatory framework seems fairly balanced and comprehensive.

Nevertheless, evidence was gathered to suggest that there is still significant room for improvement with regard to scoping practice in Portugal. Much of the potential theoretical benefits of scoping are still to be realised in practice, in particular when it comes to eliminating irrelevant subjects from EIA reports, or to opening up a wider window for public participation, early on, in the EIA process. Indeed, the large number of contacts and informal interviews conducted throughout our research project, made clear that two of the major stakeholders involved in the scoping process seem to be adopting a rather defensive standing. On one side, the proponents postpone, as much as possible, the disclosure of information on the environmental consequences of their development proposals. On the other side, the environmental authorities prefer to avoid clear-cut decisions to reduce and focus the contents of subsequent EIA reports.

A more pro-active standing by the Portuguese environmental authorities in favour of scoping is recommended in view of the relatively low percentage of proponents deciding to adopt scoping (1 in 4 in the first 18 months of the new EIA system). Environmental authorities, at both the national and regional levels, should thus seek to encourage the adoption of scoping, particularly in public sector projects subject to EIA, thus setting an example, hopefully to be followed by the private sector. Better coordination of the EIA Commissions' work is also recommended to enable consistent evaluations of scoping proposals and to avoid some of the delays still occurring in the final approval of scoping proposals.

Additionally, environmental authorities should explore the benefits of the generalisation of public participation in scoping, encouraging the adoption of participation practices in all public sector projects. Moreover, the preparation of a Manual of Good Practice (that includes Case Studies) to back up the work of environmental consultants and officials could also encourage the adoption of more open, ambitious and far-reaching positions on both sides. Finally, further research linking scoping to the contents of the EIA report and the Final Decision Statement (our equivalent of the EIS) is needed and should be supported.

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EIA and the practical experience of the scoping report in Iceland

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Abstract: One of the major innovations in the revised EIA Act that became effective in Iceland in June 2000 was the introduction of a formal procedure at the scoping level, the so-called scoping report.

A draft scoping report is prepared by the developer, presenting his proposals as to which aspects of the project and the environment will be emphasised in the Environmental Impact Statement. The developer submits a proposal for his draft scoping report to the National Planning Agency (NPA), a state institution that oversees the EIA process, for review. The final scoping report is contingent upon the agency's approval and may be subject to changes by the NPA. Subsequently, the developer prepares an Environmental Impact Statement in accordance with the scoping report.

It is important in the EIA process to identify the impacts of real concern as well as possible alternatives and mitigation measures at an early stage and a concise scoping process can be effective in this respect. An important factor in the process is that of active consultation. This paper will address the following points in light of practical experience with the scoping report in Iceland:

- Are impacts of real concern identified in the scoping report?
- Consultation at the scoping level: Active or perfunctory?

Keywords: EIA, scoping, impacts of real concern, alternatives, consultation, Iceland.

Introduction

As in other countries there has been considerable discussion in Iceland on the pros and cons of the EIA process in general. There are different opinions as to whether the EIA process has improved decision-making and whether it has reduced the impact of projects on the environment. Furthermore it has been questioned whether the gains of the process are higher than its cost in monetary terms.

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Expectations were high that the formal procedure at the scoping stage, which was included in the EIA Act that became effective in June 2000, would increase the efficiency and quality of the EIA process. Have these expectations been fulfilled?

No formal research has been carried out in Iceland on whether the introduction of the scoping procedure has improved the EIA process. In this paper the practical experience of the scoping report based on the authors' observations regarding this issue is addressed and hopefully will form a basis for discussion and studies that may be used to improve the quality of the scoping process.

Expectations of the formal scoping procedure

A number of studies on the quality and efficiency of the EIA process were carried out in Iceland prior to the revision of the EIA Act in 2000. The outcome of these studies reflected the importance of improving the scoping process at the outset of the preparatory stage of a proposed project (Bjarnason, 1999; Thors, 1999; Ingólfssdóttir, 2001). It was anticipated that the revised approach would, for example, improve consultation with statutory consultative bodies and the public before the developer spent much time and money in the process. This would enhance the relevance of information and studies necessary to help identify the nature and scale of impacts, arising from a project, and thus help to focus on the key alternatives and issues to be studied and addressed later in the Environmental Impact Statement.

An example of consultation early in the designing phase would be a developer's consultation with the Archaeological Heritage Preservation Agency of Iceland regarding cultural relics and the Environment and with the Food Agency of Iceland regarding vegetation in conjunction with a proposed road between points *A* and *B* in a particular area. At this early consultation stage certain alternatives would be put forward for consideration and boundaries for the study and assessment area would be delimited (fig.1). This would present an opportunity to explore and evaluate possible environmentally friendly alternatives as well as issues pertaining to the environment, necessary to establish the impacts of the development.

The EIA process in Iceland

A draft scoping report is prepared by the developer, presenting his proposals as to which aspects of the project and the environment will be emphasised in the Environmental Impact Statement. The developer prepares a draft scoping report and submits a proposal for the draft scoping report to the National Planning Agency for review. The final scoping report is

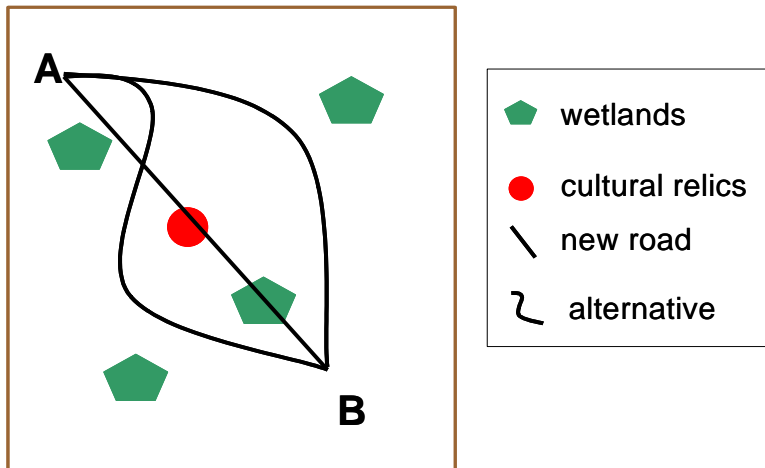


Figure 1. Consultation early in the design phase of a certain road development between point A and B in a particular area will present an opportunity to explore and evaluate possible environmentally friendly alternatives as well as issues pertaining to the environment, necessary to establish the impacts of a development.

however contingent upon the Agency's approval and may be subject to changes by the agency. Subsequently, the developer prepares an Environmental Impact Statement in accordance with the scoping report. It is within the NPA's purview to review the Environmental Impact Statement, comments from the public, as well as to consult statutory agencies prior to issuing a decision regarding the proposed project. The NPA can either approve the proposed project unconditionally or with conditions, or reject it due to significant adverse impacts. In the end the NPA's decision may be appealed to the Minister for the Environment. The NPA's decision or the Minister's decision on appeal is a necessary precondition for the issuance of a building and/or a development permit issued by local authorities and an operational license issued by the environmental health authorities (The EIA Act no. 106/2000).

Since the revised EIA Act became effective in June 2000 the National Planning Agency has reached approximately 45 decisions on EISs. Two of these projects have been opposed *in-toto* on the grounds of the likely significant adverse environmental impacts. Approximately 40% of the NPA's decisions have been appealed to the Minister for the Environment who has confirmed them with or without conditions in 80% of cases

and overruled them in 20% of cases. At the same time, the National Planning Agency has approved 61 scoping reports.

Practical experience of the scoping report

The discussion presented in this paper on the experience of the scoping report is based, among other things, on formal discussions with regard to the scoping report experience between the NPA, developers, consultants and statutory agencies (Workshops on scoping reports) and the public at public meetings and open houses over the past three years. The views expressed here are naturally those of the authors developed from their experience of working with scoping decisions at the National Planning Agency. The aim is thus to present these in order to highlight issues of importance for further study.

Most of the parties referred to above seem to agree that the key part of a good EIA process is to ensure that scoping is adequate at the outset to identify the relevant questions, i.e. the impacts of real concern for which answers are needed before a decision is made.

Has the introduction of scoping influenced the quality of information provided and the length of the procedure?

Based on the experience of changes and additions that the NPA has had to make to draft scoping reports in its decisions on these reports there is a tendency, in some cases, towards adopting a wide scope and thus of cramming much detail into the scoping report, i.e. the report covers issues of limited value and significance. In other instances the scoping report does not always contain sufficient information on the likely environmental impacts to be covered and assessed, the proposed assessment area, the time frame and level of detail. In many cases scoping takes place too late in the process thereby possibly curtailing its effectiveness.

To take but one example: Although the formal scoping phase was introduced into the Icelandic EIA Act 3 years ago the National Planning Agency in some cases receives scoping reports a few months prior to the submission of the Environmental Impact Statements – even, on occasion, only a month and a half before. This short time between scoping and EIS can possibly be explained by the generally short preparation time for development projects and also by the character of many EIA projects in Iceland, i.e. many projects are relatively small and the circumstances often less complex. In some of these cases the developer has already invested in too detailed research in study areas that have been far too extensive considering the area likely to be affected and the impacts of concern. This might have been prevented if the scoping report had been submitted ear-

lier and relevant experts and statutory agencies had already given their advice on the scope of the project.

There is a lack of baseline studies on the natural and social environment in Iceland. Therefore it is in many cases necessary for developers to carry out rigorous, time-consuming and expensive analyses to be able to assess the environmental impacts of a proposed development. Consequently, it is very important to define the scope of projects thoroughly beforehand.

Developers have mentioned that one of the advantages of introducing the scoping report at an early stage is that the scale of the project site and the area affected is now defined much earlier. Furthermore it increases the likelihood that appropriate research is conducted at the right time. In this context a successful example is the EIA-process for a 120 km 400 kV power line, from the power plant at Sultartangi in the southern highlands to an aluminium factory in Hvalfjörður (fig. 2). Following a consultation with the local municipalities and with the general public, the National Power Company of Iceland introduced a number of alternatives for the western part of the Sultartangi power line in an area exhibiting a number of different interests, e.g. farming, summer houses, recreation etc. In this case the area affected was defined early and appropriate research was conducted at the right time.

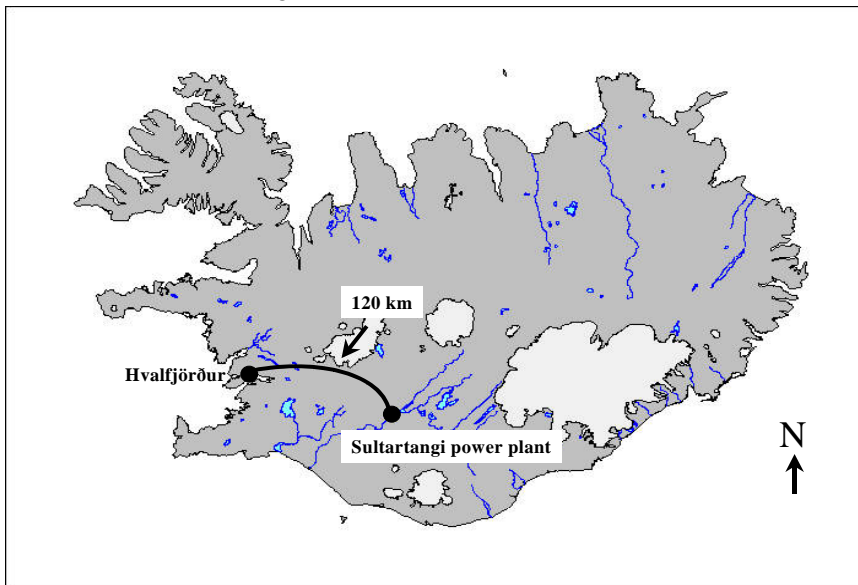


Figure 2. A successful EIA-process for a 120 km 400 kV power line, from the power plant at Sultartangi in the southern highlands of Iceland to an aluminum factory in Hvalfjörður.

Developers sometimes state that the introduction of a formal scoping procedure has the potential to increase the length of the EIA process. No formal, comparative research has been conducted regarding this issue.

However, there is little evidence of substantial delays due to the implementation of the scoping phase in the EIA process for the Sultartangi power line.

Has the introduction of scoping led to a more open and definite consultation between the developer and the statutory consultative bodies, based on trust?

Due to the complexity of impact identification and scoping, and due to the lack of data banks on the natural and social environment, mentioned earlier, it is usually necessary for the developer to consult the competent authority and other agencies with environmental responsibilities on the scope of the assessment as well as the general public.

Some developers point out that co-operation with statutory agencies is promising and even successful in some cases. Others submit that the consultation is often stiff, mistrustful and a mere formality. For example it has been mentioned that in some cases the statutory consultative bodies have not been willing to submit their opinion, regarding the environmental impacts of a project, to the developer at an early stage. In other cases it has been noted that the agencies cover issues outside their field of specialty, therefore exceeding their statutory role. The statutory agencies, on the contrary, point out that consultation is often too perfunctory, and that developers do not act on their comments. This of course depends upon the nature of individual developers and consultancies as well as the scale and nature of the project concerned.

Does the public generally trust information, regarding the environmental consequences of a development, submitted by the developer?

To approach the general public early on in the EIA process to ensure that their comments will be better taken into account is seen as a reconciliatory measure. It is also viewed as an opportunity to diminish fears of the unknown, to prevent public discussion, based on misunderstandings and false information and also as an attempt to reduce the number of appealed decisions. EIA has become a 'hot' issue in the Icelandic media and within the realms of public debate more generally, so the field is now well understood. Anyone has the right to appeal the National Planning Agency's decision of a proposed project to the Minister for the Environment, and as mentioned previously, a rather high percentage, i.e. 40%, of the NPA's decisions have been appealed.

It is however rather difficult to generalise regarding the general public. However the assumption is, based on practical experience that the public generally trusts the information presented in the scoping report, although it varies depending on the type of projects. For large-scale debatable projects, such as some hydropower projects, objective coverage in the scoping report is questioned, partly because of the uncertainty of the project's effects on the environment, and partly because of doubts regarding the proposed mitigation measures. Still small-scale projects can meet public opposition if the project directly affects special interests, for example if a road crosses a farmer's hayfields, the classic 'Not In My Back Yard' syndrome. Ultimately it is clear that the EIA process does not always reduce public concern or disquiet over development.

The presentation of the draft scoping report by the developer and his consultants at public meetings and open houses has not always proved to be a success. The scoping process moreover does not seem to have a wide appeal as far as public participation is concerned. This is possibly the case because public concerns may receive unsatisfactory and indeterminate coverage in the scoping report. While another possible reason might be that developers have not considered in detail what purpose the meetings should serve regarding the development, e.g. addressing the main interests at stake and seeking local knowledge. In some instances the arrangement of these events actually deters active dialogue and they tend to degenerate into one way presentations as the following quote illustrates: '*Consultation is not worth much if there is just a one way introduction and general talk instead of discussion and a feeling that ones' comments will be taken into account*' (Hjörleifsdóttir, 2003). Finally, other factors that may be relevant in this context are the form of advertisement and the choice of venue. However, in spite of emphasis on these factors, attendance at open houses may be low. Perhaps the developers should consider holding their public presentations at pre-scheduled social events such as local festivals and sporting events or at shopping malls in order to reach a wider audience.

Successful consultation with the public during the scoping process is conducive to the reconciliation of various viewpoints and it is clearly of importance at this early stage that public opinion and reasoning for or against a development or a definite alternative is expressed.

Conclusion

Scoping is one of the main foundations of the EIA process (Sadler, 1996). It is difficult without formal research to determine if the scoping report ensures that proponents provide timely, usable information for decision-making. But the examples given here, based on practical experience of

the scoping report, indicate that the scoping process could be better managed and its quality thus increased. There does seem to be a willingness to improve the process, but the question is how is this to be achieved?

The conclusions that may be drawn from previous Icelandic experience are that the scoping procedure does not necessarily ensure that proponents do not waste time and money on collecting unnecessarily comprehensive data, and also that it does not necessarily ensure the collection of essential data. A vital key to improving the efficiency of the process is the provision of a more open and definitive consultation process based on trust, on environmentally friendly alternatives and other key issues between the developer, the statutory consultative bodies and the general public. It is not surprising that the statutory agencies and the public are critical given the fact that too often their concerns receive indeterminate coverage, and the conclusions of the Environmental Impact Statements are almost without exception that the economic and societal utility of a project outweigh the biophysical impacts. If mistrust is prevalent there is a risk that either key issues are not, or that issues of no importance are, subsequently communicated to the developer. A better consultation at the scoping level between these parties should however avoid delays later on in the process, and ensure a certain quality and completeness of the information published.

There is indeed a need for research here in Iceland to check whether the formal scoping procedure with its consultation, terms and conditions improves the EIA process leading ultimately to the production of a more environmentally sound decision.

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Workshops on scoping reports, November 13th 2001 and January 21st 2002. Participants representing the National Planning Agency, the National Power Company of Iceland, the Public Roads Administration, the Icelandic Nature Conservation Agency, the Environmental and Food Agency of Iceland, Honnun Consulting Engineers, Linuhonnun Consulting Engineers and VSO Consulting.

The Environmental Impact Assessment of Icelandic road projects

Hreinn Haraldsson¹ and Ásdís Guðmundsdóttir¹

Abstract: There is widespread experience of project-level Environmental Impact Assessment (EIA) at the Public Road Administration (PRA) in Iceland. Between 1994, which saw the entering into force of the Icelandic legal framework for EIA, and 2002, about one half of the total number of EIAs performed in Iceland related to urban or rural roads. Almost all of these road projects were under the administration of PRA alone or under joint administration of local authorities and PRA. In this period the number of road projects subject to EIA was 74, or approximately 8 projects per year.

According to the EIA Act of 1994, all road projects were subject to an EIA, so there was practically no screening regarding new roads. When a new Act on EIA took effect in the year 2000, among other changes the requirements for roads projects were reduced. Given this, the number of road projects subject to EIA decreased significantly. The implementation of the so-called ‘scoping’ document has however increased the quality of the final EIA.

For road projects not subject to an EIA documentation containing information on the project itself and its estimated environmental impacts is published on the PRA’s homepage and presented to the local authority.

