Abstract

Adapting Impact Assessment to alternative decision-making categories?

The logic of Environmental Impact Assessment (EIA) is to influence public decision-making by generating knowledge about external impacts of proposed projects. Such decisions encompass both projects approval and conditions to impose on the projects. The EIA system in general have achieved acknowledgement as an efficient tool for sustainable development. However, in several occasions and especially in controversial projects, the specific influence from EIA on decision-making seems to be insignificant. This paper tries to illuminate some possible explanations of this defect in regard to the prescribed influence of EIA.

The actual decision-making contexts represent one kind of explanation of lacking influence from EIA. These contexts vary between consultants performing the EIA, the developers and different public decision-makers. Examples of how this multiplicity of parties and different connections of decisions can affect the actual decision-making are described in order to illustrate this perceived defiance.

In order to get a more fundamental understanding of the problem, the EIA process is related to different public decision-making categories. These categories encompass among others negotiation, voting, administrative assessment, experiments and rule compliance. The mismatches between the logic of EIA and the empirically most relevant public decision-making categories are then discussed. Emphasis is put on how the context (degree of political / professional conflict) can change decision-patterns. Five typical issue-specific decision-making processes from the EIA-process in the petroleum sector in Norway constitute the empirical basis for the analysis.

The paper concludes with ideas on how the EIA process and the EIS can adapt to specific decision-making typology and -context in order to be of greater importance for the decision-making and the decision-makers.

Keywords: decision-making, politics, environmental impact assessment, petroleum sector, Norway,

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1 Introduction

The implementation of the requirement of EIA in the national Environmental Policy Act (NEPA) (1969) in the United States led to a major administrative reform in the way environmental issues in development projects was taken care of. This was one of the main conclusions about the functioning if the EIA-system from the empirical study that Serge Taylor undertook. The requirements of EIA did also imply that developers, governmental bodies and stakeholders employed professional expertise in order to be able to participate in the performance of and the discussion about the EIA. This employment generated a higher awareness concerning environmental issues in all relevant organisations. The environmental standard of projects the developers submitted did also rise significantly as a result of this reform. Similar impacts of institutionalising the EIA system in other countries can certainly be found.

In spite of this general impact of raising the environmental level of proposed projects, there is a massive criticism of the lacking influence of IA[1] on decision-making. (Sager, 2001). The developer complains on the ability of the politicians to take the conclusions from the IA into consideration in the decision-making process. Other stakeholders opposing the project (environmentalists, local communities) think that information regarding their interests is not taken into consideration at all. The IA-consultants suspect the decision-makers of lacking the necessary technical competence to judge the project[2]. What politicians do in the decision-making process seams to appear as a black box both for developers, stakeholders and IA-consultants. (The lack of control of the outcome of the decisions seems to be extra conspicuous when the project is disputed.)

This paper tries to illuminate some possible explanation of (why public decision-making does not follow the prescribed pattern in the IA literature) this experienced lack of understanding of how public decision-making actually happen. The logic of IA (see below) constitutes one departure point to get an understanding, while different ideal-types of public (political and administrative) decision-making mechanisms constitute another departure point. Investigation of the connection between these two "systems" is supposed to bring about some explanations. The focus of this paper is however on the different categories of public decision-making.

This paper aims to contribute with answers to the following research questions:

1. *What are the correspondence and mismatches between Impact Assessment as a decision-making tool and different categories of public decision making?*
2. *In what way and to what degree can Impact Assessment adapt to these public decision making mechanisms?*

1 I will use the broader notion Impact Assessment since the paper also addresses questions relevant for similar formal decision-making processes like EIA, for example Social Impact assessment and Strategic Impact Assessment

2 Such a statement can be judged as an argument for technocracy and against democracy. A study of the Nordic Environmental Bureaucracies reveals that approximately 60% of the professionals agree that "a strong expert agency is needed to take the final decision on controversial issues". (Emmelin 1998)

2 Principles and criticism of impact assessment as decision-making tool

The International Association for Impact Assessment (IAIA) have a simple definition: "Impact Assessment, simply defined, is the process of identifying the future consequences of a current or proposed action". IA shall be based on the following principles:

1. IA is a standardised process to provide information about the impacts of possible actions, with the aim of improving decision making about these actions. It is not a policy.
2. The process has built-in checks and balances to ensure sound information, so that one party that has an interest in certain outcomes does not control the information.

Some of the major principles for IA as a decision-making tool are listed below in order to cover this aspect as well:

- The IA-process shall provide information about external impacts of a project to the decision-maker in order to secure that the information is taken into consideration both regarding project approval and conditions to impose on the project.
- The impacts of an IA-project is *unique* because of there exists only one combination of the project in a specific context. This is the argument in favour of decisions on the basis of project specific IA processes and not by general rules and regulations.
- The IA and corresponding comments from different stakeholders is supposed to constitute the basis for several separate decisions regarding different issues to be taken by different governmental bodies at different stages of the project implementation.

There is, however, massive criticism of this prescribed function of IA as decision-making tool. But in spite of this criticism, IA (product and process) has strengthened its role as the main instrument for preparing public decision regarding specific projects.

Theoretically, IA appears as a distinct example of rationalism as the dominant planning paradigm at the time when IA was introduced. Lawrence (2000) points at a reorientation of planning theory where scientific analyses have been relegated to a technical support function and where planning are generally recognized as a collectively activity that marries process (communications and collaboration) and substance. Lawrence emphasises that IA has only partially and tentatively approached the reorientation of planning theory and that the matching of IA approaches to context characteristics is far from "well-trodden ground".

Nooteboom and Teisman (2003) does also emphasised the mismatch between the Impact Assessment rationality defined by assessment practitioners and the rationalities of the decision-makers. They point at four characteristics of complex decision-making processes that form obstacles to rational decision-making respectively:

- *Paradox of timing:* Too late because influential stakeholders already prefer a specific solution or too early because the problem definition used in the assessment is redefined and makes the assessment irrelevant.
- *Unforeseeable impacts:* Problems that are only partially understood cannot be mastered by making detailed assessment studies.

