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Problems of SEA implementation **in the energy sector**

A comparative study of the adaptation of wind
power in Sweden and power plants in Japan

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<Abstract>

Today, it is common to see Strategic Environmental Assessment (SEA) as a tool to enhance environmental consideration for Policies, Plans and Programmes (PPP) through decision making processes. However, SEAs in both Sweden and Japan are pointed out that they have been facing some challenges. The purpose of the thesis is, therefore, to find out problems of SEA implementation, especially by looking at and making comparisons of wind power plants in Sweden and electric power plants in Japan as case studies. Although Sweden and Japan have a long history of Environmental Assessment, our study shows that SEA in the field of energy planning in both countries has not been effectively used yet. Through the study, some of the problems surrounding the SEA have become visible, which include mixed understanding and confusion of SEA for PPP and Environmental Impact Assessment for projects; inappropriate planning system as an obstacle of SEA usage; national policy as a cause of resistance/hesitation for SEA; and insufficient public access to the environmental information.

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<Acronyms and abbreviations of planning terminology>

3G – Third generation of telephone technology

DDP – Detail Development Plan

EA – Environmental Assessment

EC - European Community

EU – European Union

EIA – Environmental Impact Assessment

METI – Ministry of Economy, Trade and Industry, Japan

MILT – Ministry of Infrastructure, Land and Transport, Japan

MOE – Ministry of the Environment, Japan

NIMBY – Not In MY Back Yard

OECD – Organisation for Economic Co-operation and Development

PBA – Planning and Building Act

PPP – Policies, Plans and Programmes

SEA – Strategic Environmental Assessment

SEPA – Swedish Environmental Protection Agency

SIDA – Swedish International Development Cooperation

UNECE – United Nations Economic Commission for Europe

VindGIS – Computer programme calculating the theoretical energy content of the air.

I. Introduction

Interestingly, Sweden and Japan have a common feature in the field of the environment in that both countries intend to take a leadership role to the world. Whereas Sweden calls themselves as an international leader in environmental policy, Japan established a strategy called “Becoming a Leading Environmental Nation Strategy in the 21st Century -Japan's strategy for a Sustainable Society” in June 2007. However, both countries are pointed out that they have been facing challenges for the effective use of the Strategic Environmental Assessment (SEA) (for example, see Emmelin & Lerman 2005, Harashina 2007).

The purpose of the thesis is, therefore, to find out problems of SEA implementation, especially by looking at and making comparisons of wind power plants in Sweden and electric power plants in Japan. In order to accomplish the purpose, several objectives were outlined:

- Describe SEA and its role.
- Demonstrate how SEA is understood and used especially in the energy planning.
- Point out what kind of problems each country hold, e.g. history, planning system, relationship with EIA, peoples' understanding of SEA, etc.
- Find what comparisons if any that can be done between the cases and discuss them.
- Describe what conclusions that can be drawn from the two cases.

The reason for choosing these cases is that they are in unique but also difficult situations for adapting and implementing the SEA. Today energy policies are called for radical measures to tackle with concerns and issues surrounding climate change, the drying up of oil resources, etc., while those measures actually influence people and the environment in a certain area.

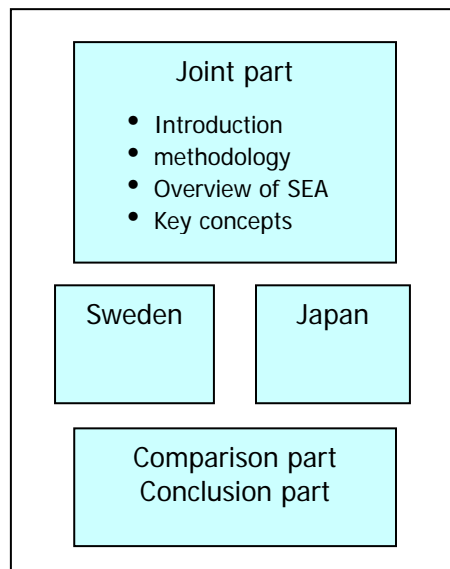
When reading the available literatures on SEA it soon becomes apparent that studies and reports about the theory of SEA are found in abundance. There are certainly also many studies on individual countries but studies concerning actual adaptation are harder to find. Through this

study, we expect to contribute for better understanding as to what causes problems for application and implementation of SEA in both countries as well as the SEA system as a research object.

II. Methodology

The thesis is based on official documents from public and private institutions and research papers, and basically is a literature study of available information concerning SEA. The structure of the thesis consists of introduction, methodology, SEA theory, key concepts part for comparison, individual (Swedish and Japanese) cases, comparison, and conclusion (see Figure 1).

Figure 1: Structure of the Thesis



Source: written by author

For the purpose of the thesis the first joint part must address the basic theories and frameworks that will be addressed or examined more in detail in the different two cases and the later comparison. The joint part can, as a consequence, describe aspects or theories that are more important to one case than the other. In addition to those theories and frameworks, we use the EU SEA Directive as a benchmark. Making comparisons also means that the learning experience of the authors leads to an understanding of the other case. Both of us must have clear understanding for the legislation and planning system in both countries in order to draw comparisons and make common conclusions.

Although at the beginning of the writing process we were thinking to pick up a few actual cases that apply SEA on wind power and power plants, we changed our way later. This is not because of compromise but because our findings convinced us to shift the focus. In order to make comparisons, we decided to analyze two countries adaptation and the effects of SEA in the field of energy sector. This may makes it perhaps harder to make comparisons but we believe that there are many comparative gains from this approach.

III. Overview of SEA and EU SEA Directive as a benchmark

1 . Introduction

This chapter briefly explores the concept of the SEA. Definition, scope, history, principle, rationale, barriers, tiering, one form of procedures of the SEA are discussed. The EU SEA Directive is also picked up as a benchmark of the SEA and for the later part of the thesis.

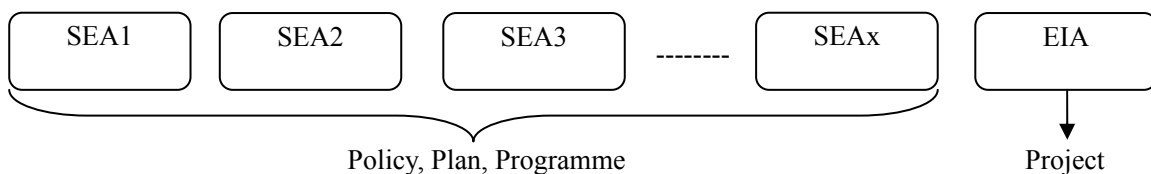
2 . Definitions and scope of SEA

In the manuals, books and academic articles there are number of different definitions of SEA. The reason for this is that SEA is not “one theory”. It is a combination of EA theories that also has changed focus-point over time, from the 1970s to today and one of the basic definitions of the EA is:

"a systematic process for evaluating the environmental consequences of proposed policy, plan, programme (SEA) or project (EIA) in order to ensure they are fully included and appropriately addressed at the earliest appropriate stage of decision-making on par with economic and social considerations". (Sadler and Verheem (1996) referred and added "or project (EIA)" by Emmelin (2007))

Following this, the simplest definition of the SEA could be “the EA for policy plan and programme (PPP)”, or we can even say “the EA except for projects” (see Figure 2).

Figure 2: SEAs plus EIA



Source: written by author

However, at that same time, it makes people confused and immediately raises questions such as, “How can we use the SEA with different kind of policies?”, “What does plan really mean?”, “Is the SEA similar to the EIA?” and so on. To think of this matter, it is good to start from making sure of the meaning of the terms “policy”, “plan”, and “programme”. Sadler (1996, p.140) shows the following definitions as generic and meant to have sufficient flexibility to encompass terminology used in different countries:

- Policy: a general course of action or proposed overall direction that a government is, or will be, pursuing and which guides ongoing decision making
- Plan: a purposeful, forward-looking strategy or design, often with coordinated priorities, options, and measures, that elaborates and implements policy
- Programme: a coherent, organized agenda or schedule of commitments, proposals instruments, and/or activities that elaborates and implements policy

Here, policy may take the form of a law, document, statement or precedent, while the terms of plan and programme can be used flexibly or interchangeably even within the same country (UNEP 2004, p.86). In fact, the EU SEA Directive defines plan and programme together (Article 2):

- which are subject to preparation and/or adoption by an authority at national, regional or local level or which are prepared by an authority for adoption, through a legislative procedure by Parliament or Government, and
- which are required by legislative, regulatory or administrative provisions.

And instead, the guidance paper for the SEA Directive (2003) gives a clue to distinguish plan and programme as a common understanding for the member states:

- plan as a plan sets out how it is proposed to carry out or implement a scheme or a policy
- programme as the plan covering a set of projects in a given area.

Table 1 shows currently or potentially applied PPP (Partidário 1999, p.63). Some researchers point out the limitation of the scope of the EU SEA Directive, which is the Directive does not cover policies (for example, see Partidário 1999, Therival 2004). Plans and programmes made by private bodies are not subject to the EU SEA Directive. What should be paid attention here is that there are some exceptions. If private bodies pursue “a measure adopted by the State, for providing a public service under the control of the State and it has for that purpose special powers beyond those which result from the normal rules applicable in relations between individuals” e.g. water resources, SEA has to be implemented on those plans and programmes. Such public bodies can be a body, whatever its legal form and regardless of the extent (national, regional or local) of its powers (EU Commission 2003, p.8).

Table 1: Scope of SEA applications

<ul style="list-style-type: none">• International treaties• Privatization• Transnational corporations• Structural adjustment operations• Structural operations programmes• National budgets• Legislative proposals• Area-wide or land-use planning• Transboundary impacts• Global issues

Source: Partidário 1999, p.63 Box 4.2

3 . History of SEA

The history of SEA can be divided into following three stages (Clayton and Sadler 2004, p.26), the formative stage (1970-1989), the formulization stage (1990-2001), and the expansion stage (2001 onward) (see also Table 2). Although both history of EIA and SEA started from US

National Environmental Policy Act (NEPA) in 1969, SEA did not spread as fast as EIA. Possible reasons can be considered about this is simply SEA was seen more complicated and therefore difficult to apply. Also applying precautionary measures to PPP level was not as common as today. Thus, there were limited applications of SEA. At the formalization stage, different provision and forms of SEA were instituted by a number of countries and international agencies (Clayton and Sadler 2004, p.26). Then at the expansion stage, international legal and policy developments such as adoption of the SEA Directive in 2001 and the Protocol on Strategic Environmental Assessment by the United Nations Economic Commission for Europe in 2003 promise to catalyze wide adoption and use of SEA in and out of Europe. As a historical background, awareness of Sustainable Development spread around the world from the late 80's, especially by the strong influence of the publication of Our Common Future in 1987 and the Earth Summit in Rio de Janeiro in 1992.

Table 2: International trends for SEA

Year	International trends for SEA
1969	The National Environmental Policy Act (NEPA) passed by the U.S. Congress, mandating all federal agencies and departments to consider and assess the environmental effects of proposals for legislation and other major projects.
1978	US Council for Environmental Quality (USCEQ) issues regulations for NEPA which apply to USAID and specific requirements for programmatic assessments
1989	World Bank Operational Directive 4.00 (amended 1991, 1999): on EIA (allow for the preparation of sectoral and regional Assessments)
1989	UNECE (Espoo) Convention on EIA in a Transboundary Context (came into force 1997): "to the extent appropriate ...shall endeavour to apply" the principles of EIA to policies, plans and programmes (Article 2(7)).
1990	The European Economic Community issues the first proposal for a Directive on the Environmental Assessment of Policies, Plans and Programmes
1991	The UNECE Convention on EIA in a Transboundary Context promotes the application of EA for policies, plans and programmes
1991	The OECD Development Assistance Committee adopted a principles calling for specific arrangements for analysing and monitoring environmental impacts of

	programme assistance
1995	The UNDP introduces the environmental overview as a planning tool
1997	The Council of the European Union adopts a proposal for a Council Directive on the assessment of the effects of certain plans and programmes on the environment
2001	Council of the European Union adopts the Council Directive 2001/42/CE on 27 June on the assessment of the effects of certain plans and programmes on the environment
2003	SEA Protocol to the Espoo Convention adopted on 23 May 2003 at fifth Ministerial "Environment for Europe" Conference, Kiev.
2004	World Bank Board Development Policy Lending policy (OP/BP 8.60) - requires the Bank to determine if specific country policies supported by the operation are likely to have significant effects on the environment and natural resources of the client country.

Source: Partidário n.d., p.3, added from Clayton and Sadler 2004, p.345-346

4 . Principle, rationale and barriers of SEA, and approach to the SEA Directive

According to Therival (2004, p.8), there is the general agreement on some basic principles of SEA. She explains that SEA, (1) is a tool for *improving the strategic action*, (2) should *promote participation of other stakeholders* in the decision-making process, (3) should *focus on key environmental/ sustainability constraints*, should help to *identify the best option*, (4) should aim to *minimize negative impacts, optimize positive ones, and compensate for the loss of valuable features and benefits*, and (5) should *ensure that strategic actions do not exceed limits beyond which irreversible damage from impacts may occur*. These principles are supported by the following rationale of SEA. “Improving” the project-level EIA by having more alternatives and considering indirect and cumulative impacts, promoting sustainable development by integrating environmental considerations into non-environmental planning, and improving quality (coherence, transparency, etc.) of governance (Cherp 2007). However there are, of course, some obstacles to these benefits of SEA. Sadler (1996, p.148) gives following institutional barriers to introduce and implement SEA.

- Insufficient political will -- as indicated by low priority given to environmental concerns, by closed processes of decision making, and by low levels of accountability

- Limited societal support base -- as indicated by low degrees of activism and of political influence by public and community groups
- Narrow definition of issues -- reflected in prevailing emphasis on economic growth and failure to consider strategic environmental implications
- Compartmentalized organizational structures -- typically, consideration of environmental matters is curtailed by the sectoral division of political powers and agency responsibilities
- Bureaucratic prerogatives -- environmental requirements encroach on the “turf and territory” of other sectors which is zealously guarded by officials, especially at the policy level

(Sadler 1996, p.148 Box6.5)

Now taking a look at the SEA Directive, according to Emmelin and Lerman (2005, p.185-186), there are three different approaches to implement the SEA Directive; Minimalist, Intentionalist and Environmentalist. The Minimalist implementation of the SEA Directive is based on formal analysis of the minimum requirements of compliance and tries to have minimum disruption of a national system. There, effectiveness or efficiency of the SEA system is less important than avoiding for being regarded as noncompliance. Intentionalist approach put focus on the purpose, objective and goals of the SEA Directive rather than the compliance. To do so, national legislations can be changed to enhance the efficiency. This approach is therefore seen as appropriate transformation from the EU point of view. Environmentalist approach utilizes the SEA Directive to change national policy in a way to more normative rather than just implementing it. According to the same authors, it is not easy to distinguish three approaches as sometimes they are obfuscated by statements and rhetoric. However, one clear thing Emmelin and Lerman mentioning from the past researches is that the Sweden takes the Minimalist approach (reasons are discussed in Swedish part).