Introduction

The purpose of this paper is to discuss the Icelandic experience of the Environmental Impact Assessment of road projects, with a focus on state roads. The paper begins with a short description of the road sector in Iceland, and this is followed by an overview of the number, cost, participants and experience of the Environmental Impact Assessment of road projects. Thereafter, a short description of the Public Roads Administration’s handling of road projects, which are not subject to EIA, and mention of the new Strategic Environmental Assessment process is made. A few brief concluding remarks are then presented.

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The Public Roads Administration

In Iceland the Public Roads Administration (PRA), responsible for the construction, service and maintenance of state roads, operates under the control of the Minister of Communications. From its headquarters in Reykjavik it is responsible for central administration and management, as well as for the provision of expertise in many other fields. There are 7 regions in the country, with the regional offices of the PRA being responsible for road design, construction and maintenance in each region. The Environment department is a separate department, functioning as a part of the Development division, stationed in the Reykjavik headquarters building. It deals mainly with internal matters and with contacts with other environmental bodies in the Icelandic administration. It is also in charge of environmental policy-making within the PRA. The main task of the Environmental Impact Assessment (EIA) of individual road projects is however undertaken by the regional offices. They supervise the assessment process that in other respects is mainly performed by consultants outside the organisation.

The road system in Iceland

The size of the country is about 103,000 km², of which about 25% is inhabitable. The population is about 286,000, and the population density is about 2.6 persons per square kilometre, which means that the country is the most sparsely populated in Europe. When it comes to car ownership however, Iceland's is amongst the highest in the world, with 562 passenger cars per 1.000 inhabitants. The road system is however rather underdeveloped. By the end of 2002 the state road system was about 13,000 km, and only about 30% of it was paved.

The development of the road system

The development of the road network can be divided in two phases. From 1920 to the mid-1930s, and from 1935 onwards, where it was characterised by new gravel roads lengthening the network each year considerably. After 1980 however this process was almost to a halt, and since then emphasis has been placed on the reconstruction of existing roads with increased bearing capacity and asphalt pavements. This fact does influence the environmental impact of current road projects, which in general should be much less severe than during the period of road network development in the past.

Distribution of funds – The road budget for 2002

Parliament determines the distribution of the PRA's funds in the road budget. As the road system is rather underdeveloped, a significant

amount of such funds remain earmarked for new state roads. In 2002 about half of the total expenditure went to new state roads, 20% to maintenance and 20% to the general service of roads. The total budget was 11.429 m. ISK or 130 m. €

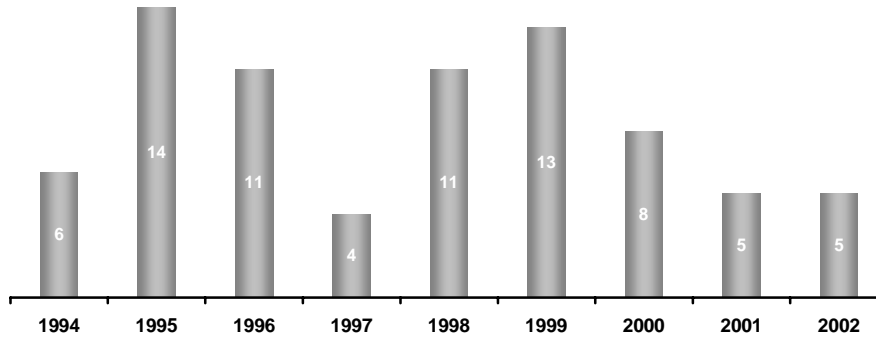
Road projects subject to an Environmental Impact Assessment

According to the Environmental Impact Assessment Act of 1994, all road projects were to be subject to an EIA, thus the Icelandic legislation referred to a much lower threshold than did the EU directive. In the Public Roads Administration's opinion road projects that were too small, often with only limited impacts on the environment, were thus subject to EIA.

When the new EIA Act took effect in 2000, the requirements for which road projects are subject to an EIA were reduced. In urban areas motorways and express roads are always included, but in rural areas only new and rebuilt roads that are 10 km or longer are subject to environmental impact assessment, if they are located outside reserved areas.

Number of Environmental Impact Statements for road projects

The Public Roads Administration has prepared 77 Environmental Impact Statements (EIS) for 74 road projects since the implementation of the Environmental Impact Assessment legislation in 1994 and up to 2002. This large number of projects can best be explained by the fact that there was practically no screening regarding new roads up to 2000. As can be seen from the graph below, the number of projects varied from 4 to 14 each year during this period, while this number has generally speaking decreased significantly after the implementation of the new Act in 2000.



Total number of EISs in Iceland

When we look at the total number of Environmental Impact Statements in Iceland in the period 1994-2002, 153 were reviewed by the Planning Agency, 77 for road projects and 76 for other projects. This means that half of the Environmental Impact Assessments performed in Iceland related to urban or rural road development. In the Public Roads Administration's opinion, the ratio of road projects during the last 2 years under the new post 2000 legislation, around 30% of all EIA projects in Iceland, seems to be a more realistic percentage figure than that achieved previously within the context of the 1994 legislation.

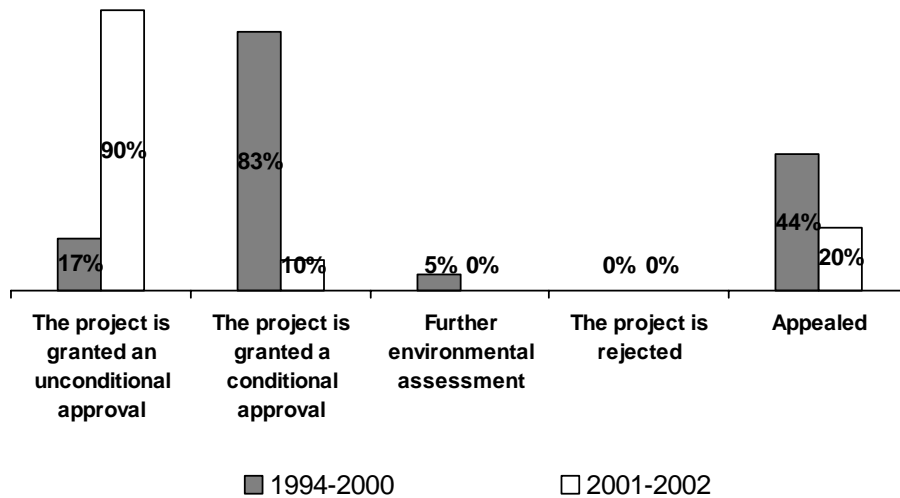
EISs for road projects 1994-2002

In Iceland the contents, quality and legitimacy of the information presented in the EIS is reviewed by the Planning Agency in consultation with the permission granting authority, other official bodies and the public. On average, for the period 1994-2002, 27% of the projects were granted an unconditional approval, with 73% of the projects being granted a conditional approval. In most cases the Planning Agency's demands for changes or mitigation measures were minor. 3 projects (or 4% of the total number of projects) needed to undergo a further environmental assessment. 41% of the decisions reached by the Planning Agency, were appealed to the Minister for the Environment. Everyone has the right to appeal. In most cases the minister agreed with the decision taken by the Planning Agency, but in some cases the project needed to undergo some minor changes. In no case has a project been rejected.

Road projects 1994-2002 – Changes in new EIA Act

As can be seen from the following graph there have been some major changes following the implementation of the new EIA Act in June 2000, when the so-called 'scoping' document was introduced into the legislation, and the threshold was raised. The developer must now prepare and submit the 'scoping' document to the Planning Agency and it is subject to consultation and review. It shall describe the proposed project, list the information to be gathered, and set out a plan for consultation with the public, official authorities and others. The structure and content of the Environmental Impact Statement shall follow the 'scoping' document, taking the Planning Agency's comments into account. As a result of this procedure, most projects have been granted an unconditional approval, or 90% of them rather than the 17% from before while appealed projects account for only half the number they used to be. In the Public Roads Administration's opinion this new procedure has increased the quality of

the final assessment, though the appeals process remains in need of alteration.



Urban / rural road projects

Road development is substantial both in urban areas, though mainly in the capital area, and in rural areas all over the country.

EIS – urban / rural road projects

If we look at the whole period from 1994-2002, 22% of the Environmental Impact Statements are related to urban road projects, and 78% to projects in rural areas. This ratio has changed somewhat with the new EIA Act of 2000, as many of the relatively small road projects in rural areas are now no longer subject to Environmental Impact Assessment. In the coming years it is expected that about 50% or more of all Environmental Impact Statements for roads may be for projects in urban areas.

Developers of road projects subject to EIA

When looking at the developers of those roads subject to EIA in the period 1994-2002, almost all of them are under the administration of PRA alone, or under joint administration of the local authorities and the Public Roads Administration. Only 2 road projects were under the administration of local authorities without the participation of the PRA.

Producers of road EISs

When the first EIA Act came into effect in 1994 the employees of PRA prepared almost all the Environmental Impact Statements, some 83%, while private consultants prepared only 17%. This situation has now changed considerably. In 2002 only 20% were prepared by PRA, with 80% being prepared by private consultants. Most consultants come from the engineering profession, though others come from professions such as architecture, landscape architecture, and natural science.

The cost of EIS

The developer is entirely responsible for the cost of the EIS and the part of the assessment procedure carried out by the competent authority, which is the Planning Agency according to the Icelandic EIA Act. Each project costs between 1-30 million ISK or 89,000-340,000 € with the estimated average-cost being about 5 million ISK or 56,000 €. The total cost of the Environmental Impact Assessment process in the period 1994 – 2002, was about 400 million ISK or 4.5 million €

On average, the cost is estimated as:

2-3% of the construction cost for smaller projects

1-2% of the construction cost for medium projects

0,5-1% of the construction cost for larger projects

What issues determine the selection of road locations?

The selection of the location of new road projects can be based on a number of different premises. These may include local and municipal plans, the road technology and traffic conditions, the foreseeable impact on the environment, and the cost of road safety, to mention only the most important issues. The PRA's experience is that road technology and therefore road safety, in addition to cost, are the most common issues, though environmental impacts can determine the location in environmentally sensitive areas.

Road projects not subject to EIA – the PRAs rules (i.e. the 'mini' EIA)

For projects not subject to the EIA Act, the Public Roads Administration has published its own internal rules. The objective here is to flag-up future road projects to those who may be involved or interested, in particular to the local communities and inhabitants of the area. Documentation containing information on the project itself and on its estimated environmental impacts is published on the PRA's homepage and is then presented to the local authority. The documentations can vary from being a

short description of the smaller projects to being a 'mini' Environmental Impact Statement for the larger ones.

Mitigation measures

Mitigation measures are measures that are necessary to avoid, minimise or remedy predicted adverse impacts. In total 2600 mitigation measures are mentioned in the Environmental Impact Assessment process for the period 1994-2002 concerning all aspects of possible impacts. The most common mitigation measures concern impacts on vegetation, visual impacts, impacts on extractions in quarries, impacts on fish-life (mainly in rivers), impacts on land-use, impacts on archaeological remains, impacts on bird-life, impacts on wetland and water, impacts on geological formations, and noise. Dozens of other measures are however recommended.

Recommended mitigation measures arise during different stages of the EIA process. The majority of the recommended mitigation measures, some 62%, are made in the Environmental Impact Statement. One fourth are included in comments from consultative bodies and others. While the Planning Agency and the Minister of the Environment recommend some 5-6% of the total mitigation measures. A study on the implementation of mitigation measures showed that some improvements are necessary to ensure that the mitigations determined in the reports are put into practise in the execution of road projects.

Strategic Environmental Assessment

In recent years environmental issues and impacts have become a topic for consideration in the establishment of various plans and programmes, and according to the decision within the European union, this will be mandatory from the middle of 2004.

The PRA has made some preparations for the implementation of this new Act. From a parliament decision this year we now have a transport plan for the next 12 years, which is to be reviewed every fourth year, as well as a road plan for 4 years, which is to be revised every second year. The transport plan will undoubtedly undergo a Strategic Environmental Assessment, though whether we can say the same for the road plan is not yet clear.

Does EIA improve the state of the environment?

The EIA process should make a better foundation for decisions and therefore lead to more rational and structured decision-making, providing also a better platform for keeping the public informed. In the Public Roads Administration's opinion, the implementation of EIA for road projects has fulfilled this goal. The preparation of projects, both in quality and

time, has been significantly improved and final decisions are now based on stronger foundations. The negative consequences of road projects, especially concerning the natural environment, have definitely been minimised, while the positive consequences of road development have been illustrated more than ever before.

Conclusions

In general, road projects in Iceland have, in most cases, a moderate negative influence on the environment. This assumption is among other things based on the review and results of EIA at the Planning Agency.

The EIA has significantly improved the preparation of road projects.

The EIA has certainly prevented environmental damage in some cases.

The new EIA Act of 2000 was a positive step forward, especially as it excluded the smaller road projects with little environmental impact, and introduced the assessment plan.

The Public Roads Administration's main concern is the open, frequently used and time consuming appeal opportunities at the last stage of the assessment process. In some cases, individuals have appealed referring to subjects related to their personal interest, which should be dealt with in the community's planning procedures, and not in the EIA process.

The review of the practice and current issues in the EIA of Icelandic Road projects must therefore be seen in a positive light. As such, we hope that this process helps us to live up to one of the main objectives of the Public Roads Administration, which is the need to develop and maintain a 'harmonious relationship with the environment and community'.

Public participation and environmental integration in transport decision-making

Can EIA/SEA provide a feasible connection?

Maria J. Figueroa¹

Abstract: Public participation is deemed important as a general feature of democratic societies. It is also a high priority in the attempts to integrate environmental concerns into decision-making through Environmental and Strategic impact assessments. Public participation was stated in the Rio Declaration to be an ‘indispensable condition for the achievement of the objectives of sustainability’. The expectation being that more participation and political will could help bring about broad consensus on sustainability measures together with an increase in the transparency of the administrative process. Public participation and consultation are integral to Environmental Impact Assessment EIA. In current practices of EIA, public participation is expected to play an active role in decision making, favouring an open process of collaboration and negotiation between different actors, and strengthening the quality of the process while avoiding controversies on the final decision. This paper argues that an enhanced form of public discussion on the environmental consequences of road transport projects through EIA can be achieved with the coming implementation of the EU Directive for Strategic Environmental Assessment (SEA) to transport sector plans in Denmark. Currently, public deliberation in transport EIA is constrained by the late stage in the process at which the public is directly involved and by mismatches in the rationales between the bureaucratic or planning institutions and the participating civic society actors, and between the planning and decision-making frameworks. To gain insights into the existing potential for improving deliberation in transport the paper compares two empirical cases combining transport, the environment and decision-making in Denmark. The role of the new Directive for Strategic Environmental Assessment of certain plans and programmes, SEA, in addressing the particular hindrances to

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effective public participation in transport EIA is revised. The implementation of the SEA Directive to the transport sector in Denmark is still not assured as the Danish planning system still does not require a separate set of transport sector plans by law. However, the paper argues that there remain good arguments to be put forward in support of SEA implementation to the transport sector, among them that SEA could play an important role in changing the way decisions are taken in transport and that they could thus also become an instrumental link between public participation and environmental integration in transport.

Keywords: Public participation, environmental integration, strategic environmental assessment, and transport.

Introduction

Decision-making in the transport sector occurs within the complexity of a multi-modal, multi-scale, multi-actor system, that is linked to every other economic sector, it is not prone to straightforward technical solutions, while it can have severe environmental impacts (Therivel 1998). Public participation in transport is necessary to achieve the objectives of policies for sustainable transport development. Public participation in the environmental impact assessment (EIA) of transport projects can contribute positively to bringing environmental concerns into the debate. A recent evaluation of EIA practices in Denmark performed at Aalborg University supports the conclusion that public participation significantly stimulates the EIA process, essentially the public act as a watchdog ensuring that many different (environmental) interests are taken into consideration during the process. (Kørnov, 2003).

These findings are not new (Kørnov, 2003; Elling, 2000, Kørnø, 1997). For many years there has been institutional awareness of the environmental effects of transport development (Tengström, 1999; Sørensen, 2003). Many claims from researchers and environmental groups have found a corresponding echo with local, regional and national authorities. Nowadays, environmental groups, government authorities and civil society actors alike share the consideration of noise, safety, congestion, energy consumption and air pollution as the principal environmental concerns of transport. Many steps have already been taken to ameliorate these effects in Denmark as well as in most other industrialised countries (Barde and Button, 1990; Trafikministeriet, 1990; 1993). Progress towards a sustainable transport future will increasingly involve policies, programmes and plans aimed at changing user behaviour rather than creating new infrastructure technology (Therivel, 1988). As such, incorpo-

rating the public and improving deliberation on the environmental effects of transport are matters of vital importance.

This paper is concerned with the issue of whether deliberation over the environmental consequences of transport can be improved in institutionally arranged and non-institutional forms of public participation and the ways in which this deliberation can in turn propitiate changes in transport policy and decision-making towards consideration of more sustainable transport options.

The paper argues that there exists a potential for enhancing the level and effectiveness of public discussion and deliberation of environmental issues related to transport development and that this potential could profitably be channelled and better co-ordinated with the implementation of the EU Directive on Strategic Environmental Assessment in the interests of advancing democracy and sustainability in transport.

The first point to be made concerns the existence of a potential for improving the general level of deliberation as regards transport issues. The potential is perceptible at the local level in the voluntary work of individuals and in different forms of public involvement in matters of transport through direct or indirect involvement at the local level, for example local initiatives, environmental groups and local agenda 21. However, the results, in respect of the proposals and ideas emerging from these efforts lack the institutional link to actually affect transport policy or its decision-making processes. More concrete possibilities exist within institutionalized forms of public involvement such as EIA, as will be discussed below with regard to one of the empirical cases in this paper, however, the strength to change 'core decisions in transport' of this participation is also minimal due to the fact that, consultation in transport EIA begins too late in the decision-making process, and that it offers little space for deliberation of more sustainable alternatives. Additionally, participation is further restricted by hindrances that are specific to decision-making and policy processes within the transport sector.