- *Unwillingness to co-operate:* Bureaucratic organisations are often more interested to stick to the self-interests of their organisation than to contribute to the solution of joint problems.
- *Cognitive limitations:* There is often ambiguity about the demarcation of the problem or solution, because sustainable development is a "wicked" problem in which not only preferences of future generations, but also emerging new insights and technologies, should be taken into account.

These authors focus on how impact assessment can contribute to sustainable development by suggesting possible routes to avoid the barriers impact assessment runs into when meeting the logic of complex decision making processes. These routes are (op.cit. pp 305):

- Impact assessment as communicator and integrator, not as a separate and formal trajectory: Increase the interconnectivity between policy arenas and impact arenas.
- Impact assessment to generate variety: generate more directions for sustainable development in order to create political debate about which of the alternatives fits in with their party's identity and their preferences of their supporters.
- Impact assessment to intertwine: Focus more on long-term process rationality and develop Impact Assessment as a modular tool that several parties in different arenas can use to find effective matches.

This positive attitude, that if IA is further developed and refined as a decision making tool, decision making will be more sustainable[3] represents one optimistic point of view with regard to the capabilities of IA.

I would like to take another departure point: that the decision takers (politicians and bureaucrats) are experts in decision-making and that they will find and use instruments, processes and mechanisms that are suited. IA can be one instrument in such a process, but decision-makers must not be limited to this formal procedure. From a democratic point of view (by definition) politicians can be said to take the right decision.

In the next section I will go deeper into the decision-making process – a process many IA consultants and environmentalists characterises as a black box.

3 The notion sustainable does however represent a normative positioning of the IA-tool that can reduce IA to a tool for environmentalists. Other interpretations can make this instrument also more acceptable for a broader range of stakeholders.

3 Correspondence and mismatch between IA and ideal-types of decision-making processes

Rommetvedt (1995) has developed several categories of public decision-making processes. The categories are an attempt to systemise procedural and substantial preconditions into one coherent scheme of decision-making processes. Rommetvedt's assumption is that differences in both procedural and substantial preconditions create different type of decision-making processes.

Table 1: Ideal types of public decision-making processes (based on Rommetvedt)

	I	II	III	IV	V	VI	VII	VII
1 Decision-making situation	Given in-compatible preferences, missing fellowship	Given equal preferences, divisible goods	Unclarified and/or given different, but compatible preferences	Unclarified preferences assumed common good	Incompatible preferences fellowship exists	Approved objectives, diffuse causality	Approved objectives, reliable causality	Approved rules and regulations
2 Decision-making process	**"War"**	**Strategic negotiation**	**Deliberative negotiation**	**Delibera-tion**	**Voting**	**Experi-ment**	**Analysis**	**Subsump-tion**
3 The nature of the deci-sion mak-ing process	Military Political Strategic	Civic political, strategic	Civic political, communica-tive	Civic political, communica-tive	Civic political, aggregative	Civic admi-nistrative, instrumental	Civic admini-strative, instrumental	Civic admini-strative, standardised
4 The result of the decision-making	Victory Defeat	Compromise	Package deal	Authorized consensus	Majority decision	Experi-mental solution	Technical solution	Employment of rules
5 The decision problem	Trench warfare	Negotiation collapse	Missing possibilities for package deals	Disagree-ment about common good	Rotation majority	Unsuccess-ful experiment	Unforeseen impacts	Missing / diffuse rules
6 Decision-makers	Army	Parts-represen-tatives	Parts / party-represen-tatives	Ministers	Party-representa-tives	Scientists	Technicians	Lawyers
7 Decision-making arena	Battlefield	Negotiating committee	Parliamen-tary committee	Government	Parliament	Research institute / group of experts	Professional bureaucracy	Traditional bureaucracy
8 Basis of legitimacy	National sovereignty, holy war	Participation + substantial fairness	Participation + sincere discussion	Arguments about common goods	Procedures, one person – one vote	Scientific knowledge	Efficiency	Rules and regulations
9 Political system dominated by this decision-making category	Social Dar-winism	Corporative pluralism	Deliberative corporativism / deliberative parliamentary system	Unitary democracy	Represen-tative democracy	Dynamic technocracy	Static technocracy	Constitu-tional government

These public decision-making processes are described by the following main characteristics: The departure point is (1) different constellatio ns of preferences of the decision-makers for the decision at stake. Eight categories of decision-making situations are constructed by these constellations. These categories is based on the assumption that each of these different decision-making situations shapes basis for specific decision-making processes (2), or that some categories of decision-making processes are more relevant and appropriate in given situations than other. The nature of these decision-making processes is described bye three different characteristics (3) in the table. These processes are assumed to lead to definite types of results (4) or, alternatively, to create specific decisional problems (5). The decision-makers (6) and decision-arenas (7) are exemplified. The basis of legitimacy (8) is specified

for each type of decision-making process. Lastly a typical example of the kind of political system (9) this decision-making category can be found in is described.

Of the eight decision-making processes, some have more in common than other. The two first (I and II) "War" and "Strategic negotiations" are both strategic and political actions. Type III and IV, "Deliberative negotiations" and "Deliberation" are both communicative and political actions. Type V, "Voting" is an alternative when strategic or deliberative negotiations do not lead to agreement. The last three types (VI, VII, VIII), experimentation, analysis and subsumption, are administrative and technical actions.

All these decision-making categories, except I "War" can to a certain degree in principle be relevant as a description of the decision-making processes following an impact assessment. The table above illustrates a broad sample of decision-making categories that each presupposes a specific basis for decision-making. An important question is how impact assessment fits with each of the decision-making processes, and if impact assessment is more suited to one specific kind of decision-making category than other. The decision-making categories VIII - II is broadly described in the next sections and the following two questions are discussed for each of these categories:

- To what degree are the specific decision making category relevant in a typical impact assessment context?
- What are the possibilities and constraints for impact assessment to contribute to the decision-making given the specific category of decision-making process?

The purpose of the description is to simplify and clarify each of the decision-making categories in order to make each of them distinct. It must however be stressed that these categories are theoretic constructions made in order to analyse, understand and get a differentiated picture of public decision-making. In real world the decision-making often will be a mixture of these distinct categories. The understanding of the decision-making process as a distinct phase separated from the impact assessment phase is also an important condition for the discussion, but these phases will in reality often overlap each other. I start the examination of decision-making categories at the right end of the table with the administrative form for decision-making.

