Does SEA guidance really make a difference?

looking back in order to look forward

- The case of developing guidance on climate change integration in SEA when listening to the practitioners views

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Synopsis

This report is a master thesis to achieve the academic degree of Master of Science in Environmental Management at Aalborg University.

Title: Does SEA guidance really make a difference? Looking back in order to look forward - The case of developing guidance on climate change integration in SEA when listening to the practitioners views

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An ever growing amount of SEA Guidance is created worldwide in order to better the SEA practise. However, not much research has been done in to what the effect of guidance is. At the same time, the integration of climate change concerns into SEA is a relatively new field of practise and is currently lacking guidance.

The purpose of the thesis is to investigate the current use and effectiveness of SEA guidance, and use this knowledge as a basis to find out how it can be ensured that new guidance focussing specifically on climate change will actually make a difference and contribute to the integration of climate concerns in SEA. The issue about avoiding that integration of climate concerns happens on the expense of other environmental concerns in the SEA process is also examined and discussed.

1. INTRODUCTION

"*The danger posed by war to all of humanity - and to our planet - is at least matched by the climate crisis and global warming. I believe that the world has reached a critical stage in its efforts to exercise responsible environmental stewardship.*"
(UN Secretary General Ban Ki-moon, 2007)

The focus of this thesis is on Strategic Environmental Assessment (SEA) as a policy instrument of climate change integration in planning and decision-making. SEA provides a legal framework for analysing and accessing climate change impact of actions. It operates with a broad concept of the environment, which means that assessments can be done holistically and comprehensively. This gives a basis for exploring positive synergies between climate change and other environmental policy concerns, and avoiding negative trade-offs with a loss of environmental benefits in return for climate change mitigation and adaptation.

Climate change is perhaps the single most significant environmental problem that threatens our modern societies. Humans have changed the environment since the very beginning but climate change is an issue that has been raised to the awareness of the general public relatively recently. Today, climate change has been included in various policies and environmental principles of different actors, but still a common international consensus for tackling climate change has proven to be extremely difficult to achieve.

Tackling and assessing climate change requires consideration of different elements: *"Mitigation and adaptation, and in the fact that these, as well as the synergies between them and other policy areas, are needed as part of an integrated assessment and policy response* "(Larsen et al., 2012). There is a risk of negative trade-offs and non-exploration of positive synergies:

- If not mitigation with reduction of greenhouse gasses and adaptation to the changing climate is assessed in an integrated way, and
- If assessment of climate change measures is not happening with a view to other environmental objectives.

Negative synergies can e.g. be when urban areas are densified in order to decrease car transport and thereby CO2 emissions, but limiting the necessary climate change adaptation of rainwater drainage. Positive synergies can be climate change adaptation with a water basin in the city, which also creates urban recreational spaces.

Strategic Environmental Assessment (SEA) is one policy instrument that can be used to promote awareness about the possible effects of climate change and what can be done to take it in consideration in various levels of governance. Besides being a formal requirement in a many countries, SEA provides with its broad concept of environment, a specific opportunity to assess climate impacts in an integrated assessment, and can be seen as a mean for reducing the risk of sup-optimal policy response to the challenge of climate change.

This introductory chapter that the paper starts with explains and discusses concepts that are essential in this thesis. This includes an introduction to climate change and a definition of Strategic Environmental Assessment. Furthermore, the scope and limitations of this thesis are discussed.

1.1 Climate change

The integration of climate change concerns into planning and decision-making through SEA is still in its infancy. However, it is widely recognised as a way forward in order to make the necessary and early assessment of climate change impacts. One example of this

is the fact that the EU Commission is currently preparing guidance for the inclusion of climate change in both SEA and environmental impact assessment (EIA) in project level (see Whitepaper Adapting to climate change: Towards a European framework for action, COM (2009) 147).

This section shortly introduces and explains the concept of climate change. This is further elaborated upon and discussed in relation to SEA in chapter 5. This division is made because chapter 1 aims at an introduction of the main concepts relevant for this thesis and the purpose of chapter 5 is to provide a theoretical discussion into climate change and the challenges faced when trying to include climate change concerns in to the SEA procedure.

Climate change and its' predicted influence on the environment and the people has become a focus of international debate and politics during the past decades. First the scientists were talking about global cooling and the coming of the new ice age, but global warming is what worries us today. David Keeling, an American scientist, measured the amount of carbon dioxide in the atmosphere and thereby alerted the world to the greenhouse effect and global warming. The Keeling curve (see figure 1) is a graph that shows the change in concentration of atmospheric carbon dioxide since 1958.

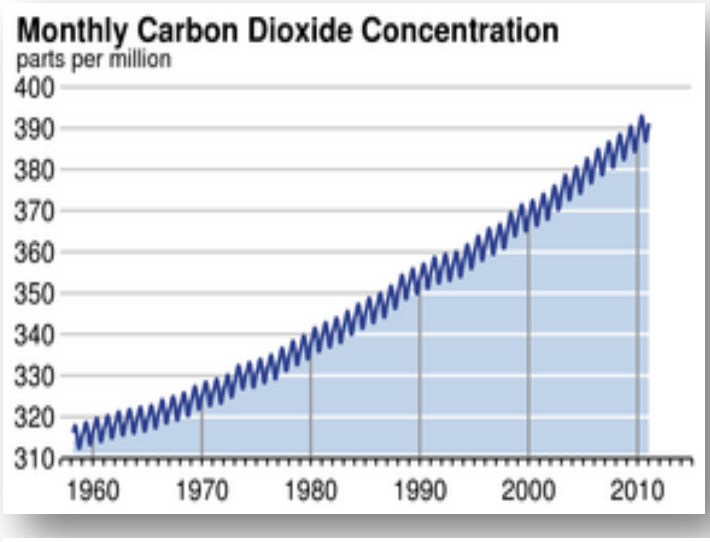

Figure 1. The Keeling Curve. (Scripps CO2 programme, 2011)

The rising levels of CO2 can clearly be seen in the graph. The fluctuations indicate the changing volume of released carbon during different times of the year. The Keeling Curve is one of the most important pieces of evidence providing a time-line for the raising CO2

levels and global climate change. (Earth Observatory, 2008) The IPCC has reported that between the twelve year time period of 1995-2006, eleven years rank among the twelve warmest years since the recording of global average surface temperature started in 1850. There is also evidence of sea level rise, which is consistent with the warming of temperature. *"Global average sea level rose at an average rate of 1.8 [1.3 to 2.3] mm per year over 1961 to 2003 and at an average rate of about 3.1 [2.4 to 3.8] mm per year from 1993 to 2003."* (IPCC, 2007, p.30) Furthermore, satellite data that has been gathered since 1978 show that annual average Arctic sea ice extent has shrunk by 2.7%. (Ibid.)

Today, many experts agree that the most significant part of climate change is brought on by greenhouse gas emissions into the atmosphere as a result of human actions. According to the IPCC *"It is very likely that anthropogenic greenhouse gas increases caused most of the observed increase in global average temperatures since the mid-20th century. Without the cooling effect of atmospheric aerosols, it is likely that greenhouse gases alone would have caused a greater global mean temperature rise than that observed during the last 50 years"* (Solomon et al., 2007). It has, however, proven to be difficult to predict what the global effects of climate change are but the volume and future development of emissions play a crucial role in the scale of it. There are also those, who are of the opinion that global warming is a natural trend not caused by human actions. However, most countries in the world see it necessary to take action in order to mitigate the effects of climate change. As the problem is global and has the potential to have some type of effect all over the globe, international cooperation is crucial.

Therefore, international talks and agreements have taken place since the 1990's. The United Nations Framework Convention on Climate Change (UNFCC) took effect in 1994. It is a treaty that aims at stabilizing the amount of greenhouse gasses to a level that is not threatening to the environment and us. An addition to the treaty came into effect in 2005, namely the Kyoto Protocol. It sets legally binding commitments for countries to lower emissions of six greenhouse gases. For the industrial nations this amounts to an average

of 5,2 percent below the 1990 level between 2008-2012. Negotiations are on going as to what happens after 2012. (UNFCCC, n.d.) The EU and its member states ratified the Kyoto Protocol in 2002 and committed to an overall reduction in greenhouse gases of 8 % below the 1990 level between 2008-2012.