The paper goes on to argue, after interrogation of the background literature, that the two specific hindrances to public participation in transport are: first, a mismatch between the 'claims' or 'rationales' the actors bring to the forum *vis-à-vis* the rationales of the bureaucratic and economic domains within which decisions are taken (Jamison and Østby 1997); second, a mismatch between the expressed goals and institutional efforts to implement elements of 'communicative planning,' in participatory processes in planning and EIA and a reality dominated by 'corporative-entrepreneurial' regional policy and decision-making (Sehested 2001). In its final section the paper proposes that effective participation in

transport should promote an enhanced debate of the alternatives for sustainable transport options that can have a progressive impact in changing transport policy and decision-making. With the implementation of the EU Directive on Strategic Environmental Assessment there will be some opportunities for addressing the mismatch between the intended goals of participation in planning and the real framework for decision-making, as well as the possibility to address the issue of the late stage at which participation in transport occurs in the policy process, however, in the Danish case it is not yet clear how, and if, the SEA directive applies to transport sector projects, plans and programmes since the planning law in Denmark do not require a separate system of transport sector plans. A review of some of the SEA directive objectives thus helps to make the point that the implementation of the directive for transport sector planning is an important and indeed very necessary to achieving the overall goal of sustainability. SEA could become the tool for enhancing democratic participation in transport through the early public consultation and consideration of alternative transport developments, and in this way it could thus facilitate the integration of environmental concerns into transport decision-making.

Methodology

The comparison of two contrasting empirical cases of public participation as regards road transport in Denmark forms the basis for the analysis here presented. The cases have been selected because they represent special processes of public involvement in transport where considerations for alternative transport development and its environmental implications formed an important part of the public debate. Both cases have been initiated during the last ten years. An extensive number of publications regarding the cases are available. A good part of the research for this paper consisted of a desk-bound review of the existing documentation for each case. The systematic comparative analysis of the scope of the public debate was based on criteria inspired by the work of Smith (1984); looking at relevant criteria to evaluate the process and the outcome of the process: for the process the criteria was: institutional, non-institutionally arranged participation, the breadth of public actors that were involved in the process, the type of resources available for participation, time and cost. In evaluating the outcome the research focus concentrated on: environmental issues; the representativeness of participants, the degree of discussion of transport alternatives with a concern for the environment, the impact on decision and concrete results of the effort. In each case a small number of interviews were carried out to complement the extensive use of published material. A literature review allowed the completion of the

evaluation of the results of the debate in terms of its scope and its effects on decision-making. In particular the work of Jamison and Østby and Sehested served as a theoretical background for identifying the mismatches in the transport decision-making processes that are interpreted as hindrances to public participation in each of the two cases.

Presentation of the empirical examples

The examples reviewed in this paper are described in the appendixes; Boxes 1,2. The first case considers participation in the EIA process of a controversial road to be built through a nature-reserve area in Silkeborg, a small town in the middle of the peninsula of Jutland in Denmark. The second case concerns the process of the elaboration of an alternative transport and environment plan for the city of Copenhagen performed by a Non-governmental organisation in 1989 and the ensuing public debate.

Public Participation in EIA: The case of the extension of the Herning-Århus motorway through Silkeborg in Jutland

This case reviews the results of a process of public participation that has as its core the activities surrounding the Environmental Impact Assessment (EIA) of the proposed extension of a motorway that, if built, would cut through one of Denmark's most beautiful landscape and nature protected areas, namely, the valley of the Gudenå river (Vejdirektoratet, 2002), located in and around Silkeborg, a small town in central Jutland, which is the continental part of Denmark. The decision to build the road was taken around 1993, after the confluence of strong regional interest on the expectation that a high class road or motorway would attract some of the activities and economic growth that were already set to take place after the building of the Great Belt bridge connecting East and West Denmark and the decision to build the Øresund bridge, connecting Sweden and Denmark. In this same spirit, it was thought important to facilitate a fast connection between the cities of Århus and Herning to bring some of the potential economic benefit of these fast connections to the overall region (Nielsen and Anderson, 1994). Since 1993, the budget and approval for the road had to be submitted for consideration to the yearly finance law that takes place at the Folketing (The Danish Parliament). Also, an analysis of the environmental impacts of this project had to be undertaken in accordance with EIA directive 85/337 (Nielsen and Anderson, 1994). The case for the need to build the road through the Silkeborg area has proven to be very difficult to argue to the public who initially did not support the idea of building through a protected nature area. To attenuate the effect of the public opposition to the road an infrastructure act was passed in Parliament in 1993 to

construct both ends of the road, the section from Århus to Låsby and from Herning to Bodolt, which had in any case created much less public opposition. For the section through Silkeborg, a new EIA assessment for additional alternatives was requested by the Ministry of Transport from the Road Directorate who subsequently presented, in 1998, an additional 10 proposals (Vejdirektoratet, 2002). By then however the grassroots organisation 'People from Jutland Against Superfluous Highways', had been established which had some 130-180 paying members, among other actions they collected around 1000 signatures against the latest road proposals. After no decision had been taken, the Road Directorate presented later in 2002 its two most 'viable' alternatives, to which some of the organized public groups through 'People of Jutland' responded that neither proposition should go ahead. This group, 'People of Jutland' subsequently resorted to civil disobedience, painting a bridge's foundation and climbing trees that needed to be felled for the road to pass. At this point public support against the road soared and a collection of signatures in one of the affected communities Gjern, showed that 75% of households were against the road. However signature collection and support from households in Silkeborg soon showed signs of weakening as regards the levels achieved at the beginning of the process². The time lag probably played in favour of the State decision to build the road here as one of the members of 'People of Jutland' (Bente Fluglsbjerg) noted, 'people are growing tired and they believe they cannot stop the road'³. While the government still proceeds with its original plans, it nevertheless sustained a considerable loss of legitimacy leading ultimately to the project's satiated status. Other public constituencies emerged in this case. For instance, an individual, Jacob Løchte (engineer), presented an option of his own design 'the combi-line' that received attention from the media and from some political parties. In a later move the Ministry of Transport instructed the Road Directorate to produce an EIA of this 'combi-line' in what constitutes an unprecedented decision in Denmark⁴. One of the largest NGO's in Denmark, the Danish Society for Nature Protection, has also played a role in this case and has informally said that it could even take the case to the European Union court for violation of the Habitat Directive, if the decision was made to go ahead with the road⁵. From the State-side other actors involved in the decision and EIA process have been the Municipalities of Silkeborg and

² Interview with Bente Fluglsbjerg, 24-02-04.

³ Bente Fluglsbjerg, *ibid.*

⁴ Interview with Kaj Tårslund, Road Directorate, Telephone February 2004.

⁵ Interview with Leif Thomsen, Local Danish Nature Protection, 25-02-04.

Gjern, as well as neighbouring municipalities, Aarhus County, The Ministry of the Environment, the Railroad authorities and some private nature and industrial organisations. The Government though represented by several actors is thus still only one of many influencing this event. The Road Directorate is the technical body that presents its views as highly technical and non-political formulations, and thus it tries to adhere strictly to the rules. It acts only upon request from the Ministry of Transport to conduct an EIA. The Road Directorate registers all inputs from the public hearings, as well as individual comments and inputs from interest groups and carefully keeps records of who and what has been said in the process. They claim this makes for a more transparent process. However, the reasoning of why the final number of alternatives was restricted to two is not a matter open to public debate. Neither are its recommendations for the most viable option presented by the Road Directorate to the Ministry of Transport. On the 1st of July 2003 the ministry of Transport announced that it is likely that the construction of the westernmost section of the motorway from Bording to Funder will be given the go-ahead, as there is only one alignment proposal for this section in the EIA report. The section from Funder to Låsby, the most controversial section however remains under consideration⁶

Overall, until now it can be argued that the public opposition to the road has succeeded, as no political decision has been taken on this case by the transport authorities, creating a lag time of some ten years. The EIA process has served as the centre of attention since it is about the different alternatives produced and subjected to EIA that the public and environmental groups have concentrated their efforts to voice their demands. Thus this case presents an interesting test of some of the virtues and limitations of public participation in transport planning and at the project level stage in EIA.

In the first place, the case has proved that a significant and consistent demonstration of public dissatisfaction with a project may leave the pertinent authorities in a difficult position as to how to proceed with the project, without losing legitimacy. The end result being, as in this case, that no decision is taken. The long delay in the decision may be perceived as both creating and restraining opportunities. On the one hand it limits the economic opportunities of the potentially affected areas for selling properties and land, while on the other, the delay may create an opportunity to change the decision if new elected authorities were prepared to reconsider alternatives and potentially incorporate some of the public's demands into the new alternatives.

⁶ Interview with Kaj Tårslund, Road Directorate, October 2003.

This case exemplifies the existing model for public participation in land use planning and in transport EIA where attempts are made to elicit public participation via the exercise of some of the principles of collaborative planning which involved the use of methods for public education, involvement and shared decision-making (Lawrence, 2000). In Denmark, the EIA directive has been integrated into the planning system and environmental permit system, which have existed since the beginning of the 1970's. As such, the EIA system in Denmark has two tracks: one integrated into the environmental permit system and the other integrated into the planning system. In Denmark the EIA process is carried out by the regional authority, in this case it corresponded to the Road Directorate because of the classification of the proposed road as a national motorway. The Road Directorate initiates public information at an early stage of the EIA process by making available to the public pamphlets with information of intent of a project's implementation. Later the EIA process establishes an 8-week period of public consultation where people can make objections to the proposals during public hearings.

Public participation during EIA's public hearings is oriented towards the goals of facilitating efficient project management, information provision, conflict resolution, the development of confidence and trust in the project and the implementing office, and depolarisation of interest (Bjarnadottir, 2001). The Road Directorate maintains a detailed account of the opinions expressed during public meetings. It also keep records and compiles all of the letters and other forms of public communication (i.e. signature collection, alternative routes proposals) people may present and respond to each individual claim with an acknowledgment letter on behalf of the authorities. The documentation produced from the public hearings is kept for the records of each specific project. The Road Directorate produces a summary of this process and passes it along with its own recommendation to the Ministry of Transport where the final 'political' decision is taken. This decision then needs to be validated, in the case of roads under national jurisdiction in Parliament, where a transport commission within Parliament and the general assembly will have the final say on the approval of the projected road. A national road project needs to be approved by law.

A decision that reaches Parliament has little chance of being either totally rejected or changed. It is interesting to note though that the State, by furthering the decision-making procedure from the Ministry of Transport to the Parliamentary level, may have intended to regain a certain lost legitimacy particularly on road building decisions. This process was not

in place twenty years ago when road infrastructure decisions were not as contested politically or environmentally as they are today.

Public participation in the EIA process is structured in a similar vein as that of participation in spatial planning, and shares a lot of its principles and central features. However, there is a mismatch between the principles and goals that guide the theory and practice of participation in EIA and planning procedures in general, and a reality where transport decision-making occurs within a technical-rational planning model (Nielsen and Anderson, 1994) and the world of *realpolitik* (Flyvbjerg, 1998) where corporative-entrepreneurial decision-making prevails at the national-regional and local levels (Sehested, 2001). A decision to build a road such as the one through Silkeborg, Jutland, has more to do with economic rational and the interests of different economic pressure groups and the desire of the local and regional authorities to grow economically than with expressions of a collectively formulated vision of how to develop the region in a sustainable manner.

The production of new alternatives or the evaluation of new possibilities arising from consultation do not form a part of the participation model in transport planning and EIA. In the case of Silkeborg, as it was presented before, this did not stop members of the general public from formulating additional alternatives and presenting them to the Road Directorate, such as the case of the 'combi-line'. The case of Silkeborg thus presents an interesting case of active public participation that has succeeded in stopping the road administration from taking a decision over many years. The question arises then at what cost can the debate be maintained and the number of alternative proposals subject to EIA be evaluated and presented again? How long can this process go without a political decision? Public hearings focus most commonly around changes in road alignment and so it has been the case in Silkeborg that the most fundamental question that needed to be addressed before initiating the process, whether this road was necessary or not cannot be addressed in the public hearing any more. It is also the case for other issues such as whether other alternatives to road transportation could be more suitable (train, bicycles, public modes or no road). The political decision to initiate the building of both ends of the road makes the process even more closed around the necessity to build this last stretch of road.

One of the reasons why the discussion of integrated modal transport solutions is rather difficult at the project level has to do with the typical segmentation of transport authorities into road, train, air, and water that makes it rather difficult for a single institution such as the Road Directorate to present and discuss integrated modal solutions to particular

problems (Sørensen, 2003). Other factors hampering the effect of participation in the planning and EIA of transport projects are, first the fact that public involvement comes at a later stage in the policy process, which means that deliberations pertain mostly to how a *de facto* decision would be implemented. Second that the real arena for decision-making in transport continues to be the back stage corporatist type of bargaining between major interest players. This will be discussed below under the mismatch of theory and practices of planning and EIA. Third, the mismatch between the type of claims that the public bring to the planning and EIA process and the rationales that are brought to the process by the authorities in charge of conducting the public hearing and the other economic actors affecting the decision-making process acting under the rationale of regional economic growth.

Public participation is also further complicated by the number of public versus private bargaining issues that arise. Some of the participants may be of the 'not in my backyard' (NIMBY) type. In Silkeborg, individual actors with particular private issues have been more successful in articulating their concerns in connection with larger public concerns such as the environment. This is how a number of the pressure groups came to be involved in the case of Silkeborg (Nielsen & Anderson, 1994). What could easily have been an incoherent group of disapproving NIMBY voices against the project at the beginning thus turned into an articulate group raising larger public concerns about the environmental implications of the project. As such, opposition became more effective. The joint efforts of private and other actors in such cases had the effect of creating more significant levels of pressure than would have been the case where a single private concern, or even a number of unrelated private concerns, were raised at a public hearing.

The fact that private 'civic society' actors can exercise greater pressure in the public hearing through the expression of public concerns may therefore favour further inclusion of general issues such as the environment over issues of a 'nimby' nature and this may favour a fuller consideration of the environment and its attached issues in future debates.

A local NGO initiative: An alternative transport plan for Copenhagen

In 1989 a well-established non-governmental group in Denmark (NOAH) took the initiative to produce an alternative vision/plan for Copenhagen Transport and Environment Management ('Trafik og Miljøhandlingsplan for Hovedstaden') (NOAH Trafik, 1989). NOAH is the environmental group with the longest history in Denmark. Created by rebellious university students in 1969, the group participated in many revolts expressing

its criticism of the materialistic welfare society and exposing many environmental problems. In particular the struggle against nuclear energy that led to Danish renunciation of nuclear power gave NOAH and the other main environmental groups involved in that fight a significant amount of legitimacy (Jamison et al, 1990). Though transport was not the special subject area for NOAH's work at that time, a new generation of NOAH activists embarked upon the task of producing an alternative transport and environmental plan for Copenhagen. The task was not simple for the group placed a strong value on equal rights with regard to participation, responsibility and active internal democracy as a way of getting things done. This rhetoric proved difficult to implement in practice to achieve the production of a plan based on an open debate with different actors⁷. Some of the other interest groups that participated in this effort were the Danish Society for Nature Conservation, the group 'Action Against Smog', the Danish Cyclists Federation, the Union of Bus Drivers, the Union of Railway Employees, another group called the 'Association for the Embellishment of Copenhagen', two environmental groups related to energy, the Organisation for Renewable Energy and the Association for the Elderly People of Copenhagen. The result was the '*Trafik-og Miljøhandlingsplan for Hovedstaden*' (Traffic and Environment Action Plan for the Capital City; TEMC) that put together direct recommendations for an alternative vision of traffic in Copenhagen structured around a 50% reduction in automobile use from that of the 1989 level. (Nielsen, 1989). A series of recommendations were formulated with regard to how to accomplish this reduction giving special priority in strict order to pedestrians, cyclists, people who travel in trains and buses, and lastly to people who travel by automobile (NOAH Trafik, 1989). After the TEMC was completed it was presented to the Regional City authorities, who did not make any public reaction to it. The public release of TEMC and its favourable review (Nielsen, 1989), however provoked another interested actor, the Danish Association for Automobile importers and Automobile Dealers, into quickly reacting by formulating their own vision for Copenhagen's future transport development in another public document '*Bilen i Byen*' ('Cars in the City') which presented an alternative vision for transport development placing priority on travel by car in the city (Danmark FDM, 1989). The public debate continued until a joint central/local government committee headed by the Ministry of Finance put out an official plan for Traffic investment in Copenhagen the following year (*Udvalget om hovedstadens trafikinvesteringer*) (Udvalget, 1990). This plan included a few of the ideas coming out of the debate but the plan largely

⁷ Interview with Ivan Lund, September 2003.

supported projects for significant investment in transport infrastructure for the city such as the development of Ørestad and the Copenhagen Metro. This second case study illustrates how public deliberation may bring environmental concerns to the transport debate in an attempt to affect the policy process at an earlier stage of agenda setting and policy formulation. The publication of the alternative NGO plan for Copenhagen was the concrete result of a long debate on Copenhagen's spatial development among interest groups within civil society. Soon, the Federation of Danish Motorists (FDM) published its own alternative plan for Copenhagen (Danmark FDM, 1990). At this point of the public open debate it was clear that a series of decisions were about to take central stage as regards the intention of developing a more entrepreneurial urban and metropolitan regional policy. Copenhagen was now to act as a 'dynamo' for regional and national growth and the regional state authority created a joint regional/local government committee headed by the Ministry of Finance that elaborated on and published within a year of the debate a regional plan for investment in the city of Copenhagen (Andersen, 2002). This plan was published in 1990. The plan incorporated a few of the ideas presented in the earlier public debate but for the most part it was a result of a more entrepreneurial growth vision and contained proposals for heavy infrastructure investment such as the development of the Öresund bridge and later the Orestad, and for the first time the idea of building a Metro for Copenhagen, all as symbols of the future competitive, creative knowledge based region (Andersen, 2002).

Even though the above-mentioned outcomes seem to dwarf the accomplishments of the previous efforts of a single NGO, and at the risk of trying to gain insight from what looks like an isolated event and from a particular kind of constituency incapable of changing the dominance of the 'corporatist-elitist decision-making process' (Sehested, 2002), it will be argued here that the efforts made by this NGO created opportunities for other actors to join in a debate and have a more definite position regarding transport issues. The NGO's alternative plan for Copenhagen was an attempt to affect the policy process at an earlier stage as well as one of trying to generate a vision for the development of the city. In general it can be seen that the deliberation process created here was open to different constituencies. Additionally the debate aimed at creating a vision where the integration of diverse aspects for the provision of transport services was a particular goal of the exercise. The opportunity for debate about alternative visions on transport development enhances the quality of the public debate if only by providing opportunities for struggles and discussion of alternative solutions and recommendations. The opportuni-

ties to confront alternative visions of transport development from different actors and interest groups are of great significance even when actual development leads to decisions being taken within the context of a bargaining process between corporative-elite interests.