VIII Subsumption

Most developments subject to requirements of impact assessment must also comply with a set of formal requirements and apply for different kinds of permissions. A decision-making situation based on approved rules and regulations will therefore be relevant for many of sub-issues within impact assessment, for example regarding emissions and discharges. Approval of such application will often presuppose that impact assessment is approved on beforehand and the actual decision-making will take place in the subsequent phase. The decision-makers (typically lawyers in a traditional bureaucracy) in such circumstances will subsume the decisions at stake to the relevant rule and perform standardized decisions according to the rules.

Impact assessment can be a tool for clarifying what permits the developer has to obtain and what thresholds that have to be reached. However the application to the bureaucracy must contain all relevant information and contribution from the impact assessment are in fact not needed in this kind of decision making process. The impact assessment process can function as a mutual preparation for the application process where the developers describes the project and impacts and the bureaucracy clarifies what thresholds the development has to comply with. The use of rules and regulation as basis

for decision-making and not a consideration of the specific impacts represent constraints for utilisation of the specific information in impact assessment.

VII Analysis

Approved objectives and reliable causality, especially with regard to environmental issues i.e. reduction of harmful emissions and discharges, but also with regard to employment and regional industrial development is a well known decision-making situation. For a specific development this implies that parallel sets of objectives and cause and effect relations exist. The decision-makers (for example the professional bureaucracy with formal competence) can then, approve of disapprove development alternatives at the basis of analysis of goal achievement. Decision in sub issues can also be based on a research and clarification of the magnitude and significance of specific impacts. Cost-benefit analysis is a typical administrative tool to handle trade off between different kinds of impacts.

The bureaucracy are often given the decision-making competence when comes to minor development projects without serious conflicts. The politicians have in such circumstances delegated their power accompanied with the set of procedures to the bureaucracy. There can be appeals system in the procedures if different parts of the bureaucracy can not come to agreement. Negotiations between different parts of the professional bureaucracy will often be a part of the decision-making process, and such a decision-making process have much in common with the political decision-making processes strategic or deliberative negotiation. Impact assessment can in such *administrative negotiation* help both in structuring the problem and decision possibilities. This kind of decision-making is neither an example of an analytic decision-making nor subsumption.

However, when comes to larger development projects and projects with serious conflicts, professional bureaucrats are not given the formal decision-making competence from politicians. The relevance of the analytic decision-making process with regard to for example choosing between major alternatives, or approving larger project developments seems to be limited. When comes to decision-making of minor projects without conflicts between different parts of the bureaucracy, administrative decision-making based on analysis becomes more relevant.

Impact assessment can contribute to the decision-making by "calculating" the degree of goal achievement of different alternatives based on causality analysis. Impact assessment can in a "plain" decision-making situation reveal what development alternative that should be selected in order to meet the actual objectives. Such a decision-making situation fits with the logic of impact assessment. The lack of accepted reliable tools for trade off between impacts represents a constraint for using impact assessment as an administrative instrument for decision-making in more complex decision-making situation with many conflicting objectives.

VI Experiments

A decision-situation with approved objectives and diffuse causality is common with respect to many of the topics usually considered in impact assessments. Cumulative impacts are often examples of such a decision-situation. The notion "worse case impacts" brings in the aspect of probability. The degree of uncertainty does however vary and also the way of treating the uncertainty. In such situations can scientists and other experts play a crucial role in the decision making process by calculating the possibilities of impacts or proposing solutions that can suit the situation of uncertainty. Impacts assessment and appurtenant proposals on monitoring, follow-up and different precautions (possible mitigating measures) can in such decision-making situations play an important role when impacts not can be predicted on beforehand.

An experimental solution as mentioned above will however in reality only be relevant for minor parts of a development project subject to formal impact assessment. Scientists or administrative personnel will probably neither not be given the competence of deciding such experimental solution for such a project. The methodology for impact assessment and the appurtenant tools for monitoring and follow up can however be of significant help in decision-making situations with diffuse causality.

V Voting

Incompatible preferences between the decision makers characterises many public decision-making situations. Developments subject to formal impact assessment will often become an arena where basic conflicting values and interests meets and must be solved. Voting is a relevant decision-making process in such situations. Voting can also bee seen as the last resource if the decision-makers do not manage to come to an agreement through negotiations.

Impact assessment can in such situations provide information about impacts of the development both from the developer's and different stakeholders' point of view. The core element in this kind of decision-making process is however, that each political representative must, based on their own judgement, vote for the decision alternative that are most in correspondence with their own values / party program. This is the system of representative democracy.

The contribution from impact assessment to this kind of decision-making process (voting) is not as direct and obvious as in the previous administrative decision-making processes. The party representatives will not in the same degree as for example employees in the bureaucracy have to allow for the impact assessment. While employees in the bureaucracy and experts in many occasions will be directly involved in the impact assessment process, party representatives will usually keep some distance to the process and use it as one of many input to the decision-making process. The contribution from impact assessment to the decision makers can be constrained by too detailed and sector specific information about impacts. Such information will often not be in correspondence with the type of assessment the party representatives are looking for in order to perform a value based decision.

IV Deliberation

Many public decision-making situations results in an authorised consensus from the unit responsible for decision-making. The government can be an example of a typical decision-making arena where deliberation between the ministers finds place. The concern for the government creates a pressure for unitary and common justifying of the decision and de-emphasizing of disagreements between the ministers. Deliberation as a category of decision-making suites such a purpose. Deliberation presupposes that arguing is impartial and based on the concern of common goods and not on the basis of one of the parts preferences. The parts in this kind of decision-making process must engage in sincere discussions and considerations aiming at reaching authorized consensus about what to do. Deliberation seems relevant as a decision-making process for development projects subject to impact assessment especially with regard to the principal decisions about approval of a project or choosing between major alternatives.

The direct contribution from impacts assessment to the deliberation process will in most occasions be partial and limited to factual information about impacts of the proposed development, stakeholders' opinion and possible mitigation measures. The specific sectoral goals that impacts are assessed against in the impact assessment will seldom correspond directly with party programs or governmental policy. This can partly be due to that impact assessment often has a narrow and specific content (technical and

scientific) with fragile links to the current policy. The decision-makers must on their own consider to what degree the development included predicted impact (and mitigating measures) corresponds with their value basis (party program) and also deal with trade offs between different kinds of impacts.

