

Environmental Impact Assessment in Malaysia, South Africa, Thailand, and Denmark: Background, layout, context, public participation and environmental scope.

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Abstract: *There are three objectives of our undertaking comparative analyses of EIA systems in Malaysia, South Africa, Thailand and Denmark, these are to inform policy makers with a view to improving Environmental Impact Assessments (EIA) in the respective countries, extend knowledge of methodological procedures, and to increase international understanding of environmental issues. EIA procedures are intended to provide informed analyses of the potential environmental impacts of projects and to contribute toward the mitigation of the negative consequences of these. EIA originated in the USA in 1970 and has since spread throughout the world. Cross-national comparisons of EIA-systems are difficult for even if some procedures are entrenched in EIA legislation, the EIA administration and procedures are often grounded in institutionalised local practices that can differ significantly. In order to limit this problem, the research focuses on a common activity having environmental impacts in each of the national study areas, namely highway construction. The article describes and compares the EIA systems in the four countries across five different analytic themes: The background for adopting an EIA system, the relation to standard EIA procedure, the EIA system and surrounding environmental regulation, the form of public participation, and, finally, the scope in the analyses of environmental impacts. Important findings are that: the background for adopting an EIA system does not seem to influence the process effectiveness of the system in the long run; although the design of the EIA systems in the four countries differs, the only element in a standard EIA system that is not present in all the four countries is monitoring; EIA systems often succeed in integrating most of the diverse environmental regulations into the EIA process, but the coordination with land use planning systems is often problematic; although the international debate about EIA creates some pressure for incorporating genuine public participation in EIA systems, the form of participation in the four countries is very much dependent on the political system in each country, and, finally, that which environmental problems are considered important differs between the countries.*

Keywords: EIA comparison, Malaysia, South Africa, Thailand and Denmark, highways.

Introduction

This article makes a critical comparison of the EIA systems in Thailand, South Africa, Malaysia and Denmark. The aim of the article is twofold. Firstly, the comparison across countries makes it easier to identify strengths and weaknesses in the different systems. Secondly, we hope that the description and analysis of the different systems can serve as a source of inspiration for how the EIA systems in the different countries could be developed further. The article is structured as follows: In this introduction, we briefly explain the purpose and structure of the research. In the next section concerning the analytical framework, we develop the five analytic themes that we pursue in the article and describe the method used. Then follows a section on each of the four countries: Thailand, South Africa, Malaysia and Denmark. Each country section is divided into three parts. The first describes the background for adopting an EIA system. The second, the current practice and its institutional context, describes the relation to the standard EIA system, EIA and surrounding environmental regulation, and the regulations for public participation at a general level. The third part of each country section describes the case study concerning a highway project. The country sections contain the data for analysing the analytic themes, which then are pursued in the ensuing discussion. The paper ends with a summary of the main conclusions.

It is possible to compare EIA systems across countries because the systems have many similarities. Our aim is to compare the systems in a way that will teach us more about how EIA systems work in the different contexts, and focus on themes where the possibilities for cross country inspiration and learning are best. This has of course consequences for the approach to the comparison. Assessing EIA systems in relation to an 'ideal' EIA procedure is methodologically straightforward (see e.g. Wood 1995, Wood 2003), but implicitly assumes that the same system would be optimal everywhere. However, given that the environmental situations, cultures, political systems and administrative capacities etc. are so different among the countries, we actually do not believe that the same system would be optimal everywhere. Instead of measuring the distance of each EIA system from a constructed ideal, we have been interested in how these countries adopted an EIA system and how it works in that context. As the intention is

to focus on themes where the cross-country inspiration and learning is possible, we have avoided focusing explicitly on administrative capacity and the availability of financial resources. Administrative capacity and financial resources are of course important for the functioning of EIA systems, but they are difficult to change in the short term. During the initial phases of the research, it became clear that the following themes would be interesting: the background for adopting an EIA system, the relation to standard EIA procedure, the EIA system and surrounding environmental regulation, the form of public participation and the scope of the analyses of environmental impacts.

Analytical framework

Background for adopting an EIA system: Environmental Impact Assessment (EIA) originated in the United States in 1969. Since then it has spread throughout the world (see e.g. Modak and Biswas 1999), and is now applied in more than 100 countries around the world (Donnelly et. al. 1998). It was first introduced into the Environmental Legislation in Denmark in 1989, Malaysia in 1986, South Africa in 1989 and Thailand in 1981. Different processes preceded the adoption of EIA procedures, and our claim is that the character of the processes has consequences for the effectiveness of the legislation (Börzel and Gupta 2000). We categorise the processes into four different groups. The first grouping is countries that develop their environmental legislation through a *national development process* with little influence from outside (Andersson, Bennekou and Schroll 1992). The EIA systems in the four countries are so similar that policy diffusion must have taken place (Tews, Busch and Jörgens 2003; Braithwaite and Drahos 2000). To analyse the mechanisms of policy diffusion, we distinguish between four groups of processes: *Learning* is when the governmental agency in charge identifies a problem, looks abroad for inspiration on policy tools that might contribute to solving the problem, and then amends tools to fit into the national context. The second group, *copying*, is when a government without considering its own problems and needs copies a regulatory instrument from another country. The third group, *teaching*, is when an foreign actor, be it a government or an international donor, tries to teach the national agency in charge which problems it has and which tools should be used to solve these problems (Finnemore

1996). Finally, the fourth group, *coercion*, is when pressure is put on the governmental agency such as a foreign actor saying that either the national agency will implement a specific policy, or the foreign actor will withhold resources from the country or in other ways affect the country negatively (Braithwaite and Drahos 2000).

Relation to standard EIA procedure. There are many similarities between the EIA systems applied in the different countries. Most EIA systems comprise – in one way or another – a screening, scoping, an EIA report, public participation, decision and monitoring. But there are also many differences between the systems and the way they are used in practice in different countries. In order to avoid describing in length all the elements where EIA systems are similar, we compare the EIA systems to a standard EIA system and focus on the elements where the EIA system in each country deviates from the ‘standard procedure’. This is not to assess the system in relation to an ideal EIA system, but only to facilitate description. The standard procedure we use is developed through discussion in the team and through a literature review (among others Wood 1995, World Bank 1991, Modak and Biswas 1999), and consists of a screening, scoping, the EIA report, public participation, decision and monitoring. Besides focusing on deviations from the standard process, we will also focus on the distribution of competences, and who carries out the different steps of the process.

Regarding specific activities relating to highways, national or international EIA guidelines for highways were included. A national guideline will point to the specific natural, cultural and social issues that, through experience, have become relevant to highway projects.

The EIA system and surrounding environmental regulation: All four countries had some sort of environmental regulations before formal EIA systems were introduced. Some of them had a land use planning system with a long tradition that addressed, directly or indirectly, environmental issues, and all countries introduced specific environmental regulations during the 1970’s and 1980’s. In none of the countries was it the intention that the EIA system should replace the existing environmental regulations. Rather, the EIA system was intended to complement and supplement existing environmental legislation. This relationship is important firstly because there

is a risk for unclear and overlapping competences, when a variety of regulatory systems have to function jointly. This can radically compromise administrative effectiveness and efficiency. Secondly, the capability of the EIA system to integrate all relevant elements of the surrounding regulatory systems is important for the potential effectiveness of the EIA systems.

Form of public participation: Public participation is a central element in the EIA. Both how public participation is formally entrenched in statutory provisions and how it is carried out in practice has considerable significance for how effectively the EIA system works, the form of public participation is also an indicator of the political system (Heywood 1997) in the country. On the basis of different analyses of the concept of public participation (Lund 1990, Arnstein 1969), we distinguish between three forms: legitimatising participation, instrumental participation and democratic participation.

Legitimatising participation occurs when the sole purpose of the participatory process is to legitimate the process, but it does not have any influence on the content. *Instrumental participation* applies when the public is utilised as information providers to improve the quality of the EIA reports, but where the public’s prioritisation of problems and benefits is disregarded. *Democratic participation* is when the views and the priorities of the public are taken into account in the decision-making process.

Scope in the analyses of environmental impacts: EIA is about the environment, and the basis of the entire process is that important environmental impacts are identified and investigated properly. Scoping is the step in the EIA process during which all possible environmental problems should be considered. Significant problems are further analysed and, where appropriate, negative impacts are mitigated. The environmental problems addressed are important for assessing the validity of the assessments made in the reports. The issues treated in the final EIA report indicate environmental problems that are considered important in the country.