Then how do these overall policies on climate change relate to SEA? As mentioned above, the international agreements focus on reducing emissions. Both the academic arena and climate policymaking tends to focus on mitigation and leave out adaptation and other environmental objectives. However, the potential for developing synergies between climate change mitigation and adaptation has become a recent focus of both climate research and policy. These ideas have been put forward by several scholars (e.g. Adger, 2001; Klein et al., 2005; UNEP/IVM, 1998; IPCC, 2001). SEA, which is often mandatory at the planning and programme level, has a potential to have an overarching impact in societal response to climate change. As mentioned earlier, due to the broad concept of environment and formal requirements of participation and documentation embedded in SEA, it can provide an important arena in which climate change can be assessed in a holistic way. For example when SEA is required about regional plans it puts forwards a set of goals and principles to be respected in that region. This way, SEA is a part of other plans in a lower level of government, e.g. EIA procedures. Hence, the integration of climate change objectives into SEA sets a path for other plans and programmes.

This master thesis sets out to examine the SEA guidance documents used to support the SEA procedure and how to integrate climate change as a part of it. The guidance documents are an important piece of the puzzle as they are those supporting documents that practitioners use when translating legislation into action in doing assessments. Therefore, they have the potential to emphasize issues that should be taken into consideration in the SEA process and guide assessments to fulfil set goals and criteria. The aim of this thesis is to produce recommendations as to what matters should be included in climate change related SEA guidance. Interviews of practitioners and SEA Guidance documents are used in order to gain information, analyse and understand their nature.

1.2 Strategic Environmental Assessment

The first steps towards SEA were taken in USA in the 1970's. That was when the National Environmental Policy Act (NEPA) entered into force. NEPA's Section 102 paragraph 2 c stated, *"that proposals for legislation and other major federal action significantly affecting the environment had to include a detailed statement on the environmental impacts."* (Albrecht et al. 2005) In Europe, the first countries, which enacted SEA were the Netherlands in 1987, where it was included in the EIA Act, and Denmark in 1993.

SEA is related to the environmental impact assessment (EIA) procedure. Environmental assessment in general is aimed at making sure that the environmental implications of decisions are recognised and addressed before actual decisions are made. The EIA procedure focuses on individual projects, such as motorways and power plants, which within the European Union are based on *Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment* from 1985. The focus of this study, the SEA procedure is applied for public policies, plans and programmes. The EU SEA Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment took effect over 15 years later than the EIA Directive. Annex 1(f) of the SEA Directive outlines the environmental topics that should be covered by the SEA process wherever relevant. These include Air, Biodiversity, Climate Change, Cultural Heritage, Human Health, Landscape, Material Assets, Population, Soil and Water. Both the SEA and EIA Directives aim at ensuring that *"plans, programmes and projects likely to have significant effects on the environment are made subject to an environmental assessment, prior to their approval or authorisation."* (EC, 2011 a)

Furthermore, the requirement for public participation in the procedure is included in both Directives. However, one of the main differences is that SEA is undertaken earlier in the decision-making process than an EIA. SEA is required of for example regional plans, which means that this process should integrate environmental considerations into regional plans.

Regional plans include e.g. land use planning, which in turn guides individual projects that can be undertaken in the region. Therefore, simplistically the relationship between SEA and EIA can be understood so that SEA sets overall guidelines to follow and EIA procedures go into detail about one specific project that falls under these guidelines. (European Commission, 2011)

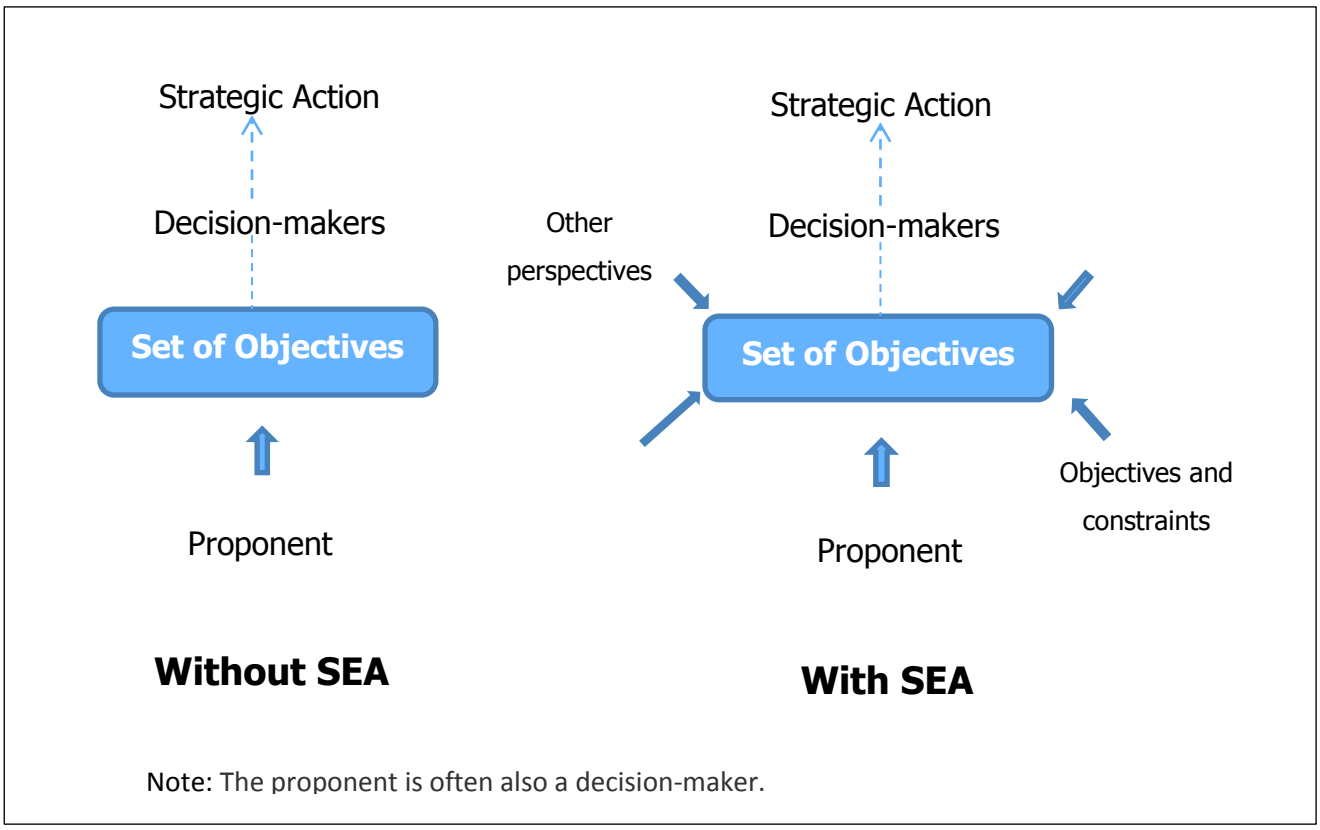

Figure 2. SEA as decision-making process that takes on board a broader range of perspectives, objectives and constraints (Therivel, 2004, p.9)

According to Therivel (2004), the ultimate aim of SEA is to help protect the nature and promote sustainability. SEA integrates environmental and sustainability issues in decision-making. Sadler and Verheem have come up with a fairly common description of SEA; *"SEA is a systematic process for evaluating the environmental consequences of policy, plan or programme initiatives in order to ensure they are fully included and appropriately addressed at the earliest appropriate stage of decision-making on par with the economic*

and social considerations." (Sadler and Verheem in Therivel, 2004, p.7) These three economic, social and environmental considerations form the basis of sustainability or sustainable development, a term that has become widely popular since the 1987 Brundtland Commissions report that is one of the most cited sources for the definition of sustainable development.

Strategic action is an important term in SEA. Therivel (2004) provides a list of, what are considered as strategic actions and therefore covered by SEA;

- "*legislation: national, regional, local; international treaties;*
- *Green and White Papers;*
- *Economic policies, budgets, fiscal planning, e.g. structural adjustments, privatization, subsidies, taxation, trade agreements;*
- *Integrated/development plans: national, regional/territorial, local/town; multi-project programmes; conservation areas (World Heritage, national parks);*
- *Sectoral policies, plans and programmes at a wide range of scales, e.g. for agriculture, transport, waste;*
- *Policies, plans and programmes for management of a specific resource at a wide range of scales, e.g. coastal management, forest management, water management; and*
- *Policies, plans and programmes to achieve social ends, e.g. employment development, equitable access to transport, international aid."* (Therivel, 2004, p. 9)

As can be seen, strategic actions cover a wide range of topics. This of course means that SEA has a holistic approach to assessing, managing and guiding environmental actions. This makes it a good instrument for introducing overarching themes of environmental concerns, including climate change. The effects to be assessed with the SEA procedure

can be primary, secondary, cumulative effects or synergies with another policy, plan or programme. These effects include short, mid or long-term and positive or negative effects. The figure below demonstrates the effects that need to be assessed in the SEA.