5 . Tiering

One of the important parts of strategic decision making is the notion of a hierarchal “pyramid”

system. The system is not necessarily pyramidal in structure but it can help to visualize that decisions made at high level (national) are often implemented by many smaller parts on lower level (municipality) The top is made out of planning with a relatively high element of visionary ideals and the closer one moves to the lower levels of the system the more defined and implementation oriented the planning/decision making will become. This concept is called “tiering” (Emmelin (2006) uses the 16 Swedish national environmental goals as an example).

Tiering has been criticised for implying that strategic decision making is a top-down oriented process. However there seem to be a strong element of tiering within the sustainable development paradigm and the environmental thinking. Goals for CO2 emissions are set at global level and implemented by most governments and the goals trickle down the decision making hierarchy of the countries. Emmelin states that the higher level need clear methods and consistency within the system and that the “bottom-up” local level need methods for “handling such conflicts of interest that arise” (Emmelin 2006, p.10). The role of SEA in such a system is to improve the sustainability of the development and ensure that EA is part of early visionary planning made at the top through programmes and policies. Thus EA is made for all PPP that can have a significant impact on the environment. According to Partidário (n.d., p.36), tiering can also help avoid duplicate SEAs because the EU SEA Directive should be integrated in the procedure of adopting plans and programmes in the Member States. In order to avoid duplicates the SEA has to be well defined with clear goals and objectives.

6 . Procedure of SEA

This section aims to describe the making of an SEA for a plan or programme. The process has many similar steps to EIA but there are some fundamental differences as it deals with strategic decisions and generally not with specific sites.

There are three models for SEA depending on the role that the SEA hypothetically fills (Sadler 1996, p.149) (There are other similar classifications, for example see Partidario 2007, p.16, Emmelin & Lerman 2005); standard (EIA-based) model, equivalent (environmental appraisal)

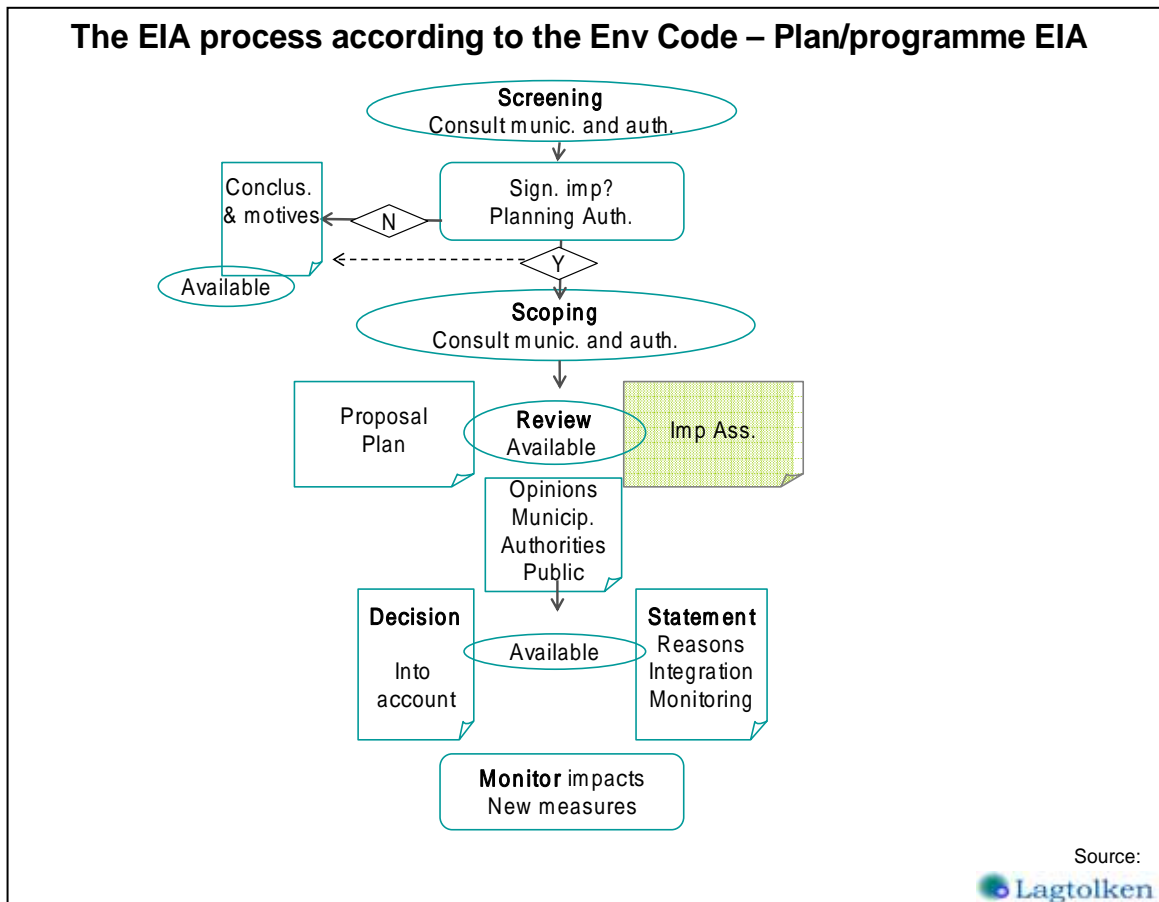
model, integrated (environmental management) model.

- standard (EIA-based) model -- SEA of policies, plans, and/or programmes is patterned after the EIA process with similar steps and activities but with differences introduced by more fluid policy requirements (as in Denmark);
- equivalent (environmental appraisal) model -- policy and plan evaluations, are undertaken to identify and take account of environmental effects (as in the UK); and
- integrated (environmental management) model -- SEA is undertaken as an integral part of a comprehensive policy and plan setting process (as in New Zealand).

(Sadler 1996, p.149)

Figure 3 below shows the structure and process of a standard EIA-based model. The process is similar in steps and actions to an EIA but more fluent. In this mode SEA is a separate document from the actual plan or programme, if any such plans exist. SEA can also be integrated, environmental management models part of comprehensive plans.

Figure 3: Illustration of SEA as an example of Environmental Code, Sweden



Source: Lagtolken, used by permission of Emmelin.

- Screening

Whether or not a SEA should be undertaken for a certain plan or programme is decided through a process called screening. Whether SEA should be applied or not is determined by the environmental impact the plan or programme is perceived to have. Sadler (2004, p.375) points out that screening “helps to indicate the type of approach and level of detail required for a SEA (e.g. policy appraisal versus impact assessment)” Screening also aids in the consideration of how a particular SEA fits with succeeding EIA or other SEAs.

- Scoping

Scoping refers to the actual process of writing a SEA document. Building a power plant in a remote forest area compared to building close to urban and high populated areas can require different criteria. Scoping thus require an initial blue-print for what will be analyzed because of local or regional characteristics. Part of scoping also includes the identification of alternatives and public consultation and participation.

Table 3 shows main differences in procedural requirements of the EIA and SEA Directive (Sheate et al. 2005, p.11). It illustrates the significant differences between them, but also it is assumed that SEA and the relation to EIA are different in all countries.

Table 3: Main differences in procedural requirements of the EIA and SEA Directive

Stage	EIA	SEA
Screening	No consultation Publicity: determination and reasons [where EIA needed]	Consultation with the environmental authorities Publicity: determination and reasons [where SEA not needed]
Environmental information/report	Minimum information requirement No quality control requirement	Stronger emphasis on alternatives MSs to ensure environmental reports (ERs) are of sufficient quality
Consultation	Public, authorities and where relevant other MSs (The consultation provisions will be made more specific by the Public Participation Directive)	Public, authorities and where relevant other MSs
Decision-making	Environmental information and consultation comments to be taken into account	ER and consultation comments to be taken into account
Info on decision	Required (The information provisions will be made more specific by the Public Participation Directive)	More detailed requirements
Monitoring	Not required	Required

source: Sheate et al. 2005, p.11 Table 3.1

IV. Key concepts

1 . Introduction

For the purpose of better understanding and making comparisons between the two cases, there are other important aspects that need to be considered apart from SEA. One of the important parts of SEA process is access to environmental information and the public's ability to influence the end result. Not In My Back Yard (NIMBY) and the concept of better planning are also described for the following parts of the thesis, but they are not necessarily discussed in great detail with the actual cases.

2 . Public access to environmental information

Public access to environmental information is a prerequisite to bring out a high quality of public participation in the EA. This importance is broadly recognized now. Principle 10 of the Rio Declaration had one of the biggest impacts to the world for this recognition:

Environmental issues are best handled with participation of all concerned citizens, at the relevant level. At the national level, each individual shall have appropriate access to information concerning the environment that is held by public authorities, including information on hazardous materials and activities in their communities, and the opportunity to participate in decision-making processes. States shall facilitate and encourage public awareness and participation by making information widely available. Effective access to judicial and administrative proceedings, including redress and remedy, shall be provided.

(UNEP, see

<http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=78&ArticleID=1163>)

In the report, called “Closing the Gap: Information, Participation and Justice in Decision-making for the Environment” published by the World Resource Institute in 2002, three benefits of public

access to environmental information are shown:

- Better information enables decision makers to make better decisions
- Broad access to information promotes better decisions by mobilizing demand for sustainable solutions to problems
- Access to information empowers citizens to take a more active role in providing improved environmental performance independently of the state

(Petkova et al. 2002, p.35)

After the Principle 10 of the Rio Declaration, the idea of public access to environmental information was crystallized in the Aarhus Convention, officially called the Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, by the United Nations Economic Commission for Europe. The convention consists of so called 3 pillars, right of access to environmental information, right of public participation in environmental decision-making, and right of access to justice in environmental matters. Any of UN member states can join the Aarhus Convention with the approval of the Conference of the Parties. The convention was adopted in June 1998 and entered into force in October 2001. 28 countries ratified the convention as of May 2008. Sweden signed in June 1998 and ratified in May 2005. Japan has neither signed nor ratified up to today, even though a citizen's group called the Aarhus Net Japan has worked on the Japanese government to take part in. In addition to the article 4 and 5 which are directly related with public access to environmental information, the article 6-2 is also very important regarding the EA.

In 2003, EU set two Directives in order to respond the Aarhus Convention; Directive 2003/4/EC of the European Parliament and of the Council (Directive2003/4/EC) for public access to environmental information and Directive 2003/35/EC of the European Parliament and of the Council (Directive 2003/35/EC) for public participation. The Directive 2003/4/EC shows its view of public access to environmental information in the whereas clause:

Increased public access to environmental information and the dissemination of such

information contribute to a greater awareness of environmental matters, a free exchange of views, more effective participation by the public in environmental decision-making and, eventually, to a better environment.

Finally, it is necessary to clarify the definition of environmental information. Table 4 shows its definition in the Aarhus Convention and in the Directive 2003/4/EC. Although both definitions say more or less same thing except for (d) in the Directive 2003/4/EC, the later one is more specific and seems to ask more concrete actions to the member states.

Table 4: Definition of Environmental Information

Aarhus Convention (Article 2-3)	Directive 2003/4/EC (Article 2-1)
“Environmental information” means any information in written, visual, aural, electronic or any other material form on:	‘Environmental information’ <u>shall</u> mean any information in written, visual, aural, electronic or any other material form on: (authors’ underline)
(a) The state of elements of the environment, such as air and atmosphere, water, soil, land, landscape and natural sites, biological diversity and its components, including genetically modified organisms, and the interaction among these elements;	(a) the state of the elements of the environment, such as air and atmosphere, water, soil, land, landscape and natural sites including wetlands, coastal and marine areas, biological diversity and its components, including genetically modified organisms, and the interaction among these elements;
(b) Factors, such as substances, energy, noise and radiation, and activities or measures, including administrative measures, environmental agreements, policies, legislation, plans and programmes, affecting or likely to affect the elements of the environment within the scope of subparagraph (a) above, and cost-benefit and other economic analyses and assumptions used in environmental decision-making;	(b) factors, such as substances, energy, noise, radiation or waste, including radioactive waste, emissions, discharges and other releases into the environment, affecting or likely to affect the elements of the environment referred to in (a);
(c) The state of human health and safety, conditions of human life, cultural sites and built structures, inasmuch as they are or may be affected by the	(c) measures (including administrative measures), such as policies, legislation, plans, programmes, environmental agreements, and activities affecting or likely to affect the elements and factors referred to in (a) and (b)

<p>state of the elements of the environment or, through these elements, by the factors, activities or measures referred to in subparagraph (b) above;</p>	<p>as well as measures or activities designed to protect those elements;</p> <p>(d) reports on the implementation of environmental legislation;</p> <p>(e) cost-benefit and other economic analyses and assumptions used within the framework of the measures and activities referred to in (c);</p> <p>(f) the state of human health and safety, including the contamination of the food chain, where relevant, conditions of human life, cultural sites and built structures inasmuch as they are or may be affected by the state of the elements of the environment referred to in (a) or, through those elements, by any of the matters referred to in (b) and (c).</p>
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Source: Aarhus Convention 1998 article 2-3 & Directive 2003/4/EC 2003 article 2-1

3 . NIMBY

The term NIMBY, acronym for Not In My Back Yard, describes a situations where were individuals or stakeholder see the benefits for many but do not want to suffer the local consequences of the plan. Building new airports is an example that illustrates this way of thinking or reactions. Airports are vital to the economy as they enable transport of goods and people. But on the other hand many people do not want to live close to airports because of noise and pollutions. Energy as the two cases this thesis use to illustrate the implementation of SEA is always surrounded by NIMBY factors. We are all dependent on energy as a source of electricity and heating. Finding locations for energy plants however is a complex planning exercise. The cases in this study will show NIMBY effects on different levels as a result of the planning system and legislation in the two countries.

4 . Better planning

SEA has numerous different definitions and there are some uncertainties as to what SEA actually is or could be. Therefore it is important to define in what way certain terms will be used. Under the heading objective better planning is mentioned. Better planning here means a number of things, firstly planning which makes it possible to reach the goal, secondly planning which reach those goals without side stepping the responsibilities of the planning authorities. Because (wind) power plants is an complex planning issue that involves several stakeholders and government levels as well as numerous laws, better planning could simply be the one which get approved by those involved for the greater good, even by those whom suffer the consequences of living close to the plants.

V. Swedish part

What do you think of western civilization?
Gandhi – I think it would be a wonderful idea.

1 . Introduction

1-1. Wind power in Sweden, background

In 2002 the Swedish government passed a proposition setting the political goal for electricity from wind power at 10 TWh by the year 2015. Later adaptations in Prop.2005/06:143, simply called “the wind proposition”, also outlined new task for several governmental institutions and organizations to help the implementation of the goal. Furthermore the proposition suggests a certificate system to give incentives to land owners who build wind power plants on their land.

During 2005 and 2006 the University of Uppsala, Sweden, together with Sveriges Meteorologiska och Hydrologiska Institut (SMHI) partly financed by the Energy department finished a project resulting in new planning material for implementing the wind proposition. The project resulted in an adaptation of the computer programme GIS showing the theoretical wind energy for every square meter in Sweden through easily comprehended maps. The new programme called VindGIS (translates to WindGIS) together with the wind proposition launched a new dawn for wind power in Sweden, particularly in the inland, away from the open sea and coastal lines.