If the proposed decision will affect preferences (values) of some of the decision-makers in a serious negative way, the basis for deliberation and consensus can be demolished. The unity between the decision-makers may be broken and the responsibility for decisions transferred to another decision-making arena (voting in parliament). Such a solution will however be crucial if the government was the decision-making arena. If a parliamentary committee was the decision-making arena, the result would be majority and minority proposals to the parliament.

III Deliberative negotiation

In many occasions there will be a situation where a development subject to impact assessment is approved on conditions. This can be example of a package deal between parts / party representatives. In deliberative negotiations some representatives can state that they are willing to go for the development provided that their preferences regarding the development at stake (for example a set of environmental measures) are implemented. Other representatives can state that they are willing to accept the set of environmental measures provides that their preferences (for example a full scale development) are implemented. Through deliberative negotiations the preferences of the representatives can be clarified in such a way that they can be combined.

Impact assessment can in such a decision process also provide information about impacts and also about possibilities for implementing mitigating measures that may make the development project more acceptable for all decision makers. If the impact assessment and appurtenant comments comprehend elements that can be includes as a part of the representatives preferences, the impact assessment process can support such negotiations.

II Strategic negotiation

A typical sign of strategic negotiation can be that one part tries to force the other part to accept ones claim by threats and promises. The basis for the bargaining between the parts is self interest and not consideration of public goods. Power in a typical bargaining process can be material resources and manpower, while power in a deliberative negotiation are connected to the better argument. Results of strategic negotiations about "the same cake" will typically be compromises that reflect that parts power. Decision makers will be representatives for different parts. The representatives concern for the negotiation committee will be secondary to the loyalty to the part one represents, and negotiation collapse can therefore be a realistic result. Game and tactics will often be an important element in such strategic negotiations. Strategic negotiations between representatives for the authorities and the developers are relevant as decision-making processes in developments subject to formal impact assessments. Such negotiations can find place in different phases of the public decision-making process.

Impact assessment will in such situations play a minor role when comes to the specific decision-making process. Each of the representatives will however select and use results from the impact assessment statements in order to support their own interest and to persuade the other part. Predicted impacts that are in opposition to ones interests will be neglected, presented in a less negative way (reformulated) or disproved. Developers can in such a bargaining situation for example threat representatives from authorities with close-down or no project at all, while the representatives from the

authorities then can argue about the social responsibility of the developers. Basis for such bargaining will in little extent be found in impact assessment.

Summing up relevance of decision-making categories

The table below displays a relatively distinct pattern. All of the political categories of public decision making are used as decision-making processes for development projects subject to impact assessment, while the administrative categories are less used. This corresponds with an idea about politicians who solves complex problems with value-conflict embedded, while the bureaucracy solves professional questions based on calculation or rules.

Table 2 Are this decision-making process used in development projects subject to formal IA?

Political decisions				Administrative decisions		
Strategic negotiation	**Deliberative negotiation**	**Deliberation**	**Voting**	**Experiment**	**Analysis**	**Subsumption**
Yes, between different kinds of parties	Yes, where the project can be adjusted to preferences	Yes, where political units must appear uniform	Yes, where political authorities have the competence	No, decision competence are not delegated	To a little extent, in minor projects without conflicts*	For sub-issues after approval of impact assessment*

*) The bureaucracy is in some minor development projects given the decision-making competence from the politicians. The administrative decision-making process will in such circumstances have much in common with the category strategic or deliberative negotiation.

Impact assessment can to a variable degree contribute to decision-making according to the table below. The basis for making up ones opinion for decision-makers in a political decision-making process is somewhat different of what impact assessment usually offers both regarding content and process. This can be seen as a constraint for impact assessment as a decision-making tool. For administrative decision-making are impact assessment both suited for decision-making based on analysis and experiments.

Table 3: To what degree and how can IA contribute to the decision makers?

Political decisions				Administrative decisions		
Strategic negotiation	**Deliberative negotiation**	**Deliberation**	**Voting**	**Experiment**	**Analysis**	**Subsumption**
Little degree	Some degree	Some degree	Variable degree	High degree	High degree	Low degree
By offering arguments for bargaining	By "facts" and mitigation measures	By "facts" and opinions from stakeholders	As one of many sources to assess the project	By tools for monitoring and follow-up	By assessing impacts and goal achievement	As mutual preparation before separate application

This represents the preliminary results of a theoretical matching the principles of IA with the logic of different ideal types of decision-making processes. The next section will describe results of an empirical investigation of decision-making processes related to offshore petroleum projects in Norway.

4 Empirical investigations: Public decision-making processes in the petroleum sector in Norway

Public decisions concerning more than 50 offshore petroleum developments in Norway in the period 1985 – 2001 taken both administratively, by government and by Parliament constitutes the empirical basis for the investigations. Five portfolios of issue-specific decision-making processes: (1) restriction-zones, (2) pipelines versus fishery, (3) discharges to sea, (4) emissions to air and (5) localisation of operation organisation and bases are examined. The results of these examinations are described in section 4.2. An overall description of the procedures for approval of petroleum projects are outlines in the next section in order to set the formal context.

4.1 Procedures concerning public approval of petroleum projects

Before opening new areas on the Norwegian continental shelf to exploration activities, the Norwegian Parliament undertakes an overall evaluation of the environmental considerations, fishery 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 from public interests. Areas where the drawbacks outweigh the benefits are not open to exploration activities. The Parliament can also impose special restrictions on certain areas in order to limit conflicts of interests between environmental and fishing interests.

Once an area is opened 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 which the government, on the basis of an overall evaluation, believes can best realise the estimated assets in the area. After commercially viable finds have been located, the next phase is 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 EIA.

The public approval of a project is usually combined with different requirements and conditions, which the project is supposed to meet. IA constitutes one important basis for making such conditional decisions. Approval of an IA is usually one of the formal (administrative) conditions that have to be met before decisions concerning material conditions are taken. This means that the content of the IA document has to fulfil requirements as set in the study-program, i.e. to give answers to the questions. Usually the competent authority will determine the study-program and decide whether the IA meets those requirements.