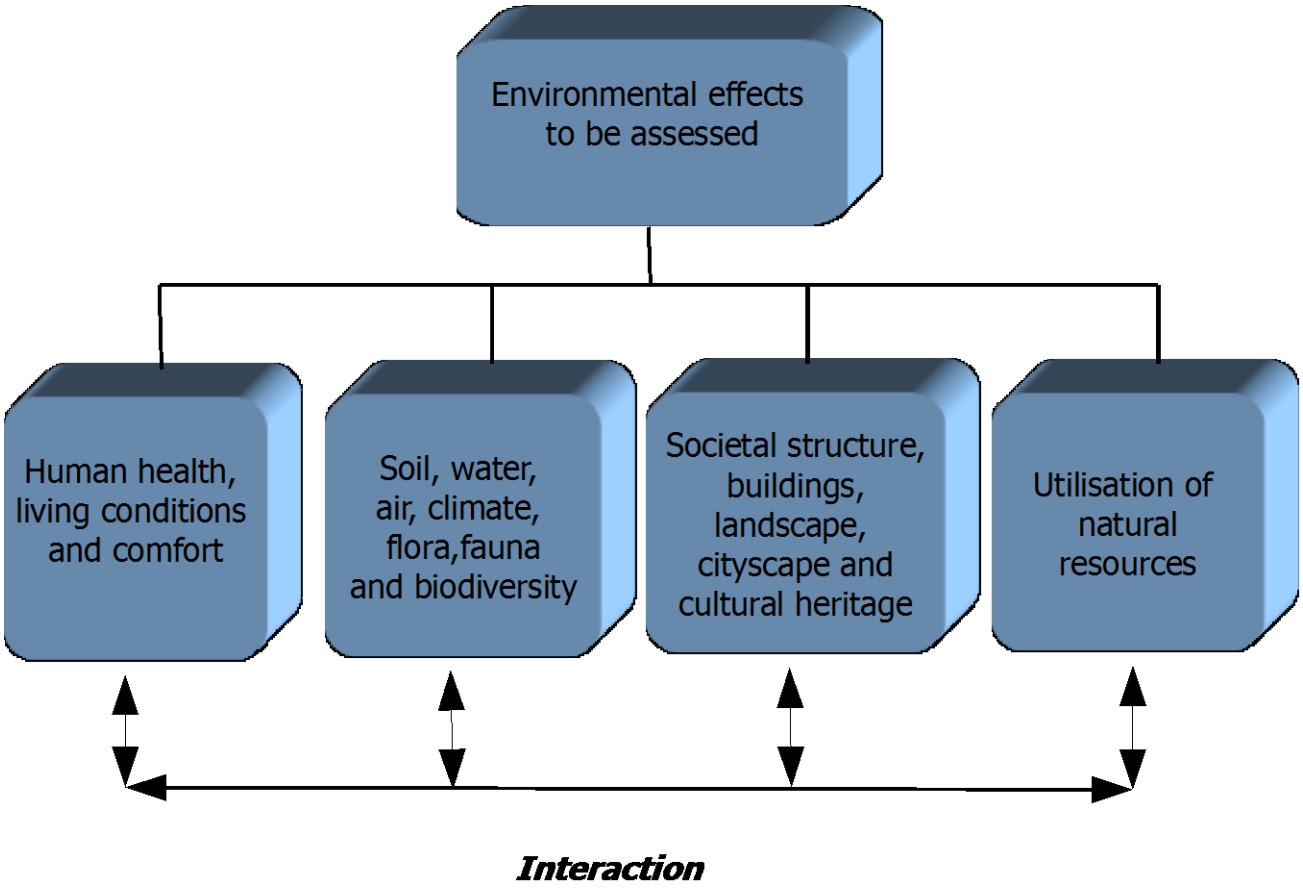

Figure 3. Environmental effects that have to be assessed in SEA (inspired by Finlex, 1994)

As to how environmental considerations should be included in decision-making is the subject of many guidance documents and regulations worldwide. The next chapter will discuss and explain what SEA Guidance usually entails.

1.2.1 SEA Guidance

Different types of practical guidance documents supplement the SEA legislation. These documents are designed to promote the application of SEA by providing advice on the potential significant environmental effects of implementing a plan, programme or strategy should be taken into account. There are an immense, ever growing number of these guidance documents around the world. Within the EU the member states have created guidance applying to their specific country scenarios. Guidance exists for how to implement the SEA Directive by the European Commission (EC, 2001) but also on specific environmental topics such as how to take into account effects for soil, air and water. However, specific climate change related SEA Guidance is still not that common. This doesn't mean that climate change is not included at all in SEA. The need to include "climatic factors" in to SEA is present in the EC legislation (EC, 2001) and some countries, such as the UK have developed climate change related guidance (see Levett-Therivel, 2007) Principally, *"the assessment of climate change synergies is underpinned by legislation, but not by guidance."* (Larsen et al., 2012) As also mentioned above, the purpose of this thesis is to examine what the significance of guidance is, how it is used by the practitioners and eventually come up with suggestions as to what to include in climate change related guidance.

1.3 Research objectives and questions

Based on the concepts and information discussed above, the objectives, research questions and the structure of this thesis are presented here.

This study has a dual focus;

1. To determine how SEA guidance is used in practise and how it meets the needs of the practitioners.
2. To provide a theoretical analysis of climate change uncertainty and the problematic of integrating climate change in SEA and decision-making.

Hence, there are two parts that are going to be analysed, which will then be combined later on in the report in order to come up with recommendations for developing climate change related SEA guidance.

Based upon the discussion above, this thesis aims at answering the following main research question:

How can it be assured that a new guidance will make a difference and contribute to the integration of climate concerns in strategic environmental assessment?

The following four sub-questions are found relevant and aim at supporting the research for the main research question;

I. How are existing SEA guidance materials used by practitioners, and what criteria are found significant for a guidance to make a difference in practice in relation to secure the integration of climate concerns?

This question explores how existing guidance is used or not used and what are the reasons for these. Additional guidance can likely be part of a solution for the challenge of integrating climate change in SEA, but the type and usability of the guidance is essential. Experience derived from the use of existing guidance provides a critical input to future guidance material.

Furthermore the following sub-questions are raised:

II. On which areas does the practitioner need more guidance in order to cover the need of implementing climate concerns in SEA?

III. Why is the implementation of a climate assessment required in relation to other environmental concerns also included in SEA and planning today?

Based upon the practitioners view points and experience in relation to existing guidance and around challenges related to assessment of climate impacts, these two questions aim to create a focus on how climate concerns are integrated in SEA.

The fourth sub-question is related to climate concern in relation to other environmental concerns:

IV. How can it be secured that assessment and integration of climate concerns does not happen on the expense of other environmental concerns like biodiversity, health, cultural heritage, etc.?

The focus of the project is on integration of climate change concerns into the SEA procedure and providing input to the development of future guidance. This last sub-question is based upon the recognition that when focus is directed towards climate change, there is a risk that possible positive and negative synergies are not assessed, or that climate concerns are prioritised on the expense of other concerns and environmental objectives.

1.3.1 Structure of the thesis

This section will explain the structure of the thesis, which supports answering the main research questions as well as all sub-questions.

1. Introduction

The first chapter defines and discusses the concepts of SEA, guidance and climate change. Problem formulation including the delimitation of research objectives, research questions and report structure conclude the chapter.

2. Methodology

The methodology chapter provides the research framework that is utilised in this report. It describes the methods used and explains why these specific methods were chosen.

3. Theoretical Framework

The theoretical framework builds the basis for the analysis of SEA Guidance and climate change problematic. The framework consists of two theoretical aspects that complement each other. An explanation about the utilisation of theory concludes the chapter.

4. SEA Guidance in practise

Chapter 4 is the first main chapter in answering the dual part research question. It will use literature analysis of SEA Guidance documents and the information gathered via interviews as basis and discusses the importance of SEA guidance and the way the practitioners use it.

5. Analysing climate change uncertainty

In this second main chapter, a theoretical discussion into climate change uncertainty and consequent problematic of integrating climate change in SEA is carried out. Interview analysis and discussion continues.

6. Conclusion

The conclusion summarizes the findings and answers the research question and the sub questions. The findings and the approach of this thesis are discussed in a critical manner.

7. Recommendations/ Perspectives

The last chapter of this paper gives recommendations for further research and aims at making recommendations about what should be included in climate change guidance.