In recent years the number of generators and the amount of energy has increased greatly. The technological development has made it possible to build higher plants setting the generator above the treetops. However wind power still is a small percentage of the total energy produced in Sweden, just above 1 % of the total energy production. The reasons for the delay, or slow start, could be many but a slow public bureaucracy and the public’s opposition is often mentioned.

1-2. Objective

The purpose of the Swedish case study is to examine and describe the situation concerning wind power planning in Sweden and to analyze in what way SEA could be a tool for better planning.

For that purpose several objectives or questions need to be addressed.

1. what are the political/ national ambitions for wind power?
2. what are the norms and legislation concerning wind power?
3. how has SEA been implemented in Sweden?
4. in what way can wind power and SEA be combined?

2 . Wind power in Sweden

2-1. The political goal for wind power

The wind proposition (2005/06:143) is one step of a long line of propositions and studies in order to alter the energy production system in Sweden. Wind power is assumed to be an important part of a transition towards a more sustainable energy system. The Swedish government gave the National Board of Housing, Building and Planning, Boverket, a task to overview the possibilities for large wind power production resulting in “Förutsättningar för storskalig utbyggnad av vindkraft” in 2003 (Boverket.se) . Also a governmental report in 1998 listed some of the pressing issues in order to expand the production from wind power “Rätt plats för vindkraften” (SOU1999:75).

The government gave, in accordance with the report (SOU1999:75), the Energy department the task to identify areas for wind power and to propose a national goal for the energy production. The Swedish Energy Agency suggested a national goal of 10 TWh annual productions from wind power in the year 2015. The suggested goal was later approved by the government through proposition 2001/02:143 (bet. 2001/02:NU17, rskr.2001/02:317) (prop. 2005/06:143, p.7).

Prop. 2005/06:143 outlines new roles for public institutions to improve the planning for and

implementation of the goal.

- The Swedish Energy Agency is overall responsible for the implementation of the political goal. The Agency also aims to recommend a new goal for wind power production during 2008.
- The Environmental Protection Agency, EPA, heads up numerous projects in research considering the effects of wind power and there surroundings.
- The National Board of Housing, Building and Planning's assignment is to aid the regional and local planning. Just to name a few.

The wind proposition raises the question of classifying certain areas as National Interest for the purpose of wind power. The Swedish Energy Agency has been given the task to identify areas that could be classified according to this new standard. In 2004 the Agency together with VindGIS maps presented 49 areas located in 13 different counties that they suggest would be considered National Interest. The County Administrative Board and involved municipalities have replied to the suggestion (Energimyndigheten.se). Their replies show that classifying wind power as National Interest is considered to be an obstruction sooner than an aid. It is viewed as further complication regarding the planning and implementation and that it can prove to be counter productive when planning for housing and other land-use considerations.

Also the National Board of Housing, Building and Planning is given the task to stimulate the planning for wind power through extra funds for comprehensive planning at municipal level. For 2007 and 2008 the Board has 30 million SKR annually to distribute among the applicants. According to their findings some 150 municipalities, regional offices are constructing plans or are partly involved through cross border cooperations in the planning process (Stöd till planeringsinsatser för vindkraft).

2-2. Sweden's energy production

Developing Europe's potential for using renewable energy will "contribute to security of energy supply, reduce fuel imports and dependency, reduce green house gas emissions, improve

environmental protection, decouple economic growth from resource use, create jobs, and consolidate efforts towards a knowledge based society". This view is presented by the EU Commission (COM (2004) 366) (Danish Energy Authority 2005, p.2).

At the time for the wind proposition back in 2002 the total energy production in Sweden was 143 TWh. Sweden's energy production is mainly based on two sources, nuclear energy plants and water plants. Of the total production of energy those two sources amounts to almost all electricity. Wind power and other renewable resources had a combined production of about 1 % of the total energy production in 2002 (information from SCB.se).

The reasons for this are historical and geographical. In the north of Sweden there are numerous big rivers stretching from Fjällens, the mountainous region between Sweden and Norway, to the Baltic Sea. During the spring the rivers run high because of smelting water from the mountains and a natural step was to build dams in order to make use of the energy content of the streams. As a result all main rivers in the north of Sweden now have at least one dam.

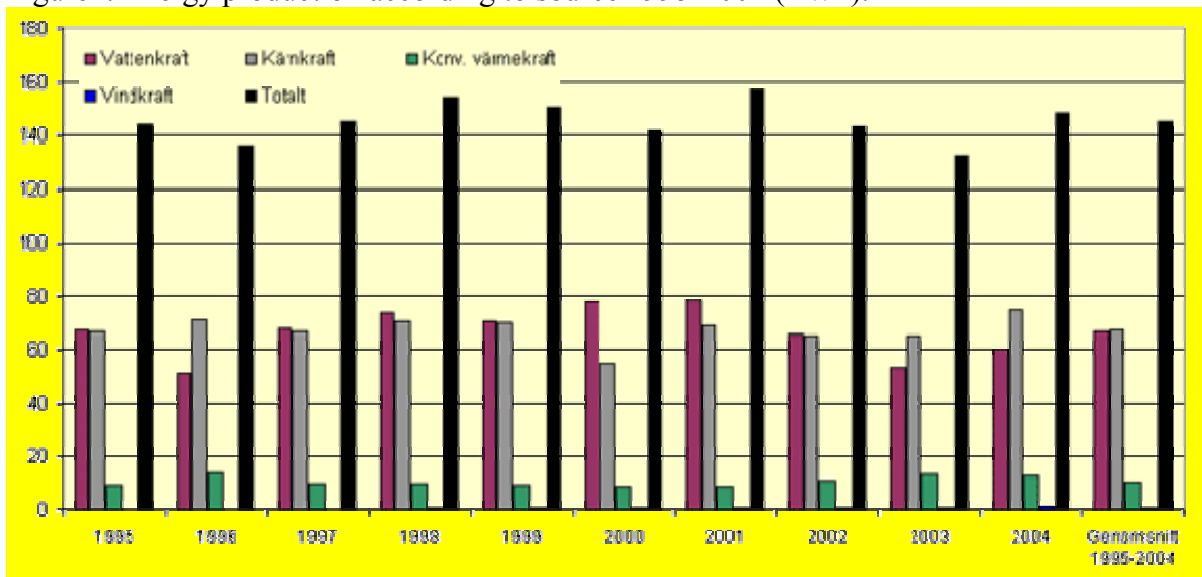
Nuclear energy is under great scrutiny from the public and has been for a long time. The number of nuclear power reactors in Sweden has been lowered in recent years which are a result of higher efficiency as well as the fact that Sweden buys cheaper energy from neighbouring countries and Russia. As a result there is a growing need for electricity because of an increased demand from industry and citizens but finding locations for energy production by traditional means has proven difficult.

The political goal for wind power is not only a result of creating more energy from renewable resources there is also a pressing need to increase the overall production. Although it is unrealistic to think that wind power can replace nuclear energy, wind power makes Sweden less dependent on nuclear power plants. Wind power uses the energy content in the air through the rotors that are attached to a generator (Boverket 2003, p.19-21). When generating electricity, there is no waste and no pollutions from the wind power plants and considering their lifespan, of around 20 years, their energy contribute is very reasonable. The amount of energy it takes to

construct a single plant and its components the generator has “reproduced” in less than 2 years. That means in the coming eighteen years a wind power plant adds to the overall production and does so at a relative small cost for repairs and maintenance. Wind power is also a domestic energy source thus making Sweden less dependent on other countries in term of energy.

The E1-certificate system was introduced in 2003 and replaced the former governmental incentive for renewable energy resources. The new system is more market oriented and aims to increase the competition between the renewable resources. The E1-certificate system ensures that every MW produced and put on to the grid means that the producer gets compensated. The consumer is by law obligated to purchase 10.4 percent of the total consumption from renewable resources, the quota will be raised to 16.9 percent in 2010. The energy utility companies administrate the quota and they are fined if they do not distribute the energy from renewable resources to the consumer (Vindkraftens Ekonomi).

Figure4: Energy production according to source 1995-2004 (TWh).



Source: SCB Användningen av förnyelsebara bränslen har ökat kraftigt de senaste tio åren

Translation of the bars; purple is water plants, grey is nuclear, green is conventional heating energy (gas, bio etc), blue is wind power (not visible) and the black is the total production.

As the graph shows the production of energy has fluctuated between 130 TWh to almost 160 TWh. The energy production from water and nuclear power plants has also shifted from year to year in part as a result of the amount of water that has been available to run through the generators. The wind power production is too small to be seen as shown in the following table.

Table5: The annual net production of wind power in Sweden between the year 1994 and 2007 (GWh).

Production	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
wind power	75	105	144	203	308	358	456	482	608	679	850	949	988	1430

Source: Diagram made from information available at SCB.se, figures for 2007 are from www.energimyndigheten.se

The production from wind power has increased every year according to the table. However in 2006 the production was just 988 GWh, almost 1 TWh, that represented 0.7 % of Sweden's total energy production that year (Vindkraft). So even with a significant increase every year the total effect is still very small, almost insignificant.

According to a press release from the National Energy Department in April of 2008 Sweden produced some 12.7 TWh of renewable energy in 2007. The fastest growing supplier of renewable energy is wind power, the production increased with 45 % from 2006 to 2007, from 0.988 TWh to 1.43 TWh (12.7 TWh of renewable electricity through the electricity certificate system in 2007).

In order to reach the political goal of 10 TWh of wind produced energy by the year 2015 the installed effect must be around 4000 MW. That means that around 1300 very large generators (3 MW) have to be sited (prop. 2005/06:143, p.11). However generators that big is still very rare in Sweden. Most of the plants in Sweden are 1-2 MW with a height of up to 90 meter towers and a total height of 150 meters (Vindkompaniet.se). If the technological development cannot make each plant produce significantly more energy the number of plants will be more than 1300. Even

if the technology would be available it has to be put to use before 2015 and that is very unlikely. Energy from wind power is hard to stockpile because it uses large amounts of battery storage space. Consequently stockpiling the energy is not economically efficient with the technology that is currently available. As a result the energy is immediately put on to the transmission infrastructure.

2-3. VindGIS

VindGIS is the result of a project supervised by Professor Hans Bergström at the University of Uppsala. The project was in part funded by the Swedish Energy Agency and contributed by SMHI. The maps that are the concrete result of the project are now uploaded to a web-portal and free to download for anyone who wants them. For that reason the maps have been important both to persons and companies who have an interest of knowing where there are potential for wind power and too municipalities during their planning process (Boverket 2003 (b)). VindGIS can thus be categorized as a tool for a more synchronized planning regarding wind power. It could be an important aid for harmonizing the plans and the demands on those who apply for building permits to the authorities. VindGIS has also been used by the Energy Agency to identify areas that could be areas of National Interest for wind power.

It is important to remember that the maps are a result of prognosis and are theoretical, the actual winds and energy at any given point can thus be different from what the computer maps indicates (Riksintresse vindbruk) The maps are made at 1 km resolution and are available for three heights, 43m, 71m and 103m over the zero-planadjustment (nollplansförskjutning). The zero-planadjustment is 2/3 of the vegetation, an additional reason that the actual wind energy for the heights can show a discrepancy (energimyndigheten.se). If the difference between the maps and the reality is of no or little consequence the portal has an even better prospect as a planning tool.

2-4. Legislation regarding wind power

Wind power in the legislation is an ambiguous affair. There are basically two laws concerning wind power, the Planning and Building Act (SFS 1987:10), PBA, and the Environmental Code (SFS 1998:808).

The two legislations are quite different in their intent and purpose. The PBA concerns spatial planning, the use of land and water. According to chapter 5 § 1 of the PBA, building permits should be handled through Detailed Development Plan, DDP, for new buildings or changed use for previously approved usage especially concerning land-use that could have a significant environmental impact. DDP also applies to wind power according to chapter 8 § 2.

The Environmental Code is a later addition to Swedish law. The law is based on more vague theories reflecting sustainable development. Sustainable development is here defined as long term planning which takes “cultural, ecological, social and socio-economic views into consideration” (authors translation, Environmental Code 1998:808 chapter 1 sub paragraph 4.). Wind power generators are environmentally hazardous facilities according to the Environmental Code. Consequently wind power is not only subject to PBA, but the Environmental Code must be consulted as well in order for municipalities to give building permits. Also if the total effect is more than 1 MW, the County Administration must grant the building permit (Boverket 2003, p.107-109).

In summary, any building permits for wind power is site specific according to PBA. However since wind power generators are considered environmentally hazardous facilities other legislations can be necessary to consult.

Table 6 shows what laws must be consulted in order for any building permits to be approved for land based wind power according to the total effect of the generator or generators.

Table6: Government level and building permits for wind power plants

Land-use planning (PBA)	Application (Environmental Code)
<p>State level – Matter of national interest, not yet decided.</p> <p>County level - Regional plans specific for wind power</p> <p>Municipalities level - Comprehensive plan - DDP</p>	<p>Must have governmental approval for project of more than 25 MW. National authorities have a prominent role in the consultation for permits.</p> <p>County Administrative Board approves permits for more than 25 MW by environmental courts,</p> <p>One or more generators of more than 125 kW up to 25 MW</p> <p>Generators with less than 125 kW do not require building permits if the generator apply with DDP and other regulations.</p>

Source: the table is made by the author of information from Energimyndigheten 2007.

2-5. National Environmental Goals in relations to wind power

The Swedish government set up and approved 16 National Environmental Goals in relations to the Environmental Code. Because of the municipalities planning monopoly, which is explained later, each municipality plays an important role in fulfilling these goals. The 16 goals should be addressed in the comprehensive plan. The comprehensive plan should thus point out where in the municipalities' certain areas of interest for fulfillment of the goals are located, how the municipalities intend to reach the goals and implementation steps. Originally when the goals were outlined in 1998 there were only 15, the last goal number 16 was added in 2005. The aim is to achieve all the goals by 2020 by reaching a total of 72 interim targets (<http://www.miljomal.nu/english/objectives.php#>).

The National Environmental Goals is not relevant in handling specific wind power application or building permits. As mentioned the comprehensive plans are however supposed to deal with local adaptations of the National Goals.

The 16 National Environmental Goals are:

1. Reduced Climate Impact
2. Clean Air
3. Natural Acidification Only
4. A Non-Toxic Environment
5. A Protective Ozone Layer
6. A Safe Radiation Environment
7. Zero Eutrophication
8. Flourishing Lakes and Streams
9. Good-Quality Groundwater
10. A Balanced Marine Environment, Flourishing Coastal Areas and Archipelagos
11. Thriving Wetlands
12. Sustainable Forests
13. A Varied Agricultural Landscape
14. A Magnificent Mountain Landscape
15. A Good Built Environment
16. A Rich Diversity of Plant and Animal Life

Source: <http://www.sweden.gov.se/sb/d/5775>

According to the EPA the aims of the National Environmental Goals are:

- to promote human health
- to safeguard biodiversity and the natural environment
- to foster our cultural heritage environment and cultural-historical values
- to preserve the long-term productivity of our ecosystems
- to ensure good management of natural resources

Source:<http://www.naturvardsverket.se>

Clearly not all goals are relevant for all municipalities, such as wetlands, but all municipalities are obligated to make local adaptations of the National Environmental Goals. Wind power can be handled in the comprehensive plans in relations to the National Environmental Goals for the reason that wind power fit the principles and objectives of the goals.