A cross-cutting concept is effectiveness. Effectiveness of environmental regulation is essential. But it is also complex as ‘effectiveness’ can mean many different things, and analysing the different types of effectiveness can be rather complicated (see e.g. Young 1994, Stærdahl 2001). We will limit ourselves to

mainly focusing on process effectiveness, which we in this setting define as whether the EIA system is implemented and managed in such a way that EIAs on projects are in accordance with the objectives and regulations of the EIA system. On the basis of the analysis of five themes, we can assess the consistency of the formal EIA systems, the general workings of the EIA system, the relationship to surrounding environmental legislation and the way the EIA-process was managed in relation to our highway cases, which taken together allow for a preliminary assessment of process effectiveness.

Method

The study is based on a review of EIA literature referring specifically to the four countries, a review of their legislation and guidelines concerning EIA, semi-structured interviews with university experts and professionals in the administrative system. Case studies of EIAs concerning road development initiatives in each of the four countries were employed as vehicles for analysis. National experts on EIA participated in the reviews of the relevant national legislation, and research results have been discussed with professional practitioners in the relevant countries.

In analysing the EIA reports, focus was placed on the scope of the environmental impact assessment and on the character of the public participation process.

As indicated, a single case study was chosen from each country. These are not in themselves conclusive, but they serve as illustrations of how the different EIA systems work, and served as a point of entry for engaging the national experts. Apart from Denmark, the countries investigated have a federal structure, and in some, especially South Africa, the variation between the provinces can be substantial. In such cases, the relevant provincial institutional contexts and practices are described.

The EIA System in Malaysia

Background for adopting an EIA system: In 1986 EIAs became mandatory in Malaysia with the insertion of section 34(A) in the Malaysian “Environmental Quality Act”. But EIAs were discussed in Malaysia way before that.

In 1967, there was a big flood in Perak where the Bota bridge was washed away and there was also a major flood in Kuala Lumpur in 1970. Thus, the

Department of Environment engaged the World Bank to assess the environmental situation since flooding was a major concern during that period. The report made in 1974-1975, which was produced by the World Bank, recommended that EIAs should be a requirement for any major development project. In 1977, Ir Goh Kiam Seng, at that time Director General of Department of Environment (DOE), attended a Conference in Geneva about EIA and afterwards set up an ad-hoc panel to discuss the process and formatting a Guide to EIA in Malaysia. The government’s central planning agency, the Economic Planning Unit, then got the DOE involved in helping to complete a chapter on environment in the 3rd Malaysian Plan, where the DOE included the recommendations made by the World Bank.

Thus the EIA was initiated with the DOE and the cooperation of United Nations Environmental Programme (UNEP) to draft the procedures and guidelines of EIA. Most of the details were taken from the Canadian Initial Environmental Evaluation (IEE) and the US examples, but the IEE procedure was quite complicated. It was then decided that Preliminary EIA was sufficient in most cases and if serious issues arise, a detailed EIA will be carried out. The final draft was completed in 1979 (Seng, personal communication).

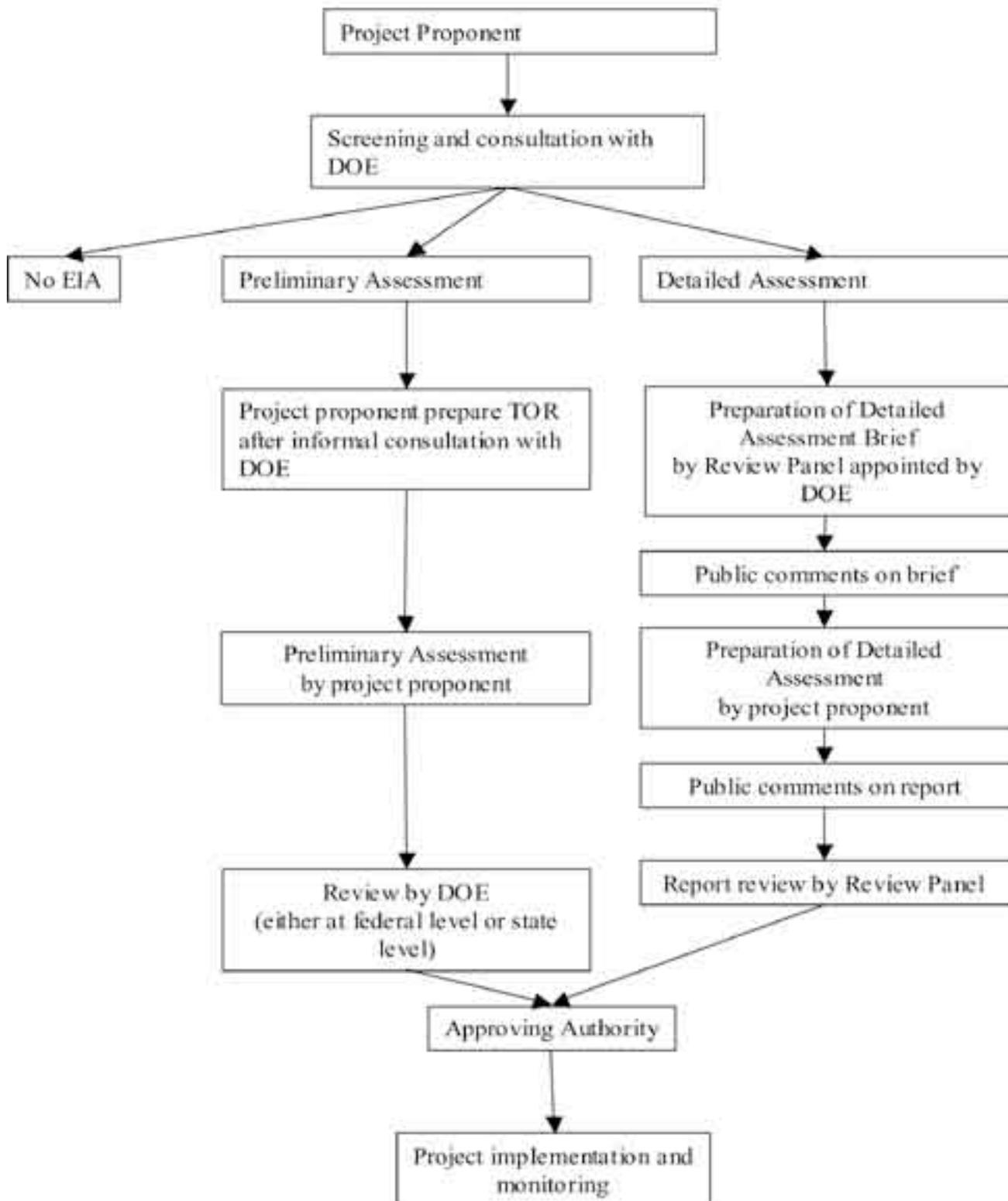
In 1980, the Malaysian EIA procedure was applied for the first time to three projects, and in 1981 the EIA unit within the DOE was established. In 1981-1984, the DOE subjected 29 projects to informal EIAs, but it was only in 1986 that the EIA procedure became mandatory (Kanniah 1999: 64-65).

Thus EIA was introduced in Malaysia in a process where learning, teaching and copying were mixed.

Current practice and its institutional context: The core of the EIA system in Malaysia is section 34(A) of the Malaysian Environmental Quality Act and the 1987 EIA order of ‘Prescribed Activities’ (Environmental Quality Act 1998). The system includes general steps of EIA systems identified earlier (Figure 1). A number of issues particular to the Malaysian EIA system can be identified:

1. Malaysia is a federal state, and the division of competence is specified in the ninth section in the constitution. According to this list many environmentally important aspects are within the jurisdiction of the states, e.g. matters of land, water, rivers, freshwater fishing, forest and

Figure 1: EIA process and institutions in Malaysia



agriculture. The 1987 EIA regulations are federal law, but the 1987 order on prescribed activities includes a number of activities that according to the constitution is under state jurisdiction.