2. RESEARCH METHODOLOGY

The methodology chapter emphasises the perspectives and working methods regarding the research conducted. It defines the structure and methods used in the study in order to produce an answer to the research question and sub-questions presented in chapter 1.3 and explain why these methods were chosen. It will also explain how the report meets the social research criteria that include reliability, validity and replication. (Bryman, 2008, p.30)

2.1 Purpose and scope of research

Due to the broad scope of this topic, it is necessary to define some boundaries for the research covered by this thesis. First of all, the point of departure is the EU SEA Directive. This means that the focus is in SEA in the EU as it is the guidance surrounding EU SEA legislation that is under examination. This of course, covers many countries, as directives need to be implemented into the national legislations of the EU member states. However, this does not essentially define or delimit the findings of this thesis, as the focus is not a case study type. This focus is mostly used to target interviewees and guidance analysed and delimits the scope of research more precisely. The author is aware that many countries outside the EU have existing SEA legislation and related guidance documents have been produced. The general intention is to come up with general suggestions for climate change related SEA guidance that can be used despite the geographical location.

2.2 Research design

The research design for this thesis is laid out following the Bryman's main steps in qualitative research (2008, p. 370).

The following figure illustrates the research design utilised in this thesis.

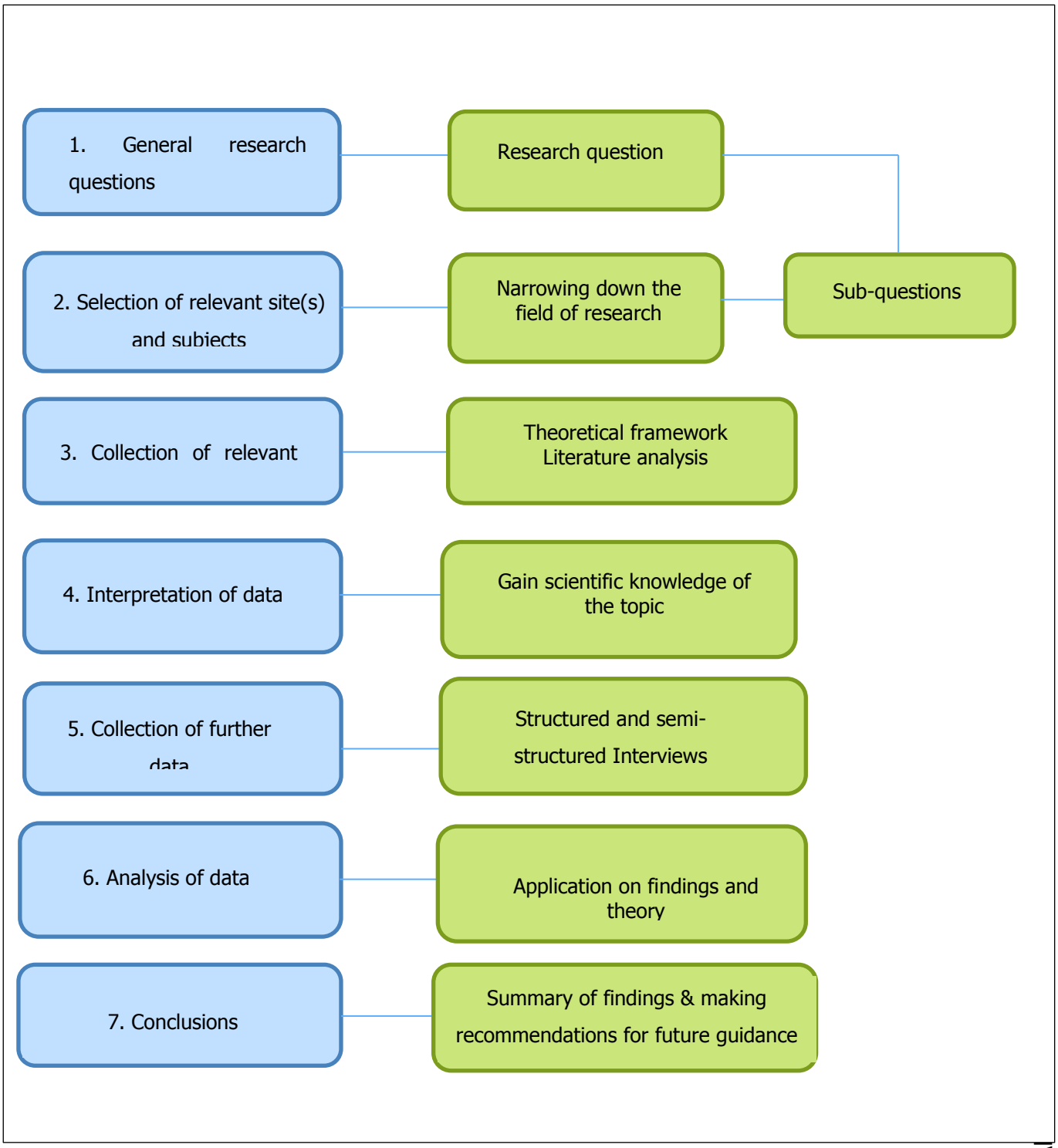

Figure 4. Research design.

2.3 Methods

As explained in chapter 1.3, four sub-questions were defined to support the main research question. The table below summarizes methods and data utilised when answering the research question.

Research questions	Methods and data
I. How are existing SEA guidance materials used by practitioners, and what criteria are found significant for a guidance to make a difference in practice in relation to secure the integration of climate concerns?	Interviews for this thesis were conducted with actual SEA practitioners. The answer to this part of the research question relies solely on the experience and preferences of the interviewees. Of course the interviewees can only answer based on that guidance they have some experience with. This is first-hand knowledge from the interviewees, so it is reliable and replicable when dealing with the same range of interviewees and valid as far as they have understood the interview questions correctly and answered truthfully.
II. On which areas does the practitioner need more guidance in order to cover the need of implementing climate concerns in SEA?	Answering this question also relies on the interviews. Same rules as above can be said about reliability, replication and validity.

III. Why is the implementation of a climate assessment required in relation to other environmental concerns also included in SEA and planning today?	In order to answer this part data was collected via literal sources and the interviews.
IV. How can it be secured that assessment and integration of climate concerns does not happen on the expense of other environmental concerns like biodiversity, health, cultural heritage, etc.?	Answer to this question is based on material analysed and information gathered; the understanding the researcher has been able to form about the situation. The opinions of the practitioners interviewed are influencing the answer to this question a lot.

Table 1. Methods and Data.

The methods used are an extensive literature analysis, in order to elaborate the current state of knowledge about climate change, and these literature studies are supplemented with structured and semi-structured interviews with practitioners of SEA from Finland and Denmark.

2.4 Theory of science applied

Phenomenology guides the research of this report. According to Botin (2010) phenomenology aims at surpassing the subjectivity of different subjects to replace the subjective research process with an impartial procedure.

There are three rules that need to be followed in phenomenological research:

- Rule of brackets: Personal opinions and acquired knowledge need to be put aside while conducting research.
- Rule of descriptions: the detailed descriptions of matters examined must be produced before any explanations.

- Rule of equalities: All types of information collected have to be considered of equal importance. This makes it possible to produce an objective interpretation of the collected information. (Botin, 2010)

In this project these rules mean first of all (rule of brackets) that for the author as a researcher it is vital to put aside personal opinions and acquired knowledge in order to be able to collect and analyse information objectively as possible. So while gathering information the researcher has to forget personal opinions about e.g. climate change, SEA procedure and guidance documents.

Second (rule of descriptions), it is necessary to describe issues relevant for this thesis in detail before going into explanations and analysis. This means that the concepts of climate change, SEA, guidance and the theoretical framework in chapter 3 are first explained and then analysed and combined with information gained via interviews and the theoretical framework.

Third (rule of equalities), the information gathered via all the various sources (document analysis and interviews) needs to be looked at from the footing of equal importance.

By following these rules the findings of this thesis will be as objective as possible.

2.5 Data Collection Techniques

In order to answer the main research question and sub-questions, information was obtained using two main types of research methods, which are described below. Qualitative research methods form the basis of the research conducted, although the interviews have a quantitative element, too. Information is gathered via interviews and literature analysis in a qualitative manner to produce an answer to the main research question and sub-questions.

2.5.1 Literature Analysis

Literature analysis was conducted in order to obtain information about climate change, SEA guidance and theories of implementation. The latter was used as a part of the theoretical framework of this thesis. Sources included various sources, including government websites, climate action websites and various books.

In Chapter 3 (Theoretical Framework) the discussion about implementation theory is mainly based on Winter (2003) and the street-level agent theory is something that was first introduced by Michael Lipsky.

In addition to that, information about SEA, guidance and climate change was acquired through studying of books, scientific articles and relevant Internet pages.

The following literature sources were used:

- Books
- Directives of the European Union
- Relevant national legislation
- Selected guidance documents related to SEA
- Academic journals dealing with SEA, climate change and theoretical perspectives
- Relevant Internet sources to obtain information (websites of the EU, Finnish and Danish Ministries of the Environment, IPCC, etc.)