Sweden's Energy Agency says that wind power fits well with the National Goals. Also a study made at Centrum för vindkraftsinformation 2005 states that wind power directly or indirectly helps in achieving 12 of 16 goals (Wizelius 2005, p.7) because of the production of clean and renewable energy. Wind power is also assumed to cut back the fossil fuel dependency and thus lower the green gas emissions. Wind power is an environmentally friendly source of energy but there are complications for the surrounding area, see next.

2-6. NIMBY in the case of wind power

As described in the theory chapter NIMBY is a term used to describe a situation that often occurs when planning. Planning for wind power has proven to be an excellent example of NIMBY in Sweden. If people or other stakeholders affected by wind power see no benefits to themselves there is a good chance that the plans will be meet with some resistant or possibly even appeals. Some of the positive effects of wind power are clean and green energy from a renewable resource that emits no toxic pollutions or add to green gas emissions. However these positive effects are most visible at the national and international level. At the local level there are concerns for the environmental effects of the plants, sound pollutions and the fact that you cannot build close to

plants because of health restrictions (Boverket 2003). Making good plans with a strong public participation is critical in order to move reasonably smoothly from plans to actual plants.

3 . Swedish planning system regarding wind power

3-1. Role of national, regional and local governments

For the purpose of understanding the planning situation for wind power, it is important to have an understanding of the system where it is being handled. Therefore a short presentation of Sweden's planning system is necessary in order to comprehend the context better.

Municipalities in Sweden have planning monopoly. Article 2 § 1 of the PBA clearly states that it is up to the municipalities to decide the utilization of the land, land-use planning, by designating the most appropriate use (SFS 1987:10). The municipalities thus have a legal right to appoint specific usage for an area and thus by large control the development of land in their area of responsibility. Municipalities also have the option to expropriate land (SFS 1972:719), in effect buying land from legal persons in order to accommodate the "greater good", putting the will of the majority above that of individuals. As a result of the planning monopoly, Sweden has a "bottom-up" planning system although many regulations and legislations affecting the plans at the municipal level are dependent on national incentives and policies.

Nationally set goals and matters of National Interest, such as public roads, are beyond the municipalities' competence and authority and are controlled by the national government, though the planning for such interests are handled in a way that local public officials and legal parties have a chance to make their voices heard.

The regional level is made out of 21 County Administrative Boards. The regional level in Sweden has little planning authority and ability to implement plans. However the County Administrative Boards play an important role as consultants and they approve the municipalities' comprehensive plans (Länsstyrelserna, <http://www.lst.se>). The regional level also functions as a filter in the

planning tier from the national to the local governments. All national policies that have regional or local implications have to be described in the plans.

Sweden has some 290 municipalities responsible for land and water planning. Municipalities or local level have two major tools for physical or spatial planning. Because of the bottom-up planning structure those two tools will be further described as they play an important role in the making of plans and final site selecting issues regarding wind power. The objective of the study in here is to describe SEA in relation to plans concerning wind power therefore comprehensive plans are the main part of the description.

3-2. Comprehensive planning

The launching of the PBA in 1987 introduced a new tool for municipalities planning. Although comprehensive planning is not something completely new, its purpose was better defined through the legislation. PBA also made it mandatory for municipalities to make comprehensive plans outlining the intent for the physical environment, spatial planning, for the coming 10-15 years. The key word is intent. The comprehensive plan is not legally binding but the plan is still very important for planners and actors in order to understand the vision and goals for that period. The plan is also a tool for giving building permits and handling other land-use issues as it outlines the general purpose for specific areas, such as for industry, housing etc. However as pointed out by a report by the National Board of Housing, Building and Planning in order for a comprehensive plan to administer those aspects of planning the plan itself must be constantly updated and amended (Boverket 2008). The same report also concludes that from the time of the introduction of PBA half of Sweden's municipalities have only made one comprehensive plan (Boverket 2008, p.15). In other words, half of the comprehensive plans are about 15 years old and therefore they can not be the kind of help they are supposed to be. Possible reasons for this are lack of resources at the local level, because of this priority is put elsewhere. Also the County Administrative Boards have experienced problems concerning their role as "bank of knowledge" and supervision of the planning process.

According to chapter 4 § 1 of PBA a comprehensive plan must deal with the land-use as well as water-use. Also the municipalities vision for the built urban environment, development but also issues of preservation (SFS 1987:10). Finally how the municipalities intend to handled National Interests and environmental norms, the 72 interim targets of the National Environmental Goals.

3-3. The process for making a comprehensive plan

Making comprehensive plan is divided into two separate processes; the Consequence analyze and the planning process

- Consequence analyze

According to the National Board of Housing, Building and Planning web-site comprehensive plans are considered to have an significant environmental impact therefore they are subject to EA (Miljöbedömningar av planer enligt plan- och bygglagen). The EA in this case means that environmental, social and economic effects must be taken in to account as described in chapter 6 of the Environmental Code.

- The planning process consists of several steps;

A programme can be a good way of starting the process, stakeholders and politicians discuss goals and strategies to deal with the rest of the process at an early stage.

Public hearings are held when the suggested plan is more or less finished, the municipalities send the plan to the County Administrative Board and other institutions and authorities for consideration and comments. Also there is a period of public hearings to inform the people and time to alter the plan according to the public comments is warranted.

When the changes have been made the plan is put on display for a period of two months. During this period there is a window of opportunity for final changes or amendments.

The final step is approval of the plan by the municipalities and after three weeks it is legally

effective. Also the comprehensive plan must be approved every political term, every 4 years.

The content of the comprehensive plan can not be appealed, only the handling of specific cases can. This is a way to insure that the whole process, which is very time consuming, cannot be overturned. But there is still a possibility for the public to appeal for instance if they feel that they have not been represented in a correct manner or that important issues have been overlooked.

3-4. Detailed development planning

DDP specifies the use for a certain real estate, building and land-use. The document often consists of a map of a certain real estate and a list that specifies the particular use and regulations for that section of land. DDP can stipulate how much of the real estate that can be turn into housing, height of buildings, what kind of material that can be used and so on. One important factor is the fact that DDP is legally binding, so the municipality making the plan is also economically responsible for what the plan declares. If there is a significant impact on the environment those problems and possible alternatives must be addressed through the EIA process (Boverket 2006, p.52f).

The process for DDP is directed by PBA. Collecting the material, making the inventory, public participation, completing the document and finally receiving legal status is a long process and all individual parts are regulated. If the process runs smoothly a DDP takes 2-4 months, but complicated plans can take 8-9 months or even more than 1 year if there are appeals.

4 . SEA in Sweden

4-1. Transposition of the SEA Directive

Sweden transposed the EU SEA Directive on 21 July 2004. The Directive outlines that certain plans and programmes that can have significant environmental effects. The Swedish government has not specified what plans require SEA. According to the Final Report to the European Commission on the Relationship between the EIA and SEA Directive 2005 the plans that will require SEA in Sweden is probably;

- County Transport Infrastructure Plans
- Municipalities comprehensive plans
- Municipalities energy plans
- Certain programmes of measure, air quality, water, waste

(Final report to the European Commission 2005, p.47)

Chapter 6 of the Swedish Environmental Code §11 states that all plans or programmes made or revised by public authority or municipalities and could have significant environmental impact must be assessed (1998:808). This basically implies that all plans and programmes are affected, but it is up to the responsible public authority to decide when an EA is necessary.

There is some concern that Sweden's implementation of SEA can cause some problems. The directive does not specify what category of plans that need SEA. That can also be said about Swedish EIA that is part of chapter 6 of Sweden's Environmental Code that came into force on 1 January 1999. EIA is also required through the Planning and Building Act in regard to DDP, the Road Act etc. which can lead to question on responsibility and implementation.

In a review and discussion of the legislation in Sweden and the consequences of the adaptation of the EU SEA Directive, Emmelin & Lerman (2005, p.177-191) describe Swedish implementation as minimalist. As they point out, Sweden had a legislation that called for EIA before the introduction of SEA. But because of planning culture and planning system implementation of SEA has been lacking (Emmelin & Lerman 2005, p.187-189). It is debated if Sweden meets the

standard of good SEA practice outlined in the Directive. The reason for being called as the minimalist is that parts of the Directive were cut from the Swedish SEA legal formulations. One of the important parts that were cut is the general objective and one of the reasons for producing SEA at all, namely SEA as tool for sustainability and transparency of plans and programmes (Emmelin & Lerman 2005). Is that because of bad planning system and/or structure, or just lack in competence which is possibly easier to amend? The questions are left somewhat hanging here but as the history of EA in Sweden will show those questions do not just apply to SEA or current praxis within the EA system. Developments in the United Kingdom (DETR, 1999) show a move towards the adoption of Sustainability Appraisal at the regional planning level, ensuring in this way that not only environmental, but also social and economic issues are well integrated and considered in the policy and planning processes (Partidário n.d., p.6). Perhaps some structural issues on the local level in Sweden could be regulated more efficiently at a regional level. Such a development does not seem likely any time soon, at least not before 2015.

4-2. History of EA in Sweden

Sweden as a long history of making EAs, as mentioned earlier, EIA have been a part of the Swedish legislation for quite some time. However more important is the actual use of the EA tool when planning, for that reason the following chapter will critically examine EA use in the energy sector.

With the SEA Directive, which does not specifically say what plans and programmes are covered and implemented, it can lead to further confusion. When is an EIA or SEA called for and who should do it, implement, review? Also, how do perhaps several EIAs for individual projects fit into a greater SEA and vice versa? Comparing the situation of wind power planning with the municipalities' energy plans can serve as an example. All municipalities have legally obligated since 1977 to make energy plans, and after amendments those plans also must describe the environmental effects (Emmelin 2006, p.62). The energy plans were a result of those times, with heavy oil dependence much in debate, much to the same degree as wind power plans are a result of our current energy situation. Not all municipalities have produced energy plans and the quality

of them is varying. A study of the energy plans from 2003 suggests that actors from companies and industries as well as the public need to be more involved (Emmelin 2006, p.62). As showed the European Commissions report names municipality's energy plans as probable plans that would need SEA, although the Swedish legislation does not specify what plans that would need SEA.

As mentioned before most comprehensive plans are 10-15 years old and many of them have not been updated sufficiently. The report by The National Board of Housing, Building and Planning indicates that comprehensive plans are coming back into fashion and the first of the second generation comprehensive plans has started to pop up. Some of the new comprehensive plans have elements of SEA in the actual document (Boverket 2008, p.25-27). Separate documentation for SEA concerning comprehensive plans is however very rare.

An additional conclusion of the report is that it is getting more and more common to purchase the EIA from consultancy companies. This is one reason for concern as EIA is part of the DDP for wind power, which means that the municipalities are still economically and legally responsible for the content. Such an approach to EIA raises questions of accountability. The most common comprehensive plans made during 2006 were in-depth comprehensive plans for wind power. Of the total amounts of plans, both DDP and comprehensive plan, only 10 % were made with an EA in 2006 (Boverket 2008, p. 18). SEA for wind power is still not to be found although aspects of SEA procedure seem to be part of some plans. An example of implementation of SEA guidelines in Sweden that could be used for introducing SEA in energy planning, and wind power in particular, is Swedish International Development Cooperation (SIDA). The focus points in the SIDA guidelines are poverty and sustainable development for countries and there is no set process. However the guidelines "cover analytical methods and focus, in particular, on the linkages between environmental and other development issues (Clayton & Sadler 2004, p.142). And in that aspect the SIDA guidelines for SEA could be interesting for the energy sector and making plans for wind power.

4-3. Legal consequence of SEA in Sweden

Overlapping of EIA and SEA as a result of DDPs and comprehensive plans is possible because of the current legislation as well as the planning system itself. There are a number of uncertainties surrounding the actual implementation of the SEA procedure. Municipalities have used DDP when dealing with wind power planning, at least up to very recent. DDP has been used both for single generators and for whole wind farms of several generators as long as the generators are part of the same application for building permit.

According to a case study regarding the Swedish implementation of the EU SEA Directive there are some concerns for overlapping for DDP. The European Commission criticized Sweden's adaptation of the EIA Directive and the PBA has been amended. As a result all DDP needs an EIA if there are significant environmental effects, the same formulation as for SEA (Final report to the European Commission 2005, p.49). Hence DDP can fulfill the criteria for both EIA and SEA, the report conclude that screening will be important in determining how the impact should be assessed. In practice the overlapping seem to be more easily administrated, as the plans for smaller areas, site specific, requires EIA and plan for more strategic assessments require SEA.

4-4. Analyzing planning for wind power and SEA

The wind proposition together with the cartography project resulting in new planning tools for municipalities and other operators started the race for inland wind power in Sweden. There is however several bottle necks in order to solve the implementation issue in order to reach the goal. For that reason some of the problems will be addressed in order to analyze wind power planning and SEA.

Almost every municipality that has made plans for wind power has made DDPs in order to identify certain areas of interest that could be used for that purpose. DDPs are legally binding and specify precisely how high the plants are allowed to be and there exact position on that real estate. For planning purposes, that is important in order to control the development, it also helps with the

handling of other building permits because of noise pollution for housing etc. knowing the exact location of a plant can also be important for low flying airplanes or in the vicinity of airports as the plants can disrupt the radar communication. Making plans for wind power on the local level also ensures public consultation and the democratic practice when determining the location for the plants.

However DDP is usually used to expand an already developed area or to improve the density in urban areas. Therefore DDP may be the wrong tool for handling cases concerning wind power. Also wind power plants not located in an area where there are competing interest for land-use may not warrant DDP as the law stipulates. Building wind power plants in areas that people do not utilize can perhaps be handled in a comprehensive plan through an in-depth study.

One of the problems of any EA for wind power in Sweden is the legal duality. With PBA focusing on land- and water-use regulations and, simply put, the Environmental Code addressing sustainable development there are some uncertainties regarding how EA and SEA fit into any or both of those normative contexts. Partly based on that observation, Emmelin suggests a relaunch or an overall change of the EA structure in Sweden. The legal framework is to a certain extent to blame for this suggestion but there are also other factors (Emmelin 2006, p.9). There is a lack of good practice in Sweden, although Sweden has used EA and EIA for a number of years there is still some procedural issues that are unresolved. Praxis in other countries and international experiences can aid any restructuring of the EIA system. And for the case of SEA there is still no handbooks for making the document, or a description of how an SEA fits with any plan or programme that might benefit from an SEA. Emmelin 2006 illustrates his point through the 3G telephone development in Sweden, which seems to have some comparison points in relation to the wind power plant implementation. The perceived sense of urgency was also present in the 3G development. Finding SEA concerning wind power or energy planning in a more general term has proven to be a difficult task in Sweden. There seem to be a few examples in the second generation comprehensive plans now beginning to get approved. But overall there seem to be a consistent lack of non-site specific plans for wind power and the few EAs that are made is not following the SEA process. For comprehensive plans there are some plans that have influences of

SEA but also here the implementation seems to be lacking.