In the final bargaining process this case only proved that making the case for the fuller consideration of the environment in transport continues to be a very difficult endeavour since in transport decision-making a situation of asymmetrical power exists from the outset (economic interest-rational for growth), and this is compounded by a tradition of technocratic decision-making. This means that in any public process some implicit requirements are not open for discussion. Thus far, changes to the agenda for the provision of unrestricted transport mobility are very difficult to bring about despite their often harmful consequences on the environment. This creates a situation where it can be asserted that environmental concerns are from the outset given minimal leverage in the bargaining process and public participation needs to be enhanced to help achieve a 'greening' of transport policy in Denmark. The public debate initiated by the NGO alternative plan for Copenhagen sparked some interesting institutional action in its aftermath. Though the debate itself did not effectively contribute to the penetration of the official discourse, one could however say that it did create a favourable momentum⁸ for the State to take the initiative with regard to implementing the Traffic and Environmental Plans at the Municipal level. The implementation of the local transport and environmental plans 'Trafik og Miljøpuljen' (Miljøministeriet, 1992) demonstrated that the State, may be prepared at the national level, to take more specific actions in response to environmental pressure from the public to integrate transport and the environment. The traffic and environment municipal plans initiative launched with the Transport Action Plan of 1990 in Denmark (Trafikministeriet, 1990) created opportunities at the Municipal level to establish connections between transport and the environment (Flybjerg, 2002). Unfortunately, the momentum for this initiative lasted only 5 years and the process was discontinued after the initial funding was depleted. However, many municipalities adopted new ways of thinking about transport and the environment as a result of this initiative and some of the ideas and procedures became mainstream in local urban planning. The experience was indeed positive

⁸ The presence of bureaucrats with more or less sensitivity towards NGO's demands at a certain historical point should not be underestimated. I argue that it may be as important as the pressure that the actors from civic society may exert on the government in any given situation. This fact clearly reflects some of the internal strategic struggles the State undergoes within itself.

and it may well have created the basis for the development of further positive experiences of the same kind in the future.

Mismatches in rationales between actors, and mismatches between the goals and the reality of public participation in planning

In a study comparing European experiences with public participation and sustainable development, Jamison and Østby (1997) pointed to the existence of a gap between rhetoric and practice in participation. According to them this gap is in part explained by cultural tensions between different policy domains, namely, the bureaucratic, economic, academic and civic and their often-incompatible policy cultures. Each of the different policy domains has different 'rationales' or principles, steering mechanisms and types of ethos. Whereas democracy is the main principle within the civic domain, the principle of growth prevails in the economic domain and the principle of order in the bureaucratic domain. From this Jamison concludes that what is necessary for public participation is a process of social innovation that creates spaces for interaction across social domains, processes of communication or translation across discourses or domains (knowledge brokers), change agents and political entrepreneurs, enlightened civil servants, political support from above and mobilisation from below (Jamison as cited in Lund 2003).

Applying Jamison and Østby's analytical interpretation to understand our two cases of participation in transport decision-making it is possible to see that the spaces for interaction across the economic-bureaucratic-academic-civic domains that exist are indeed currently very limited. Moreover, the opportunities for translation and communication across discourses are also limited or non-existent, for instance in the case of the EIA report and the Plan for the development of Ørestad in Copenhagen there was no intention on the part of the authorities to negotiate the technical and economic rationale motivating the decisions that were taken in respect of the building of the proposed roads. However the case for the existence of enlightened civil servants willing to push new initiatives at the government level may chime with what occurred at the end of the debate in Copenhagen when the Traffic and Miljø plans at the Municipal level were promoted for several years. Greater political support from above may be forthcoming as well with implementation of the EU Directive for Strategic Environmental Assessment as will be discussed in the following section.

The second important mismatch existing in transport decision-making occurs between intended actions to implement participatory proc-

esses within the context of the principles of communicative planning and the dominance of corporative-rationalistic-elitist-frameworks for decision-making that dominate certain urban policy areas of national or international interest and large physical constructions. (Andersen, 2002; Sehested, 2002) In Denmark the dominance of corporative-rationalistic-elitist frameworks for decisions are to be found in recent examples such as the large physical construction of shopping malls or new towns as the case in Ørestad suggests (Andersen, 2002), or in the case of new transport infrastructure like the Øresund and Great Belt bridges and smaller examples such as the road between Aarhus and Henning, considered in this paper. Communicative planning or planning that is about collaborative consensus building (Lawrence, 2000) is mostly to be found in Denmark in policy areas related to housing and in local urban planning processes (Sehested, 2002).

Implementation of strategic environmental assessment on plans, programmes and projects

In Denmark, the system of Land use planning is regulated through the Planning Act, which establishes the framework planning ensuring that provisions in local planning are in correspondence with regional and national goals for urban development (Miljøministeriet, 2002). A separate system of transport plans is not required in this Act.

Because of this system, SEA may not be directly applicable to transport sector decisions in Denmark. However, there are good reasons why transport decision-making processes may benefit from SEA implementation. SEA will permit early opportunity to be given for the participation of those members of the general public, environmental authorities and others affected by the plan. (EU-Directive 2001/42/EC; Art. 5). This prescription of the directive alone will potentially eliminate cases like those of Silkeborg where long and expensive EIA processes are needed. SEA will allow for early consultation of the different constituencies and sufficient formulation of alternative development. An SEA report at an early stage of decision-making will take care of limiting the scope of what needs to be assessed at the project EIA level.

It is also conceivable that two of the main hurdles to participation that have been discussed in this paper, namely, participation during the earlier stages of the policy process, and the mismatch between communicative planning goals and reality dominated by rational-technical and corporatist-elitist decision-making, will be challenged by implementation of this Directive in transport. This will happen if some of its principles are implemented, such as the considerations of different alternatives, the

transparency and intended openness of the process of plan making and the intention of achieving significant protection of the environment with a view to promoting sustainable development (EU-Directive 2001/42/EC: Art.1).

The implementation of the SEA Directive in transport decision-making will make planning more of an interactive process with much greater consideration being given to the inclusion of the environmental dimension. Thus SEA can become an important tool in the 'greening' of transport decision-making in the future.

Concluding remarks

The deliberation of alternative environmentally sound transport developments is crucial to achieving sustainability. The type of policies, plans and programmes that may result from this deliberation needs to have extensive public support to become successful. For this reason public involvement is necessary and participation in the decisions that shape future transport development are important. This makes necessary the creation of government-initiated processes for public involvement in transport at a level where visions, potential alternative developments and their consequences are open for debate and discussion. This is however only possible at the strategic level and not at the project level when a decision has already been taken and public consultation essentially becomes an 'add-on' to the process.

This paper has examined two cases of public participation in matters of transport and environment. The intention has been to compare what each has accomplished, and whether deliberation of environmental issues has improved within the existing government initiated opportunities for participation vis a vis non-governmental initiatives for participation.

The conclusion is that institutionalized and non-institutionalized forms of participation alone are currently toothless and are thus unlikely to make a dent in the core process of unsustainable decisions in transport. The paper elaborates in some detail the reasons why: one reason relates to how decision-making, problem formulation and the definition of alternative solutions in transport favours expert delegation, and a technical-instrumental rational which creates a mismatch with the claims and rationales brought to the process by the public and environmental groups. Another reason is that large infrastructure transport decisions are taken within a framework of corporate-elite bargaining processes that are not really open to public scrutiny. As was reported in the second case study, a set of decisions were taken for new urban development in Copenhagen in parallel with a small debate initiated by a non-governmental organization

to discuss an alternative transport plan for Copenhagen. The initiative was however dwarfed by the entrepreneurial proposal for developing Copenhagen into an engine of regional economic growth. It is clear that in this decision-making context, public hearings or public self-organized voluntary initiatives offer minimal opportunities to establish an open negotiation of alternative visions.

A common feature of the two examples reviewed in this paper was that public participation *did* increase the space for greater deliberation of the environmental concerns within the context of the specific transport cases considered. The extent of the participatory processes analyzed in terms of voluntary time invested and results reveals a potential for enhancing the debate on transport and the environment in connexion with future transport development. In the case of the groups opposing the building of a road through Silkeborg, ten years of antagonism to the project exemplifies just how far the public is ready to carry on their own initiatives when they feel passionately about an issue. It also reflects the potential strength of public opinion when it raises the question of at what cost should democratic consultation exercises such as EIA be continued?

In the attempt to proffer an answer to this last question the paper conceives that democratic consultation should occur at an earlier stage in the level of decisions and not at the project level EIA. One possible new development towards greater participation at an earlier stage in the policy process and to the greening of policies will take place with the implementation of the EU-Directive on the Strategic Environmental Assessment (SEA) of certain plans and programmes. As intended, the SEA Directive will create mechanisms to ensure that participation is strengthened and more democratic forms of deliberation and decision-making are achieved for certain plans, programmes and projects. As such, it is a tool that may create more opportunity for public voices to penetrate the official discourse focusing on the discussion of the environmental consequences of transport development plans and projects in the otherwise largely impossible to challenge decision-making *milieu* of transport policy.

To conclude, it is fair to say that participatory forums are plentiful in Denmark, which is a society that values consensus, public enlightenment and democratic participation. However, authentic political deliberation on transport policy decisions and the environment still remains a goal to be accomplished in practice. The examples discussed here show how public efforts can encourage the wider discussion of environmental issues into the public debate even when the actual pattern of decision-making in transport remains unchallenged. The presence of a multitude of actors and interests in the transport policy realm creates a need for more open delib-

eration on the issues surrounding transport and the environment. The Danish State will thus need to show readiness in providing economic support, openness to experimentation and a stable scene for the participation of these policy actors as part of the coming demands for the full implementation of the Strategic Environmental Assessment directive in transport.

Deeper democracy in the transport realm, and the fuller inclusion of environmental concerns in decision-making will depend both on the opportunities made available for new debates to 'gain space' within the State via institutional instruments such as EIA/SEA, and on the quality and enhancement of the debate that civil society maintains over the types of transport development they are ready to accept and live with. This is a complex process and also one that is in constant evolution.

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EIA and geothermal energy in Iceland

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Abstract: Geothermal resources in Iceland are closely associated with the country's volcanism and location on the Mid-Atlantic Ridge. Geothermal energy plays an important role in the country's energy supply providing about 50 % of the country's total primary energy supply, with hydro-power providing 18 %, oil 30 % and coal 2 %.

The principal use of geothermal energy in Iceland is for space heating but expansion in the energy intensive industry has been partly met by increasing the amount of geothermally produced electricity.

A state institution, the National Planning Agency, oversees the EIA process in Iceland. The chief environmental factors under consideration in the process regarding developments in geothermal areas are water resources and disposal, geological factors, landscape and visual effects, tourism and recreation, vegetation, hot spring micro-flora and fauna, noise pollution, and air quality. These factors are scale and location dependent but the geothermal regions in many cases enjoy some form of a protected status, and are considered to be sensitive and pristine areas. A clear governmental policy on the protection and utilisation of high enthalpy geothermal regions in Iceland has been called for in light of the increasing interest in their exploration and possible utilisation.

There are advantages in geothermal energy in comparison to fossil fuels, nuclear energy and hydroelectric power. However, question marks regarding the renewability of geothermal reservoirs linger, as does a tendency to underestimate other environmental effects pertaining to geothermal energy utilisation.

This paper will address the following points in view of EIA practice on geothermal energy projects in Iceland:

- Geothermal energy exploitation in high-temperature areas.
- Location dependent environmental factors: Small-scale projects-irreversible effects.
- EIA as a basis for sound decisions: The importance of concise assessment at an early stage.

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Key words: Geothermal energy exploitation, geothermal resource management, EIA, location dependent assessment, Iceland

Introduction

Iceland is an island in the North Atlantic just over 100,000 km² in size, with a total population of about 300,000. The geothermal areas in Iceland are closely associated with the country's volcanism and its location on the Mid-Atlantic ridge, and are almost exclusively hydrothermal in nature

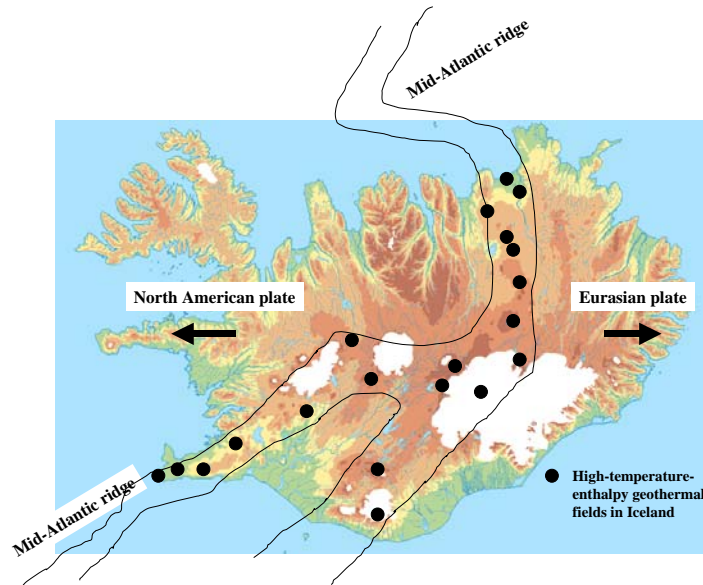


Figure 1. High-temperature geothermal fields in Iceland (Info. From the National Energy Authority, 2002).

(Ragnarsson, 2000). Approx. 25 high-temperature geothermal fields, yielding water at temperatures in excess of 200°C, have been located within the active volcanic zone running across the country from Southwest to Northeast (fig. 1), (Ragnarsson, 2000).

Geothermal energy plays an important role in the energy supply situation in Iceland providing about 50% of the total primary energy, with hydropower providing 18%, oil 30% and coal 2%. The principal use of geothermal energy in Iceland is for space heating (Ragnarsson, 2000). The expansion of energy intensive industries, and in particular the aluminium industry, over the past 5 years, has been partly met by increased geothermally produced electricity in high-temperature fields (Gunnlaugsson, et al, 2001).

In this paper the authors' practical EIA experience regarding high-temperature geothermal developments is presented, focusing on the environmental implications of projects listed in Annex II of the EIA Act.

The EIA process in Iceland

A state institution, the National Planning Agency, oversees the EIA process in Iceland. According to the revised EIA Act in Iceland in 2000 projects listed in Annex 1 of the Act are always subject to an Environmental Impact Assessment (The EIA Act no. 106/2000). Examples of such projects are geothermal power stations and other thermal power installations with a heat output of 50 megawatts or more and other power installations with an electricity output of 10 megawatts or more. At the outset of the formal EIA process for projects listed in Annex 1 the developer prepares a draft scoping report, which is submitted to the National Planning Agency for review. Following the NPA's approval of the scoping report the developer prepares an Environmental Impact Statement (EIS) in accordance with the scoping report and submits the statement to the NPA for review. The EIS is made available to the public with the option to comment. It is within the NPA's purview to review possible comments as well as to consult statutory agencies prior to issuing a decision regarding the EIS. The NPA can either approve the proposed project unconditionally or with conditions or reject it due to significant adverse impacts. The NPA's decision may be appealed to the Minister for the Environment. The NPA's decision or the Minister's decision on appeal is a necessary prerequisite for the issuance of a building and/or a development permit issued by local authorities and an operational licence issued by the environmental health authorities (The EIA Act no. 106/2000).

Alternatively, in Annex II of the EIA Act there is a list of projects that may have significant effects on the environment and are therefore subject to an EIA. These projects are assessed on a case-by-case basis depending on their nature, size and location and other criteria presented in Annex III of the EIA Act. Examples of projects in Annex II are deep drilling projects, in particular the drilling of production wells and exploration wells in high-temperature geothermal regions.

It is within the Planning Agency's purview to decide whether a project listed in Annex II is subject to an EIA on the basis of the criteria set forth in Annex III and opinions of statutory consultative bodies (The EIA Act no. 106/2000).

The practical experience of EIA and geothermal projects in Iceland

Since the implementation of the EIA Act in Iceland in 1994 the National Planning Agency has reviewed approximately 20 separate cases involving high-enthalpy² geothermal area projects of various magnitudes, i.e. Annex I and Annex II projects including screening decisions, scoping reports and Environmental Impact Statements. A great majority of these cases have been submitted since the enactment of the law on subsurface resources and their utilisation in 1998 (Law on subsurface resources and utilisation no. 57/1998). The law authorises the state to control exploitation of subsurface resources e.g. geothermal energy. In many cases there are insufficient baseline studies on high enthalpy geothermal areas in Iceland and in practice the research expenses must be paid by the various energy companies themselves. Therefore, in their applications for research permits for a specific geothermal field the energy companies have requested that they be granted energy exploitation rights in the area in order to ensure their investments. Consequently, the research application is a form of area reservation for a particular company (Stefánsson, 2002).

The characteristics of projects listed in Annex II

A necessary preamble to the exploitation of high enthalpy geothermal areas is that of exploration drilling. These projects are categorised under Annex II of the EIA Act as projects that may be subject to an EIA due to significant environmental impacts depending on their location and other criteria presented in Annex III. According to the cases reviewed by the National Planning Agency exploration drilling projects comprise road reconstruction or new roads, a drilling site or sites, extraction from quarries, drilling wells and steam production while measuring the fluid temperature and downhole pressure. Additionally, there are drilling fluid requirements, effluent disposal and noise reduction arrangements during steam production (fig. 2).

The scope of the projects

The chief environmental factors that have been under consideration in the EIA process regarding developments in geothermal areas are water resources and disposal, geologic factors, landscape and visual effects, tourism and recreation, vegetation, hot spring micro-flora and fauna, noise pollution, air quality and cultural relics. These factors are scale and location dependent.

² Enthalpy: The sum of the internal energy of a body and the product of its volume multiplied by the pressure.



Figure 2. A drilling site at Hellisheid near the Capital Reykjavik, Iceland. (The engineering consulting company VGK, 2003)

Location, nature and the characteristics of geothermal areas

The geothermal areas may vary with regard to existing land use, susceptibility to disruption, tolerability towards exploitation and protective value. A geothermal area can be a popular tourist and recreation area although it may display features of human intervention that have changed its character, e.g. tracks, quarries, power plants and power lines. Other areas may be in pristine condition, and thus enjoy some form of a legal protection status, their scientific and educational value may be high and they may be characterised by hot spring and fumarole³ diversity that have few parallels (fig. 3). Their geological or landscape features may be unique, e.g. pristine lava fields, geothermal alteration zones or wetlands. In most cases, exploration drilling and concomitant developments in these sensitive and pristine areas can have irreversible environmental effects, e.g. road construction, although exploitation of the area does not necessarily ensue. Therefore the location, nature and characteristics of the geothermal areas under consideration are of paramount importance.