2.5.2 Interviews

Interviews are used as a method to gain empirical information. The main interview type used is a structured interview. This type of interview technique "*…entails the administration of an interview schedule by an interviewer."* (Bryman, 2008, p. 193)

This is supplemented by a semi- structured interview, which *"...typically refers to a context in which the interviewer has a series of questions that are in the general form of an interview scheduled but is able to vary the sequence of questions. The questions are frequently somewhat more general in their frame of reference from that typically found in a structured interview schedule. Also the interviewer usually has some latitude to ask further questions in response to what are seen as significant replies."* (Bryman 2008, p. 196)

The reason for doing all but one interview using a structured interview template instead of a telephone interview was the interviewees desire to answer via email due to personal time constraints. So, six interviewees were conducted by sending an email with the interview questions attached, which the respondents were given two weeks to answer and one was via telephone.

These interviews were conducted with SEA practitioners, including consultants and public sector employees. The purpose of these interviews was to gather information and practitioners' opinions about SEA guidance and the integration of climate considerations. This set of responses constituted qualitative and quantitative data for evaluating SEA guidance and its' efficiency. Several respondents were chosen in order to have enough comparable empirical data. They were chosen based on Internet searches about persons responsible for SEA and looking at conducted SEA's for people involved. The idea was to involve both public sector employees and consultants in order to gain information from both types of practitioners. The reasons for selecting Danish and Finnish practitioners to answer the questions include the authors' knowledge of the context in the two countries, language skills as well as geographical location that would allow face to face contact as well as reasonable telephone costs in case phone interviews would have been preferred by the practitioners. The fact that the interviewees come from two different countries and from public and private sectors means that the author was able to gain a cross-sectional understanding about the utilisation of SEA guidance, the resources the different types of practitioners have on their disposal and the ways guidance is used by them.

Once the correct points of contacts were identified, an email was sent to enquire whether they would be interested in answering the authors' questions. All together ca. 20 emails were sent out, but not all of them were replied to. There were also three persons who initially said that would be interested in answering, but did not do so despite of sending a reminder asking if there were difficulties with the questions. The people interviewed are introduced in the table below. The interview questions as well as transcripts of the interviews can be found in annexes 1-7.

Interviewee	Position	Organisation
Lasse Tallskog	Counsellor	Ministry of the Environment, Finland
Seija Savo	Senior Planning Officer	Center for Economic Development, Transport and the Environment, Turku, Finland
Tuomas Kallio	Acting Manager, Environmental Planning	Council of Oulu Region, Finland
Päivi Blinnikka	Senior Planning Officer	Center for Economic Development, Transport and the Environment, Helsinki Region, Finland
Inger Andreassen	Project Manager	COWI, Denmark
Margot H. Møller Nielsen	Senior Project Manager	COWI, Denmark
Albert Ernest Coutant	Project Manager	Rambøll, Denmark

There was a technical problem with an interview that was done via telephone with Lasse Tallskog from the Finnish Ministry of the Environment. The purpose was to record this

interview, but due to a technical failure only some seconds of the interview were taped, so the interviewer had to rely on notes and memory and type down as much as possible after the interview.

2.5 Reliability, replication and validity

In order to evaluate the chosen research methods, the criteria of reliability, replication and validity are discussed to defend the methodology applied in this thesis. Research methods are frequently judged by these criteria and the meanings of them are shortly presented here in order to acknowledge their existence in the process of this thesis.

Reliability is based on the conception whether or not other researchers could repeat the conducted research with the same result. It could be said that reliability is a measurement for the exactitude of the research, i.e. if the research statements put forward are actually measuring what has been declared, or if the results are based on mere coincidences. The reliability of the research can be measured by repeating the research in the same way. The degree, to which the two results correlate, shows the reliability. This project relies on the theoretical framework, the trustworthiness of the respondents of the interviews and the personal judgement of a high level of scientific evidence in relation to reliability. The analysis is conducted as objective as possible. (Bryman, 2008, p. 31)

Replication is close the concept of reliability, as a study is only reliable if it can be replicated. Replication of a study can only happen if research procedures are explained in detail. This study provides a clear process for research, transcripts for the interviews as well as presents the respondents and conducts analyses using the theoretical basis of implementation theory. This framework could easily be applied to other studies.

Validity is based on the question; if what has been set out to examine is actually what has been analysed, i.e. the integrity of the report. If the research methods are very close to what has been set out to do, the project has a high degree of validity. This thesis focuses on one area related to SEA, the guidance documents and more precisely climate change related guidance. This means that the thesis has a specific focus adding to the level of validity in the project, because a more narrowed research area also means a more specific and adequate research result and thereby a high degree of validity. Validity contains different criteria. Internal validity, which demonstrates causality between different conclusions, is valid for this project. As this study aims at making general recommendations for the inclusion of climate change concerns in SEA guidance, external validity is also valid here. Measurement validity deals with the question of whether a measure devised of a concept actual reflects what it is supposed to measure. In this case it would be the analytical framework and its' suitability to analyse the effectiveness of SEA guidance and come up with suggestions for the inclusion of climate concerns. (Bryman, 2008, p. 32)

This concludes the methodology chapter. The next chapter will lay out the theoretical framework for this thesis.

3. THEORETICAL FRAMEWORK

This chapter presents a theoretical background that is used when collecting information, making interviews and in analysing the gathered empirical information. The first part introduces implementation theory and more specifically the notion of street-level agents. The second part presents a simple framework used to analyse chosen SEA guidance documents.

The implementation theory is chosen because it is a theoretical approach that deals specifically with the implementation of policies, in this case SEA. The theory on street-level bureaucracy focuses on the role of the practitioners as enforcers of the SEA legislation and users of guidance. Therefore, the experiences of the practitioners are very valuable when doing research on the usability of guidance documents. If the integration of climate change concerns into SEA is to be effective, it is important to understand how and why do practitioners use guidance and what motivates them.

3.1 Implementation theory

Implementation research focuses on analysing different aspects of implementation of policies. It is a form of public policy analysis focusing on the delivery level of policy making. Implementation theory is abundant with literature suggesting different takes on policy evaluation despite of the research field being relatively young. Winther (2003) describes the evolution of implementation theory and suggests new ways to move forward for implementation research. According to Winther establishing one common theoretical framework is not meaningful; instead theoretical diversity would improve implementation research. Partial theories and hypotheses, and testing these are also considered more meaningful than one theoretical framework. He also points out the usefulness of concentrating on certain dependent variables in implementation research. The most

important of these is the output of the implementation process in terms of delivery behaviour, i.e. the performance of implementers but he also sees the usefulness of studying outcomes of policies in terms of target group behaviour in addition to outputs. As for research methods, comparative and statistical methods should be favoured over single case studies as this would help in making it possible to distinguish the influence of different implementation variables. (Winther, 2003)

In essence, what he is saying is that one single theory of implementation does not seem likely as it would be difficult to get all the scholars doing research in the field to agree on one method that would be preferred over others, neither is it really necessary. Instead a lot can be learned from applying various methods and theories in implementation research. What should be focused on is not whether or not policy objectives are reached, but outputs in the form of delivery level behaviour are to be examined. This moves the focus of research into people working in the public sector that are delivering and interpreting the policies.

Typically public policy research focuses on the content of a policy, its causes and consequences. However, implementation research has a more operational take; it focuses on examining how policy is delivered to the citizens. So the outcomes are the consequences of the delivered policy and the key tasks are to analyse the causes and consequences of delivery behaviour. If we return to the classic questions of public policy research formulated by Dye (1976), then the delivery level behaviour of implementers is policy at its most operational level, policy design as well as the implementation process are important causes of such delivery level policies, and outcomes are the consequences of policy, which we should not ignore. "*Implementation output is policy content at a much more operational level than a law. It is policy as it is being delivered to the citizens. By the same token, outcomes are the consequences of the policy, which has been delivered. Accordingly, the key tasks for implementation analysis are to analyze the causes and consequences of delivery behavior."* (Winther, 2003)

This theoretical approach is applied to information gained via literature and interviews in the following chapters. It sets the emphasis from analysing SEA legislation, content of guidance in detail and other instruments used in SEA to the operational level. This means that what is important for the purposes of this thesis, is to understand how guidance is used by practitioners and what their opinions and preferences related to guidance are. The application of this theory is further explain below in chapter 3.2.

3.1.1 Street-level bureaucracy

In this study the focus is on SEA related climate change guidance and how to (further) develop it. In order to provide recommendations for that, it is necessary to focus on the relevant actors in the process of SEA. These are the practitioners of SEA. In other words, they are those *street-level bureaucrats* that are in control of the execution and extent of SEA. Therefore, in order to produce useful information, it is necessary to form an understanding to their motivations, wishes and ways of operating.