The National Board of Housing, Building and Planning writes that comprehensive plans are subject to EA which by the nature of the plan would indicate SEA. The Legislation however does not specify comprehensive plans although their environmental impact is obvious. Adding comprehensive plans to the legal complexity and uncertainty surrounding when, if or who should make an SEA certainly does not solve the problems.

5 . Conclusion of Swedish part

SEA could be a tool for better planning, helping with the tiering issues such as national policies and local implementation, but for that to become reality in a synchronized fashion the legislation has to be amended and the planning system need to be more in harmony with environmental concerns. In order for SEA to function well in the case of wind power a move away from “minimalist” implementation is imperative. That however is not possible without a change in perspective on wind power. Because of legal formulation wind power is regarded as industrial building/”environmental unfriendly and hazardous” location so most municipalities make DDPs. How does that fit with SEA on wind power? New national directives and legislation might be necessary to further aid the implementation of SEA for wind power. A handbook for municipalities describing the process and function of SEA and how it relates to EIA is essential in order to improve the EA and wind power plans and programmes in Sweden.

One way of describing the case study is market oriented private planning meeting the relatively slow process of public planning on municipality level in Sweden. That would still be a legitimate description of the Swedish case after an introduction of SEA for wind power. Nevertheless SEA could alleviate the meeting of the two normative planning cultures during the process of making the SEA. There is a possibility that the relatively slow process of public planning can make the municipalities miss the opportunity. Valid both for the time issue of making plans and the fact that the conditions for wind power can change quickly. The agents and actors from the private sector have different perspective and aims. So the process must be flexible enough to

accommodate this. Do Swedish municipalities have the competence to not only produce the SEA document but also follow the implementation process and evaluate the end result? The planning system in Sweden is based on local planning monopoly and although comprehensive plans suits the nature of SEA it has yet to be implemented. In the case of wind power perhaps a higher tier of government is more appropriate for such plans.

Making good quality plans and SEA ensures the democratic process through public participation but SEA can not solve all planning problems concerning wind power. Mark Twain said that “to a man with a hammer every problem is a nail” and although SEA for wind power would address several of the problems concerning the implementation of the political goals it is not a “magic fix”. SEA for wind power is a valuable tool if it is well defined and will be an important part of promoting a more sustainable development. It would be unfortunate not to better implement SEA in Sweden as it will help us achieve national and international environmental goals such as the Kyoto Protocol.

Probably the best way of knowing if SEA can assist in the planning for wind power or not is simple, start doing SEA and see what it leads to. Learning by doing is much easier than discussing and debating, usually only in the academic community, if and in what way SEA could or should be able to help. Start doing them, learn during the process of writing the documents, implementation and evaluation which is commonly lacking.

VI. Japanese part

1 . Introduction

In Japan, “the Guideline for Introducing Strategic Environmental Assessment (SEA Guideline)” was introduced by the Ministry of the Environment (MOE) in April 2007 after the discussion in the Study Meeting for Strategic Environmental Assessment (SEA Study Meeting). Based on the guideline, the related ministries and the government agencies are expected to establish individual guidelines along their competences. However, the character of this guideline is almost the same as the project EA since it sets the common procedures and assessment methodologies for site locations and sizes of individual projects. In addition, just before the guideline was presented, power plants were excluded to tackle with the SEA, i.e. establishing the individual guideline as a result of strong objections from the Ministry of Economy, Trade and Industry (METI), electric power companies and some politicians. The aim of this chapter is, therefore, to find the particularities and problems of the SEA Guideline in Japan, especially by focusing on power plants’ problems. The question for power plants problems will be whether or not the opposing reasons from the opposing group are (ir)rational. Before going into a detailed discussion of power plants, the character of the SEA Guideline is also examined, mainly from a historical point of view.

2 . Overview of Japanese SEA

2-1. The History of Environmental Assessment in Japan

The starting point of the EA in Japan was the approval of “Concerning the environmental conservation measures in relation to public works” by the Cabinet in 1972, after the establishment of the Environmental Agency in 1971 (became the Ministry of the Environment in 2001). At that time, damages for health and living environment in some specific places due to pollutions were serious problems. So the prevention of such pollutions became the biggest policy issue. However, this cabinet approval did not have any mandatory procedure, but only pointed to

the importance of the way of thinking of the EIA (Kurasaka, 2004, p.283-295). In 1974, the Environmental Agency decided a course to make the EIA Bill and to submit it to the Diet. Then the effort for the establishment of the EIA Law started. In 1981 the Environmental Agency submitted the EIA Bill with a lot of compromise due to the opposition from industries, related ministries and government agencies, and the Liberal Democratic Party (LDP). Without an extensive support for the Bill, a continuing resolution was repeated and the Bill failed to pass in 1983 after all. The following year, the cabinet issued “Implementation of Environmental Impact Assessment (Cabinet-decision EIA)” in 1984, instead of establishing a law. The administrative guidance according to the Cabinet-decision EIA was implemented until the EIA Law was enacted in 1997 (implementation started in 1999). At that time all other OECD countries had already had legally institutionalized measures to implement the EIA and 51 local governments of 47 prefectures plus the 12 specially designated cities had already held their own EIA systems.

The most important factor for the establishment of the EIA Law was the enactment of the Basic Environmental Law in 1993, after the United Nations Conference on Environment and Development (UNCED), so called “Rio Summit”, in 1992. Article 19 of the Basic Environmental Law, entitled “Consideration in Formulation of Policies by the State,” indicates the importance of EA:

“The State shall consider environmental conservation when formulating and implementing policies which are deemed to influence the environment”.

Article 20, “Promotion of Environmental Impact Assessment,” directly demands the establishment of a decent EIA system:

“The State shall take necessary measures to ensure that, when corporations are engaged in alteration of land shape, construction of new structures and other similar activities, they will conduct in advance, surveys, forecasts or evaluations of the environmental impact of such activities and will give proper consideration to environmental conservation based on the results of them”.

As an additional feature of the EIA system, compared with the Cabinet-decision EIA, the screening procedure and the scoping procedure were introduced in the EIA Law. These new procedures were expected to cope with the problems of the Cabinet-decision EIA, which is too late and inflexible implementation. The Cabinet-decision EIA used to be conducted after the details of the project were almost fully formulated and therefore it was criticized a lot in that the Cabinet-decision EIA actually took a role to give a permission of projects. The screening procedure was set for deciding whether EIA should be applied to the class-2 projects (See Table 8) by a judgment from authorizing agencies such as the METI, the Ministry of Infrastructure, Land and Transport (MILT), etc. In the scoping procedure, project proponents prepare for the “scoping document” that describes the assessment method, and then gather opinions from citizens and local governments about the document, so that the project can be assessed in a more site-oriented way. Hence, the EIA procedure in the EIA Law was expected to “be conducted in the early stage of the project, based mostly on the local characteristics (MOE n.d., p.9)”. In addition to these new procedures, three special cases were included in the EIA Law, which are about city planning, port planning and power plants. Now looking at power plants, the EIA procedure on power plants came to be implemented under the special provisions of the Electricity Utilities Industry Law because of the difficulty in the adjustment with the METI. Other concerning projects related with nuclear activities such as nuclear reprocessing facilities, decommissioning, etc. are not subject to the EIA Law, but only construction of any nuclear plants.

At the time the EIA Law was enacted, the need for the SEA was pointed out in the decision of the Diet. As a result, the Environmental Agency organized the expert group, the SEA Study Meeting, in 1998. The meeting published a report after two years of discussion, called “Study Meeting for Strategic Environmental Assessment Report (the SEA Report)” in 2000, which describes the principles and other important factors of the SEA. After that, the MOE continued piling up the knowledge of the SEA through establishment of “the SEA guideline on the Municipal Waste Management Program”, international conferences, investigation for overseas’ SEA systems, etc. Some local governments established their own SEA systems and MILT introduced a similar

planning procedure to the SEA on public works (road, river, airport, etc.) with the guideline, which is called “Public Involvement system (PI)”. In addition, Japan received a recommendation from OECD to establish a SEA system in 2002. Following these trends, the 3rd Environmental Basic Plan presented by the Cabinet decision in 2006 included the establishment of a guideline for the SEA. The SEA Study Meeting was resumed in the same year and submitted the report titled “FY 2006 Study Meeting for Strategic Environmental Assessment Report (Common SEA Guideline)”, to the MOE in March 2007. As soon as the MOE receives this report, the SEA Guideline was presented in April 2007.

Compared with other countries, the starting point of the EA in Japan was not too late. However, both the EIA Law and the SEA Guideline were introduced late. Looking at the development of the EA in Japan, it is possible to say that Japanese efforts were made with the stimulation from other countries.

Table 7: Main events of the EA in Japan

1972	“Concerning the environmental conservation measures in relation to public works” by the Cabinet Approval
1981	Submission of the EIA Bill
1983	The bill failed to pass
1984	“Implementation of Environmental Impact Assessment (Cabinet-decision EIA)”
1999	Enactment of the “Environmental Impact Assessment Law (EIA Law)” (implementation started in 1999)
2007	Introduction of “Guideline for Introducing Strategic Environmental Assessment (SEA Guideline)”

Source: written by author

Table 8: List of projects subject to the EIA Law

	Class-1 project (EIA is always required)	Class-2 project (The necessity of EIA is judged by project)
1. Road		
national expressway	all	-----
metropolitan expressway	4 lanes or more	-----
national roads	4 lanes or more, 10km or longer	4 lanes or more, 7.5km-10km
large-scale forest road	2 lanes or more, 20km or longer	2 lanes or more, 15km-20km
2. River		
dam, weir	reservoir area: 100ha or larger	reservoir area: 75ha-100ha
diversion channel, lake-related development	area of land alteration: 100ha or larger	area of land alteration: 75ha-100ha
3. Railway		
Shinkansen (super express train)	all	-----
railway, track	length: 10km or longer	length: 7.5km-10km
4. Airport		
	runway: 2,500m or longer	runway: 1,875m-2,500m
5. Power plant		
hydraulic power plant	output: 30,000kw or over	output: 22,500kw-30,000kw
thermal power plant	output: 150,000kw or over	output: 112,500kw-150,000kw
geothermal power plant	output: 10,000kw or over	output: 7,500kw-10,000kw
nuclear power plant	all	-----
6. Waste disposal site		
	area: 30ha or larger	area: 25ha-30ha
7. Landfill and reclamation		
	area: exceeding 50ha	area: 40ha-50ha
8. Land readjustment project		
	area: 100ha or larger	area: 75ha-100ha
9. New Residential area development project		
	area: 100ha or larger	area: 75ha-100ha
10. Industrial estate development project		
	area: 100ha or larger	area: 75ha-100ha
11. New town infrastructure development project		
	area: 100ha or larger	area: 75ha-100ha
12. Distribution center complex development project		
	area: 100ha or larger	area: 75ha-100ha
13. Residential or industrial land development by specific organizations		
	area: 100ha or larger	area: 75ha-100ha
Port and harbor planning		
	Total reclaimed and excavated land: 300ha or larger	

Source: MOE n.d., p.5

2-2. Public access to environmental information and land expropriation

From the viewpoint of public participation, public access to environmental information can be regarded as the entrance and land expropriation as the exit in a planning process. Before discussing the SEA Guideline, it will be reasonable to be aware of characters of public access to environmental information and land expropriation in Japan.

First, it is necessary to mention that there is no particular institutional framework with regard to public access to environmental information during the decision-making process in Japan. Article 27, “Provision of Information”, of the Basic Environmental Law, states the importance of making such information available:

The State shall make efforts to appropriately provide necessary information on environmental conservation including the state of the environment, so as to promote the education and learning provided for in Article 25 and to contribute to the activities voluntarily conducted by the private bodies etc. provided for in the preceding Article, in consideration of the protection of the rights and benefits of individuals and legal entities.

More concrete description about public access to environmental information can be found in the 3rd Environmental Basic Plan. It emphasizes, by mentioning the Aarhus Convention, the importance of public access to environmental information and participation during the decision-making processes, regardless of private or public initiatives (p.8). This description actually supported to establish the SEA Guideline. There are other laws concerning the access to environmental information--the Administrative Procedure Act (1993) and the Information Disclosure Law (1999)--although these laws are not only applied to environmentally related issues. Now, considering that these two laws were issued as late as the 1990s together with the history of the EA and the fact that there is no institution for public access to environmental information, it is possible to say that Japan has traditionally lagged behind with regard to the establishment of a system for public participation in decision making processes of administrative actions.

What should be realized about the land expropriation is the revision of the Land Expropriation Law in 2001 (the law was revised again in 2005), since it affected to the establishment of the PI and later the contents of the SEA Guideline to some extent. The law which was enacted in 1951 stipulates the necessary procedure and contents for compensation with regarding to land expropriation and use. The procedure in the law is divided into 2 stages, utility accreditation as the preparation stage and determination of expropriation as the main stage (Fujita 2001) . The proponents have to receive the utility accreditation when expropriating or using the land (article 16). Having experienced the delay for implementing public utilities due to opposing movements, the MILT amended the law both utility accreditation and determination of expropriation stages in a 2001 revision. The procedure in the utility accreditation stage became slightly strict. For instance, land owners and local residents could not participate during the utility accreditation stage before the revision, but now proponents are obliged to hold an explanation meeting and a public hearing and to hear and respect the opinions of the third party. These changes do not necessarily mean that the proponents have to reconsider their project plan though. On the other hand, the procedure of the determination of expropriation stage was simplified. To be concrete, land owners and local residents are not able to ask public interests and necessary of the project in the public examination stage as they did not relate to the land expropriation. Also, opinion statements are limited to three representatives at the maximum if there are more than one hundred people sharing the land, and so on. Since these changes can actually work for preventing an opposition movement from acquiring a minuscule tract of land and for making the procedure quicker, there were, of course, some critical opinions voiced by the citizens. For example, this revision allows an increase of money wasting public utilities. Considering a better way of agreement formulation in a planning process is the necessary thing to do rather than revising the law (Environmental Administration Reforming Forum 2001). As a result of this, Article 6 of the supplementary provision was set in the revised law, which asks for examining a measure for agreement formulation when conducting public utilities. It is possible to interpret that the revision of the Land Expropriation Law was conducted to approximate to the primary aim of land expropriation which is land acquisition and compensation. However, looking at later efforts toward improving planning process e.g. introducing the PI, the SEA Guideline, the Freedom of Information Law,

etc., it seems that those criticisms on the law were relevant.