The importance of a comprehensive EIA at an early stage

Statutory consultative agencies have pointed out that high temperature geothermal areas where research and exploration drilling is planned, should be regarded as prospective production areas when a decision is made as to whether exploration drilling may have significant environmental impacts. Developers have, however, stressed that exploration drilling does not mean that areas are reserved for utilisation but rather a necessary precondition for assessing a region's suitability for exploitation.

³ Fumarole: A hole in a volcanic region from which hot gases and vapours issue.



*Figure 3. Grændalur in Southern Iceland
(Sigurður Sveinn Jónsson and www.nedrias.is/A/Hverir/Myndir-Grensdal)*

In some cases a first exploration well is drilled on the outskirts of a prospective geothermal area where, for example, existing tracks may be utilised or the area around the drilling site may in some other ways be disrupted. The drilling may yield promising results but at the same time not conclusive enough for the basis of a concise exploitation decision and further exploration drilling is then required. In these cases further exploration measures constitute future utilisation purposes, especially in light of the results from the first exploration well, and bearing in mind the drilling costs associated with exploration and reservoir assessment. Consequently, the NPA has requested that in notifications regarding Annex II projects, submitted to the Agency, future plans on exploration drilling and the exploitation of the geothermal area as well as likely environmental impacts are presented. This is done in order to prevent a ‘salami slicing’ procedure, i.e. the presentation of many small-scale projects that can have synergistic or cumulative effects and significantly and irreversibly impact on the environment. However, statutory requirements do not dictate a detailed coverage in the notification re Annex II projects and it is therefore at the developer’s discretion to do so (Sigurðardóttir, 2002).

Utilisation and protection of high temperature geothermal regions in Iceland

The National Planning Agency has reviewed approximately 20 separate cases involving high-temperature area projects in 8 of the 20-25 high-temperature regions in Iceland. Future interest in further exploration and possible exploitation, for energy production purposes, in some of the remaining unexploited areas has been expressed. In view of this increasing interest a more inclusive governmental policy on utilisation and the protection of these regions in Iceland has been called for to provide a sounder basis for decision making in these matters. The Icelandic Gov-

ernment has initiated a process with the aim of developing a National Programme for Hydro and Geothermal Energy Resources. In the preparatory process of the National Programme a large number of proposed power projects have been evaluated and categorised on the basis of efficiency and economic profitability, as well as with regard to how they will benefit the economy as a whole. The implications for employment and regional development are also considered in addition to the impact on the environment, nature and wildlife, landscape and tourism (www.landvernd.is/natturuafli).

The conclusions of this assignment have recently been made official. It is, however, unclear in what manner the conclusions will be used regarding future decisions on exploitation and/or protection of high temperature geothermal areas. Recently a draft proposal of a Nature Conservation plan was introduced for the first time in Iceland (Umhverfisstofnun, 2003). According to the Nature Conservancy Act in Iceland from 1999 such plans should present a comprehensive overview of the nature conservation areas in Iceland to be protected. The conservation draft is based on much more thorough, comprehensive and systematic methods and criteria than previous proposals, for example concerning geothermal regions, and as such, it represents a sounder foundation on which to prioritise geothermal regions with respect to protection and exploitation. It is important that a clearer policy is officially presented on the protection and exploitation of geothermal areas in Iceland based on the future interests of energy exploitation and other land use aspects e.g. recreation, tourism and protection. This would better facilitate decision-making in the EIA process.

Sustainable exploitation of geothermal systems in Iceland

There are definite advantages in geothermal energy utilisation in comparison to using fossil fuels, nuclear energy and hydroelectric power. Fossil fuels are non-renewable resources and their utilisation entails the risk of pollution, while nuclear energy can present considerable hazards to the living environment. Large-scale hydroelectric projects can also impact extensive areas irreversibly. However, question marks regarding the renewability of geothermal systems and hence the sustainability of geothermal energy have emerged and continue to linger. The most critical aspect for the classification of geothermal energy as a renewable resource is the rate of energy recharge to geothermal systems. In Iceland the recharge of energy to geothermal systems takes place by advection of thermal water and may therefore be renewable (Stefánsson, 2000). An important factor in this respect is the time scale. In the case of hot dry rock and some of the hot water aquifers in sedimentary basins, the recharge rate is

far slower than in hydrothermal systems, and as such, these systems can be regarded as finite resources. In order to obtain sustainable exploitation of the geothermal system there has to be equilibrium between the renewability rate and the rate of extraction. For a long-term operation it is not possible to extract more energy out of a system than the amount of energy entering into the system (Stefánsson, 2000).

Conclusions

There may have been a tendency to underestimate the environmental effects pertaining to geothermal energy exploitation in the context of sustainability, e.g. the disruption of pristine, sensitive high enthalpy areas as well as the time-scale of reservoir renewability. A sizeable percentage of the high-temperature geothermal areas in Iceland have already been disrupted and there is increasing interest for energy production purposes in exploration and exploitation of some of the remaining geothermal regions, still largely unaffected by human actions. Many of these areas in Iceland are a valuable resource in their pristine state and their value can increase proportionally in time due to human activities that diminish the number of such areas worldwide. It is therefore important, now more than ever, that a clear policy is officially introduced on the exploitation and protection of geothermal areas in Iceland, based on the future interests of energy exploitation and other land use aspects, so that future generations may experience some of them in their natural state.

The EIA process is an 'imperfect' process in the sense that it is limited to the review of a particular project. It does not encompass a comprehensive assessment of the environmental effects of a number of projects, e.g. exploration wells and other associated projects in geothermal areas, such as power plants, or the environmental impacts of various plans or programmes. The emergence of Strategic Environmental Assessment (SEA) and its introduction into national legislation may present an opportunity for such a comprehensive assessment.

However, the EIA process has proved to be important in revealing the impacts of particular projects in geothermal regions, the lack of information and baseline studies and by raising discussion points among the public, statutory consultative agencies and politicians concerning the need for comprehensive plans as a basis for sound policy-making and decisions for these important areas.

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EIA and Heritage Management – the need for research and development

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Abstract: This contribution aims to summarise the ongoing discussion within the Swedish cultural heritage sector. Cultural heritage is one of the historical dimensions of the landscape while also being a property of the landscape. It can be found wherever people live or have lived. Cultural heritage is also a part of the environment, the cultural environment. The cultural environment is also a resource in the adjustment to sustainable development. But to be able to utilise its potential, we need to work with more values than the traditional documentary ones. At present, we are working to develop the following foundations for the value of the cultural environment:

- Documentary value, heritage as a source for knowledge about history.
- Experience value, heritage as a social resource for the people of today.
- Utility value, heritage as an economic resource for the people of today.

We also need to develop methods that are adapted to the fact that the cultural environment, as a part of the landscape, is in constant flux. Up to now, change has been conceived by us – the heritage sector professionals – as a threat. We should however look at it rather more, this paper argues, as an opportunity.

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Introduction

The requirement in the Swedish Environmental Code² of 1999 to assess the environmental impact of projects and plans³ has increased the potential of the cultural heritage sector not just to better protect the cultural heritage but also to develop it and make it more accessible to the public.

The objective of an EIA⁴ is to identify and describe the environmental impacts of projects and to assess whether prevention or mitigation is appropriate. The consultation process that take place prior to the drafting of the environmental impact statement includes a description of the aspects of the environment likely to be significantly affected by the proposed project, including population, fauna, flora, soil, water, air, climatic factors, material assets, including the architectural and archaeological heritage, landscape and the inter-relationship between the above factors. In this process the public is able to provide input and express environmental concerns with regard to the project. Finally, the project must be modified in the light of the consultation process both as regards the choice of alternatives and with regard to preventative measures. This, in short, is an EIA.

The requirement of environmental impact assessments has however also entailed higher requirements in respect of the cultural heritage sector than hitherto had been the case, primarily to make a clear presentation of the value of the cultural heritage and its importance for society and the citizens. This contribution aims at summarising the ongoing discussion within the Swedish cultural heritage sector with some reference to the other Nordic Countries and to the situation pertaining in the UK.

Heritage management and the present

Heritage management is not about the past. Heritage management is about the past in the present. We are not working on behalf of posterity; we are working for the present day. We must therefore listen carefully to what people today expect of those who work within the cultural heritage

² Miljöbalk (SFS 1998:808). English short résumé on

http://miljo.regeringen.se/pressinfo/pdf/env-code_resume.pdf.

³ The Swedish Environmental Code Committee (Sw. Miljöbalkskommittén) suggests that regulations to give effect to Directive 2001/42/EC on the Assessment of the Effects of Certain Plans and Programmes on the Environment should be implemented in the Swedish Environmental Code, from July 2004 onwards. SOU 2003:124 *En effektivare miljöprövning*

⁴ Directive 97/11/EC amending Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment.

sector. We must ask questions about which cultural values are important to safeguard for people today. What motives should steer the selection? Successful cultural heritage work thus has to start with a situation analysis to identify contemporary needs and to specify the potential for cultural heritage work to give citizens a richer life.

So what are contemporary needs? That discussion can proceed from the following factors⁵:

- Sustainable development
- Participation by the general public
- The active social role of history
- The cultural heritage as a part of the environment

The factors will be briefly commented on below.

Sustainable development

The concept of sustainable development is naturally of crucial importance for the environmental work of the cultural heritage sector. Yet although the concept has existed for nearly a decade, in Sweden it has not become established in the cultural heritage sector as a policy goal to any great extent until recently. And it is not yet established as a common attitude among the professionals in the cultural heritage sector. The reason for this is probably that the concept is associated more with (ecological) environmental policy than with cultural (environment) policy. Since 1997, however, the concept of a 'sustainable society' has been among the most important Swedish policy goals as regards work with the cultural environment⁶. One of these goals is that cultural environment work should contribute to a sustainable society through the provision of good and stimulating environments. Likewise, cultural environment work should contribute to everyone's understanding, participation, and responsibility for their own cultural environment⁷.

There are thus great public expectations that work with the cultural heritage should contribute useful things to the overall social structure.

Participation by the general public

Who defines and decides what cultural heritage is, the expert or the citizen, the cultural environment authority or the local people? When we are

⁵ Partly based on English Heritage 1997: 'Sustaining the historic environment'. English Heritage, London, respectively Graham Fairclough, 2002. 'Europe's landscape: archaeology, sustainability and agriculture'.

⁶ Kulturpolitik. prop. 1996/97:3.

⁷ Kulturpolitik. prop. 1996/97:3.

dealing with the earliest traces of culture, the question is not controversial. It is easy to find support for the view that Bronze Age tombs and medieval castles are a part of the cultural heritage and thus important to preserve. But the closer in time we get to the present, the more complicated the issue becomes. What do we do with all the modern industrial remains and the remains of recent buildings that are neither unique nor scientifically valuable? It is here that a gap can easily arise between the general public's perception of what is cultural heritage and thus worth preserving, and the perception held by the antiquarian authorities. The general public often has a broader conception of what is historically valuable than do the authorities. But the opposite can also occur.

Up to now, decisions as to what is to be counted as cultural heritage have rested mainly with the experts. The influence of the general public has thus been small. It is experts who have defined what cultural heritage is, after which the authorities have made their selection based on a central, national outlook. But this procedure has also led to a gap emerging between the authorities and citizens in respect of what actually the cultural heritage is comprised of. To reduce this gap, we thus need a new model for defining what cultural heritage actually entails. Or more precisely, we need a model to strengthen the position of the other parties who are already involved. Political expectations in Sweden have hitherto been that cultural heritage is defined by the expert authorities in dialogue with the general public and society as a whole. The model now being discussed by the central heritage authorities and the government⁸ makes the following three partners equal:

- The expert
- The general public
- Society as a whole

The consequences of the new model, for those of us who are experts in the sphere of cultural heritage, are that it is no longer sufficient to possess an expert knowledge of cultural history. We need also to become better at listening to the general public and better also at understanding the cultural values they see in their environment. Without talking to those who use the landscape, it is extremely difficult to understand how a complex landscape with a mixture of expressions from different times functions. We thus need a dialogue with the public in order to identify the recreational, and the social or aesthetic values that exist in the landscape without being immediately perceptible to the outside expert. There is

⁸ Kulturpolitik, prop. 1996/97:3, p 127.

knowledge about our cultural heritage to be gained by talking with those who use the landscape.

The active social role of history

In a recent citizen survey (of adults) on the significance of cultural heritage, conducted as part of the Agenda Cultural Heritage project,⁹ a large share of the interviewees, regardless of their age and level of education, stated that they appreciated historic sites. A follow-up question asked why they do so, with a common answer being that historic sites are beautiful to look at and walk around. The important values in the environment that were cited were thus not primarily scientific values but social, personal ones.

This response reflects the social role that traces of history have for us as human beings. Our definition of ourselves includes our physical surroundings. We need to belong to a place, to know our way about it, and to be familiar with our physical environment in order to be happy¹⁰. Exactly what it is in the physical surroundings that enable identification and security cannot be pointed out in advance. It is a question of interaction between humans and their environment. It is a matter of points of orientation and identification in the immediate surroundings. Cultural remains are often precisely such points. Each place is unique and bears its own history. It is presumably this that makes people perceive cultural remains and sites as pleasant places to be. We are happy in environments that have a history; traces of it give us a sense of security, of continuity and authenticity. That is also why we humans react so strongly to changes in our surroundings. We perceive them as a threat to our identity.

The experienced values of cultural heritage however do not only include those to do with our identity. They also include the existential musing that traces of the past can stimulate. Ruins, decay, decomposition, and the return to nature are properties that points of cultural heritage often display, while they can also give rise to reflections about the passage of time and the transience of life¹¹. These too are qualities to be found in the cultural heritage *milieu*, and they are thus important values existing in

⁹ Agenda Cultural Heritage is a Swedish project involving the central authorities, county administrations, and museums in the cultural heritage sphere, which is to result in a joint policy statement on how the cultural heritage can better enrich citizens' lives (see <http://www.agendakulturarv.se>). See report Agenda Kulturarv 2002.

¹⁰ Kevin Lynch, 1960. *The Image of the City*; See also Cornelius Holtorf 2000-2003. *Monumental Past: The Life-histories of Megalithic Monuments in Mecklenburg-Vorpommern* (Germany).

¹¹ Mats Burström, 2003. *Skrotupplaget är tidsandans kyrkogård*.

addition to those that the historical dimension of the landscape can contribute.

We professionals, in the cultural heritage sector, thus need to learn more about the social qualities that people see in the cultural heritage.

The cultural heritage as a part of the environment

The professional's view of the cultural heritage and what it comprises has changed in the last 10-15 years. Cultural heritage used to be perceived as being synonymous with old buildings, castles, archaeological remains, and ancient cultivated landscapes, in other words, individual sites or areas with vestiges of the past.

Old buildings and castles certainly belong to the cultural heritage. But it is now recognised that it consists of more than that. The cultural heritage includes not just certain individual historic remains but also every trace of the human use of the landscape. Instead of the concept of cultural heritage we should then rather use the term cultural environment.

A distinction is often made between the natural and the cultural environment. The two concepts are viewed as opposites. But if you are out in the countryside looking at the surrounding landscape, you may wonder where the natural environment stops and the cultural heritage begins. The trees, the grass, and the bushes are of course natural, but the reason why they are growing where they are – in the fields, in the ditches, or in the pastures – is the result of centuries of cultural land use. Long-term land use has set its stamp on nature such that no clear boundary can be drawn between the natural environment and the cultural heritage. Nature can also be a part of the cultural heritage, and vice versa.

Likewise, we may ask where in the landscape the past ends and the present begin? In books and documentation, the temporal content of the landscape is usually presented as a sequence of layers, with the earliest time at the bottom and successive eras building up above it. With this way of looking at things, we have the past concealed under the present. But if one is out in the landscape looking around the past is not hidden. On the contrary, it is present. The field one is looking at could have been ploughed for the first time in the sixth century AD. The farm to which the field belongs may have stood on the same site since the eleventh century. And the road on which you are standing may have followed that course since the seventeenth century. That is at least what the presence of history in the landscape can look like in central Sweden.

The cultural heritage is thus part of the historical dimension of the landscape. It is a property of the landscape and not simply easily demarcated objects or areas.

Different grounds for identifying the values of cultural heritage

A brief description was given above of the new conditions according to which the cultural heritage sector has to work. We have a new concept of the cultural environment that differs crucially from the traditional concept. With the new concept the cultural heritage is no longer simply a demarcated part of the landscape but is rather a property of the landscape, a part of the environment, the cultural environment. The cultural environment is everywhere that people live and have lived. The cultural environment is thereby integrated with the other environmental aspects (social, ecological, and economic) that must be applied to landscape changes.

With a concept of cultural heritage that has been expanded to embrace the entire landscape, it may seem that there is a risk that cultural environment values may thereby be relativised and marginalised. But this does not have to be the case. On the contrary, it opens the door to a mode of working that strengthens the position of cultural environment values and their potential to contribute to the sustainable development of society.

However, it is important to be clear about the grounds on which we select the characteristics we want to assert as cultural environment values. As will be obvious from the presentation above, the cultural environment is not just valuable for historical scholarship but also contains social values.

To clarify the diversity of values in the cultural environment, when working with environmental impact assessments, we in Sweden have begun to use a model that is the result of Nordic cooperation (Tema Nord 2000:17). It proceeds from three foundations for the selection of cultural environment values:

- Documentary value
- Experience value
- Utility value

The three foundations are not totally separate; they partially overlap. They should thus be viewed as different angles of approach for identifying and discussing the values of the cultural environment. A similar approach, but one that is more finely grained, has also been discussed by English Heritage¹².

¹² See UK Government's project 'Power of place' coordinated by English Heritage, 2000-2001.

By *documentary value* is meant the value that the cultural environment has as a source for knowledge about life in the past. For example, archaeological remains are of great value since there are no other sources about prehistoric times. Old houses are educational, since by visiting them you can walk around in the same rooms as people in the past once did. The documentary value is the value that is traditionally associated with the cultural environment.