2. Public Participation in the process is limited, and is mainly at the behest of the project developer. According to an EIA handbook (DOE 2000), public participation is essential in the preliminary assessment process, but only in ways that could be adjudged to be 'instrumental public participation'. The form of public participation is left to the project proponent. The terms of reference (TOR) for the detailed EIA are initially submitted to an Ad Hoc Review Panel appointed by the DOE. The revised TOR is also required to be displayed and advertised in the printed mass media for public comment. In the detailed EIA study, public participation is recommended for the same reasons as in the preliminary assessment and, as in the latter, it is completely at the behest of the project proponent. When the review panel receives the detailed study, it publishes such public notice as "it considers appropriate", stating the nature and location of the project, where copies of the report can be obtained, and the cost of each copy. The public then has the opportunity to forward comments in writing within 45 days.
3. EIAs are meant to follow the integrated planning concept. But in projects both requiring land approval from the State Executive Committee and an EIA there seems to be two parallel processes. An application for land alienation or land conversion must be submitted to the Land Office, who refers it to the relevant agencies for comments. The DOE is usually asked for comments on environmental aspects. At the same time, an EIA must be prepared in a process co-ordinated by the DOE. The consequence frequently is that the project is approved by the state first, and that the EIA report is only prepared after commitments have been made to the site, design and technologies. It is not surprising therefore, that owing to this lack of coordination and integration, an EIA is often regarded as a mere formality (Institute of Advanced Studies: "Planning for Environmentally Sound Development in Malaysia" in Kanniah 1999). Generally it seems that the EIA process commences when the planning process is almost complete (Kanniah 1999, Fauzi, interview), or even after the bulldozers have started (Sahabat Alam Malaysia 2000), although the EIA hand-

book states that the EIA procedure should be initiated early in the project planning (DOE 2000).

4. Implementation of the conditions in the EIA approval seems to be the weakest link in the Malaysian EIA system. The conditions in the approval given by the Department of Environment are to be implemented by the agency under whose jurisdiction the condition falls, be it a state, a department responsible for the sewage system, or water supply or any other department. The coordination of all these authorities is extremely difficult (Fauzi, interview).

EIA of the New Pantai Highway in Kuala Lumpur.

The New Pantai Highway is a 19.6 km limited access highway intended to alleviate the pressure on other major roads in Kuala Lumpur. The main part of the new highway is an extension of existing roads, but some kilometres of the road comprise a new alignment of the road. The highway project is privatised. In December 1996, Maxtro Engineering, the project proponent issued the report of the preliminary EIA. The approval conditions were not made accessible to the public.

The public participation in the preparation of the EIA report occurred through interviews using standard questionnaires. The main issues in this case were land acquisition and relocation of the affected residents. The analysis was made on the basis of 185 questionnaires from 11 different localities in the vicinity of the project.

The EIA system in South Africa

Background for adopting an EIA system: EIA was discussed in South Africa as early as the mid-1970s, and during the late 1970s and early 1980s numerous articles regarding EIA in South Africa were published, mainly due to "the work of a handful of dedicated academics and professionals, many of whom served at the various committees and councils concerned with environmental management in South Africa" (Sowman et. al. 1995:49). Although EIA was given a prominent standing in policy papers around 1980, the 1982 Environment Conservation Act contained no requirements for EIAs being undertaken. However, under the terms of the act, the Council for the Environment was established in 1983, and so were various subcommittees, among others a com-

mittee for EIA. After two years, a working group under the EIA committee published the document “Integrated Environmental Management (IEM) in South Africa”. During the 1980’s, numerous voluntary EIAs were undertaken and the IEM guidelines were extensively used.

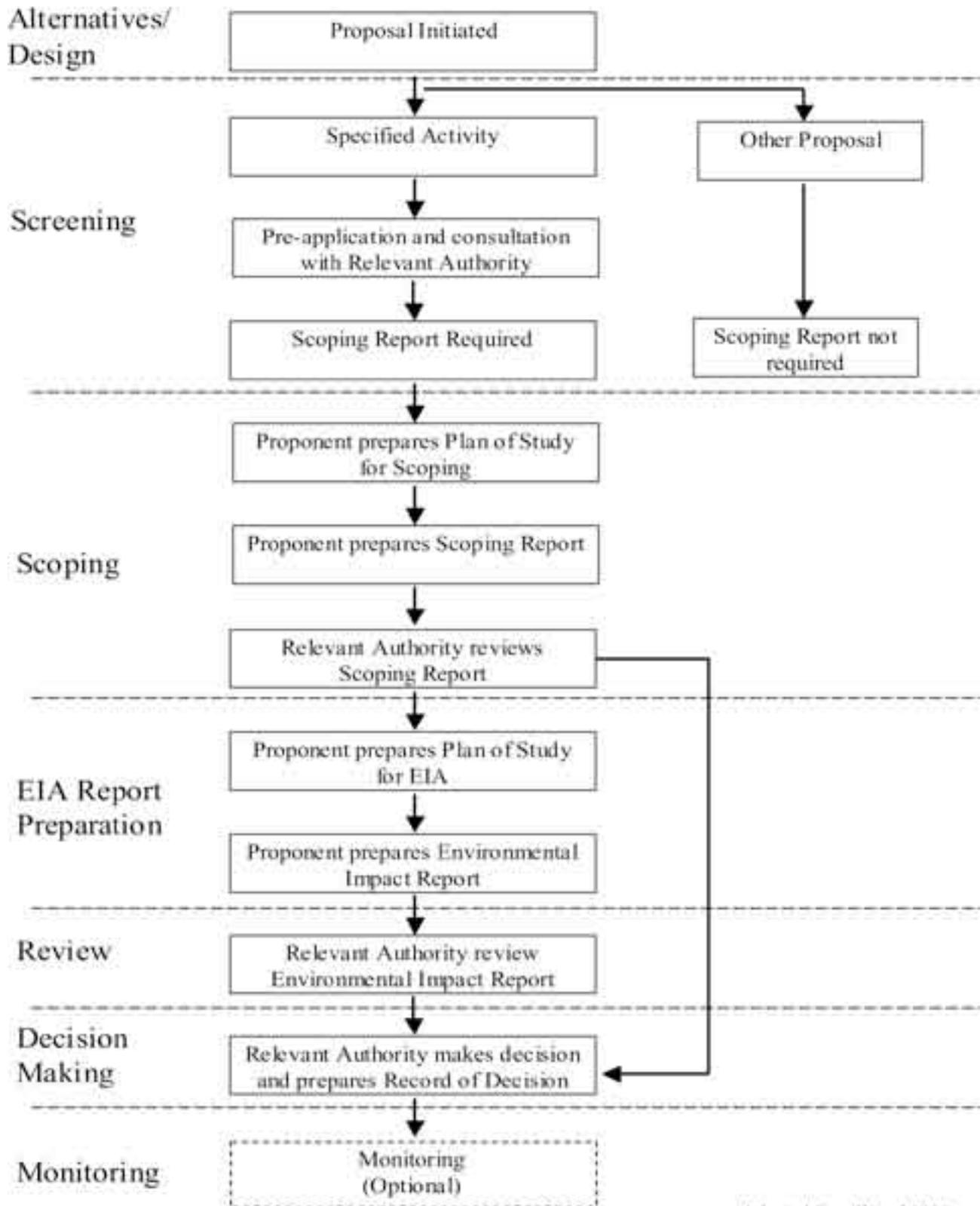
A voluntary EIA procedure was integrated into the Environmental Conservation Act in 1989. According to the law, relevant authorities could require an EIA to be undertaken. On September 5th 1997, the voluntary requirements became mandatory as the minister of Environment and Tourism promulgated new EIA regulations making the process of the 1989 Environmental Conservation Act mandatory. The regulation identified activities “which may have a substantial determinable effect on the environment” (Republic of South Africa 1997). Besides the 1997 regulations, the Minerals Act (1991) contains requirements for EIA under sections 39(5) and environmental management programme requirements (sections 38 and 39).

The introduction of EIA in South Africa is best characterised as being mainly a *learning* process with some elements of *copying*. There are no indications of teaching or coercion. There are clear indications of a substantial amount of consideration of how to amend the EIA system in a way to make it useful within the South African context. But there are also indications that this learning process did not function smoothly. The epistemic community (Hass 1992) formed around the EIA-discussion did not have access to the policy makers in the 1990’s; thus the EIA paragraphs in the 1989 Environmental Conservation Act and the regulations in 1997 were made without consultation with the EIA epistemic community. These procedures are, by the epistemic community, considered to be mainly a copy of foreign procedures neglecting the South African experience (Hill 2001, interview).