IAs concerning petroleum development projects covers both environmental impacts (emissions to air and discharges to sea (including uncontrolled ones such as blowouts), impacts concerning natural resources (fishery) and social impacts. The average investment in each of the petroleum developments are more than 1 billion US dollars and are thereby examples of big investment projects in a Norwegian context.

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

The study-phase consists of the following elements:

1. The licensee prepares a draft study program (what questions are the EIA going to cover) and submits the program to the Ministry of Petroleum and Energy (MPE). The draft study-program is submitted for comment to relevant ministries, regional and local authorities and the NGO. The final study-program is then, on the basis of 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 that consists of the following elements comes thereafter :

1. In co-operation with other ministries the MPE prepares the proposition to parliament based on comments from all 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 their own recommendations concerning the PDO and conditions for approval.
3. Finally there is a general parliamentary debate regarding the project and 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.

The flow-chart below (figure1) illustrates the formal study- and decision-phase a plan for development and operation (PDO) of a petroleum field should follow.

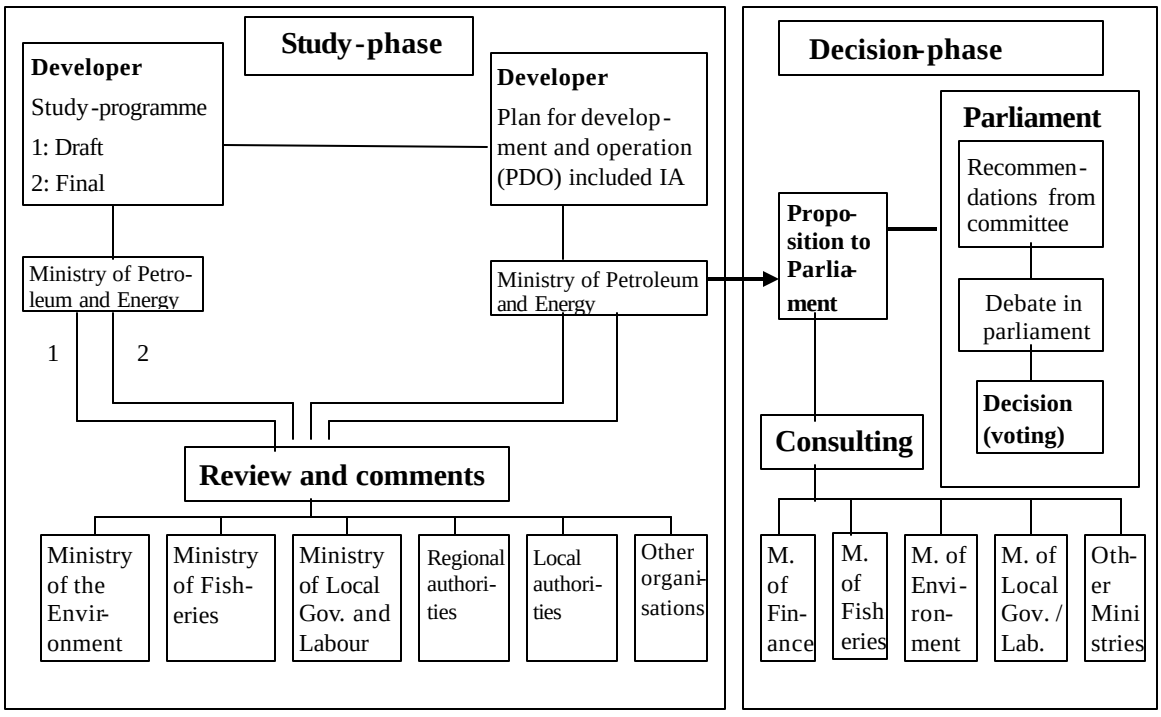

Figure 1 Formal procedure for EIA, public review and decision-making[4]

4 The figure is based on guidance documents from MPE March 1987

There is no way to guarantee that approval of the EIA automatically results in an approval of the field development / pipeline project, but formally the EIA must be approved prior to the project's acceptance by Parliament.

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.

Also, 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 or the society. Such conditions can consist of special technical solutions or procedures that must be met.

4.2 Portfolios of issue-specific decision-making processes

The issue-specific decision-making processes are described below. Focus is put on the specific decision making mechanism and whether IA contributes to the decision making or not. The investigation is based on documents (all formal stages of the study process and the parliamentary handling) and interviews with different stakeholders and decision-makers (Leknes, 1999).

4.2.1 Issue 1: Area conflict regarding restriction zones versus fishery

Subsea installation (skids, cables, minor pipelines and chain cable) was part of many of the offshore petroleum developments. The petroleum companies would like to establish restriction zones over the sub-sea installations where fishing (trawling) should be forbidden in order to prevent damages on the equipment. The fishery authority required that there should not be any restriction zone in order to prevent restriction access to fishing areas. Restriction zones were a conflict issue in 17 of 34 field developments in the period 1985 -1997 (See appendix A, table 1).

The decision-making process regarding restriction zones finds place after the approval of the PDO and the IA. The issue concerning restriction zones are assessed in the impact assessment, mentioned in comments to impact assessment from the fishery interests and referred in the proposition to parliament, but does not get any attention in the political handling of the impact assessment

The authority to take the specific decisions in these issues was delegated from the parliament to the Ministry of Local Government and Regional Development. The developer submitted a separate application to the competent ministry after the handling of the impact assessment in the Parliament or the Government. Decision-making in these cases were made administratively by the bureaucracy in the Ministry of Local Government and Regional Development on the basis of considerations of the applications by the Petroleum Directorate. The Fishery Directorate was consulted in order to get information about trawling and other kinds of fishing in the area. The Ministry came to the final decision.