By *experience value* is meant the properties of the cultural environment that appeal to today's people. These include the ability to stimulate existential reflection. They also include the identity-creating characteristics. All of these properties of the cultural environment have up to now found little place in the discussion of the value of the cultural environment. They lie outside the traditional historical disciplines and have perhaps been regarded as unscientific. But in the continued discussion of the cultural environment sector's contribution to a sustainable society, it will be increasingly important to study these properties.

By *utility value*, finally, is meant the financial value that the cultural environment represents in the form of buildings, cleared land, roads, and so on. It is an economical stewardship of resources, for instance, to preserve existing buildings instead of building new ones. Moreover, the cultural environment is also a part of a society's infrastructure. It enables various types of economic activity, from traditional farming to cultural tourism to exist and continue.

To be able to make a proper assessment of the effects and consequences of various projects on the environment, it is important to be aware of the fact that the cultural environment can contain several different values at the same time.

Summary and conclusions

The cultural heritage, or better to say, the cultural environment, is a historical dimension of the landscape and a property of the landscape. It exists wherever people live or have lived. The cultural environment is thus not confined to single objects or areas. As a part of the environment and the landscape, the cultural environment is also in constant flux. To be able to influence and steer changes, the cultural heritage sector needs to develop ways of working that are better adapted to this. The traditional instruments and methods, however, are mainly geared to protecting the cultural environment against change. We have to establish an outlook on change as a necessary condition for utilising the cultural environment as a

<http://www.english-heritage.org.uk/Filestore/policy/government/mori/finalreport/11.pdf>

resource in the development of society. We therefore need to acquire better insights into the social significance of the cultural environment for people today. We have to become better at identifying what have been identified here as experience values and utility values. We also need to develop methods for formulating goals as to how these properties can be utilised both in the long-term administration of the landscape and in specific projects.

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Socio-economic Impact Assessment

The experience of two different projects: a road tunnel in the Tröllaskagi Peninsula in northern Iceland and the Kárahnjúkar hydro project in eastern Iceland

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Abstract: In this paper two different socio-economic impact assessment projects, in which the authors took part during 2001, will be described and reviewed. A similar methodology was applied in both cases, although the projects were quite different both in scope and nature.

In the Kárahnjúkavirkjun-project the main emphasis was on the construction period and its impact on neighbouring communities as well as on those further a field. The main issues in this case concerned manpower and the various supplies needed for such a large project. Thus the economic effects on individuals and companies were of primary interest.

In the Tröllaskagi-project the situation was reversed. In this case the period after the opening of the tunnel was of major interest. The main question was: how would the inhabitants and companies in the neighbouring communities respond to shorter distances? In this case two different routes had to be compared to assess, which one would have an impact that was more in line with the regional plan of the government and the main objective of the project as it was described in the EIA proposal.

In the paper, these projects are reviewed and discussed, as is the issue of how the methodology was applied in each case. Moreover, we will also review the various pitfalls, problems and lessons that could be learned from the assessment in each case. Examples here relate to data availability and validity, the geographical scope of the study area and the emphasis on different socio-economic factors.

In 2001 The University of Akureyri Research Institute (RHA) carried out two socio-economic impact assessments (Ólafsson et.al, 2001; Jóhannesson et.al, 2001) on two very different construction projects. The

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first one was the Kárahnjúkar power plant in east-Iceland; a hydroelectric power station built to supply energy to a new aluminium smelter plant in Reyðarfjörður. The second was a road tunnel project in north-Iceland connecting the somewhat isolated town of Siglufjörður to the Eyjafjörður region. These two assessment projects could signify a certain turning point in the history of environmental impact assessments in Iceland since very few assessments of this kind had previously been carried out ². It can thus be said that there was no such thing as an Icelandic tradition in how to perform a socio-economic impact assessment. The choice however was to follow what could be termed as the 'North-American tradition' for such impact assessment projects described for example by Halstead, Chase, Murdock & Leistriz (1984) and by Hyman & Stiftel (1988). This methodology can best be described as consisting of three main components:

The first part is the baseline description. This describes the current socio-economic environment and recent trends, including description of the: economy; labour force; population; housing stock; public, and private services and infrastructure; land and resource use; culture and the way of life of the area likely to be affected by the project. Particular attention is usually paid to the capacity of infrastructure and services to absorb, or governments or the private sector to respond to, any additional demands.

The second part is project description. This provides an outline description of the project being introduced into this socio-economic environment, with particular emphasis on those characteristics that are likely to have significant impacts, as determined through a review of the literature, professional knowledge and key informant interviews. The project description is not solely concerned with the physical aspects of the proposed undertaking (e.g. its site, location, capacity and labour force requirements), but also includes consideration of approaches, policies and practices that will influence the effects of individuals, families and communities in the impact area.

The third part is impact assessment. This consists of an evaluation of the likely socio-economic impacts, based on sociological, economic, and geographical analysis as well as the baseline description. This again is based on literature reviews, professional knowledge and key informant interviews, and draws on comparative analysis of similar projects and

² Since 1980, the authors have found only four Icelandic reports that in their view could be classified as a socio-economic impact assessment, apart from the two described here. Furthermore, two of these were not even written as a part of an EIA.

circumstances. Key to the assessment is an understanding of the ability of government, the private sector and individuals in the region to absorb or respond to the new demands resulting from the project. Particular concern is usually given to the identification of any critical capacity problems, leading to an investigation of how these might be addressed.

This is the general outline of the methodology. In some ways the method is different between the two projects in the third stage, i.e. when it comes to assess the likely effects on society. The construction phase is of interest in the hydro project while the operational period is of major interest in the road project, i.e. when it comes to using the new road link.

The other main alternative to the socio-economic approach was to carry out some sort of a cost-benefit analysis. It was however felt that this was not a viable alternative given the availability of data for such an assessment. Furthermore the socio-economic impact assessment tradition puts emphasis on the management of impacts, which the authors thought to be a factor that should be taken into consideration in both the hydro and the road tunnel project. Whether it was a cost-benefit or a socio-economic impact analysis does not however change the fact that those methods have to be adapted to the context in which they are carried out. An important factor in this sense is the structure and availability of data, not least in a small society like Iceland.

The Kárahnjúkar project

In the Kárahnjúkar project the ability of the communities to respond to the needs or opportunities arising from the project during the construction phase emerged as a central question (Ólafsson et.al, 2001). This is very relevant to the project since the need for manpower and services is enormous in both Icelandic terms generally and compared to the population in the area. In the eastern part of the country the population is around 12,000 and in the area, generally termed as Hérað, where most of the effects of the project will be eminent, some 3,000 people live. The lack of data was among the most difficult problems encountered, as with information from other similar projects. The data used in the research was obtained from Landsvirkjun, the national power company, from past similar projects, from various statistical sources, from various parties involved in the project and finally from reports from other researchers dealing with other aspects of the environmental assessment of the Kárahnjúkar project³.

³ These mainly relate to studies on the socio-economic effects of an aluminum smelter that will use the power from the Kárahnjúkar project and a study of the effects of the Kárahnjúkar project on tourism.

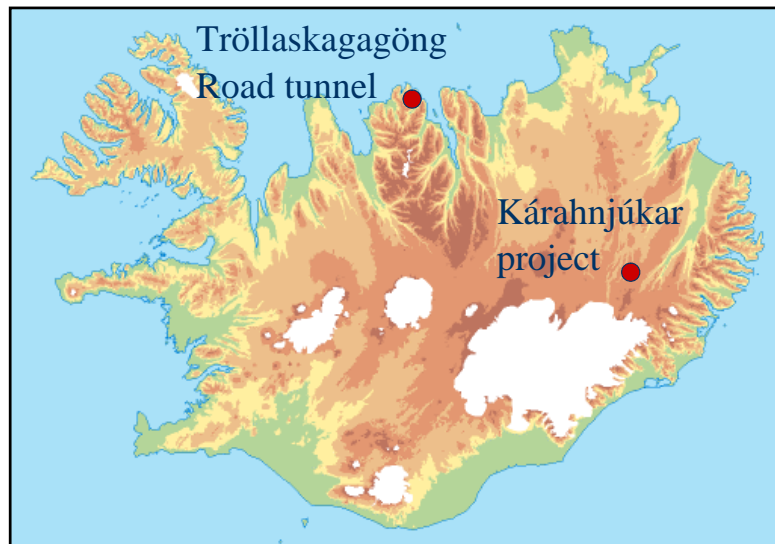


Figure 1. The location of the two projects

The development of the Kárahnjúkar Power Station entails the harnessing of the glacial rivers Jökulsá á Dal and Jökulsá í Fljótsdal. These rivers originate in the north-eastern region of the Vatnajökull ice glacier and run in a north-easterly direction through the Jökuldalur and Fljótsdalur valleys to their common estuary in the Héradsflói Bay. The hydropower station will have an installed capacity of 630 MW, a harnessed flow rate of 126 m³ per second and a power-generating capacity of 4,450 GWh per year. This is around 2.3 times the size of the largest hydropower station in Iceland today, while it would potentially provide more than 50% of the power of all hydropower plants currently functioning in the country today. The hydropower project basically comprises the damming of the glacial river Jökulsá á Dal at Mt. Fremri Kárahnjúkur and the creation of the water-storage reservoir at Háslón. Another small reservoir at Ufsarlón would be created by damming the glacial river Jökulsá í Fljótsdal. From the Háslón reservoir, water is conveyed through an underground headrace tunnel eastward, where it joins another tunnel from the Ufsarlón reservoir. The water is then carried in a single tunnel north-eastwards to the Teigsbjarg escarpment, where it drops through two steep penstocks to an underground powerhouse. There the water enters six generating units in the powerhouse and then travels through a tailrace tunnel and -canal into the course of the glacial river Jökulsá í Fljótsdal. An estimated total of 3,400 man-years will be required for the construction of the power station, dams and tunnels (www.karahnjukar.is).

As mentioned above, the construction phase was of particular interest in the Kárahnjúkar project since so much manpower is needed to complete its construction. After completion of the project however only 15-20 workers will be needed to actually run the hydro plant. Therefore the long-term effects of the power station itself, on employment, are much smaller. Some uncertainty concerned the question as to whether there would be much in-migration to the affected area and migration within this eastern part of the country during the construction phase. Debate here has centred on the issue of whether this would be desirable for the region as a whole. In the assessment, the current authors did not predict large in-migration to the area as a direct consequence of the construction phase unless the municipalities or the companies working on the project themselves decided to stimulate such in-migration. However population increase was estimated due to the various spin-off effects caused by the project. Based on experience from other hydro projects it was estimated that up to one fourth of the workers would originate from eastern Iceland, the rest would come from other regions and from overseas. However due to the huge size of the project in comparison to the local labour force pool this ratio will probably be somewhat lower.

The area was divided into two regions having different levels of accessibility to the construction site; on the one hand, a ½ - 1 hour's drive from the site, and on the other more than 1 hour's drive. The former region is of course in a better position regarding the accessibility of workers and service providers. However, regarding the provision of services to such a large project it all depends on where the contractors believe the right services are being offered for the right price. This is also somewhat true for the manpower needed, at least when looking at its magnitude, necessary skills and experience.

A road tunnel between Siglufjörður and Eyjafjörður

In this case the situation was reversed; we were not interested in how many jobs were created during the construction phase, instead what interested us was how the communities in the vicinity might respond to the new road connection and how interaction between them would change. Distances between communities will shorten dramatically, especially during the 6-7 winter months. The most dramatic shortening will be from some 235 km to merely 15 km between the towns of Siglufjörður and Ólafsfjörður with a total of about 2,500 inhabitants. A more than two hours drive from the town of Siglufjörður to Akureyri, the largest town in the region with some 16,000 inhabitants, will shorten to less than one hour (Jóhannesson et.al, 2001).

A crucial point here is therefore the shortening of distances between various destinations in the area adjacent to the new road and how this could affect e.g. service provision, commuting, management and the organisation of companies and municipalities, housing, culture and ways of life.

What made things more complicated was the fact that we had to compare the effects of two different routes. Interviews and interaction models, based on the gravity model (see for example Haynes and Fortheringham, 1984) were, among other things, used to assess the different effects of the two routes. Basically the model implies that interaction between places is based on the distance between them and the scale, e.g. population. As distances become shorter and scale becomes larger, more interaction can be expected. In an international context a number of methods to assess the social and economic effects of transportation projects have been developed, see e.g. DTZ Pieda Consulting, 2001; Forkenbrock and Weisbrod, 2001; Nink, 1996; Statens vegvesen, 1995 and Weisbrod and Weisbrod, 1997.

The Icelandic government had already stated the objectives for the road connection, with the central issue being the strengthening of the Eyjafjörður region as a growth region. Had the focus primarily been on the isolated communities themselves, the outcome would have been different. Much of the effects seem to relate to the region as a whole, e.g. the strengthening of Akureyri, as *the* service centre of the region and the relocation of services within the area that will take place, including some service increase in Akureyri at the cost of Reykjavík! Moreover, the constituencies had been changed in such a way that the somewhat isolated town of Siglufjörður was lacking a connection to the new constituency it now belonged to after the changes were made, while of course historically speaking, political boundaries have always affected decision-making relating to transportation routes in Iceland (Jóhannesson and Ólafsson, 2003).

When assessing the effects of a new road connection it is important to point out that the road merely creates an *opportunity* for increased communication but it is up to the communities and individuals in question as to how they actually utilise that opportunity. Experience from other similar projects in Iceland and other countries (Atvinnuþróunarfélag Vestfjarða, 1999; Forkenbrock and Weisbrod, 2001) shows that beforehand, people only dimly realise the potential of new road connections to change their living conditions and way of life⁴. Finally, before-and-after research on this subject is hard to find in Iceland. A wealth of such stud-

⁴ This was supported by interviews in our research.

ies have however been carried out in other countries though their relevance in the Icelandic context has only to a limited extent been verified.

A few lessons to be learned

Even if the methodology used in the two assessment projects described here is well known and seems to be generally accepted at this stage, some refinement of how it is adopted is necessary. In addition, the increased availability of data is also necessary.

We are aware that we have to cut down on the description of the communities and focus on the most relevant factors for each case. Therefore a more thorough screening of factors has to take place in the context of the first steps of each study.

The availability of data has to improve. In particular this applies to data regarding wages and the division of the workforce between different industries. There is an urgent need for this information to be available for smaller geographical units, such as individual municipalities and that these units remain static even if there are changes in administrative or political boundaries, e.g. through the amalgamation of municipalities. Actually, data has disappeared in this way in Iceland, when a number of small municipalities have merged; data from that point in time applies to the merged municipality. In such ways finer geographical differences are lost.

In order to be able to predict more accurately the spread of economic effects, data on multiplier effects for different industries at different locations would provide significant additional benefits, though the reality is that this is unlikely to occur any time soon. However, Parliament has agreed to a resolution that concerns the evaluation and monitoring of the Kárahnjúkar project and the effects it will have on the community.

It is also necessary to get a better idea of the size and characteristics of the labour- and service markets in Iceland for example by doing surveys among individuals and companies.

Perhaps a socio-economic impact analysis is then somewhat like a weather forecast, it is not particularly accurate on specific details and the like, but some minor changes can have substantial effects and a chain reaction in society. Due to the lack of data in our field we could say that – to continue with the meteorological metaphor – we are currently using data that is already out of date, and then from only a handful of the available weather stations!

In the Kárahnjúkar project the lengthy construction phase can increase this uncertainty and in the case of the road project the behaviour patterns of individuals or potential road users causes great uncertainty.

The relevance of socio-economic impact assessment

We must then ask how relevant it is to carry out a socio-economic assessment and why there are so few examples of this kind of research in Iceland. The fact is that the main objective of most projects is to benefit society in one way or the other. However, very few studies have been carried out in Iceland to actually try and see if these objectives can or will be met.

When looking at the two EIA projects studied here, we can see that such socio-economic studies have only a rather modest part to play in such projects. It is striking how small a ratio this is when considering that both projects were primarily meant to have an impact on economic development in the regions in question.

Again we must then ask why were these two studies deemed necessary and subsequently carried out in the first place? Both projects, and the Kárahnjúkar project in particular, have come under significant levels of criticism, especially from people in urban locations, and particularly from those in the Reykjavík area. Were these two research projects then simply meant to justify decisions already taken by the politicians? Was it deemed necessary because of their distant location from where the majority of Icelanders live? Or must the project to be politically controversial for a socio-economic assessment to be deemed necessary?

It seems that there is some inconsistency here between EIA projects regarding the treatment of socio-economic factors. Since 1993 the Planning Agency has issued just over 150 verdicts (www.skipulag.is). The size of the projects of course varies, but in several cases the EIA process has called for some extensive studies. Discussion on the socio economic impacts of such projects has however been limited. Usually there are only general remarks on either non-existent or positive effects of the proposed projects, apparently without any substantial support or research.

To better illustrate this inconsistency we will quote⁵ two recent EIA assessments for hydro power plants, i.e. Urriðafossvirkjun and Núpsvirkjun (www.landsvirkjun.is). They are by no means small projects since the total man power needed to finish them is no less than some 48% of that of the Kárahnjúkar project, which is generally referred to as being an enormous project in an Icelandic context. These two projects are however located in Southern Iceland and will be used to provide power to aluminium smelters in the capital area.

Urriðafossvirkjun (Urriðafoss hydro electric power plant):

⁵ The translation is the authors'.

'During the construction phase there will be up to 400 workers on the project and its connection to the power grid of Landsvirkjun, and this will amount to a total of 800 man-years. It can be expected that trade and services in the vicinity of the project, probably across the entire region between Selfoss and Hvalsvellur will benefit from this and that this will also provide a boost to the economy of the region.

After the construction phase the power plant will usually be unmanned and only when needed will there be maintenance of equipment and machinery. The maintenance will strengthen the economy in the neighbouring communities as experienced from the operation of other power plants in the area. It is estimated that maintenance and inspection will amount to 10 man-years.

It must be assumed that the power produced by the plant will be beneficial to Icelandic society as a whole.'

Núpsvirkjun (Núps hydro electric power plant):

'It is estimated that during the construction period of the power plant there will be up to 400 workers on the site, with the estimated number of man-years on the construction being around 800. During the operation time the power plant will usually be unmanned, except when working on maintenance and inspection although it is estimated that this will amount to some 10 man-years. It may be stated that the hydro project will have positive effects on the local economy during its construction.'