Current practice and its institutional context: EIA is mandatory in South Africa. The requirements for EIA are laid down in Environmental Impact Assessment Regulations dating from September 1997 (Republic of South Africa 1997). The system includes most normal steps of EIA – systems: screening, scoping, public participation, environmental reports, review, and decision (Figure 2, see also Wood 1999 and 2003). There are a number of issues specific to the South African EIA system.

1. Administratively, the Republic of South Africa has several levels: The national level, the provincial level and the municipality level. The national level is responsible for issuing the general regulation for EIA and the national guidelines. The provinces are responsible for developing specific procedures and administrative processes. However, where the national environment is affected or national governmental authorities are the applicant, the authority moves up to the national level. The authority can also be moved down to the local authorities
2. The regulation leaves, in principle, no room for a screening process. According to the regulation all changes in, for example, land use – whatever limited scale – are subject to an EIA and a scoping report has to be prepared. In order to keep the process manageable, the authorities in Western Cape have developed what in terms of the law is a two-step scoping process. In the first stage (often referred to as screening), the developer must use an application form in order to describe the project and its anticipated environmental effects. 60% of all applications are approved on the basis of this application form. In the second stage, a genuine scoping report is prepared. 30% of all projects are approved on the basis of this scoping report and 10% on the basis of a full EIA report. Public participation is mandatory, but the regulation does not state where in the process it should take place, only that it must take place (Republic of South Africa 1997). But the guideline document (DEAT 1998) states that public participation should take place during both the scoping process and the review of a full environmental report. Judged by the guideline document, substantial weight is put on public participation. However, due to the impreciseness of the law, the degree of public participation varies from project to project (Mohamed, interview) although greater rigour and standardization is now being achieved. Guidelines for the review of EIAs have, however, been issued to obviate this (Cape Metropolitan Council, 2000. p. 2.35)
3. The EIA process is intended to fulfil the task of integrating most of the complex environmental legislation in South Africa. Only in relation to the South African land use planning, which is subject to the provisions of the Development Facilitation Act (67 of 1995), does there seem to be risks of conflict and duplication of work.
4. Monitoring is not mentioned.

Figure 2: The EIA process and institutions in South African



Adapted from Wood 1999

EIA of Extension of Cape Flats High Way.

The “Cape Flats Freeway Extension” is an approximately 8 km extension of the Cape Flats Freeway, and is proposed as a limited access highway. It was proposed initially to construct it as a two or four lane main road, and at a later stage, to upgrade it to highway standards. The Cape Metropolitan Council put forward the project. In 1996, they commissioned a consortium of two private companies to investigate the feasibility of the route. The EIA report was prepared by a member of the consortium, except for the public participation report, which was prepared by a different company. All concerned local and regional authorities were involved in the decision making process (Provincial Administration of the Western Cape, Cape Metropolitan Council, South Peninsula Municipality, Cape Town Municipality). At the time of writing, the project has been approved and construction is commencing.

The public participation process included letter drops, public meetings, and workshops for special interest groups and representatives of authorities and individual consultations with farmers in the Philippi section. Interested and affected parties were identified and by means of a questionnaire, advertisements, collective meetings and workshops the consultant attempted to identify their various interests and views. Their views on the project in general were recorded, but emphasis was especially put on inputs related to mitigating measures. A large measure of feedback to the interested and affected parties was also provided. Assessing the public participation process, it is clear that it constituted ‘democratic participation’, in the sense that the public’s views on necessary mitigating measures were fed into the decision making process.

The EIA system in Thailand.

Background for adopting an EIA system: Institutionalisation of the EIA process in Thailand began with the proclamation of the Enhancement and Conservation of National Environmental Act in 1975. The office of the National Environment Board (ONEB) served as the Secretariat (Chia 1987 cited in Yap 1994). Section 17 allowed the Minister to prescribe the categories of projects that required an Environmental Impact Statement (EIS). In July 1981, such a list was proclaimed. During the preparation process ONEB studied the problems in Thailand and EIA regulations from other countries before they developed

the Thai EIA system. They had an expert from the UNEP to assist them in the process.

The 1975 law was considered flawed in several respects. Environmental policy analysts and environmental organisations noted the ONEB’s lack of enforcement authority. The EIA process was also criticized for being closed; it was paid for by the project proponent, considered a property of the proponent, and was not open to the public unless the project proponent volunteered to make it available (CIDA 1991 cited from Yap 1994).

The 1988 floods in the South, land subsidence and river pollution from salt mining in the Northeast, and public controversy over hydroelectric dams and reforestation projects dramatically increased public awareness of the deteriorating state of the environment and the threats to the country’s natural resource base. In an attempt to address some of these problems, the government in 1992 introduced new legislation, the Enhancement and Conservation of the National Environmental Quality Act (NEQA) (Yap 1994). The act grants the minister authority to specify which projects are subject to an EIA and grants the NEB the power to require investigation and documentation of environmental impacts of projects (Yap 1994). Further, the new act also upgraded the NEB with the Prime Minister (rather than the Deputy Minister) serving as Chair, and the Minister of Science Technology and Environment as one of the two Vice Chairs (Yap 1994). The introduction of EIA in Thailand is best characterised as a mixture of teaching and learning processes, whereas the later revision of the system is best characterised as a national learning process.

Current practice and its institutional context: There are two separate tracks in the Thai EIA procedure, one for government agency or public sector, and the other for the private sector.

The EIA for the government agency or public sector project must be undertaken during the feasibility study (Figure 3a). The report is filed with the Office of Environmental Policy and Planning (OEPP) and reviewed by the Ad Hoc Experts Committee for Public Projects, and the Committee then passes the comments to The National Environmental Board (NEB). NEB may ask the opinion of the Office of Environmental Policy and Planning (OEPP) or other experts. The report (with comments) is then submitted to the Cabinet for decision. There is no time limit for the process. For the private sector projects (Figure

Figure 3a Institutions and process for EIA of projects undertaken by Government Agency State Enterprise or to be jointly undertaken with Private Enterprise in Thailand

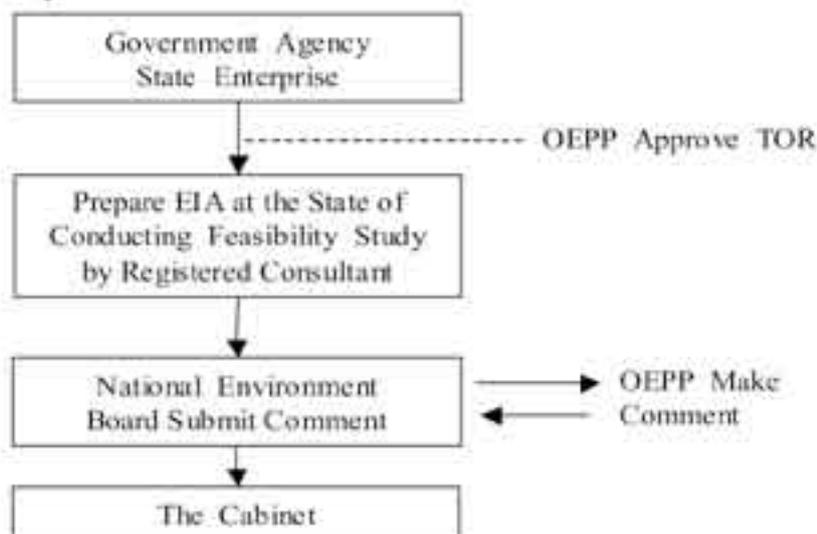
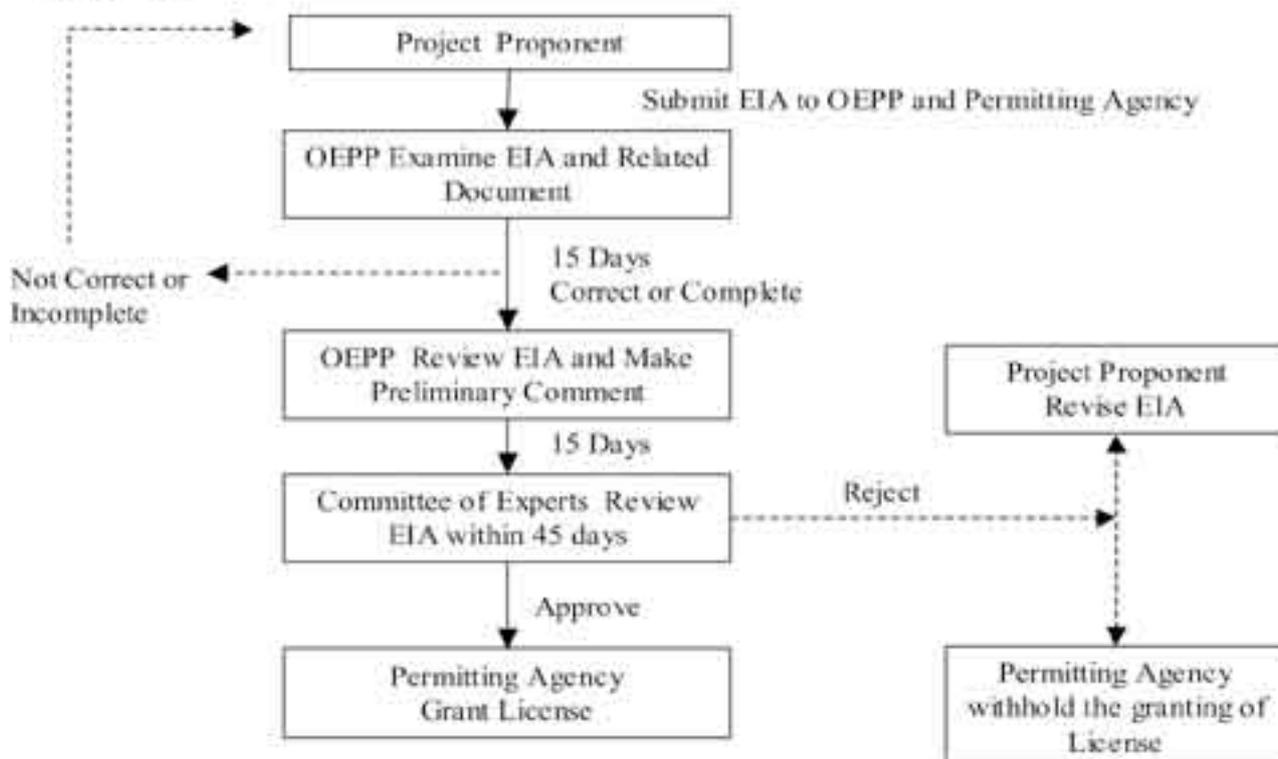