2-3. Characteristic and position of the SEA guideline

There is a description in the 3rd Environmental Basic Plan, which says “internationally, the government will make efforts for matching other developed countries in the institution of the SEA (p.11)”. However, the character of the SEA Guideline is different from at least the EU SEA Directive. The most specific feature of the SEA Guideline is that it targets the common procedures and assessment methodologies for site locations and sizes of individual projects. In other words, this is actually the EIA’s scope in other countries (the reason is discussed in the next section). Other features of the guideline are as follows;

- Based on the SEA Guideline, the related ministries and the government agencies are expected to establish individual guidelines along their competences.
- Associated projects subject to the guideline are class-1 projects in the EIA Law, except for power plants
- Planners etc. in the SEA Guideline and following project proponents in the EIA process are assumed to be the same groups or persons (Planners etc. include national and local governments and private companies.)
- Planners etc. identify alternative options of site locations and sizes, including no action plan, and compare them for assessing the environmental impact unless identifying that alternative options are unrealistic.

Following the basic procedure is indicated in the SEA Guideline.

1. Proposition to starting SEA procedure.

Planners etc. announce the start of the SEA examinations to the public as well as notify related prefectures and municipalities. At that time, planners etc. also announce the examining procedure of object plans and the schedule of SEA implementation if they are ready.

2. Examining the process of assessment methodology

Planners etc. examine an assessment methodology by (1) publishing the characteristics

of plans and areas and ideas of assessment methodology and then gathering public opinions, (2) notifying the summary of public opinions and reflections by planners etc. to related prefectures and municipalities, and then asking them to provide environmental information in their areas.

3. Writing process of assessment reports

Assessment reports are made by (1) preparing assessment report drafts, (2) publishing the assessment report drafts, (3) gathering public opinions, (4) gathering opinions from related local prefectures and municipalities, (5) if necessary, the MOE offers opinions (planners etc. also can ask opinions to the MOE), and finally (6) writing assessment reports and publishing them.

Planners etc. endeavor to appropriate consideration of environmental conservations on the basis of assessment reports when they reach the decision on the object plans. Planners etc. clarify the state of reflection for the assessment results when plans are decided and presented to the public.

2-4. Reasons for the limited scope of the SEA Guideline

In the SEA Report, published by the SEA Study Meeting in 2000, PPP are classified into 4 types of plans with relating to the EIA projects:

1. Development plans for the whole region, which consist of several projects (e.g. comprehensive development plan, urban/regional plan, etc.)
2. Plans that set frameworks of the total amount of projects, but they do not set individual projects (e.g. 5-year plan, etc.)
3. Policies and plans that bind contexts of projects (e.g. land-use plan, basic policy for the promotion of effective utilization of resources, etc.)
4. Basic plans or project designs of individual projects (e.g. basic plan of expressway, etc.)

Also in the same report, the following complicated comment is added about this classification:

Classification No.1 to No.3 have different objects from the project EA. Although No.4

takes the same objects as the project EA, its environmental consideration is not taken into account in the implementing stage but in the planning stage of the individual projects. There is, therefore, no clear distinction between the classification No.4 and EA on the implementing stage of the individual projects. In other words, it is necessary to be noticed that, depending on the operation, EA on the implementing stage of the individual projects can work like SEA to a certain extent.

This comment explains that the SEA Study Meeting divide the planning process for individual projects into two stages, the implementing stage and the planning stage, and calls the project EA on planning stage as one form of the SEA. However, the meeting did not assume this classification from the beginning as there is no mentioning of this in their Mid-term SEA report published in July 1999. In the same report, there are also some sentences erased later that actually explain the strategic action and PPP. Those sentences imply that the SEA is not applied to the individual projects, regardless of the implementing stage or planning stage. On the other hand, as mentioned in the history part, the scoping procedure was introduced in the EIA Law in order to conduct the EIA in the early stage of the projects. A MOE staff explains that the consideration of site locations and sizes of individual projects is within the scope of the EIA Law (Research Institute of Environmental Technology 1998, p.370-389). However, since the EIA Law started its implementation in 1999 and the SEA Report was presented in 2000, the MOE and the SEA Study Meeting were probably not sure whether or not the EIA Law would be appropriately implemented. Hence it can be speculated that the meeting intended not to have a gap between the EIA Law and the SEA.

However, if the EIA Law, especially the scoping procedure, functioned well as it was expected, the SEA Guideline would not target only classification No.4 in the SEA Guideline. Since the EIA Law, especially at the scoping stage, has some problems within its implementation and the system itself, e.g. proponents can choose when to implement due to no sign for starting the EIA procedure, limited and late public participation, etc., the EIA Law resulted in being implemented on the late stage of individual projects (for example, see Kurasaka 2004, p.292). In fact, the chairman and the MOE staff mentioned these problems and necessity for the SEA system at an

early stage of the projects in the 3rd SEA Study Meeting in December 2006. There are other reasons that can be found from the relationship between the EIA Law, the local governments' SEA systems and the PI. Both the local governments' SEA and the PI were introduced after the publication of the SEA Report. SEA systems in local governments were established mainly to target the early stage of individual projects, which corresponds the classification No.4. On the other hand, the PI established by the MILT, as well as the project EA, divided individual projects into two stages; "the concept stage" and "the planning stage" (the PI's concept stage is same meaning as the planning stage of project EA, and the PI's planning stage is same meaning as the implementation stage of project EA). In the PI's concept stage proponents are supposed to ask public opinions to decide site locations and sizes, whereas the EIA Law and urban planning decision came to be conducted in the PI's planning stage. In other words, the PI targets the same stage as the SEA classification No.4 and the local SEA. Besides, there is a concern about PI which is the environmental aspect may not be considered appropriately. This comes from the nature of the PI which synthetically considers economic, social and environmental aspects together. Some people think that the economic and/or social aspects can be unreasonably prioritized. From these reasons, it is understandable that the meeting decided to establish the SEA Guideline that can fit the local SEA systems and take a role to compliment the implementation of the EIA law and the PI.

3 . The problems with power plants

3-1. Current situation and characteristics of electricity industry

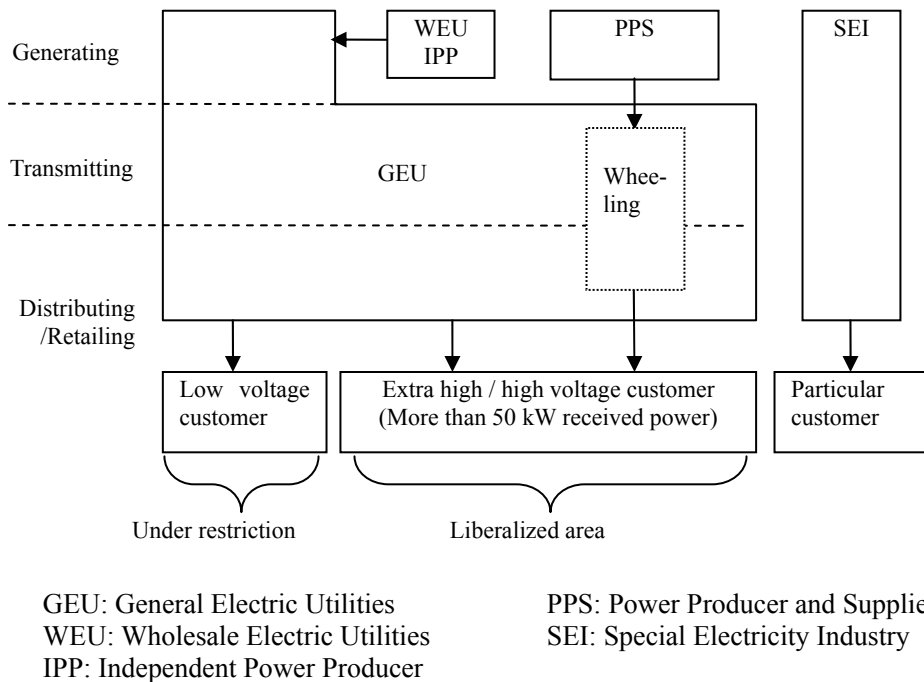
In Japan, there are 10 General Electric Utilities (GEU), usually called electric power companies, that generate, transmit and distribute/retail electricity to general customers. On these electric power companies, two special systems, called 'Regional monopoly' and 'Rate-of-return', have been employed in the Electricity Utilities Industry Law since 1951 (The Okinawa Electric Power Company, Inc. was established in 1972). Regional monopoly exists to secure stable supply of electricity by dividing the whole of Japan's area into 10 blocks, and give the companies permission to sell electricity in separate areas so that they do not compete with each other.

Rate-of-return promises to set the rate of electricity becoming the sum of the cost of electricity and proper profits. Following a world trend of deregulation and a rising electricity prices, the Electricity Utilities Industry Law was revised three times for liberalizing the electricity industry in 1995, 1999, and 2003 (Gas liberalization also has been conducted since 1995). Figure 5 describes current situation of the electric industry in Japan.

Today, electricity industry mainly consists of GEU, Wholesale Electric Utilities (WEU), Independent Power Producer (IPP), Special Electricity Industry (SEI), and Power Producer and Supplier (PPS). WEU and IPP wholesale electricity to GEU. They are distinguished from the amount and duration of electricity supply. SEI which has been stipulated in the Electricity Utilities Industry Law since the first liberalization in 1995 supplies electricity to their particular customer ‘to meet demand at the specified point of supply (article 2)’. PPS, officially called ‘specified-scale electricity supply industry’ in the Electricity Utilities Industry Law, was introduced at the 2nd liberalization in 1999 and supplies electricity to extra high/high voltage customer through GEU’s power lines.

Although more than 60% of electricity sales became the range of the free competition after the 3 times liberalization, PPS’s share within the same area became just 2.37% as of March 2007. The number of new entries has not increased the last two years, and the PPS companies actually doing business now are just 13 of 21 (Working Group of Advisory Committee for Natural Resources and Energy 2007, p.4). The METI, therefore, had a discussion along the course of liberalization at one of sectional meetings of the Advisory Committee for Natural Resources and Energy in July 2007 as to whether or not the government would introduce free competition in the whole electricity retailing field from 2009 and concluded to refrain that time. The main reason for this was that there were not enough options established for customers due to an inadequate introduction of the competition environment, e.g. wheeling systems, etc.

Figure 5: Current situation of energy industry



Source: Editorial Committee of the Electricity Utilities Industry Course 2007, p.8
 (Translation and modification by author)

3-2. Planning system and site selection process of power plants

The planning system with relating to constructing power plants can be described as Figure 6. The government establishes the Basic Energy Plan and the Long-Term Energy Supply/Demand Outlook. The Basic Energy Plan is made with the Cabinet Decision. It presents a basic direction of energy policy foreseeing the next 10 years based on the Basic Act on Energy Policy. The plan is supposed to be revised every 3 years and the last time was in 2007. The Long-Term Energy Supply/Demand Outlook, which is made according to the Basic Energy Plan, presents a calculation of long-term energy supply/demand and how a mid- to long-term energy strategy should be. Along with the Basic Energy Plan and the Long-Term Energy Supply/Demand Outlook, electric power companies, WEU, IPP, PPS, and SEI (electric power companies, etc.),

decide as to when, where, and what type of power plants they will construct within their management decision. After this, electric power companies, etc. announce a constructing plan of power plant and step forward to the EIA procedure.

The Basic Energy Plan sets three basic policies, which are “Securing of stable supply”, “Environmental suitability”, and then “Utilization of market mechanisms” after sufficiently taking account of former two. In order to urge “Securing of stable supply” and “Environmental suitability”, the government conduct, firstly, energy conservation, secondly, affirmative promotion of nuclear power including the nuclear cycle and steady expansion of introduction of new energies, and then followed by the development of technology, etc. In chapter 4 of the plan, the role of different entities is shown. Regarding public participation, the national government endeavor public relations and information disclosure based on the public hearing. The energy supply utilities are also asked to voluntary information disclosure. The public, on the other hand, is asked to have an interest in how the energy demand/supply and policy should be, and to be involved in the process of establishing them. The importance of information disclosure and communication with the public thus are emphasized. The public participation both on this level and the lower level, nevertheless, are currently limited. The only formal way that people can actually participate on this level is through the public comment system stipulated in the Administrative Procedure Act, which does no more than listen to peoples’ opinion before adoption. On the lower level, there is no chance for people to state their opinions until the official announcement of constructing plan is made by the electric power companies etc.. Here, the problem of public access to environmental information is clearly seen.

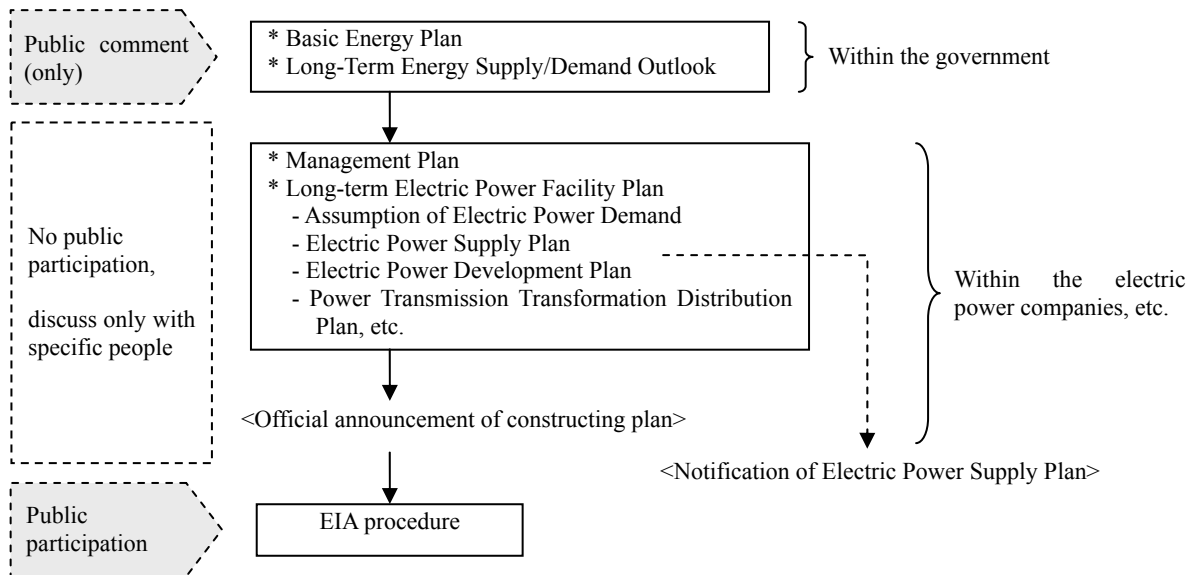
An explanation about plans made within the electric power companies can be found in the first volume of the Editorial Committee of the Electricity Utilities Industry Course, entitled “Management of Electricity Utilities Industry” (2007, p.175-211). This committee mainly consists of vice presidents of the electric power companies. According to the book, the Management Plan and the Long-term Electric Power Facility Plan function as internal plans in the electric power companies. The Management Plan is made of their mid-term plan and short-term plan. The Long-term Electric Power Facility Plan targets 10 years forward for

directing their management. It consists of the Assumption of Electric Power Demand, the Electric Power Supply Plan, the Electric Power Development Plan, Power Transmission Transformation Distribution Plan, etc. Based on Article 29 of the Electricity Utilities Industry Law, the Electric power companies and the WEU notify the Electric Power Supply Plan to the METI. Then the METI presents them to the public. Figure 7 shows the transition of composition of generated electricity in the Electric Power Supply Plan in FY 2008. The plan also indicates the site locations under construction and under preparation for construction of hydro, thermal, and nuclear power plants. Oga and Takeda (2003, p.214) explain that the plan is characterized just as a notification, and does not need to be approved by any authorities, for example through the urban planning decision. Detailed information of site locations, how the land will be used, etc. is, therefore, not given in the plan, but the electric power companies individually make an explanation at each site location. One material distributed by the MOE as a secretariat at the SEA Study Meeting explains the relationship between the EIA procedure and the site locations under preparation for construction of power plants in the plan as follows; “All the power plants, except nuclear power plants, under preparation for construction are either they are already under implementation of the EIA or they are supposed to be implemented in the same FY (Reference Material No.3 of Fifth Session of FY 2006 Study Meeting for Strategic Environmental Assessment: planning processes of upper level of plans)”. This can be interpreted that those plants shown in the Electric Power Supply Plan can be regarded as already announced to the public (see Figure 6).