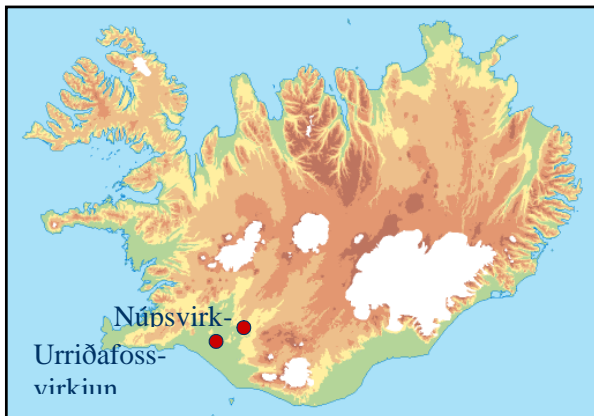


Figure 2. The location of the Núps- and Urriðafoss power plants.

This is all there is about the socio-economic effects of these projects. These statements, furthermore, are made without any further refer-

ence made to research being undertaken. The research report on the socio-economic impact of the Kárahnjúkar project however amounted to some 90 pages. In addition, there were a number of meetings, visits to the area and to other power plants and a massive consultation process with other specialists preparing the project. In this light special research on these effects was deemed necessary.

In spite of this, one particular area within society, namely tourism, has attracted special attention. In these two projects as is the case with many other EIA projects, tourism seems to have attained a particularly enhanced or may one even say, privileged position, even though it is but one part of society and of the economy! In the case of the two aforementioned hydro projects, a special report on tourism amounted to an impressive 150 pages! (www.landsvirkjun.is).

Other cases where socio-economic studies would be appropriate

Another good example of projects that may have considerable socio-economic effects is that of large shopping malls. A shopping mall of some 62,000 m² was built in the capital area, though outside the city centre (www.rafhonnun.is). The mall itself was not subject to EIA according to law. However, it was necessary to assess the environmental impact of the transportation routes that were needed, at least partly, to accommodate the extra traffic to and from the shopping mall. In the case of such a large shopping mall that affects, e.g. other shopping districts and traffic in the capital area, a socio-economic study would have been relevant in our opinion. Similarly, in some projects that are subject to EIA, a more thorough study of their socio-economic impact would be feasible. Examples of such projects include the various larger road projects, both in the vicinity of the capital area and in more remote regions.

Conclusions

Based on a screening of recent EIA reports, socio-economic effects usually seem to be described only in general terms, seemingly without a special background study. In spite of this there is one important exception, i.e. studies on the effects on tourism and outdoor life have been prominent in the EIA's of hydroelectric power plants. Being sarcastic, we could say that this leads us to the conclusion that the *effects on visitors* seem to be more important to study than the *effects on residents* of the areas in question. But is it relevant to study the socio-economic impacts at all? Well, if the impact is either non-existent or perfectly evenly distributed

throughout society then perhaps not, but in the case that it is not, scientific knowledge is likely to be of use.

It thus seems fair to state that the socio-economic impact studies that have been carried out⁶ in Iceland in connection with EIA have been able to provide some insight into the possible future development of the economic and social structures affected by the projects in question. Furthermore the mere existence of such impact studies shows that despite a lack of important data on Icelandic society it is nevertheless possible to assess the impact of proposed projects on both society and the economy. The small number of such impact studies carried out in the period of now some 10 years since the law on EIA's inception does however give room for speculation as to whether projects subject to EIA in Iceland are simply so small in scale that they are likely to have an insignificant impact on society, or whether Icelandic society sees little value in the social environment. Our answer to these speculations is clearly that too little emphasis has generally been placed on studying the socio-economic impacts of large projects on society. We have to assume that the justification for carrying out these projects is to have beneficial impacts on society in one way or the other. People belonging to social and economic structures likely to be affected by the proposed projects should however have the opportunity to address these effects beforehand, though this is something that they are unable to do unless they are informed. We simply deny the veracity of the notion that every human being is in some way an 'expert' on how society works. Modern society is by no means less complicated than other parts of the environment, and if the Icelandic community is to fully benefit from the potential of EIA, the social and economic parts of the environment must not be treated as a minor issue.

⁶ The two reports by the University of Akureyri Research Institute on socio-economic impacts are examples of such studies that have been incorporated into EIA projects in Iceland. The studies are carried out within a well-established methodology that can be applied to various situations.

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Sustainable tourism management

Application and appraisal of the tourism carrying capacity and the recreation opportunity spectrum dynamics

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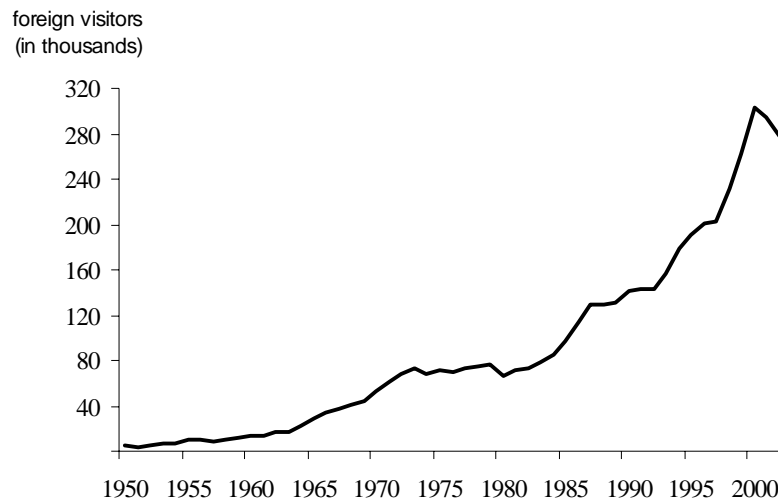
Abstract: During the past decade interest in sustainable tourism has grown concurrently with an increased concern in tourism's impact on society and on the environment. This has raised significant questions about the appropriate number of visitors needed to maintain sustainability at popular tourist locations. The concept of the 'tourism carrying capacity' is thus a useful approach in assessing the environmental impact of tourism. Nevertheless, the concept has been criticised for being both subjective and indistinct. In this study the relevance of this concept as a tool for sustainable tourism management is appraised through the use of a case study focusing on the 'tourism carrying capacity' in a nature reserve area in south-eastern Iceland. The extent and pattern of the area's tourism, as well as the quality of tourist's needs, expectations and experiences was studied through questionnaires and diaries given to tourists at the site. The position of the area within the Recreation Opportunity Spectrum (ROS) was analysed and then appraised with reference to spatial applications. The results imply that the tourism carrying capacity has not yet reached the area's restrictions. However, the area's sustainability suffers from lack of clear goals in environmental and tourist recreation planning. Unlike many other places in Europe, Iceland still holds numerous 'primitive' places on the ROS. It is thus desirable in terms of tourism planning procedures, as well as being of vital importance in itself, to maintain a variety of environments that range across the whole ROS spectrum from primitive to urban. The importance of evaluating the tourism carrying capacity in environmental impact assessment and sustainable rural development is thus demonstrated.

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Introduction

The practice of encouraging tourism forms a critical counteraction to the Northern Periphery's fight against de-population and out-migration, and may thus be seen as going some way to mitigate the rural cultural, economic and social development problems that such a process entails. In recent decades tourism has grown rapidly in Iceland, consequently it is often characterised by a lack of management. Currently around 300,000 foreign visitors come to Iceland annually (Figure 1) in addition to the couple of thousand Icelanders who visit the tourist sites each year. Although these numbers are not overwhelming, the Icelandic natural and social environment is of such a type that there remains a need to be acutely aware of the negative effects that tourism may cause, in particular relating to the uneven distribution of tourist visits in time and space. As such, the main tourist season is short, and is characterised by large numbers of people visiting a small number of places. This causes pressure on the natural environment as well as on the community concerned. People in the tourist industry and local inhabitants at popular destinations experience the pressure and in several places the pristine nature of the local site is damaged due to tourism. Most development results in the promotion of change to facilitate tourism. The creation of better access to an area due to new or reconstructed roads can increase the popularity of a destination, which in turn can have a significant impact on fragile ecosystems thus



*Figure 1. Foreign visitors in Iceland 1950-2002
(Source: Statistic Iceland, 2003)*

ultimately changing the character of the visitor's own recreational experience. In recent years, the environmental issues associated with tourism's rapid expansion have become a critical concern. Central to this concern has been the concept of tourism carrying capacity (TCC), along with that of the increasing recognition of sustainable development advocate management, which permits tourism to grow within acceptable limits. According to Manning and Lawson (2002) the concept of TCC in its most generic form refers to the amount and type of visitor use that can be accommodated within a site, such as a natural reserve, without unacceptable resource and social impacts. They conclude that TCC is an important issue in natural resource management and is thus likely to increase in importance with the increased popularity of the resource. Currently analysis of TCC focuses on describing the current situation as well as defining the level of resource protection and the type of tourist experience to be fulfilled. Indicators of quality are measurable and manageable variables that define the quality of natural resources and the tourist experience. Standards of quality define the minimum acceptable condition of indicator variables (Manning and Lawson, 2002). However, regardless of its inherent appeal, the concept of TCC as a management tool evokes mixed feelings, and has been criticised for being subjective and having unclear limits (Stankey & McCool, 1984; Manning, 1986; Lindberg, *et al.*, 1997; McCool & Lime, 2001). In order to define TCC one needs to evaluate what *acceptable changes* are, and *for whom* they are acceptable. One also needs to consider who should make such a decision, the local population, managers, scientists, politicians or other stakeholders, as opinions can differ considerably. As such, what kind of tourism is desired and appropriate must also be well defined. Furthermore there must be an agreement as to how much change the resources (both natural and human) can be tolerated as a direct result of increases in tourism. There is however no simple answer to the question of the maximum level of tourists (McCool & Lime, 2001). It is a political question and the decision must be made within the community. Consequently, when defining TCC one needs to prescribe the desired conditions of the environment and the social issues. Then these conditions are compared to the current conditions. These conditions are then compared to the desired condition, and the actions that need to be taken in order to maintain or restore the desired condition are then decided upon (Hendee *et al.*, 1990). Several planning concepts have been created to contribute to the appraisal of TCC, such as the Social Carrying Capacity (SCC), the Limits of Acceptable Change (LAC), the Visitor Impact Management (VIM), and the Recreation Opportunity Spectrum (ROS). They all attempt to approve the deficiencies in the tra-

ditional TCC by focusing on how to identify measurable objectives regarding desired conditions (e.g. Hendee, *et al.*, 1990; Ahn, *et al.*, 2002).

The ROS approach is a land use zoning system used to characterise recreation opportunities in terms of setting, activity and experience opportunities (Figure 2). The system is based on the premise that a spectrum of settings exists from the natural and 'unspoilt' to the urban and developed. Different settings along the spectrum are seen as accommodating primitive, low density to developed, high-density activities (Ahn, *et al.*, 2002). Variables used for determining the opportunity classes, such as the level of human impact and the amount of contact among visitors must be carefully identified and developed. Each opportunity class is defined in relation to the others; e.g. in the primitive class less human impact is tolerated than in the semi-primitive class. Subsequently, the opportunity classes represent a continuum of social, resource or managerial variables.



Figure 2. The Recreation Opportunity Spectrum (Wallsten, 1988)

Integrating tourist experiences adapted to the ROS is a novel approach in the decision making process, and may be of vital support for sustainable tourist management. The principal goal of this paper is to demonstrate the importance of tourism management to meet the criteria of environmental sustainability by 1) describing and evaluating visitors preferences and demands in Lónsöræfi nature reserve in South-eastern Iceland, and 2) appraising the TCC and ROS dynamics as a tool for sustainable tourism management to develop a dynamic spatial model for defining appropriate TCC regarding the sustainability of popular tourists destinations in Iceland.

Visitor experiences and expectations

Background

From 1999-2002 a research project on the investigation of TCC was conducted at five tourists destinations across Iceland. The project takes into account four dimensions of the TCC, i.e. the tourists, the hosts, and the physical and anthropogenic environment. The findings presented in this paper are based on the section of the project that looks at tourist experiences of the Lónsöræfi nature reserve (*cf.* Sæþórsdóttir & Ólafsdóttir, 2003). Lónsöræfi is located in the South-Eastern Highlands of Iceland. The main attraction here is the wild and untouched state of the local nature. Owing to a rough landscape, characterised by high mountains, steep ravines and large rivers, the area used to be fairly isolated. In 1966 a rough jeep road was constructed that opened up the area. Yet, the area remained difficult to access due to large un-bridged glacial river. Conservation regulations have been in force since 1977 to maintain the area's suitability for hiking. As a result, a very limited infrastructure is found in the area, i.e. only a few huts, latrines and marked walking routes. Relatively few tourists visit the nature reserve, approximately 2000-2500 visitors annually, most of whom arrive during the short summer season.

In the second week of August 2000, a questionnaire was handed out to every visitor passing the Múlaskáli mountain hut – the main service area of the nature reserve. The visitors were asked to fill in the questionnaire on-site. The sample was 95 respondents and the response rate was nearly 100%. The questionnaire consisted of 32 questions, the aim being to explore the tourists' experience of the nature reserve as regards their desire for infrastructure and services, and how the reality matched their expectations. Travel patterns in the area were also analysed. The tourist's experiences are however individual, based on cultural background and previous experiences of nature. In order to confront this and to obtain a deeper understanding of each traveller's experience, a diary method was adopted. Ten visitors, under the guidance of a local guide, were asked to keep a diary during their stay. Gender distribution was fairly equal, while all participants lived in the Capital area of Iceland. The participants were asked to document their experiences at the end of each day. This included for example, describing their satisfaction, or otherwise with their experiences of the day and detailing what had evoked such feelings. They were further asked to describe what emotions arouse during the day and what caused the highlight or disappointment of the day.

Results

The results are described and discussed in more detail in Sæþórsdóttir & Ólafsdóttir (2003) and will thus only be summarised here. Half of the tourists that visit the nature reserve are Icelanders, with the other half being from Western- and Central-Europe. Approximately 80% of the respondents stay over night and the average length of stay is four nights. Day-trippers account for some 20% of all visitors, each expending around seven hours in the area. 55% of the visitors come on a guided tour. One quarter of the visitors are repeat visitors, and 90% of the respondents would like to visit the area again.

Most tourists visit Lónsöræfi nature reserve because it enables hiking through spectacular natural scenery. Visitors are generally very satisfied with their stay, 64% claim to be very satisfied with 14% being simply satisfied. Some 13% were however very dissatisfied. Their dissatisfaction was mainly due to experiencing harsh weather conditions. When people were asked if there was anything particularly pleasant with their visit, most (> 70%) mentioned the natural beauty of the place, and around 90% of the visitors claimed that the natural surroundings lived up to their expectations. Tourists are generally pleased with the primitive facilities, though many point to the need for improved hygiene facilities. Nearly 54% of the visitors said their expectations regarding the level of services were fulfilled. About one third said that the service level was tolerable. Very few mentioned that their expectations regarding service levels were not met at all. As such, some visitors expect more services than were provided, they do however implicitly accept the level of service provided since they have chosen to visit the Highlands. Due to the nature of its landscape, the nature reserve is itself hard to access. Some visitors experience problems when travelling within the area. The footpath from the parking place to the main mountain hut is the first obstruction upon arrival. One of the diarists described this in the following manner:

'I was devastated when I saw the rope and the slope down to the bridge. My knees are still shaking'.

Some visitors want footpaths, markings and other facilities to be improved. If this were enhanced, the area would become accessible to a considerably larger number of people. However, such measures would reduce the excitement of seeking untouched nature in a sparsely visited area and/or putting one's strength to the test like this visitor experienced:

'The highlight of the day was a speedy hike down some rather steep loose gravel slopes. '

Tourists find mountain huts, campsites and lavatories very appropriate in the nature reserve while power plants, dams, reservoirs, gas stations hotels/guesthouses were seen as inappropriate. Almost all respondents found the 'unspoiled nature/wilderness' to be a part of the appeal of the area's attraction, which awoke very positive feelings:

'I have thought about what a good feeling I get when I am in unspoiled nature far away from the racket of the world.... Peace, freedom, tranquility, pleasure, happiness. I become full of well-being and positive thoughts.'

Most tourists in Lónsöræfi are pleased with its primitive character and many come only to experience the primitive conditions. Consequently, increased services and further changes to the appearance of the natural environment would change this primitive attraction, and transform the type of tourism practiced there now.

The research shows that it is important for tourists in Lónsöræfi nature reserve to have few other visitors around. That is one of the most significant factors in the theoretical assessment of the social carrying capacity of tourism. In this respect, Lónsöræfi has not reached its carrying capacity, since about 80% of visitors were very pleased with the number of people they came across during their travels. On the other hand, 4% of visitors experienced crowding, indicating that carrying capacity might soon be reached for that particular group. It may be claimed that the difficulty of access to Lónsöræfi and the terrain's roughness restricts the number of visitors and ensuring that the TCC is not readily surpassed.

An important question in the questionnaire is: 'How important are the following facilities/characteristics for you while travelling in this area?' It was used to group visitors into visitors segments, based on a method developed by Hendee *et al.* (1968), Stankey (1973) and Wallsten (1988) where a 'purists scale' is used to group tourists. The scale is somewhat comparable to the ROS scale (*cf.* Figure 2), with 'purists' on the one end of the scale, who prefer to travel with primitive facilities and little anthropogenic influence. These people also appreciate solitude and dislike restrictions on their behaviour. 'Urbanists' are to be found on the other side of the scale. They do not respond very strongly to environmental disturbances, and they appreciate a variety of services and facilities around them. Urbanists also welcome other visitors in the area in which they are travelling. 'Neutralists' occupy the middle of the scale and do not have such strong views with regard to these themes. The question was based on a set of 14 items and an ordinal five-point scale was provided for each item, ranging from 'not at all important' to 'very important'. The items listed were largely based on Stankey (1973) and

Wallsten (1988) where such issues as the need for solitude, the primitiveness of the recreational opportunity, and the minimum level of human influence were tested. The grades for all items for each respondent were then summed. Only those who answered all of the questions were used in the final analysis, resulting in 67 usable answers. The results give an average score of 49,67, with a standard deviation of 9,71. The lowest score being 25 and the highest 68. The score distribution was then used to categorise the respondents. Stanley's (1973) decision rule for categorisation was used where: *Strong purists* were defined as those who scored between 60 and 70 points; *moderate purists* between 50 and 59, *neutralists* 40 and 49; and *non-purists less than 40* points. Following this decision rule, 15% of the respondents in Lónsöræfi nature reserve were judged to be strong-purists, 40% purists, 25% neutralists and 20% urbanists (Sæþórsdóttir 2003). This reflects the importance of keeping the area primitive and pristine in order to maintain levels of visitor satisfaction. Most tourists in Lónsöræfi were pleased with its primitive character, and the study shows that many come solely for the purpose of experiencing an environment of this kind. Increased services and further changes to the appearance of the natural environment would thus significantly change its unique character and transform the type of tourism practiced there.