Figure 3b Institutions and process for EIA of Private Sector Project in Thailand



3b), the EIA report is to be submitted to the Office of Environmental Policy and Planning (OEPP). The OEPP can only “comment” on the EIA report; the decision to approve or disapprove the report lies with the Ad Hoc Experts Committee. The OEPP has fifteen days to comment on the “correctness” of the EIA and another fifteen days to make a complete review. The Ad Hoc Experts Committee, which includes a representative of the licensing or permitting agency, must complete its review within forty-five days or the EIA report is considered approved. If it is rejected, the EIA report is to be revised and resubmitted to the Committee. An additional thirty days are allowed for this second review. (Yap 1994).

1. In Thailand the Terms of Reference for the EIA are decided on and prepared by the project proponent but approved by OEPP. Section 51 of The National Environmental Quality Act grants the minister the authority to require that licensed specialists prepare the EA report. An ad hoc committee has been set up to approve the registration of specialists or consulting firms. (Yap 1994).
2. Public participation in EIAs is not institutionalised in the legislation. Some in the government argue that public interest is taken into consideration through the potential representation of NGOs on the National Environment Board, which reviews the EIA for public sector projects. NGO representatives may also be invited to the Ad Hoc Experts Committee that reviews the EA Report for private sector projects. Others consider that making the EIA report or its Executive Summary public is sufficient notification. The legislation does have some provisions that have implications for local communities and public interest groups with respect to development projects. Section 6 in the NEQA grants rights and duties to individuals “for the purposes of public participation in the enhancement and conservation of national environmental quality.” These include the right to be informed and obtain information and data from the government on “matters concerning the enhancement and conservation of environmental quality, except where the information or data involves officially classified material, such as secret intelligence pertaining to national security, or secrets pertaining to rights to privacy, property rights, or the rights in trade or business which are duly protected by law”. Under section 8, NGOs and non-profit organisations or juridical persons directly engaged in activities con-

cerning environmental protection or conservation “without any objective to be involved in politics” may register with the Ministry of Science Technology and Environment. NGOs may also propose nominees to represent the private sector in the NEB. Registration of NGOs may be revoked if their activities cause “disturbances or (are) contrary to public order or unsuitable”.

Finally, the EIA process as defined in the legislation assumes that NGOs or environmental professionals can articulate the interest of the public or effected communities. There appears to be a genuine lack of confidence on the part of government officials and environmental professionals in the ability of local groups to participate in an informed and meaningful way as part of the project planning. Even the participation of NGOs on the NEB or Ad Hoc Experts Committee would appear to come rather late in the process. (Yap 1994)

EIA of the Southern Outer Bangkok Ring Road Inter-city Motorway Project.

The Southern Outer Bangkok Ring Road Inter-city Motorway Project, which is a part of the Outer Bangkok Ring Road Project, has a total distance of 35 kilometres. The road has six traffic lanes, and the shoulder is wide enough for future expansion to eight lanes.

To comply with Ministry of Science, Technology and Environment’s regulations, it is imperative to study and assess environmental impacts of the project. The scope of environmental impact assessment complies with the guidelines of the Office of Environmental Policy and Planning (OEPP). Four factors have to be scrutinised, which are:

- Physical Resources: The study includes topography, geology, meteorology, air quality, noise level, vibration, hydrology, soil removal, landfill and construction and water quality.
- Ecological Resources: The study includes aquatic and terrestrial ecosystems.
- Human Use Values: The study encompasses land use, transportation network and navigation, utility systems, flood control and drainage.
- Quality of Life Values: The study is composed of socio-economic conditions, resettlements and way of life, public health, aesthetics, tourist attractions, historical buildings, places of interest, safety and proposing measures to arrange meetings for public hearings and public relations activities.

The study contains comparative study of alternative routes, among others the route crossing Chao Phraya River by a suspension bridge or a tunnel (Department of Highways 1998).

The study indicates that negative impacts will take place during construction. The extent of the impacts will be low to moderate. However, positive impacts on land use, transportation networks, socio-economic conditions, and safety will be realised when the road is open. The study details about meetings and public relations are provided by interviews made by privately employed sociologists.

The EIA system in Denmark.

Background for adopting an EIA system: EIA became compulsory in Denmark in 1989 with the statutory order nr. 446 on EIA (Bek. 446 1989). This statutory order was issued to implement a directive from the European Union, "Council Directive 85/337/EEC of 27 June 1985 on the assessment of the effects of certain public and private projects on the environment". Since the 1989 statutory order, the Danish system has been changed several times. In 1991, the EIA requirements were more or less integrated into the pre-existing Danish planning and regulations system: it was integrated into the Planning act and it was linked to the Danish permit system for polluting industries (Bek. 119, 903 and 904, 1991). The Danish EIA system was adjusted in 1992 and again in 1994. The Danish implementation of the EU-directive has been rather reluctant, as many planners and politicians thought that the existing land use planning system in Denmark was sufficient (Folketingstidende 1987-88 F: 7825-7833; Kørnøv 2002: 172). For many years, the Danish understanding was that Danish environmental regulation was superior to regulation elsewhere, and that implementing EU regulation either would be a step backwards or only would consist of explaining how the Danish environmental regulation already fulfilled with the objectives in the regulation (Basse 1996). The debate in the Danish Parliament about the law implementing the EIA directive into Danish law for the first time in Denmark in 1988 illustrates this very well. For example Marianne Jelved, the Danish Social-Liberal Party, said "In our opinion this [implementing the directive] will not have particularly big consequences in Denmark, but we are pleased that other countries in the EC will reach a better level of planning than they maybe have been till now" (Folketingstidende 1987-88 F: 7830).