The same book also explains how the Electric Power Development Plan is established. The plan itself is a reinforcement plan with the most economic supply against the assumption of electric power demand. When establishing this plan, the electric power companies first decide a basic and long-term composition of electric power and then establish development plans for individual points. In order to decide the composition of electric power, the Synthetic Economic Evaluation Method is employed, which evaluates economy of a new facility by considering the entire system, including existing facilities. Then the appropriate individual development plans are chosen as a combination by making an economic calculation and considering harmony with supply/demand management and power transmitting systems. The selection procedure for individual

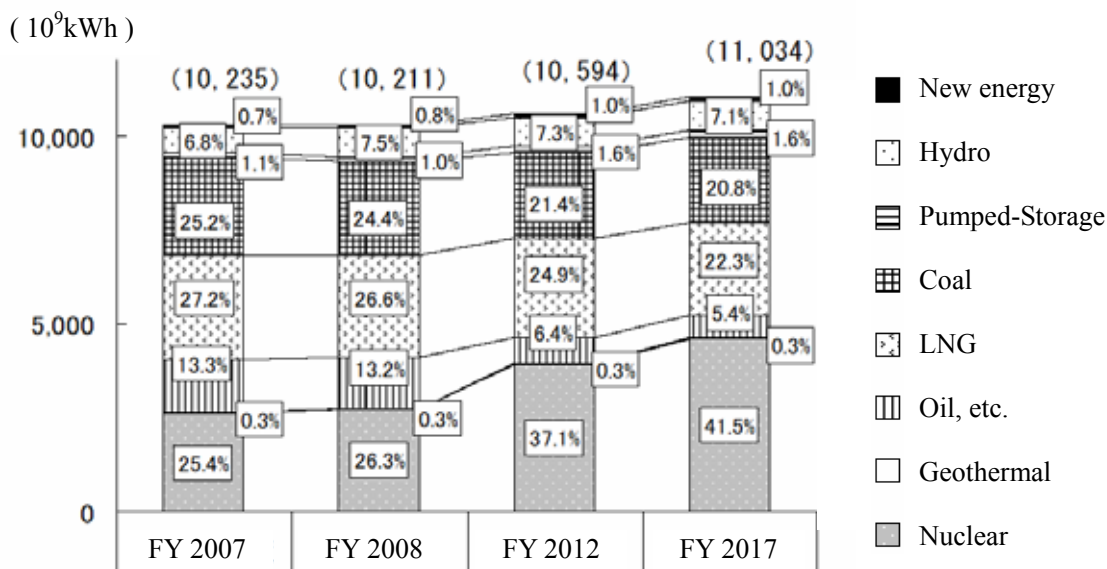
development plans of hydro, thermal, and nuclear power plants is conducted as follows. With regard to hydro power plants, first, all the relevant site locations where seems to be able to generate electricity is chosen from a map with a 1 : 50000 scale. Second, appropriate numbers of site locations are selected by conducting economical calculation and literature study and then field surveys. After that, draft plans are made on each site location. Finally, the most appropriate development method is selected from those plans. Selecting plans for thermal and nuclear power plants basically take similar points such as the local situation, the size of the plants, a specification of equipments, fuel, etc., although nuclear power plants need to be considered some particular things. The most appropriate plan is selected by comparing some draft plans on each site location.

Figure 6: Planning system of power plants



Source: written by author

Figure 7: Transition of composition of generated electricity (GEU, generation side)



Source: Electric Power Supply Plan (translation by author)

3-3. Three Basic Laws for Power Development

As a typifying measure for facilitating the establishment of electric power plants, especially Nuclear Power Plants, there is a unique system called “the Three Basic Laws for Power Development”. This system consists of “the Electric Power Development Taxation Law” to impose tax on electric charges (375yen/1000kWh in FY 2008), “the Law on Special Accounts for Electric Power Development Acceleration Measures” (became “the Law Concerning Special Accounts” in 2007) to directly put that tax income into the special accounts, and “the Law on the Development of Areas Adjacent to Electric Power Generating Facilities” to use the money from the same special accounts for construction of public facilities (local roads, ports, welfare facilities, etc.), etc. as a grant on the adjacent area. This system was established in 1974. At this point in time, Japan realized the importance of energy security after experiencing the oil crisis. From the Diet Record of the 72nd session of the Diet, Ban, Katsuta and Fujino (2006, p.37) explain that the main object in this system was to introduce the Law on Special Accounts for Electric Power Development Acceleration Measures and the other two laws were issued for financial reasons.

The purpose of the Special Accounts for Electric Power Development Acceleration Measures was also explained in the same Diet. That is to secure smooth construction of electric power plants since they often delayed due to oppositions related environmental problems, security for nuclear power plants, and poor contribution to the local economy. There were of course some critics from oppositions saying that this system would actually work for splitting the opposition movement with a roll of bills.

After several revisions, both the objects of usage and the period of the grant in the Law on Special Accounts for Electric Power Development Acceleration Measures have consistently increased. Currently, target projects of the grant include nuclear, geothermal, thermal (only Okinawa area), and hydro power plants, Spent Fuel Storage Facility, Mixed Oxide Fuel Fabrication Facilities, Low Level Radioactive Waste Repositories, and so on. The law enables adjacent areas to receive the grant during the period from the Possibility of Site Selection Survey that starts earlier than the EIA procedure to the end of the operation. The calculation in the broacher (Agency for Natural Resources and Energy 2008, p.3-4) that explains the system of the Three Basic Laws for Power Development, shows that if one nuclear power plant with a generating capacity of 1.35 million kW is established, the adjacent area that includes the municipality where the nuclear power plant locates, the adjacent municipalities, and the prefecture can receive more than 120 billion yen in 45 years (approximately 45 billion yen will be paid in the first 10 years by the time the operation starts).

However, even if such supporting systems exist, especially nuclear power plants are not smoothly established at all. The lead time for establishing nuclear power plants has extended from 8 years in the 1970s to 17 years in the 1980s and then 26 years in the 1990s (the Editorial Committee of the Electricity Utilities Industry Course, p.80). This comes not only the huge concerns with safety and environmental problems, but also manipulations and concealments of data and many troubles and accidents of nuclear power plants. People's distrust and anxiety towards nuclear power plants have been increasing year by year. So, every time municipalities in financial difficulties try to invite nuclear power plants in order to secure their finances or electric power companies intend to establish them anywhere in Japan, they always witness a huge debate among people splitting into

a promoting and an opposing group (here, two types of opposing groups exist; NIMBY and fundamental opposition groups against the national policy). Municipalities or electric power companies sometimes have to abandon their plans at the end due to the result of referendum, mayoral or prefectural governor's election, etc. since municipal mayors and governors have strong influence on this decision (Oyama 2002, p.161).

Besides, the Three Basic Laws for Power Development themselves have some problems with relating to the local public finance and the surplus in the special account. After starting operation of electric power plants, municipalities increase their final budget mainly from the property tax. However, because of that, grants of the local allocation tax decrease or they even lose eligibility for allocation (Sekizawa 2002, p.23). As a result, those municipalities eventually come to invite another plant in order to maintain their expanded finances. What this indicates is that once a municipality accepts an electric power plant, the embedded mechanism inside of the system works to continue constructing another power plant at a specific place (Ban, Katsuta and Fujino 2006, p.41). The problem of surplus in the special account also has been pointed out for years. As mentioned above, the Law on Special Accounts for Electric Power Development Acceleration Measures works for putting tax income directly into the special accounts. However, at that same time, this system automatically increased the surplus along with the delay of establishment of electrical power plants. Consequently, the METI took a new measure in 2003 in order to enhance the transparency of such surplus by establishing a wallet to prepare for future demands, which is called the Funds for Maintenance of Areas Adjacent. The amount of the money in the fund already exceeded 100 billion yen in FY 2005 (Misumi 2006, p.104). Reforming this special account is currently under discussion for the efficient financial management of the national budget since this special account system may lead to financial rigidity.

3-4. The Process of excluding power plants from the SEA Guideline

The SEA Study Meeting resumed in 2006 was organized with new members; 13 experts who were recommended by relating ministries and government agencies, and the MOE staff as the secretariat. The meeting was held five times from August 2006 to March 2007. Between the 2nd

and the 3rd meeting, a hearing session to interest groups including electric power companies was held and participants from electric power companies opposed to introduce the SEA on power plants. Then, in the 4th meeting, the researcher who was recommended by the METI gave the opinion that the meeting should proceed to the discussion after clarifying the problems of the EIA Law. He also questioned the merits of the SEA especially on power plants since each electric power companies as a private entity decide site locations and sizes within their management decision. The chairman responded that treating only power plants differently would make the guideline imbalance since the meeting did not presuppose to describe individual projects in their report and the competence authorities would individually discuss about them later. But he also mentioned that he would keep the opinion in his mind.

After the 4th meeting, the Economy, Trade and Industry Division and Research Commission on Electric and Nuclear Power Plant Production of the LDP held the joint meeting with full of opposing opinions for the SEA on power plants (The Denki Shinbun 2007), NGOs made a questioner survey to the electric power companies, and the MOE carried out the Public Comment. Then, the MOE as a secretariat arbitrarily inserted the description just before the 5th meeting, which states that “Since the meeting has not reached an agreement about power plants, they need to be treated based on this (result)”. In the 5th meeting, all the committee of the meeting except the chairman and the researcher recommended by the METI opposed to have such exemption. Opposing opinions are, for instance, that the description was not based on the discussion throughout the five meetings, the conclusion of the report suggests one thing and the administrative action is another, the meaning of the description is unclear since they have not reached a conclusion on other related projects, and that discussions about these projects would take place in the future. According to the explanation given by the Director-General, Environmental Policy Bureau, MOE and the chairman of the meeting, the MOE’s description was made because (1) the administration cannot perform differently from the Common SEA Guideline, although the meeting was not completely unified with the administration, (2) the discussion in the meeting would actually promise the implementation of the guideline, and therefore, (3) in order to proceed to implementing the SEA on individual projects, power plants have to be excluded due to a strong opposition (from the electricity industry, the METI, and

politicians of the LDP). Although some members of the meeting asked to delete the MOE's description until the end of the meeting, this problem was decided to be left to the chairman's discretion and, eventually, to be excluded from the object for the guideline.

3-5. Examining the opposing reasons to introduce SEA on power plants

There were several opposing reasons to introduce the SEA Guideline from the researcher who was recommended by the METI and the electric power companies (the opposing group). Those opinions were made during the meeting, the hearing session, and the answers for the questioner survey by NGOs. The reasons offered by them relate to (1) implementation of the SEA Guideline, and (2) other things

(1) Relating with the implementation of the SEA Guideline

The opinions on this stage can be divided into two points. One is about identification of alternative options and the other is about information disclosure. The opposing group explains that uniformly identifying alternative options in the SEA process is practically difficult/impossible for both electric power companies and PPS as new entries. This is because;

- When electric power companies investigate a site location, they have to synthetically consider the site constraints, such as regulatory requirements (the Natural Park Law, the Public Waters Reclamation Law, etc.), characteristics of the site (landscape, ensuring coolant, ensuring sites for power transmission, etc.), prospects for securing sites, local situation, condition of infrastructure, etc. are taken into account.
- The electric power companies sometimes start considering a site location by receiving an invitation from local governments.
- The electric power companies sometimes think repowering to existing plants.
- PPS usually make a plan by choosing a specific fuel and a site location only where they can do a good business.

A good place to start considering these reasons is to check the description in the SEA Guideline.

There is an explanation about identification of alternative options in section 5-(2). The last paragraph explains how to correspond the case in which alternative options cannot be practically identified due to the natural and social situations, etc., by saying “planners etc. investigate, calculate, and assess with single plan and then arrange environment conscious things”. So, it is not very difficult to understand that the guideline does not always impose on alternative options. Besides, as mentioned in the planning system part, the book by the Editorial Committee of the Electricity Utilities Industry Course explains that alternatives are actually considered at a specific site location no matter if it is a hydro, thermal, or nuclear power plant. Here, we see a contradiction in their explanations. Electric power companies, therefore, need to have an additional explanation on this point.

According to the opposing group, disclosing the information at this stage is not reasonable enough, because;

- It leads to confusion for local people. The information that electric power companies have at the site selection stage is just about the size, fuel kind, when they start operating, the site location. So this will make people nervous and disturb negotiation with land owners or concerned fisherman, since the sufficient explanation and answers cannot be prepared.
- The electric power companies privately discuss with primary people such as staff at a concerning department in the municipality, opinion leaders, etc. before they decide site locations (so that they can actually understand the local concerns).
- Although describing necessity of the project is not asked in the scoping document of the EIA Law, it is actually explained in the scoping document examination.

In the SEA Study Meeting and the hearing session, some members of the meeting argued against these views. These members mainly pointed out the imbalanced discussion that excludes the public and actually increases the possibility of land monopolization due to exclusive information. They also suggested opening the discussion to the public in the SEA procedure, which is actually what the electric power companies have done, so far, with limited people. To think of this matter,

the balance between the entrance and the exit in terms of public participation has to be taken into account. As mentioned before, the Land Expropriation Law was revised in 2001 in the way that the land acquisition procedure as the exit became more simple and rapid. After that, the PI was introduced to complement this revision. The point here is that electric power plants are included in the scope of the Land Expropriation Law although the PI does not target electric power plants. In addition, there is a strong system to promote introducing electric power plants, i.e. the Three Basic Laws for Power Development. Nevertheless, there is no specific institution responsible for environmental information and communication in Japan. It is possible to think that the opponent group, therefore, was able to insist their opinions to hide relevant information from the public before announcement and the MOE eventually acknowledged them.

(2) Other opposing opinions:

1. A project plan of electronic power plant can be sufficiently changed in the EIA process.

In the hearing session, people from electric power companies showed some EIA cases where they actually changed plans. However, these changes were only about the height, number, place, shape, and color of chimney, the building layout, the conservation of coral as mitigation, and increasing the green area. In other words, they were all slight changes. It is, therefore, persuasive that the explanation about the significance of introducing the SEA Guideline by the MOE staff “Small modifications of existing plan are conducted in the current EIA system, but the SEA seems fundamentally different in that several or some plans are fairly compared”.