Restriction zones were established in 7 of the cases, while the applications were refused in 10 of the cases. The established restriction zones areas were not used for trawling, and the conflicts with the fisheries were minor. The Petroleum Directorate considered the application on basis of assessment of safety matters as prescribed in the directive on restriction zones. Safety matters are also one of the Petroleum Directorate's major interests to protect. The actual regulation are relatively detailed when comes to what conditions that should be emphasized in the consideration. Even though the developer

put forward economical arguments based on production loss and repair expenses caused by potential damages on the equipment and the fishery interests put forward arguments regarding loss of fishing area, there was no calculation or analysis of cost benefit of establishing restriction zones as a basis for decision-making. Safety was the main decision-making criteria. Subsea installation had to be constructed to stand trawling in areas with fishery interests. Although it seems evident that the decision-making was based on the directive, the consent of the applications illustrates that there also are elements of assessment of different interests in the decision-making and not only pure technical rule compliance.

In relation the decision-making categories described in chapter 3, the decision-making process in the restriction-zone issues appear as a distinct example of category VIII subsumption. The impact assessment does not constitute basis for decision-making. Instead a separate application has to be made after the assessment process. The information about potential conflicting issues between subsea installations and fishery interests can however be relevant in situations with different development alternatives that have to be chosen between.

4.2.2 Issue 2: Pipelines versus trawling

Constructions and presences of pipelines on the seabed for transport of oil, gas and condensate from offshore petroleum installations and the shore and between petroleum plants in Norway and at the continent / Great Britain have been an object for conflict with the fishery interests. The conflict relates to impacts as disturbance of the trawling activity by the presence of pipelines, anchor-marks and gravel piles and potential damages on the trawling equipment caused by these foreign elements on the seabed. Conflicts between the fishery interests and the petroleum companies responsible for the construction of pipelines have been the rule for all the eleven pipelines (see table 2, appendix 1) handled in the period 1985 – 1997. The general objectives in the Petroleum Act only express that petroleum activities should not, to "an unnecessary or unreasonable degree", complicate or prevent fishing. The does not exist any detailed directive or regulation on what considerations that should be taken into accordance in the decision-making.

The decision-making processes have gradually developed from strategic negotiation to deliberative negotiations. This seems among others to be a result of more relevant and more detailed and trustworthy information about impacts of construction and presence of pipelines on trawling. The conflict-issue have gradually changed character from value embedded discussions about potential impacts for the fisheries against expensive changes in pipeline construction and design to technical matters about what the specific impacts can be and possible mitigation measures.

The impact assessment from the developer and the comments from the fishery organisations and the Fisheries Directorate constitute a formal basis for the parliamentary proposition from the Government in all these cases. The divergence between the opinions between the fishery and the developers interests have been openly presented in the propositions before a recommendation and thereby invited the parliament to discuss this issue. Neither the standing committee nor the parliament has given these pipeline-issues any attention when approval and setting conditions for the developments in spite of the invitations in the proposition. (May be the subjects were too technical and did not touch some of the traditional conflicting lines between the parties.) The final and formal decision-making in these issues have found place in the sequence of formulating the Governments proposition to Parliament or the royal decree.

The first decision about Zeepipe in 1988 was taken by the MPE and the fishery interests did not achieve very costly claims about trenching and route change. The parties stood uncompromising against each other, and the decision was based economical considerations.

In a later case, Europipe I in 1991, where important fishery areas would be affected, the fishery interests achieved change of the pipeline route. The decision-making did however find place in direct negotiation between the developer and the Fisheries directorate before the formulation of the proposition to parliament and as a part of the project design.

Zeepipe phase II in 1992 appears as an important conflict-case that changed the character of the decision-making process of these pipeline-issues. Nearly half of the pages in the royal decree from the government was dedicated the conflicting issue. Better arguments from the fishery interests than from the developer and uncertainty about what the impacts on trawling could be, was among others the reason why the fishery interests achieved their claims about route changes, levelling the seabed and trawl experiments to be done afterwards in the governmental decision process.

Both parties (the Fisheries Directorate and the developer) accepted the results from the trawl test in 1993, and the uncertainty about the impacts from pipelines on trawling activity was reduced. Gradually experiences both from pipelying and the presence of pipelines on the seabed did contribute to better knowledge about impacts. This led to a better negotiation climate. The government (the Ministry of Fisheries and the MPE) did not have to take part in the negotiation themselves and avoided conflict by instructing the developer and the Fishery Directorate to co-operate in detail-planning of the pipeline.

The development of the decision making process with regard to pipelines and trawling has gone from strategic to deliberative negotiation. First: strategic negotiations between the developer and the fishery interests, next phase deliberation between the two ministries when preparing the royal decree where the better arguments win and not the most powerful organisation. Gradually as a function of increased knowledge about impacts and mitigation measures the decision-making process changes to a deliberative negotiation where the parties (the developer, the Fisheries directorate (and MPE) can discuss openly and agree about the assessment of the impacts (importance and magnitude).

4.2.3 Issue 3: Discharges to sea

Operation of petroleum installation will in most occasions imply discharges to sea of chemicals, drilling mud, cuttings and oil contaminated water (produced water). Dedicated staff, both in the Ministry of Environment, the Pollution Control Authority and the Institute of Marine Research and employees working for the petroleum companies, has dealt with these issues. The developer has to submit a separate discharge-application to the Pollution Control Authority. The environmental authorities (in this case the State Pollution Authority) make claims in the IA process regarding type amount and concentration of discharges to sea. Parliament has only to a small degree expressed an interest in these issues.

Discharges of drilling mud and drilling fluid to sea have been governed by a separate regulation specifying the maximum content of oil if discharge should be allowed for. The decision making process in these cases can be characterised as subsumption to rules by the bureaucrats in the agency. Discharges to sea of produced water have been governed in the same way, by a maximum concentration of oil and gradually claims of reinjection of produced water.

Reinjection of produced water would however in most cases imply increased energy consumption and emissions of CO_2. In many cases development alternatives with reinjection and with discharges had to be considered in the impact assessment. In these circumstances decisions were based on negotiations between the Pollution Control Authority and the developer. In cases where the developer could use the reinjection to increase the pressure in the reservoir and increase oil recovery reinjection of produced water was decided, if not discharge was allowed for. These negotiations are political in the meaning that they include judgement / trade off between different political objectives.

The governing of what kind of chemicals to be used have also in general been based on regulations, but in order to select the least harmful ones, the decision was based on a comprehensive set of analysis of which set of chemicals that would be harm the marine environment least .