Michael Lipsky developed the theory on "street-level bureaucracy". The focus of the theory is on those discretionary decisions related to a policy that officials, e.g. street-level bureaucrats, make in relation to citizens. The role of the street-level bureaucrats that leaves them with an amount of discretion when enforcing regulations makes the street-level bureaucrats important players in policy implementation. Lipsky sees the street-level bureaucrats as the real policy makers. However, Meyers and Vorsanger (2003) point out that even though Lipsky emphasizes the individual role of street-level bureaucrats in policy implementation, similar working conditions make them apply similar behaviour. "*This means that street-level bureaucrats even across policy types tend to apply similar types of practices whether they are teachers, policemen, nurses, doctors or social workers.* " (Meyers & Vorsanger, 2003)

The street-level bureaucrats try their best but it is difficult for them to meet the expectations placed on them by legislative mandates, managers and citizens combined

with a high workload. As a result they try to cope as good they can, which has an effect on how laws and acts are operationalized, their interactions with the public and how tasks are prioritised (easy vs. more complex tasks).

Many studies have been done into the role and behaviour of the street-level bureaucrats. Some of these studies have come to the conclusion that resource constraints have the biggest influence on the extent and direction of front line discretion. "*Street-level bureaucrats have been observed to cope with chronically limited resources and unlimited client demands by rationing services, discriminating in the provision of services to more cooperative clients and rationalizing program objectives."* (Meyers & Vorsanger, 2003)

Some scholars are of the opinion that institutional resources and incentives are the most important restrictions to a street-level bureaucrat (Brodkin, 1997), whereas others argue that they are relatively immune to the power of both directives and organisational incentives. The opinion of the scholars leaning towards the latter is that personal interests, professional norms and processes are the key elements that guide street-level bureaucrats behaviour. (Meyers & Vorsanger, 2003)

This theoretical approach will be used later on in this thesis to interpret the way practitioners of SEA act and what kind of things might affect their work. This is important as the practitioners do hold power of influencing the quality of an SEA. The interviews focus on practitioners from two countries; Finland and Denmark and work under the influence of the same guidance in their respective countries. What combines them is the European Union that sets the baseline for the SEA process through legislation.

3.2 Application of the theoretical framework

The selected theoretical framework is applied to and combined with the information collected via literature analysis and interviews in the following chapters.

As mentioned above in chapter 3.1 in implementation theory comparative and statistical methods should be favoured over single case studies as this helps in distinguishing the influence of different implementation variables. In chapter 4 a comparative element is introduced in the form of guidance analysis. Four guidance documents are analysed using a template that aims at distinguishing the key elements (implementation variables) relevant for this study. This way it is possible to make comparative conclusions about the content of these guidance documents, that will then help to understand the framework the practitioners interviewed are working in. One of the focuses of chapter 4 is also the delivery level behaviour of the practitioners, i.e. the way they use the guidance documents. As guidance documents are written to assist the practitioners with conducting SEA's (delivery level), they are central elements in the SEA policy implementation. In other words, the outcomes of an SEA process are the consequences of the delivered policy and the key task for the researcher is to analyse the causes and consequences of SEA practitioners' delivery level behaviour. Understanding how they use guidance and what type of guidance they prefer is of central importance when making recommendations for effective climate change guidance.

The street-level bureaucrat theory assists in interpreting the practitioners' motivations, wishes and ways of operating based on the answers they have provided in the interview. These can help in forming an understanding about the discretionary decisions related to SEA that the practitioners make. As suggested above in chapter 3.1.1 resource constraints can influence those discretionary decisions. Some scholars argue for the influence of institutional resources and incentives being the most important restrictions to a street-level bureaucrat, whereas others are of the opinion that personal interests, professional norms and processes are the key elements that guide a street-level bureaucrats' behaviour. Based on the answers of the interviewees, some assumptions about the key elements can be made in the following chapters.

4. ANALYSING SEA GUIDANCE

Chapter 4 is the first main chapter in answering the dual part research question. It will use literature analysis of SEA guidance documents and the information gathered via interviews as basis and discusses the importance of SEA guidance. The guidance documents that are analysed and discussed were chosen based on the interviews, e.g. documents the interviewees are familiar with and some climate change related guidance were chosen to supplement these.

4.1 The significance of SEA Guidance

The focus of this chapter is on existing SEA guidance and practitioners' experiences on them. As explained above, the documents looked at here consist of those that the interviewees were familiar with combined with one existing climate change specific guidance document. The guidance analysed are presented below:

Guidance document	Authority & Year
Commission's Guidance on the implementation of Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment	European Commission, 2001
Suunnitelmien ja ohjelmien vaikutusten arvioinnin (SOVA) tukiaineisto	Finnish Ministry of the Environment, 2005
Vejledning om miljøvurdering af planer og programmer	Danish Ministry of the Environment , 2006
Strategic Environmental Assessment and Climate Change: Guidance for Practitioners	The Environment Agency, UK, 2007

Table 2. SEA guidance analysed.

As climate change guidance is still quite rare and does not exist in Finland or Denmark, where the interviews were made, a guidance document from the UK has been chosen to be analysed in addition to the two other documents. The purpose of this analysis is to get an overview of what type of guidance is available right now and compare that to the information received via interviews. That way ideas for improvements are easier to grasp and actual recommendations can be made for future guidance.

4.1.1 European Commission's Guidance

The first guidance analysed for this thesis is the European Commission's guidance connected to the EU SEA legislation. As mentioned in chapter 1, the EU SEA Directive took effect in 2001. According to Albrecht et al. (2005, p.15) more than 20 years of discussion preceded the Directive.

The guidance was written to assist the member states in implementing SEA legislation; *"It should help Member States to implement the Directive such as to meet its requirements and gain the benefits expected from it. Finally, it should also enable them to understand better the purpose and operation of the Directive, and to consider the implications it will have for their own planning procedures."* (European Commission, 2001 b)

Name of the guidance	Guidance on the implementation of Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment
Author	European Commission, 2001
General/ issue specific guidance?	General
Does the guidance contain climate change related instructions? - On mitigation? - On Adaptation? - Synergies between mitigation /adaptation & other environmental	No, there are no climate change related instructions.

concerns?	
Type(s) of guidance provided (checklists, tables, explanations and examples, figures)?	Mostly textual guidance. The document contains a couple of table, e.g. a table demonstrating the relationship of SEA legislation with other Community legislation.
Other	The guidance discusses terms, definitions and provisions in great detail but does not really go into the practical carrying out of an SEA.

Table 3. EU SEA guidance

As the table above demonstrates, the Commission's guidance does not contain much information about how a SEA should be conducted and how different environmental concerns should be assessed. Therefore, it is evident that it's usability when looking for ideas and assistance when doing an environmental assessment is limited. This is also evident when looking at the answers that the interviewees provided about how they use the Commission's guidance. The interviews in relation to this are further explained below in chapter 4.2. During the recent years the Commission has published papers that research and put forward ideas about climate change, also in connection with the SEA. For example the "Report from the Commission on the application and effectiveness of the Directive on Strategic Environmental Assessment (Directive 2001/42/EC), COM/2009/469" deals with this issue. The conclusion is that climate change is not sufficiently integrated into SEA or EIA, so there is a call for issue specific guidance. *"The lack of a well established methodology to determine impacts has been mentioned as a key problem by many MS. ...Given the lack of specific guidance on consideration of climate change issues in SEA, there should be further development of specific guidelines."* (European Commissions, 2009 a) This shows a trust in climate change guidance making a difference in environmental impact assessment. As a result of this two guidance documents, one for SEA and one for EIA is currently under development in the Commission. It is clear that within the EU there is a strong belief in the effectiveness of SEA guidance. In terms of implementation theory discussed in chapter 3, this is a step in the right direction as guidance is written for the practioners that operate in the delivery level of policymaking.

As it is the output of the implementation process in terms of delivery level behaviour that is important, creating new guidance will add to the practitioners' resources. If the practitioners find the guidance useful and adopt it as a part of their toolkit when doing SEA's, based on implementation theory it has a potential to influence policy implementation. Hence, when making new guidance the practitioners' wishes and needs should be mapped. This thesis attempts on doing such mapping in a small scale via interviews of practitioners. The results of the interviews are discussed below in chapter 4.2 and later on in chapter 5.3. Transcripts of the interviewees are also annexed in this thesis.