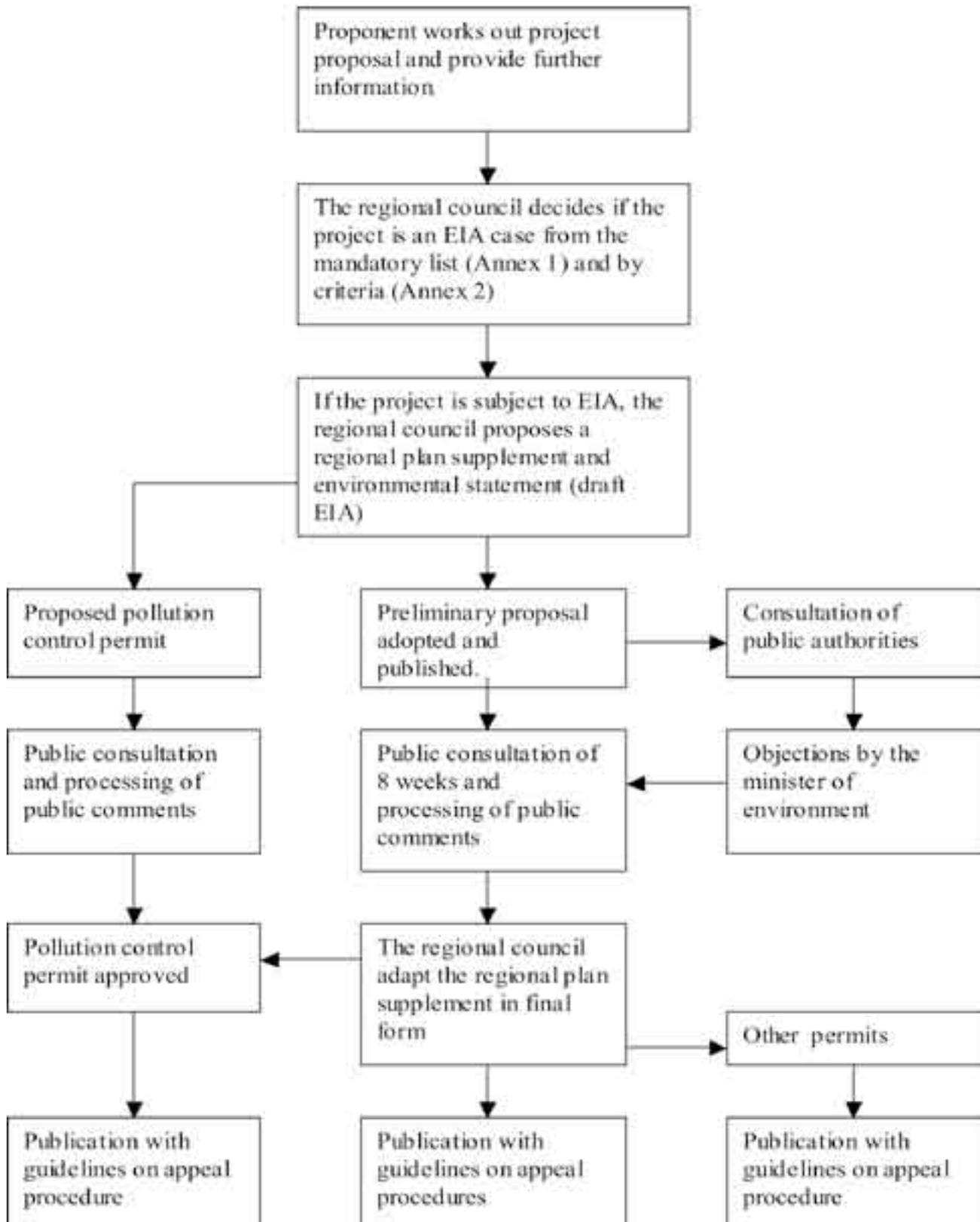
Thus the first attempts to implement the EU directive were 'minimum implementation' where the principle was to change the existing Danish systems as little as possible. As a consequence, the implementation was inadequate (Basse 1996). In 1997, the EIA EU directive was adjusted by EU directive 1997/11. Following that, the Danish EIA system was adjusted in 1999 (Bek. 428, 1999). Implementation in practice was reluctant too, so the practical importance of the EIA in Denmark was limited in the first decade (Basse 1996, Nielsen 2002, interview). Today, the assessment is that the EIA legal prescriptions are satisfactory, although complex, and that the EIA procedures actually are complied with and benefit the environment (Christensen et. al. 2003).

Putting Denmark into one of our four categories is complicated. The planning system and the environmental permit system in Denmark has evolved in a national learning process which took place during the 1970's and 1980's. Denmark accepted the EU directive on EIA, assuming that it only would have minor consequences for the Danish planning and regulation system, and then only slowly was taught by the EU commission and learned on its own (Basse 1996) that it wasn't so – and was then obliged to change its regulation to comply with the EU directive. Whether complying with a EU regulation that turned out to have bigger consequences than foreseen is learning, teaching or coercion is to some extent a discussion about wording. On the basis of our limited study, we assess that the pressure from being obliged to comply with the EU directive has had decisive influence on the development of the Danish EIA system, and therefore coercion is the category that fits best.

Current practice and its institutional context: The EIA system in Denmark is integrated into the planning system and closely coordinated with the environmental permit system (Figure 4). The Danish principle of implementation was that the existing system should be changed as little as possible. But besides this, the Danish EIA system is in many ways a standard EIA procedure (Ministry of Environment and Energy 2001).

1. The Danish EIA system is an implementation of a EU directive. The EU directive sets out the general aims and stipulates a number of requirements. As the EIA directive is a minimum directive it even allows the member states to go further than the requirements in the directive. Each member

Figure 4: The EIA process and institutions in Denmark



country decides how to implement the directive in their national legislation. The Danish Government, at all levels, is responsible for that actual implementation fulfils the requirements of the directive.

2. The EU directive prescribes in its Annex 1 which type of major projects should always be subject to an EIA. Annex 2 lists other type of projects that might have significant impact on the environment. Denmark has implemented the directive in such a way that all projects in Annex 2 must be screened for significant environmental impacts, using the criteria in Annex 3 to assess the impacts. But there is one general exemption from this: The directive will not be in force in cases where projects are approved through a legal act. However, the objectives stated in the EU directive, for example public access to information, have to be achieved through the legal process.
3. The EIA competence is normally located at the regional council level. In most cases, the competence to issue other necessary permits is also at the regional council level. But not always, for example environmental permits for minor industries are located at the local council level. The coordination between the regional councils and the local councils seems to be working rather smoothly. Further, it is not always the regional council that has the responsibility for the EIA process. For example the Ministry of Transport is responsible for projects relating to the sea, and in case of projects that require a 'Country-Planning Directive' the responsibility is within the Ministry of Environment. The integration with the existing planning system and environmental permit system is ensured by stipulating in the relevant statutory orders that for projects subject to an EIA the other permits may not be issued before the EIA permit is given.
4. Compared to the three other countries, a special aspect of the Danish system is that it is the authorities that are responsible for preparing the EIA report. The authorities use information obtained from the project proponent, but writing the final report is the responsibility of the authorities.
5. The possibilities for public participation are legally ensured in different steps of the EIA process. If a project is subject to an EIA, a short hearing phase is mandatory during the scoping phase to allow the public to come with ideas and suggestions. After the draft EIA report has been prepared, it

has to go through a public hearing phase of no less than eight weeks. After the public hearing phase, the raised objections have to be processed, and a final decision has to be taken by the regional council. The decision has to be made public with the reasons for the decision and a guideline for how to object to the decision. The timeframe for submitting complaints or objections is four weeks. Before the regional plan amendment is finally approved by the politicians there must be a public hearing about the project. After the regional council has approved a regional plan proposal, it must be published and comments to the plan have to be given within eight weeks.

EIA of the highway from Herning to Århus.

In 1990, the Danish Parliament adopted a "Project act" regarding the establishment of three major roads in Denmark. One of the roads was a 75 km. high-class road from Herning via Silkeborg to Århus. This road is problematic from an environmental point of view as the nature around Silkeborg is one the most beautiful areas in Denmark, and contains a number of legally protected areas, among others the valley of Denmark's biggest stream: the Gudenå. An EIA was prepared for the road and published in 1992 by the Directorate of Roads (Vejdirektoratet 1992). An analysis of the EIA report showed that the expected issues from general highway guidelines were covered by the report. The EIA recommended as a least destructive alternative that the road should cross the Gudenå valley North of Silkeborg. In January 1993, a proposal for a Construction Act was sent to the Parliament, but later that month there was a change of Danish Government. The new coalition government wrote in its 'Statement of government' that no roads would be built through legal protected areas. As a consequence, the stretch around Silkeborg crossing the Gudenå Valley could not be built. But it was decided to build the rest of the road as a four-lane highway.