The overall picture of the decision making process in the discharges to sea issue is that the process can be judged as an administrative process based on subsumption to approved rules and regulations. A separate discharge-application constitutes the formal basis for this decision-making. For some questions the decision making process are results of analysis of impacts. The impact assessment does however constitute the basis for the superior discussion and negotiation between the developer and the Pollution Control Authority about reinjection or discharge of produced water. These negotiations can be characterised as *strategic* when threats about cancelling the development if costly solutions as reinjection are claimed and *deliberative* when the parties discuss ways to minimise harmful discharge.

4.2.4 Issue 4: Emissions of CO_2, NO_x and VOC

The upstream petroleum industry in Norway contributes with more than ¼ of Norway's emission of CO_2, and many stakeholders perceive this at the most serious environmental issue for the petroleum industry. During the two first parliamentary elections periods (1985-93) the question about emission to air was not viewed as an important issue before the latest petroleum developments in this period. However in the periods after 1993 the questions about emissions of CO_2 and NO_x have been high on the national political agenda. Several white papers have been issued on this topic, national objectives have been presented by the government and comprehensive regulations concerning reporting/monitoring were established. General regulations for the upstream petroleum sector have however not been approved, but a CO_2 tax was introduced already in 1990.

The specific topics discussed in relation to the question about emissions were about the design of energy supply (power cables, what kind of power turbines (low NO_x, conventional or fuelled by diesel) and about cleaning and reinjection of CO_2.

The decision processes concerning these topics in the periods after 1993 can be characterised as a portfolio of conflicts that terminate by voting in Parliament. Public bodies like the Directorate of Nature Management, the Ministry of Environment, the Pollution Control Authority and NGO's stand against the petroleum industry and MPE, while the elected representatives both in the committee and in Parliament have been divided on both sides. The conflict between the parties has been open for the public and media have put extra pressure to the conflict. The situation for the government has in some occasions been difficult, especially when disagreement between different ministries can be found in the proposition to parliament and then used by the opposition as argument against the government in the parliamentarian debate.

The impact assessment including the comments from different hearing bodies served as source for arguments both for the elected representatives and for other stakeholders that tries to influence the

decision makers. Both stages for public decision making (the recommendation from committee and in the parliament) can be seen as an arena where the political parties can demonstrate their principal point of view on these highly controversial cases. To appear as an environmental friendly party and avoid compromising with "the enemy" can in such occasions represent as an opportunity to collect votes. Voting can be seen to represents the concluding part of the decision making process and the minority votes represents the parts that not have been favoured in the preceding negotiation about solution to the emission problem. .

In the process before the political debate in parliament both public meetings, public debate and lobbying finds place. The feasibility for different solutions to the emission-problem is being sorted out by the developer, the government and other stakeholders in this process. This kind of process serves as a pre-negotiation before the political debate, and is in most occasions separated from the formal IA-process. The pre-negotiation inherit elements of strategic negotiation and deliberative negotiation, but a major difference from other negotiation is that the numbers of votes in parliament behind a party and especially parties in position of changing the majority decision have considerably power in this situation.

The formal impact assessment procedure does not facilitate continuous contact between the administrative process of defining issues and alternatives to be explored and analysed and the political negotiation process of adjusting a development project to fit different objectives from political representatives. By this rigidity IA is partly placed in an administrative process of decision-making when in fact the decision making finds place in a political process. It is however not certain that IA can or should be changed to serve such a political process. Reduced attention from media makes other decision making processes based on negotiation gradually more feasible, and in some cases one can find both voting and strategic and deliberative negotiation as decision making processes.

4.2.5 Issue 5: Localisation of operation organisations and bases

Regional authorities demand that operating organisations and bases should be located in their region. These issues were concerned with the regional distribution of investments and employment in an industry that is based on the national petroleum resources. National targets concerning rural development had to be seen in relation to the project economy. Several white papers had been prepared, but no single over-riding solution to the different conflicting goals had been established. In the period 1985-97 localisation of operation organisations and bases were a conflicting issue in eight cases and landing locality for pipelines were a conflicting issue in three cases. These issues drew great attention both in the regional authorities and in Parliament. (The Parliament can be seen as the assembly of district representatives.)

The issue concerned both distribution between regions and the question of efficient localisation. Strategic negotiations including bargaining and building of alliances and lobbying characterises the pre-decision phase, but final decisions were taken by voting in Parliament. Both "candidate-regions" and the developer represented lobbyists, while elected representatives both in the committee and in the Parliament and their votes were target. Alliances between regions and between the developer and their preferred region were usual. Strategic negotiations between different parts resulting in compromises (split localisation) or adjustment of proposed localisation did also occur. In some cases counter-reports were made in order to promote one specific region and pull down other. These processes went in parallel with, but separated from the IA process.

The localisation decisions were in most cases already clarified during this pre-decision phase. The government and the Parliament reached consensus in most cases based on a superior judgement of fairness between regions over time and the possibility of this project to fit into the present and prospective localisation pattern.

IA had not a decisive role with regard to the specific localisation decision, but was important in the initial phase by supplying the decision-makers with arguments from both the developer and other stakeholders regarding alternative localisations. Strategic negotiation and building of majority alliances seems to be important mechanism for decision-making in these localisation issues, while IA becomes minor important in the concluding decision-phase.

4.3 Summing up: Decision-making mechanisms in portfolios of five cases

The table below sums up the decision-making mechanisms in the five cases.

Table 4: Decision making mechanism in five cases

	Political decisions				**Administrative decision**		
	Strategic negotiation	Deliberative negotiation	Deliber-ation	Voting	Analysis	Sub-sumption	**Contribution from IA to decision-making**
Restriction zones							Minor – separate application
Pipelines	First cases	Later cases					**Substantial** under delib. negotiation
Discharge to sea	Discussion about discharge or reinjection				Opti-mising		Some – clarifies alter-natives for negotiation
Emission to air	Separate pre-negotiation						Some as basis for argumentation
Locali-sation	Lobby Alliance		Con-sensus				Minor – some as basis for bargaining

	Main decision-making mechanism		Sub-/separate decision-making mechanism

The restriction-zone cases represent the clearest example of decision-making based on subsumption to approved regulations and where IA in fact is not needed. The pipeline cases are interesting; the parties defend their self interests in the first decision-processes, while IA has contributed with knowledge that makes deliberative and more open minded negotiation possible in later. The main decision mechanism for the discharge-cases are subsumption to approved regulation (separate application), but decision on what kind of chemicals to use is based on analysis of which one are least harmful. Negotiation finds place when the conflicting goals occur. Decision in the two latter cases; emission to air and localisation, are based on negotiation between parts as a pre-stage before voting.