4.1.2. Guidance in Finland

The first four interviews were done with public sector workers dealing with SEA in Finland and therefore it is necessary to take a look at guidance in the finnish context. In Finland the EU SEA directive has been adopted with "*Laki viranomaisten suunnitelmien ja ohjelmien ympäristövaikutusten arvioinnista 8.4.2005/200"*, in short SOVAL, which translates to "Act on the assessment of the Impacts of the Authorities' plans, programmes and policies". This law has been amended with the decree 347/2005 and some of SEA requirements are also found in the Land use and building Act (132/1999) and Land use and planning Decree (895/1999). Prior to SOVAL a requirement about assessing environmental effects of plans and programmes was included in the EIA legislation from 1994. (Ympäristöministeriö, 2011)

In Finland the field of SEA guidance includes several documents, although climate change guidance does not exist. In 1998 the Ministry of the Environment published a document called "Guidelines for the environmental assessment of plans, programmes and policies". Since then, more documents related to SEA have been published. There are several documents that deal with land use planning that have been created to support environmental assessment. The document looked at here is a general type of guidance published after the Finnish SEA legislation took effect in 2005. It is a document that all the four interviewees from Finland are familiar with.

Name of the guidance	Suunnitelmien ja ohjelmien vaikutusten arvioinnin (SOVA) tukiaineisto
Author	The Finnish Ministry of the Environment
General/ issue specific guidance?	General
Does the guidance contain climate change related instructions? - On mitigation? - On Adaptation? - Synergies between mitigation /adaptation & other environmental concerns?	No, there are no climate change related instructions.
Type(s) of guidance provided (checklists, tables, explanations and examples, figures)?	Includes sort of a checklist that includes the central principles of SEA and figures about the different stages of the process, contains a list of questions under separate topics related to different stages of assessment.
Other	The guidance is very general about how to proceed, what to think of, how to divide work etc. and it does not go into details about any specific issue like climate change, water, flora, fauna, etc. It does include some short examples of concrete scenarios.

Table 4. SEA guidance in Finland

As can be seen from table this guidance is a general document providing assistance about how to conduct an SEA. It does not go to much detail about how to assess specific environmental concerns and does not discuss climate change either.

Specific climate change SEA guidance does not exist in Finland yet and one of the interviewees, Mr. Lasse Tallskog (see annex 1) said that guidance specifically in relation to climate change has not been contemplated on much at this point. (Tallskog, 2011) This does not mean that climate change issues are not put emphasis on when making policies and programmes. For example, regional plans and programmes do discuss climate change and e.g. the Uusimaa Regional Council's Regional Programme for 2011-2014 singles out climate change as one of the most significant environmental challenges. (see Uusimaa

Regional Council, 2010) Furthermore, some of the interviewees said that they are using other documents and reports relating to climate change that have been produced in Finland when doing an SEA. One of the interviewees said that it is possible to take climate change considerations into consideration as well as is desired at the moment, but the what climate change guidance would improve is providing a unified method of handling climate change in SEA's. (Blinnikka, 2011) From the viewpoint of the street-level bureaucrat theory presented in chapter 3.1.1, the introduction of climate change guidance would decrease the descretionary decision-making power that the practitioners (i.e. street-level bureaucrats) possess. On the other hand, Lipsky's understanding about similar working conditions making practitioners apply similar behaviour would seem to diminish the significance of Ms. Blinnikka's point about the role of guidance in creating unified methods of handling climate change. According to Lipsky, Ms. Blinnikka and all the SEA practitioners working in similar conditions (other practitioners in the Centres for Economic Development, Transport and the Environment in Finland) would apply similar behaviour, i.e. similar climate change impact assessment methods when conducting an SEA.

4.1.3. The Danish Guidance

The SEA process was first introduced in Denmark in 1993 as an administrative order and was not enshrined in law at first. It was limited to government proposals only and did not cover plans and programmes. The EU SEA Directive was integrated into Danish legislation in 2004, and thereby extended to cover plans and programmes also. The Danish SEA provisions can be found in "Lov om miljøvurdering af planer og programmer" (316 af 5. maj 2004), The Act on the Environmental Assessment of Plans and Programmes.

The current SEA guidance document in Denmark was released in 2006. It was supplemented in 2007 with examples of SEAs that have been conducted.

Name of the guidance	Vejledning om miljøvurdering af planer og programmer
Author	Danish Ministry of the Environment
General/ issue specific guidance?	General
Does the guidance contain climate change related instructions? - On mitigation? - On Adaptation? - Synergies between mitigation /adaptation & other environmental concerns?	Contains advice about assessing synergies, but not specifically about climate change. In the end there is an attachment, that gives examples about environmental goals that can be set in the process and here there are some suggestions to climatic factors but no actual advice on how to do the assessment.
Type(s) of guidance provided (checklists, tables, explanations and examples, figures)?	Tables, textual explanations and examples, checklists, figures
Other	The guidance introduces the terms related to SEA and explains which type of plans and programmes require an SEA. It explains the responsibilities of the parties involved, the process, different parts of the report, what to assess, provides examples, etc.

Table 5. SEA guidance in Denmark

The Danish guidance has similar traits than the Finnish guidance, but goes into more details. It provides general instructions for conducting an SEA and advice to what kind could be examined for specific environmental concerns. Compared to the Finnish document analysed in chapter 4.1.2, the Danish guidance containing some examples of SEA's conducted would seem to better suit the practitioners needs based on the interviews analysed in chapter 4.2. However, even though the guidance document contains advice about assessing synergies, the results of the interviews suggest that there is room for improvement in this as none of the interviewees use the guidance for assessing synergies. (see chapter 4.2.3 and table 8) The need for more climate change related guidance is also highlighted by Larsen et al. (2012) in an article that presents the results of document analysis of 149 Danish SEA reports. The article mentions that over half of the reports

include some climate change aspects, 51% had mitigation measures and 14,8% adaptation measures integrated in them. Addressing synergies proved to be even more rare; *"only one report comprises the assessment of synergies between mitigation and adaptation, whilst 9,4% of the reports assess the synergies between climate change and other environmental concerns."* (Larsen et al. 2012, p.33-35) The conclusion of the article calls for international and national guidance, as *"It is indicated that climate change does not possess clear institutional characteristics as a municipal professional area; it falls between the silos, and the potential of SEA is not fully exploited."* (Ibid, p.39) According to the street-level bureaucrat theory this type of situation where practitioners are lacking resources, would lead to the practitioners trying to cope as good as they can, which will then influence the operationalization of laws when practitioners are prioritising tasks. Again, climate change guidance would help the practitioners in making a more holistic assessment of climate change impacts by adding guidance that makes it easy to obtain assessment ideas to their resources.

4.1.4 Climate change specific guidance

A guidance document specifically for assessing climate change concerns that has been created in the UK was chosen to be analysed for the purposes of this study. As UK is a member state of the European Union, the same SEA Directive has been implemented there as in the other EU countries (like Finland and Denmark). However, this is not the only climate change specific guidance in existence. For example, the Countryside Council for Wales has produced one and outside Europe Canada one called Incorporating Climate Change Considerations in Environmental Assessment: General Guidance for Practitioners.

Name of the guidance	Strategic Environmental Assessment and Climate Change: Guidance for Practitioners
Author	The Environment Agency, UK, 2007
General/ issue specific guidance?	Issue specific; climate change
Does the guidance contain climate change related instructions? - On mitigation? - On Adaptation? - Synergies between mitigation /adaptation & other environmental concerns?	Yes, it is written specifically for assessing climate change issues in SEA. It also contains instructions on mitigation and adaptation. The guidance starts by explaining climate change and why it happens, what has an effect on it, explains what mitigation and adaptation are. Does not use the term "synergy" but does mention that mitigation and adaptation might be interrelated. Clear instructions for assessing synergies are missing.
Type(s) of guidance provided (checklists, tables, explanations and examples, figures)?	Includes textual explanations, tables
Other	The table on p. 6-7 of the guidance goes through the process stage to stage, gives advice and examples as to what to assess, what to use as indicators, what kind of mitigation and adaptation measures are possible and where information can be found.

Table 6. Climate change guidance in the UK

From the description above it can be seen that the climate change specific guidance provides tools and examples for assessing climate change effects in SEA. The document is written in a clear language, which was called for by Ms. Møller Nielsen in the interviews. However, as mentioned in the table it is missing guidance about assessing synergies. It also seems to be focusing mainly on the local level of climate change impact assessment. In the article mentioned above in chapter 4.1.3 Larsen et al. (2012) point out that it is also important to consider climate change in a broader concept.

In order to summarise and make a comparison of the guidance analysis' performed above, it can be noted that there is a certain progressing from the first to the fourth guidance. The EC guidance is by far the most general in nature, providing little assistance to impact assessment in practise. This lack of guidance, which according to the report on application and effectiveness of the SEA Directive mentioned in chapter 4.1.1, has lead confusion about the overlaps of SEA and EIA procedures as well as developing case-by-case approaches to e.g. climate change integration. In terms of street-level bureaucracy, relying on this guidance would leave the practitioners with a relatively high degree of discretionary decision-making power especially when it comes to climate change as the SEA Directive is pretty vague about assessing "climatic factors".