In 1996, the Directorate of Roads initiated an investigation of different alignments of the road through or around Silkeborg (but not the earlier Northern alignment). The report was completed in 1998, and in late 1998 and early 1999 a number of public meetings about the alignment were conducted. At the public meetings – especially a public meeting attended by the Minister of Transport is said to have been important (Würtz, interview) - it became clear that the citizens of Silkeborg were very much

against a highway through the forests close to Silkeborg. They preferred the Northern alignment. In early 2000, it was decided to undertake a thorough EIA assessment of two alternatives: the Northern alignment and an alignment through Silkeborg following the trace of the existing ring road. The EIA report was published and handed out for free in August 2002, and a number of public hearings were conducted (Munch, interview).

The reports describe the two main alternatives: a four-lane highway through Silkeborg and a four-lane highway North of Silkeborg, and their environmental consequences. For each of the main alternatives a number of sub-alternatives were investigated (Vejdirektoratet 2002). The reports seem to be thorough and well-written documents. We have interviewed a number of the affected parties, including the Danish Association for Conservation of Nature, an NGO with high professional capacity, and everybody has praised the reports as very thorough and informative in relation to the issues dealt with. What has been criticised, though, is the absence of a thorough analysis of a railroad from Århus to Silkeborg as an alternative solution.

Public participation: Throughout the process a number of public hearings have been conducted, and citizens have had possibilities to object. In the public hearing phase of the 2002 EIA report, three public meetings with a total of 830 participants were conducted, and according to the Directorate of Roads (DOR) they have received around 100 written objections concerning the project. As far as we can assess, relevant objections from the public during the public hearing phase have had an influence on the final design of the road:

- If a citizen during the public hearing phase proposes an alignment of the road that has not been considered earlier, and claims that this alignment has fewer problems than the other possibilities, DOR investigates the proposal, and prepares a short report on the alternative. DOR prefers to have considered all the alternatives in advance, as 'that is their job', but in some cases citizens have proposed alternatives not earlier considered (Munch, interview), and DOR has investigated the proposal.

- Many of the objections are related to very specific problems. For example, a lady during the public hearing process wrote to DOR and claimed a small wetland area south of the village Voel, where the proposed alignment of the highway would cut

through the Southern corner, was used for recreation and educational purposes. DOR had not been aware of the use of the wetland during the planning process. As a consequence of the new knowledge, DOR will probably move the highway somewhat, so the highway does not cross the wetland (Munch, interview). During our interviews in the area we were told about a number of examples where DOR had made adjustments to the project, to meet the demands of one or a few households – changing the slope of an embankment to hide the highway from the views of a farm house, adding noise-barriers for a short stretch and so on.

All the stakeholders we interviewed found that the EIA process had been useful and that it had provided a lot of information.

Discussion

Background for adopting EIA systems: Surprisingly, there is not much evidence that the political background for adopting the EIA procedure is crucial for the functioning of the system. Denmark was pushed to adopt an EIA procedure due to a EU directive. Denmark did so reluctantly, but after a decade the system seems to be process effective. Whereas in South Africa where there has been a lengthy learning process, the system is still not process effective. Furthermore, there seems to be a lot of evidence that the EIA procedures were implemented in a manner consistent with the political system in each country. For example, the requirements and possibilities for public participation during the EIA processes in Thailand and Malaysia are somewhat limited, as are the possibilities for public participation in these countries in general. But it also seems that the EIA procedure can work as a vehicle for introducing more public participation in EIAs in the two countries, because there is some sort of pressure for living up to standard EIA procedure, where public participation is an important element. In South Africa, it seems that the amount of public participation changed when the first majority government under a universal franchise came to power in 1994, that is change in political system influences the way EIA is implemented.

Relation to standard EIA procedure: All four countries have EIA systems that contain screening, scoping, an EIA report, public participation and decision in one way or another. The only element in the standard

EIA procedure not contained in the EIA systems of all four countries is monitoring. It is not mentioned at all in the South African regulations (South African Republic 1997) or Guideline Document (Department of Environmental Affairs and Tourism, 1998) even the country has a long tradition for monitoring (Wood 1999). In the Malaysian guideline (Department of Environment, 2000) monitoring has a prominent standing, but according to the interviews implementation of the conditions in the EIA approval is a weak link in the Malaysian system, which indicates that monitoring in practice could be quite limited. As described below all countries have some sort of public participation in the process, but both formal requirements and practice seems to vary.

Relation to surrounding legislation: At the time EIA was introduced in Denmark, the country had a long tradition for land use planning and for regulating of industries through environmental permits. Integrating EIA into these systems took some years, and the result is complex, but the evidence suggests that it is working effectively. South Africa has a dual system where Environmental Impact Management and Spatial Planning (urban and regional) operate under essentially different bodies of legislation. This can result in confusion, conflict (frequently requiring resolution through the courts) and ineffectiveness. In Malaysia the co-ordination with land approval system seems to be problematic and in some cases reduces the EIA to a mere formality. So both South Africa and Malaysia seem to be examples of insufficient clarification of the relationship between EIA and pre-existing regulatory systems, with negative consequences for the effectiveness of the system. But beside problems with coordination with existing land use planning systems, the EIA systems seem to be successful in integrating the diverse environmental regulations into the EIA process.

Public Participation: The legal prescriptions for public participation in the four countries are quite different, and the way they are implemented even more different. In Malaysia, public participation is required by the EIA handbook as a means to improve project design, whereas the public have only limited possibilities for commenting on the project itself unless its representative such as an NGO is invited as a member of the EIA Review Panel. Furthermore, the approval conditions in the final decision are not accessible to the public. The case study showed that

the people who would be affected were questioned about their conceptions of how the road would affect them during the preliminary EIA. The public participation process in this case can be characterised as 'instrumental public participation'. In South Africa, the legal prescriptions for public participation were quite imprecise, only stating that some form of public participation was required, notwithstanding later guidelines to obviate this problem. But actual public participation reported in the case study was very extensive, and used methods that allowed people without many resources to express their views. Furthermore, the views of the public seemed to have had a great influence on the final decision. Thus it constitutes a public participation process that can be characterised as 'democratic participation'. In Denmark, the requirements for public participation in the EIA procedure are very precise, but they are implemented in such a way so that considerable resources are required to participate in the process: ability to read the formal documents and ability to express one's views at public hearings or formal letters to the authorities. But the case study showed that public participation had been quite extensive, and had had significant influence on the detailed design of the project.

Scope of EIA assessment: Analysis of the EIA reports has shown that in a number of areas they cover the same issues. For example, they all include a study of the loss of valuable ecosystems and of change of land use. But there are also a number of differences between the EIA reports, which are quite illustrative of what are perceived as environmental problems in the four countries (see Table 1). For instance, the South African EIA includes an analysis of the impact on the road on 'security from intruders', which is reflects the serious security problems in South Africa; but security from intruders is not included in any of the other countries, because this is not considered a problem in these countries. The Danish EIA includes two issues not included in any of the others: increased emission of greenhouse gases and the saving of time for traffic. Greenhouse gases became an issue in Denmark in the late 1980s, and national policy goals were adopted at that time, even though the international political discussions about binding targets for reduction of greenhouse gas emissions had only just started at that time. So the inclusion of greenhouse gas emissions in the Danish EIA report was probably due to the national policy goals,

Table 1: Comparison among EIA reports of roads. The coverage of selected environmental issues in the case studies of Malaysia, South Africa, Thailand and Denmark

The issues selected are the ones where there are differences between the four countries. Yes indicates that the environmental issue is dealt with in the EIA report; No indicates that it is not dealt with.

Selected environmental issues	Malaysia 1996	South Africa 1998	Thailand 2002	Denmark 2002
Increased emission of greenhouse gases	No	No	No	Yes
Quality of surface water	Yes	No	Yes	Yes
Light Pollution	No	Yes	No	Yes
Saving of time for traffic	No	No	Yes*	Yes
Security from intruders	No	Yes	No	No
Public transport as alternative to the road.	No	Yes	Yes*	No
Aesthetic considerations	No	Yes	Yes	Yes

For Thailand, Yes* indicates that this issue is dealt with in feasibility study report.

which were adopted due to the linkages between an international scientific discussion about greenhouse effect, and the Danish policy process. None of the other EIA studies include the impact on greenhouse gas emissions even though those studies were done some years later, and the international political discussion about greenhouse gases had developed considerably in the meantime.