5 Preliminary conclusions

Political decision mechanisms as strategic negotiation, deliberative negotiation, deliberation and voting are more relevant for projects subject to impact assessment than administrative decision mechanism based on analysis or subsumption to approved rules. This has to do with the limited competence of the administrative decision mechanisms. It is though a paradox that the analytic decision mechanisms is the only one that really corresponds to the logic of IA.

The first research questions posed at the outset of this paper was: *"What are the correspondence and mismatches between Impact Assessment as a decision-making tool and different categories of public decision making?"*

The general findings in relation to that question are that there are many mismatches between the logic of IA and the logic and mechanisms for political decision-making. IA supports the decision-makers need for information about facts, arguments and opinions from different stakeholders. This seems especially to be the case when comes to decision making mechanisms like *deliberative negotiations and deliberation*. In decision processes as *strategic negotiation* threats and promises based on self interests from the parties are core elements and IA gives little support to such processes. Lobbying and alliances is core elements in decision making based on *voting*, and IA does not have much to contribute with for such tasks.

IA does not have the capacity to support the variety of decision-makers and their multi-facetted and conflicting goals and preferences with tailor-made analysis. The formal and rigid IA-procedures represent another kind of obstacle for adapting IA to the dynamic political decision-making processes.

The second research question was: *In what way and to what degree can Impact Assessment adapt to these public decision making mechanisms?*

Generally, the present rigid and formal procedures both for the IA study and the formal decision process puts limitations to the possibilities of adaptation of IA to such dynamic political processes. Main contributions from IA are facts, arguments and opinions from stakeholders to the decision-makers. This corresponds with the logic of IA. Adapting IA to activities like bargaining, lobbying, building of alliances does (in my opinion) not correspond with the logic of IA and does also appear as a political task.

The preliminary conclusion is therefore that IA should not encompass politics and political decision-making. (The politicians seem to be capable of performing that task by their own).

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Appendix 1 Characteristics of cases

Table 1 Petroleum field developments on the Norwegian Continental shelf in the period 1985 - 97

Name of field-development	Operator	Investm. 1997-USD	PDO-approval	Conflict-issue attached to the development			
				Restriction-zone	Discharge to sea	Emission to air	Localisation
Tommeliten	Statoil	0,5 bill $	June 1986	X	X		
Sleipner Øst	Statoil	10,0 bill $	Dec. 1986		X		X
Troll I	Shell	75,0 bill $	Dec. 1986		X		X
Gyda	BP	5,5 bill $	June 1987		X		
Veslefrikk	Statoil	9,0 bill $	June 1987	X	X		
Snorre	Saga	25,5 bill $	May 1988	X	X		X
Hod	Amoco	1,5 bill $	June 1988		X		
Draugen	Shell	14,5 bill $	Dec. 1988	X	X		X
Brage	Hydro	8,0 bill $	Mar. 1990		X		
Statfjord Øst	Statoil	5,5 bill $	Dec. 1990	X	X		
Statfjord Nord	Statoil	6,5 bill $	Dec. 1990	X	X		
Heidrun	Conoco	24,0 bill $	May 1991	X	X	X	X
Tordis	Saga	4,5 bill $	May 1991	X	X		
Loke	Statoil	1,0 bill $	May 1991		X		
Lille Frigg	Elf	0,5 bill $	Sept. 1991		X		
Heimdal Jura	Elf	0,5 bill $	June 1992		X		
Mime	Hydro	0,5 bill $	June 1992		X		
Troll II	Hydro	37,0 bill $	May 1992	X	X	X	X
Frøy	Elf	1,0 bill $	May 1992		X	X	
Sleipner Vest	Statoil	24,0 bill $	Dec. 1992		X	X	
Vigdis	Saga	4,5 bill $	Dec. 1994	X	X	X	
Yme	Statoil	1,5 bill $	Jan. 1995		X		
Norne	Statoil	10,0 bill $	Mar. 1995	X	X	X	X
Njord	Hydro	4,5 bill $	June 1995		X	X	X
Balder	Esso	4,0 bill $	Feb. 1996	X	X		
Visund	Hydro	14,5 bill $	Mar. 1996	X	X	X	
Gullfaks Sør	Statoil	12,5 bill $	Mar. 1996	X	X		
Rimfaks	Statoil	3,5 bill $	Mar. 1996	X	X		
Gullveig	Statoil	0,5 bill $	Mar. 1996	X	X		
Varg	Saga	1,0 bill $	May 1996		X	X	
Åsgård	Statoil	50,5 bill $	June 1996	X	X	X	X
Oseberg Øst	Hydro	3,5 bill $	Oct. 1996		X	X	
Jotun	Esso	4,5 bill $	June 1997		X	X	
Oseberg Sør	Hydro	12,5 bill $	June 1997		X	X	

Table 2 Petroleum pipelines on the Norwegian Continental shelf in the period 1985 - 97

Name of pipeline	Operator	Investment 1997-USD	PDO-approval	Conflict-issue attached to the pipeline	
				Impact on fish - trawling	Localisation
Zeepipe I	Statoil	2,7 bill $	Dec. 1988	X	X
Sleipner ØKT	Statoil	0,7 bill $	Dec. 1989	X	X
Europipe I	Statoil	2,0 bill $	May 1991	X	
Zeepipe II A	Statoil	0,6 bill $	May 1992	X	
Frostpipe	Elf	0,1 bill $	April 1992	X	
Haltenpipe	Statoil	0,3 bill $	Feb. 1992	X	X
Troll Oljerør	Statoil	0,1 bill $	Dec. 1993	X	
Zeepipe II B	Statoil	0,3 bill $	Jan. 1995	X	
Norfra	Statoil	1,2 bill $	1995	X	
Europipe II	Statoil	1,0 bill $	Nov. 1996	X	
Åsgard Transp.	Statoil	1,0 bill $	June 1996	X	X