2. There is no example in other countries that apply SEA on electric power plants owned by private companies.

This opinion comes from misunderstanding of the SEA. Many people in Japan including electric power companies seem to consider the SEA as a tool only to be implemented for selecting site locations. However, as seen before, the character of the SEA Guideline is rather close to the EIA in other countries. There are, of course, plenty of cases conducted by the EIA on selecting site locations level all over the world. In addition, plans and programmes that are established by

private companies are also in the scope of the EU SEA Directive. If Japan introduced the SEA with the same standard, it would be applied on the composition of electric power, which is decided within the companies' management.

3. It is possible to stop a plan if people's understanding of it cannot be acquired.

Most of the cases actually made a stop due to a lack of peoples' understanding with regards to nuclear power plants. Those who oppose nuclear power plants put more focus on the referendum rather than expecting much for the EIA Law. People know that the proponents have initiative in the EIA procedure and the EIA practically receives opinions about construction from the standpoint of protecting the environment (Honda 2005, p.250, Hasegawa 1997, p.44). The point here is that the opposition movements arise because of a lack of consensus on nuclear power plants and the national electric power policy. Currently, the public participation on this level is only within a procedure of the public comment system, which does no more than listen to peoples' opinion. Introducing the SEA on the policy level is, therefore, expected.

4. There is a possibility that the SEA leads leakage to construction of small plants to avoid conducting the SEA and eventually brings environmentally harmful electric power plants.
5. If the construction of electric power plants is delayed, energy security will be threatened.

This leakage opinion is not very persuasive since the projects subject to the SEA Guideline is the Class-1 project of the EIA Law. However, No.4 and 5 seems to be related with concerns that the electricity industry and the Electricity Administration currently hold. Firstly, the relationship with the electricity liberalization should be realized. There is a case that a construction plan of coal fired power plant was stopped by the opinion from the Minister of the Environment, mentioning too much CO2 emission would be expected, during the EIA Law procedure. So the EIA procedure was pointed as a disturbance of the electricity liberalization in the Electricity Industry Committee under the METI since coal fired power plants are the important electric power for the new entries (Summary of the Record of 26th Session of the Electricity Industry Committee 2007).

In other words, it is not to be denied that there is a conflict between the EIA/SEA and the electricity liberalization in Japan. Besides, if the construction of electric power plants is delayed, the surplus in the special account under the Law on Special Accounts for Electric Power Development Acceleration Measures will increase at the same time as energy security is threatened. The METI might also have viewed the possibility of losing their interests if the special account is revised, although this point needs further investigation.

Here in this discussion and the process until power plants were excluded, the Institutional Barriers that Sadler (1996, p.148) stated -- Insufficient political will, Limited societal support base, Narrow definition of issues, Compartmentalized organizational structures, Bureaucratic prerogatives (see chapter 3) -- can be seen more or less clearly. All in all, it is enough understandable that the opposing reasons from the opponent group were quite irrelevant. Also, it is preposterous that the conclusion of the report was made along above process which was actually against the expectation towards the SEA Guideline in the way that the guideline was expected to bring about a more transparent and democratic decision making process.

4 . Conclusion of Japanese part

We saw that the scope of the SEA Guideline is very limited and does not reach the scope of the SEA Directive which is expressed as restricted (Partidário, 1999). Besides the reasons mentioned until here, translation problem from English to Japanese and the starting point of Japanese environmental policy seem also relevant to think of this matter, although they are not stated very much in this chapter. In Japanese, both “Appraisal” and “Assessment” are often translated to the same word “Hyōka” whose meaning is closer to “Appraisal” (According to Oxford learner’s dictionary 2000, “Appraisal” means “a judgement of the value, performance or nature of sb/sth”, “Assessment” means “1. an opinion or a judgement about sb/sth that has been thought about very carefully, 2. the act of judging or forming an opinion about sb/sth, 3. an amount that has been calculated and that must be paid”). As stated in the history part, the starting point of Japanese environmental policy was the prevention of serious pollutions. In other words, the MOE and the EA was expected to take a role, regardless of the result, to make sure the safety for people and the

environment for each projects rather than improving a planning process. However, underneath their efforts, a number of troubles were actually watched because of too late and insufficient information disclosure and inadequate public participation not only when constructing power plants but also roads, dams, air ports, and so on. Again, public access to environmental information is a prerequisite to bring out a high quality of public participation. The discussion about applying the SEA on higher level plans, programmes and policies as well as establishing individual guidelines hereafter will be asked in Japan.

VII. Comparison of Swedish and Japanese cases

1 . Introduction

The following section of this thesis will be a comparison part made from the presented cases. Both cases use electric power plants to exemplify and visualize some of the problems surrounding the SEA. It is interesting to see that the SEA in the two countries examined shows so many similarities. Although Sweden and Japan have a long history of the EA, two cases show that SEA has not been used effectively in the field of energy planning yet. Since the introduction of SEA some of the problems of EA and the planning system have become visible, in some cases the planning system functions as a restriction for high quality SEA. One of the other reasons for this situation is the legislation, the public ability/right to influence the planning process.

Before getting into a comparison, we need to make sure some fundamental differences between different energy plants when constructing them. If the objective is to produce 1 TWh of electricity you could build one nuclear power plant only dealing with one site selecting issue and big opposing movement, or many wind power plants and subsequently deal with numerous site selecting issues. The theory of path dependency also becomes clearer in the case of wind power than the Japanese case as more land has to be considered in order to reach the political goals in the Swedish case. But the theory of path dependency is also visible in the Japanese case when looking at energy security issues surrounding nuclear power plants as they need to secure certain reactors along the coast. In Sweden plans for wind power and subsequently SEA for wind power has to consider other aspects before deciding on a specific location or the possible impact of such a plan than Japanese planners do. Not only does the political goal need to be accomplished but also competing land-use interests have diverse ways of influencing the plans and SEA because of the planning system. However, we should note that wind power plants in Sweden are not necessarily constructed inland after all as they can be built even on the sea.

2 . Struggling history

Overall, both countries have a struggling history with the EA. At the beginning of the EIA, both Sweden and Japan lacked the screening and the scoping procedure which led to implementation problems. Sweden has made many EIAs with varying quality, in part depending on the nature of the project or plan (Emmelin & Lerman 2005). Japan on the other hand, used EIA too inflexibly and too late in the planning process. Then, in 1998, the scoping procedure and specified contents of EIS were regulated in Sweden (Emmelin & Lerman 2005). Similar to this, Japan introduced the EIA law that stipulates the scoping and the screening procedure in 1997 (started implementation 1999). Currently, situation of SEA in both countries are quite different as seen in the two cases. Sweden, in 2003, transposed the SEA of which sector planning and municipal spatial plans are the scope and has implemented the SEA through a minimalist approach. On the other hand, Japan established the SEA Guideline in 2007 and still need to establish individual SEA guidelines such as road, river, power plants, etc. Considering the role of the SEA as seen in the theory part, it is possible to say that the SEA in both countries has not been effectively used yet.

3 . Mixed understanding and confusion of SEA and EIA

One problem of the SEA in Sweden is that the scope of the SEA was exactly imported from the EU SEA Directive. In other words, the SEA in the Environmental Code does not specify which plans and programmes that require the SEA implementation, but just says plans and programmes that have significant impact to the environment. The other legislation that is essential for wind power, the PBA, does however specify that comprehensive plans are subject to SEA. In addition, the SEA was introduced following the EIA provision with the same terminology. However in what way wind power is subject to SEA is still uncertain, not defined in the legislation. Without introducing the screening procedure or a full list of plans and programmes that require SEA implementation, it is not so difficult to find confusion at the planning level as to when or how to implement the SEA. Because of this, as explained in the Swedish case, DDPs can target one wind generator as well as one wind farm, which confuse municipalities whether they should implement SEA, EIA, or both together. SEA is supposedly, according to the legislation, part of the

comprehensive planning process. Wind power in a comprehensive plan however needs to be done in a more general way in terms of the EIA. In Japan, the SEA Guideline targets the common procedures and assessment methodologies for site locations and sizes of individual projects, which actually the EIA's scope in other countries. This might be a little strange, but in Japan there is a bigger consensus that the SEA is used for early stage of planning of individual projects than for PPP level, as it is shown in the opposing reason for the SEA Guideline on power plants. To sum up, both cases show that the role of the SEA in Sweden and Japan remains limited and very close to the EIA, and therefore there is a need to clarify (again) what the SEA is and how it is supposed to function in relation to the EIA.

4 . National policy as a cause of resistance/hesitation

Basically both cases have same structure when constructing power plants. National policy influences how many, by when, and what kind of power plants have to be introduced in order to achieve its goal. No matter what kind of power plants, acquiring the land is one of the necessary steps for the implementation of the national policies. Both Sweden and Japan have supporting systems for municipalities or electric power companies to facilitate this, i.e. VindGIS, El-certificate system (see Swedish part), subsidies by the Three Basic Laws for Power Development (see Japanese part). However, despite of these supporting systems, opposing opinions for the plan are still heard in both countries according to local or public interests, concerns, or conditions. This structure can be expressed as conflicts between different rationality --national rationality, local rationality, and public rationality--, and planning process in two cases as an arena where different rationalities meet. Now, looking into the detail, there are number of differences between two cases. The national policy about wind power in Sweden is 10 TWh annual production by the year 2015. This political goal was set mainly to have a more sustainable energy system and so there is little opponent to this. The Swedish case shows that there is a perceived urgency in order to reach the set goals and inherently a tiering problem. Public planning is seen as a “necessary evil” in order to get building permits, state approval for the suggested activity. Energy companies and politicians in Sweden imply that the greater good in terms of producing energy means that local governance and planning is too much burden. Also,

certain NIMBY problem can be addressed and consequently ease the actual implementation of the plan or programme. Then, the SEA is regarded as time consuming procedure. On the other hand, in Japan, NIMBY plus fundamental disagreement towards the National policy, especially about nuclear power policy, are found. Currently, the announcement for constructing power plants is supposed to be made after the agreement between electric power companies etc. and specific people such as local government and leaders. The opponent group might have been afraid, if the SEA Guideline came to target power plants, that sober negotiation between those people would be disturbed and eventually make them difficult to achieve this conflicting goal. In addition, the METI and the electric power industries currently hold liberalization issue where the EA is regarded as obstacles for new entries. Consequently, the SEA on power plants is not regarded as a tool to decrease conflicts between different rationalities and thus avoided using in both cases.

5 . Inappropriate planning system for SEA

The EU SEA Directive was formulated quite vague so that the member states can introduce the SEA along their own legislative system due to the result of years of deliberating and negotiations between politicians and stakeholders. It is easy to appreciate that there are various forms of SEA existing in Europe and in other parts of the world. Along this line, our two cases also show that Sweden and Japan established quite different SEA system. In Sweden, municipalities are supposed to implement the SEA on comprehensive plans or DDPs for wind power plants. In order to make a SEA for wind power there must be a plan for wind power, if the purpose is not to evaluate possible effects of wind power through a SEA. On the other hand, in Japan, electric power companies etc. would be the ones that implement SEA on power plants. In other words, both cases show that the SEAs are supposed to be applied on different type of plans and to be implemented by different persons or groups. Now, taking a look at planning systems in both countries, they do not fit the SEA implementation and can thus function as an obstacle in terms of SEA effectiveness. In Sweden, there is a mismatch between wind power plants usually built in rural areas and DDPs originally handling urban or already developed areas. The comprehensive plan includes high political vision. It can make it difficult to implement SEA especially if the

impact assessment is expected or assumed to have the same detail level as EIA. Making assessments of strategic decisions is harder and as a result the assessments could be vague. In Japan, plans for power plants are totally made within the management decision of private companies. Those plans therefore do not need to be approved by any authorities, for example through the urban planning decision. Besides, there is no appropriate legal or formal procedure to apply the SEA, which actually worked as a good reason to oppose the SEA Guideline. Both cases therefore show that inappropriate planning system disturbs effective utilization of the SEA as a tool for planning.

6 . Insufficient public access to environmental information

As described in the key concept chapter the assumption of public access to environmental information is that it can enhance public awareness and participation, and eventually bring better environment. In Sweden plans for wind power always have public participation, whether it is a DDP or a comprehensive plan. Public participation is described in the legislation and part of the process of making plans. However the public access to environmental information and ability to influence the SEA is still uncertain. Public participation is a part of the SEA process but exactly how and to what extent is not as clear as for EIA. Public access to environmental information is perhaps more evident in Sweden but studies also show that EAs are still quite rare for plans at local level so the input from the public might not as good as expected. In Japan, currently there is no chance for people to state their opinions until the official announcement of constructing plan is made. Although the national energy policy as well as the national environment policy mentions the importance of public role for their implementation, the problem of planning system, i.e. any plans for power plants before selecting a site do not need to be approved by any authorities, makes people difficult to know about and participate in the planning of power plants. In addition, there is no particular institutional framework with regard to public access to environmental information during the decision-making process. Because of that, the opponent group was able to insist to hide relevant information from the public during the SEA Study Meeting. Although the Japanese case is more obvious, it is possible to say that both cases sacrifice public access to environmental information for the swift construction of power plants.

VIII. Conclusion

Provided an overview of the theory of SEA and the EU SEA Directive, this thesis has showed the development of EA of each case and how SEA does and does not fit with the current legislation and planning system. The focus has been to describe the adaptation of SEA in Sweden and Japan and to make comparisons from those cases.

In theory, SEA can lead to better planning because environmental effects and alternatives get discussed before talks of implementation, i.e. actual site selection. That being said implementing SEA in the energy sector could solve or ease many of the difficulties that now occur when planning for or site selecting for power plants.

Applying SEA in a tiering structure stimulates the knowledge and understanding of how political goals actually can be implemented in the decision-making frameworks. SEA does not only improve the environmental issues that are expected to, or can, occur when planning for energy plants, but it also leads to a more transparent planning process. EA and democratic governance through participation should be important parts of energy planning. An appropriate SEA can in both cases improve those aspects.

In order for SEA to function in a way what the theory says within the energy sector in both countries, the current SEA systems have to be amended. EIA have a long history both in terms of legislation and actual use in Sweden and Japan. Nevertheless the effectiveness of the EIA system is questioned. Adding SEA to a dysfunctional EA system as a whole can simply confuse the users or set the expectations for SEA too high in such a situation. We also found planning systems in both countries are not matching for the effective usage of SEA. These identified problems of SEA in Sweden and Japan suggest that there can be other countries that have encountered the same problems.

The energy sector definitely has a meeting ground for private and public planning cultures and

structures. SEA is expected to mitigate the differences between goals and ambitions by making the companies more appreciative to environmental concerns and the planning system ensure public participation and consultation. An increased need for energy production and the obvious NIMBY effects suggest that there is a need for more inclusive planning in order to reach the goals, SEA should be that tool.

Our conclusion is that both countries could benefit from a wider and synchronized implementation of SEA at least in the case of energy planning. In Sweden SEA, in the case of wind power, could lead to a more harmonized planning system. In Japan SEA would promote public participation at an earlier stage making the energy plans more transparent.

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