Conclusion

EIA has spread worldwide and has through different diffusion processes been implemented in the four countries investigated, and although there are differences between the four systems the standard EIA system is recognizable in all four system. The research thus demonstrates that policy diffusion is important, and that international established regulatory concepts put pressure on the national systems

to implement them properly, for example by including public participation in EIA. And it suggests – more surprisingly – that the political background for adopting a new regulatory concept *in the long run* is of minor importance for the implementation of the regulatory concept. But *how* the regulatory concept is implemented is decisively influenced by the national context. Our research has demonstrated this in relation to several aspects of the national context, of which two are especially clear. Firstly that the national political system has a decisive influence on how public participation in EIA is practiced in the four countries, although there both in Thailand and Malaysia are indications that the international debate about EIA and public participation has put the two countries under some pressure for including public participation in their EIA systems. And secondly that the national conception of what is important environmental problems is reflected in the scope of the EIA reports.

References:

- Andersson, Morten; Gunver Bennekou og Henning Schroll 1992: Environmental Problems and Environmental Regulation in Western Europe, 1980-1989 pp. 187-194 in *Environmental Management* Vol. 16, No. 2. Springer Verlag, New York
- Arnstein, Shery 1969: A ladder of citizen participation pp. 216-224 in *Journal of the American Institute of Planners*
- Basse, Ellen Magrethe 1996: Miljøkonsekvensvurdering i Danmark in Ellen Magrethe Basse (ed.) *Miljøkonsekvensvurdering i et retligt perspektiv*. GadJura, Copenhagen.
- Bek. nr. 446 af 23/06/1989: Bekendtgørelse om vurdering af større anlægs virkning på miljøet (VVM). Retsinformation.
- Bek. nr. 119 af 26/02/1991: Bekendtgørelse om miljøgodkendelse m.v. af de anlæg, der er omfattet af miljøvurderinger i henhold til lov om lands- og regionsplanlægning. Retsinformation.
- Bek. nr. 903 af 17/12/1991: Bekendtgørelse om supplerende regler i medfør af lov om planlægning (samlebekendtgørelse). Retsinformation
- Bek. nr. 904 af 17/12/1991: Bekendtgørelse om miljøgodkendelse m.v. af de anlæg, der er omfattet af miljøvurderinger i henhold til lov om planlægning. Retsinformation.

- Bek. nr. 428 af 02/06/1999: Bekendtgørelse om supplerende regler i medfør af lov om planlægning (samlebekendtgørelse). Retsinformation.
- Modak, Prasad and Asit K. Biswas (eds.) 1999: *Conducting environmental impact assessment in developing countries*. United Nations University Press.
- Braithwaite, John and Peter Drahos 2000: *Global business regulation*. Cambridge University Press. Cambridge.
- Börzel, Tanja and Joyeeta Gupta 2000: A New North-South Conflict: Regulatory Competition in European and International Environmental Politics. Part of the proceedings of the Final Conference on the Effectiveness of International Environmental Agreements and EU Legislation. Available at <http://www.fni.no/ca/borzel-gupta.pdf>.
- Cape Metropolitan Council 2000: Review guidelines for environmental impact assessment in the Cape Metropolitan Area. Cape Town.
- Christensen, Per; Karen Elsborg, Lone Kørnøv, Eskild Holm Nielsen, Jannick Schmidt, Hanne Stensen Christensen 2003: Udbyttet af VVM – Evaluering af VVM i Danmark. Hovedrapport. Miljøministeriet, København.
- Department of Environmental Affairs and Tourism (DEAT) 1998: *Guideline Document. EIA regulations*. Implementation of section 21, 22 and 26 of the environment conservation act. 48 pp. South Africa.
- Department of Environment (DOE) 2000: *A Handbook of Environmental Impact Assessment Guidelines*. Department of Environment, Ministry of Science, Technology and the Environment, Malaysia.
- Department of Highways 1998: *Engineering and economic feasibility study, Final Report*. Phase I. 3 Volumes. Ministry of Transport and Communication, Kingdom of Thailand.
- Donnelly, Annie; Barry Dalal-Clayton and Ross Hughes 1998: *A Directory of Impact Assessment Guidelines. Second edition*. International Institute for Environment and Development
- Environmental Quality Act (1998) (Act 127) & subsidiary Legislations. Compiled by Legal Research Board. International Law Book Services. Kuala Lumpur.
- Fauzi M.J.M 2002, Executive Director, Prof. Dr., CEO of UKM, Pakarunding Sdn. Bhd. (Consultant Branch), Universiti Kebangsaan Malaysia
- Finnemore, Martha 1996: *National Interests in International Society*. Cornell University Press. Ithaca, London.
- Folketingstidende: Forhandlinger i Folketingsåret 1987-88. København.
- Haas, Peter M. 1992: Introduction: epistemic communities and international policy coordination. *International Organization. Special Issue: Knowledge, Power and International Policy Coordination*, Vol. 46, No. 1, pp 1-35. World Peace Foundation and MIT. USA.
- Heywood, Andrew 1997: *Politics*. Macmillian
- Hill, Richard 2001. Environmental Evaluation Unit, University of Cape Town, South Africa.
- Kanniah, R. 1999: *An analysis of the laws relating to environmental impact assessment in Malaysia with specific reference to federal-state jurisdiction*. A dissertation submitted to the University of Malaya in accordance with the requirements for the degree of LL.M in the Faculty of Law. 330 pages. Available at the Law Library, University of Malaysia.
- Kørnøv, Lone 2002: Vurdering af miljømæssige konsekvenser pp. 161-179 in Finn Arler (ed.) *Humanøkologi – miljø, teknologi og samfund*. Aalborg Universitetsforlag.
- Lund, Søren 1990: *Efficiency or Empowerment? A Meta-theoretical Analysis of the Concept of Participation*. In Signe Arnfred & Agnete Weis Bentzon (ed.): *The Language of Development Studies*, New Social Science Monographs/Nyt fra Samfundsvideenskaberne. København, pp 163-191
- Miljø og Energiministeriet 2001: *VVM-vejledning – om visse offentlig og private anlægs indvirkning på miljøet*. Miljø og energiministeriet.
- Modak, Prasad and Asit K. Biswas. (Eds.) 1999: *Conducting environmental impact assessment in developing countries*. Tokyo. United Nations University Press.
- Mohamed, A. 2001. Environmental Officer, Environmental Impact Management Unit, Department of Environmental and Cultural Affairs and Sport, Western Cape Province, South Africa.
- Munch, B. 2002. Project Leader, The Directorate of Roads. Denmark.
- Nielsen, Eskild Holm 2002, Associate Professor Department of Development and Planning, Aalborg University.
- Republic of South Africa 1997: *Environmental Impact Assessment Regulations (Environment Conservation Act 1989)*. Nos.R 1182-1184. Government Gazette, 387, no 18621, 5 September 1997
- Sahabat Alam Malaysia 2000: *Malaysian Environment –Alert 2001*. Sahabat Alam Malaysia, Malaysia

- Seng, Ir Goh Kiam 2002, Centre for Environmental Technologies, former Director General of Department of Environment, Malaysia
- Sowman, Merle; Fuggle, Richard; Preston, Guy 1995: A Review of the Evolution of Environmental Evaluation Procedures in South Africa in *Environmental impact assessment review*, Vol 15, No. 1
- Tews, Kerstin; Per-Olof Busch & Helge Jörgens 2003: The diffusion of new environmental policy instruments pp 569-600 in *European Journal of Political Research* Vol. 42
- Vejdirektoratet 1992: *Vejen og Miljøet*. Motorvej Herning - Århus.
- Vejdirektoratet 2002: *Motorvej Herning-Århus ved Silkeborg: VVM-redegørelse, miljøvurdering*. Vejdirektoratet, Danmark
- Wood, Christopher 1995: *Environmental impact assessment: a comparative view*. Longman Scientific & Technical.
- Wood, Christopher 1999: Pastiche of Postiche? Environmental Impact Assessment in South Africa pp. 52-59 in *South African Geographical Journal* Vol. 81 no. 1.
- Wood, Christopher 2003: *Environmental impact assessment: a comparative review. 2. edition*. Prentice Hall
- World Bank 1991: Environmental assessment sourcebook. 1 Policies, procedures, and cross-sectoral issues. *World Bank technical paper: 139*. Environment Department, The World Bank.
- Würtz, J. 2002. Vice-major, former major, Silkeborg Municipality
- Yap, N.T. 1994. Environmental Assessment: The process in Thailand and Canada. In: Environmental assessment and development. Edited by Robert Goodland and Valerie Edmundson. The World Bank