Tourism management - novel approaches

Despite wide usage of the term 'sustainable development', there is still no universally accepted definition of the term. In 1987 the World Commission on Economic Development (WCED) suggested that the definition of sustainable development should be 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (WCED, 1987). During the past decade, however, the term has become somewhat of a 'buzzword' within the international development community. Nonetheless, sustainable tourism development is of vital importance. On a general level it includes a focus on achieving some level of harmony among stakeholder groups to develop a desirable quality of life that lasts (Ahn, *et al.*, 2002). In 1995 sustainable tourism was defined by the World Tourism Organisation as an economic development intended to improve the quality of life of the host community; provide a high quality of experience for the visitors; and to maintain the quality of the environment of which both the host community and the visitors depend (WTO, 1995). Icelandic tourism relies heavily on natural resources and therefore ideally fits these concepts of sustainable development.

Ryan (2002) points out that it is through an individual's sensory systems that a place is experienced. He states that from an industry struc-

tural perspective tourism is a complex network of selling chains, transport patterns, attractions, accommodation and technologies. Yet, the foundation of the network is the desire of individuals to get away from their daily surroundings. It may be a desire to escape routines or a desire to see and experience new things, but at the heart of the complex structure lies an individual's experience of place and the interactions that one has with the place, its people, other tourists and the representatives of the tourism industry that work there. But how can we integrate these individual experiences into our planning procedures? ROS classifications have been recommended largely (e.g. Boyd and Butler, 1996; Ahn, *et al.*, 2002) to control changes not only in the physical resource, but also in the resident expectations and visitor experiences to prioritise eco-tourism. While the ROS has been applied theoretically in several tourism planning situations Ahn, *et al.* (2002) reveals that little empirical work has actually been undertaken to support the fact that differences in resource zones exist perceptually as well as geographically. Defining the TCC in natural settings in Iceland is undoubtedly a complex issue, where consensus is hard to achieve. We will however use the ROS framework as a tool to identify TCC in selected tourists sites in Iceland. Furthermore, to integrate the dynamic information achieved from ROS into spatial modelling in Geographical information systems (GIS), as geographic information is best obtained from spatial analyses. GIS combines spatial data processing, modelling and display in order to facilitate decision-making. Integrating dynamic simulations and spatial analysis in GIS is a novel approach in natural resource management. The dynamic simulations will yield the real time information of a number of visitors as well as visitors' experiences and expectations at each tourist destination. Integrating spatial analysis yields more closely to the impact of the tourist on the natural resource. Hence, our continuing work aims at developing integrated spatial dynamic models and a decision support system to provide a long-term strategic approach for sustainable tourism management. The expected results are likely to provide the necessary TCC information for the better management of tourist destinations in Iceland.

Conclusions

The TCC has not reached the Lónsöræfi nature reserve's restrictions. However, the area's sustainability continues to suffer from lack of clear goals in environmental and tourist recreation planning. Moreover, in order to put in place the effective long-term management of tourist sites, management must be defined, and variations in sensitivity and vulnerability recognized. For places that are popular tourist destinations, the challenge is to provide the infrastructure that tourists need, as well as provid-

ing and identifying viable opportunities for the sustainable use of the natural resources.

There are few places in Europe with sites that could still be included on the primitive side of the ROS scale. Iceland however has such sites, and these sites attract tourists. In the tourism planning procedure it is both desirable and of vital importance to have a variety of environments that range across the whole ROS scale from primitive and pristine to urban and high service experiences. The purist scale analysis thus provides an excellent database for the ROS dynamic simulations. By integrating the dynamic and spatial approach we will be able to develop a framework for long-term monitoring and management agendas that are both consistent with the requirements of sustainable tourist development, and appropriate for practical implementation.

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5th Nordic Environmental Assessment Conference



PLANNING FOR SUSTAINABLE DEVELOPMENT

- the practice and potential of environmental assessment

Reykjavík, Iceland, 24th - 26th August 2003

Grand Hótel Reykjavík

PROGRAMME

Organised by:



Skipulagsstofnun - the Planning Agency, Iceland



Nordregio, Nordic EA Network

In cooperation with:

Ministry for the Environment, Iceland

The University of Iceland

Supported by the Nordic Council of Ministers

Sunday 24th August

- Field trip to the Reykjanes peninsula**
9:00 Busses leave from Grand Hótel Reykjavík (from other conference hotels at 8:45)
18:00 Estimated arrival back at hotels
17:30 –
19:30 **Conference registration**, Grand Hótel Reykjavík

Monday 25th August

- 8:00 **Conference registration**, Grand Hótel Reykjavík
9:00 **Plenary session**, Gullteigur
Chair: Magnús Jóhannesson, Secretary General, Ministry for the Environment, Iceland
Opening address: Stefán Thors, director of the Planning Agency, Iceland
Riki Thérivel, partner with Levett-Thérivel sustainability consultants and visiting professor at the School of Planning, Oxford Brookes University, UK
Issues in implementing the SEA Directive
- 10.15 **Coffee**
10.45 **Plenary session cont.**
Tim Richardson, senior lecturer at the Dep. of Town & Regional Planning, Sheffield University, UK and visiting professor in the Dep. of Development and Planning, Aalborg University, Denmark
SEA and planning theory: Facing up to multiple rationalities and power
Ingvild Swensen, adviser at the Ministry for the Environment, Norway.
Endangered Impact Assessment? EIA in a changing environment
- 12:00 **Lunch**
13:30 **Parallel sessions**
- | | | |
|---|--|---|
| <u>Session 1</u> , Hvammur
EIA of projects
- Review of practice and current issues
<i>Lessons from EIA of projects</i> | <u>Session 2</u> , Gallery
Methods and techniques for environmental assessment and planning
<i>Applicability of different methods</i> | <u>Session 3</u> , Gullteigur
Planning for sustainable development and the role of SEA
<i>Planning for sustainable development and democracy</i> |
|---|--|---|
- 14:45 **Coffee**
15:15 **Parallel sessions continue**
- | | | |
|--|--|---|
| <u>Session 1</u> , Hvammur
EIA of projects
- Review of practice and current issues
<i>Screening and scoping</i> | <u>Session 2</u> , Gallery
Methods and techniques for environmental assessment and planning
<i>Methods for baseline analysis, assessment and planning</i> | <u>Session 3</u> , Gullteigur
Planning for sustainable development and the role of SEA
<i>Planning for sustainable development and institutional framework</i> |
|--|--|---|
- 16:45-
17:30 **Poster session**
18:30 Busses leave from conference hotels for conference dinner at Perlan
18:45 **Conference dinner** at Perlan. Aperitif by courtesy of the Ministry for the Environment
ca. 22.30 Busses leave Perlan for conference hotels

Parallel sessions, Monday 25th August

Session 1

EIA of projects - Review of practice and current issues

*Chair: Terje Lind, Deputy
Director General, Ministry for
the Environment, Norway*

Lessons from EIA of projects

Can good EIA practice criteria
be applied to SEA? – the
Øresund bridge as a case
Eric Markus & Lars Emmelin*

The influence of EIA for
decision-making and
formulation of alternatives
Pekka Hokkanen

"Great expectations" – the
contribution of environmental
impact assessment to
decision-making in Alberta
Anke Seifried

Screening and scoping

The benefit of screening
Gert Johansen

The SEA-Directive in Norway
Martin A. Hanssen

EIA and the practical
experience of the scoping
report in Iceland
Hólmfríður Sigurðardóttir &
Jakob Gunnarsson*

Scoping in EIA: theoretical
strengths and practical
weaknesses
Paulo Pinho & Joao Margalha*

Session 2

Methods and techniques for environmental assessment and planning

*Chair: Júlíus Sólnes, prof.,
Dep. of civil and environm.
engineering, Univ. of Iceland*

Applicability of different methods

Testing an analytical
framework for SEA on the
waste/energy sector
Måns Nilsson, Göran
Finnveden, Anna Björklund &
Jessica Johansson*

The role of science in
environmental impact
assessment and its influence
upon, and interaction with,
decision-making processes
Mat Cashmore

The inclusion of indirect
effects in environmental
assessment of infrastructure
plans
Jessica Johansson & Daniel
Jonsson*

Environmental evaluation of
four different sites for
domestic airport location
Júlíus Sólnes

Methods for baseline analysis, assessment and planning

Natural hazard and risk
assessments in regional and
land-use planning: Iceland as
a case study
Björn Gunnarsson & Maria-
Victoria Gunnarsson*

The impact of natural hazards
in Iceland. How assessment
could be instrumental in a
new type of a regional plan
*Hallgrímur Már Hallgrímsson,
Trausti Valsson & Birgir
Jónsson**

Application and appraisal of
the tourism carrying capacity
concept and the recreation
opportunity spectrum model
for sustainable management
of natural resources
Anna Dóra Sæþórsdóttir &
Rannveig Ólafsdóttir*

Research and development in
EIA at Swedish National
Heritage Board
Mikael Jakobsson

Session 3

Planning for sustainable development and the role of SEA

*Chair: Lars Emmelin,
professor, Blekinge Institute
of Technology, Sweden*

Planning for sustainable development and democracy

Planning as a tool to bring
about sustainable
development - experiences
from the Nordic countries
Hólmfríður Bjarnadóttir

Environmental justice – new
fuel to the debate on planning
for sustainable development
in the Nordic countries
Karin Bradley

SEA and environmental
justice: a participative
approach to resolving local-
global value conflicts?
Steve Connelly & Tim
Richardsson*

Planning for sustainable development and institutional framework

Holding governments
accountable for EIA and SEA
– the Canadian example
*Richard Arseneault & George
Stuetz**

Planning at national-level and
introduction of SEA
Ásdís Hlökk Theodórsdóttir

EIA in parliament.
Sustainability and Norwegian
offshore petroleum
developments
Einar Leknes

* presenting author

Tuesday 26th August

- 9:00 **Parallel sessions**
- | | | |
|---|--|---|
| <u>Session 1</u> , Hvammur
EIA of projects
- Review of practice and current issues
<i>Review of EIA practice</i> | <u>Session 3</u> , Gullteigur
Planning for sustainable development and the role of SEA
<i>Planning for sustainable development and public participation</i>

<i>SEA of plans and programmes</i>
(this issue will continue after the coffeebreak) | <u>Session 4</u> , Gallery
Implementation of the EU SEA Directive in the Nordic Countries |
|---|--|---|
- 10:15 **Coffee**
- 10:45 **Parallel sessions continue**
- | | | |
|---|--|---------------------------------|
| <u>Session 1</u> , Hvammur
EIA of projects
- Review of practice and current issues
<i>Review of EIA practice - energy projects</i> | <u>Session 3</u> , Gullteigur
Planning for sustainable development and the role of SEA
<i>SEA of plans and programmes</i> | <u>Session 4</u> cont., Gallery |
|---|--|---------------------------------|
- 12:00 **Lunch**
- 13:30 **Plenary session**, Gullteigur
Chair: Björn Gunnarsson, Director of the Environmental Research Institute, University of Iceland
- David Aspinwall, seconded national expert at DG Environment, European Commission
Implementation of the SEA Directive
- Audun Ruud, acting programme director and senior research fellow at the Programme on Research and Documentation for a Sustainable Society (ProSus) at the Centre for Development and the Environment, University of Oslo, Norway.
Governance for sustainable development: The challenge of environmental policy integration in Norway
- Bo Elling, associate professor, Department of Environment, Technology and Social Studies, Roskilde University, Denmark
Modernity and communicative reflection - knowledge, reflexivity and rationality in environmental assessment
- 15:30 **Coffee**
- 16:00 **The potential of EA for promoting sustainable development in planning - what does the practice tell us and which are the important research issues?**
Plenary panel discussion, Gullteigur, chaired by Tuija Hilding-Rydevik, senior research fellow, Nordregio
Participants: Riki Thérivel, Tim Richardson, Ingvild Swensen, David Aspinwall, Audun Ruud and Bo Elling
- 17:00 **Closing of conference**, Tuija Hilding-Rydevik

Parallel sessions, Tuesday 26th August

Session 1 EIA of projects - Review of practice and current issues

Chair: *Birgir Jónsson, assoc. prof., Dep. of Civil and Envir. Engineering, Univ. of Iceland*

Review of EIA practice

Environmental impact assessment of Icelandic road projects
Hreinn Haraldsson & Ásdís Guðmundsdóttir*

An EIA for a highway tunnel in Trollaskagi in northern Iceland
*Hreinn Haraldsson, Ásdís Guðmundsdóttir & Stefán Gunnar Thors**

Socio - economic impact assessment. Two different projects: a road tunnel in the Tröllaskagi peninsula in Northern Iceland and the Kárahnjúkar hydro project in Eastern Iceland
Grétar Þór Eysteinnsson, Hjalti Jóhannesson & Kjartan Ólafsson*

Review of EIA practice - energy projects

Integrating environmental aspects into decision-making in Sweden – a case study of the energy sector
Sara Tyskeng

EIA and geothermal energy in Iceland
*Hólmfríður Sigurðardóttir & Jakob Gunnarsson**

Experience of environmental impact assessment (EIA) when working with electricity production in Iceland – electricity production and sustainable development
Ragnheiður Ólafsdóttir.

* presenting author

Session 3 Planning for sustainable development and the role of SEA

Chair: *Auður Sveinsdóttir, Docent, Dep. of Envir. and Landscape Plann., Hvanneyri Agricultural Univ., Iceland*

Planning for sustainable development and public participation

Public participation, democracy and environmental integration: can EIA/SEA provide a feasible connection?
María J. Figueroa

Public participation in planning: from theory to practice
Sigurborg Kr. Hannesdóttir

SEA of plans and programmes

Implementing SEA into the Icelandic road programme
Sebastian Peters & Stefán Gunnar Thors*

Impact assessment in Swedish municipal plans since 1996 – an inventory of the environmental aspects covered
Ann Ákerskog

Does strategic environmental assessment have an impact on development plans? Experience from the making of Reykjavík city development plan for 2001-2024
Halldóra Hreggviðsdóttir, Sigurborg Kr. Hannesdóttir & Ingibjörg R. Guðlaugsdóttir**

Session 4 Implementation of the EU SEA Directive in the Nordic countries

Chair: *Matthildur Kr. Elmarsdóttir, planner, Skipulagsstofnun - Planning Agency, Iceland*

Delegates from environmental authorities in the Nordic countries will present and discuss current proposals for transposition of the EU Directive on strategic environmental assessment.

Gert Johansen,
Ministry for the Environment,
Denmark

Ulla-Riitta Soveri,
Ministry for the Environment,
Finland

Halldór Þorgeirsson,
Ministry for the Environment,
Iceland

Stig Roar Husby,
Ministry for the Environment,
Norway

Sten Jerdenius,
Ministry for the Environment,
Sweden

Posters

Øystein Aas	<i>Actors and roles in Environmental Impact Assessment processes and the issue of impartiality; experiences and models from Scandinavia</i>
Axel Valur Birgisson, Margrét Valdimarsdóttir & Jóhanna Weisshappel	<i>EIA on water supply project in SW- Iceland</i>
Haukur Einarsson, Ragnheiður Ólafsdóttir & Rúnar D. Bjarnason	<i>Hydropower - Sustainable development and renewable energy</i>
Markku Kuitunen, Kimmo Hirvonen & Kimmo Jalava	<i>The Rapid Impact Assessment Matrix (RIAM) for comparing the EIA procedures role and effectiveness in projects and programmes</i>
Kjell Gustav Markus Lundkvist	<i>The applicability of landscape information in environmental risk management – a case study between Kiruna and Narvik, northern Scandinavia</i>
Auður Magnúsdóttir	<i>Evaluating SEA and EIA to the Kárahnjúkar project and other land use alternatives in central east Iceland</i>
Hólmfríður Sigurðardóttir & Jakob Gunnarsson	<i>EIA and geothermal energy in Iceland</i>
Óskar Sigurðsson	<i>Preparation for a new geothermal power plant – exploration drilling</i>
Jóhanna Björk Weisshappel	<i>Participation of Hönnun, Consultants, in EIA of the Nordural aluminum plant in Grundartangi, Hvalfjordur, environmental studies and monitoring</i>

5th Nordic Environmental Assessment Conference Planning for sustainable development – the practice and potential of environmental assessment

Organising committee

Ásdís Hlökk Theodórsdóttir, Planning Agency
Hólmfríður Bjarnadóttir, Nordregio
Matthildur Kr. Elmarsdóttir, Planning Agency
Tuija Hilding-Rydevik, Nordregio
Hólmfríður Sigurðardóttir, Planning Agency
Þóroddur Fr. Þóroddsson, Planning Agency

Advisory group

Hrafn Hallgrímsson, Ministry for the Envir., Icel.
Björn Gunnarsson, University of Iceland
Július Sólmes, University of Iceland
Nordic Planning Authorities
Nordic group of Environm. Assessment officia

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Established in July 1997 by the Nordic Council of Ministers on behalf of the governments of the five Nordic countries, Nordregio serves as an independent research centre on questions concerning spatial planning and regional development. Our staff come from all the Nordic countries, as well as from other European countries. Located in Stockholm, Sweden, the Centre applies a Nordic and comparative European perspective in its investigations, which include:

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- ◆ offering internationally attractive educational programmes, where the sharing of experience provides new angles of approach to national issues and activities;
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Nordregio grew out of the consolidation of three former Nordic institutions: *NordREFO* (The Nordic Institute for Regional Policy Research, established 1967), *Nordplan* (The Nordic Institute for Studies in Urban and Regional Planning, established 1968) and *NOGRAN* (The Nordic Group for Regional Analysis, established 1979).

The legacy of these institutions includes a widespread network of researchers and civil servants in all the Nordic countries as well as in Europe, a network which has been incorporated in Nordregio and upon whose experience Nordregio will continue to build.

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