The Finnish and Danish guidances analysed are more detailed compared to the EC document, but still are not much use when it comes to assessing climate change impacts. This becomes evident also based on the interviews discussed in chapter 4.3. The last document analysed is the most detailed of the four and provides ideas for climate assessment. However, limitations can be found when looking for ideas to assess synergies between mitigation and adaptation or between climate change and other environmental concerns. This document is written in a clear language, which is something that the practitioners raised as a positive thing, as is evident from the interview discussion in chapter 5.3.1.

Based on this analysis, more information is needed before the research questions presented in chapter 1.3 can be answered.

4.2 Analysis of the interviews in relation to the usability and importance of SEA guidance

4.2.1 Interviewees experience and description of tasks

In order to find out the extent of the experience of the practitioners interviewed have with SEA, the first four questions in the interview form (see annexes 2-7) were written to gather basic information about them. What was found out through these questions is that all of the practitioners interviewed are familiar with SEA guidance and have worked with it for more than three years. None of them work with SEA full time; two people said that they use 25-50% of their time working with SEA and the rest less than 25%.

All except one practitioner take part in the screening process doing "full screening", participating in it across all parameters in legislation (fauna, flora, etc.). As for the full assessment process, everyone interviewed said they take part in it. Most say they do assessment of environmental parameters within all parameters, but two of the interviewees only contribute to the assessment for some of the parameters or do other related matters, such as gathering contributions from specialists or organising the assessment and related hearing procedures. Ms. Møller Nielsen pointed out that it is not actually possible to do full screening or assessment without involving experts, but that she acts as the project manager for screening / assessment and also screens a number of the parameters herself.

As can be seen from this description, the practitioners interviewed for this thesis all have quite a lot of experience with SEA guidance, which adds to the reliability and validity of the research. These practitioners have dealt with various SEA's and have become accustomed to how it is done, where information can be found and what kind of guidance is useful in practise. Therefore, their opinions are valuable and relevant for research done for this thesis.

4.2.2 Interviewees familiarity with guidance

The interviewees' familiarity with existing guidance was mapped via questions 5 and 6 in the interview form (see annexes 2-7). These questions ask about which guidance is familiar and how much of it/ them have the practitioners actually read.

All of the practioners answered that they have read national guidance documents and most had some experience with the EU Commission's guidance too. One person said that she has not read the Commission's guidance at all, two persons have read the whole guidance and the rest are familiar with some of it. The national guidance documents were more familiar to the interviewees. Five practitioners stated that they have read the whole national guidance document. When asked about how much the interviewee had read of the national guidance, Ms. Møller Nielsen stated that she did not like the national guidance document and usually asks the company environmental lawyers for advice instead of using the guidance document. This opinion is placed under the option "Most of it 70-40%", so it is assumed that the interviewee has not read the whole guidance.

In question 5, where the interviewers had to state which guidance they were familiar with, an option for writing down other familiar guidance documents was available. Various documents were listed under this option. These include SEA guidance and other relevant literature and examples. Among those mentioned were "Handbook on SEA for Cohesion Policy 2007-2013. 2006. Greening Regional Development Programmes Network"; "other unofficial etc. Good practice documents"; "The OECD DAC SEA guidelines"; "The Finnish Ministry of the Environment's report 20/2008 about adapting to climate change"; "other reports and guidelines depending on the situation" and "a large list of relevant literature and examples".

It is clear that the practitioners use a large number of different types of supporting documents. Some of these have been written specifically for SEA procedures and some for other purposes, but they deal with issues relevant for SEA's. This seems to suggest that the existing SEA specific guidance is not enough to do the assessment and instructions are looked after in other publications. Of course, it is impossible to provide the practitioners with an instruction manual that would cover all the possible situations and scenarios that can come up in an SEA.

4.2.3 The role of guidance

As mentioned earlier, one of the goals of this thesis is to investigate how existing guidance is used. The table below summarizes the interviewee's answers to question 7 in the interview question form about how they use guidance. Column two has summarized the Finnish and Danish guidance under one headline, "National guidance".

	EU	National guidance	Other
To clarify legal issues	3	5	
To get a hold on terms (like e.g. screening, mitigation)	2	4	
To clarify who should be consulted in the SEA		4	2
To get ideas for alternatives	1	2	2
To get ideas for how to assess impacts	1	3	4
To get ideas for mitigation	1	1	4
To get ideas about climate change			4
To get ideas to how cumulative and synergistic impacts can be assessed			3
Other			

Table 7. Summary about how guidance is used.

According to these findings the EU or national guidance documents are not used to get ideas about climate change or how to assess cumulative and synergistic impacts. In question 8 it is asked why guidance is not used, which can explain the reason for not utilising guidance in some situations. Only a few interviewees have answered question 8,

so the findings cannot be considered extensive, but it can act as a reference point. The interviewee's have answered that the reason for not utilising guidance is they have either not found the guidance useful or have been able to do the assessment without guidance. Based on this, it can be said that guidance needs to be further developed to better suit the practitioners' needs.

When asked about how important a role does guidance play four of the practitioners have chosen either very important or important. One person is of the opinion that they are less important and one person states that she cannot answer a generic question like this. She continues by saying that "A good guideline would be valuable, a less good guideline is less valuable".

Statistically 4 out of 6 find guidance very important or important, which seems to stress that SEA guidance is valuable. Also the person commenting about the quality of guidelines adds that good guidance is valuable, which makes the total of people considering guidance as important to 5 out of 6. Based on this, it can be said that a good quality climate change related guidance would be a valuable tool for the practitioners. Of course, one of the interviewees answered that she used another document that deals with climate change in assessing climate change concerns in the SEA process, which suggests that not only SEA guidance play an important role but also other types of advice could be valuable. Of course, these other kinds of advisory documents are not written specifically for SEA and therefore might not be as effective as climate change SEA guidance could be. Also, it is of course easier for the practitioners to recognise the useful instructions if they are published as SEA related guidance, so they do not have to go looking for other types of instructions that could be useful to them while conducting an SEA.

According to the street-level bureaucrat theory presented in chapter 3, the role of the street-level bureaucrats that leaves them with an amount of discretion when enforcing regulations, makes the street-level bureaucrats important players in policy implementation. Therefore, what is important when aiming at a comprehensive climate

change assessment as a part of SEA are the resources and working conditions of the practitioners. Furthermore, according to the theory similar working conditions make practitioners apply similar behaviour. Some assumptions can be made from the interviewees working conditions. Three of the Finnish practitioners interviewed all work for the same governmental agency in different regional offices. That means that they work in the same organisational structure, have pretty much the same resources in use and in general share similar working conditions. During a previous semester project the author interviewed Mr. Tuukka Pahtamaa who works as a Senior Adviser with EIA for the same agency, the Centre for Economic Development, Transport and the Environment in Oulu, Finland. During this interview the effects of the state's productivity programme was one of the issues discussed. Mr. Pahtamaa mentioned that personnel are being scaled down while at the same time the amount of impact assessments seems to be increasing. There is a lack of resources and working overtime is frequent, which of course puts a strain on the practitioners affecting their working conditions. (Lähdesmäki, 2011)

As explained earlier, some scholars are of the opinion that institutional resources and incentives are the most important restrictions to a street-level bureaucrat (Brodkin, 1997). In a situation where workload is increasing and work force diminishing eventually this could have an effect on the implementation of policies, such as the quality of SEA's. In this situation effective, good quality guidance would understandable be a great help. This is also reflected in the practitioners' answers as all of the interviewees from the public sector in Finland consider the role of climate change being important.

However, even if the will and intent to create effective climate change guidance for SEA exists, it is not so easy to write this type of document. This has to do with the element of uncertainty that exists within the concept of climate change. This will be further discussed in the next chapter.

5. ANALYSING CLIMATE CHANGE UNCERTAINTY

This chapter provides a discussion about climate change and the uncertainty that lies within the concept. It provides important background into understanding the problematic of introducing measures that include climate change concerns in SEA due to this uncertainty. The analysis of the interviews continues in this chapter advancing from the utilisation based interview analysis in chapter 4, to climate change guidance specific topics.

5.1 Climate change uncertainty

In its reports the IPCC refers to climate change as *"a change in the state of the climate that can be identified (e.g. using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. It refers to any change in climate over time, whether due to natural variability or as a result of human activity."* There are also other takes of defining the concept. For example the UNFCCC refers to it as "*a change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability observed over comparable time periods."* (Bernstein et al., 2007, p. 30) Then how can we know what natural variability is and how human activity contributes to climate change?

(Source CO2 -raportti)

The "mechanism" of climate change is a complex one. It is not a simple cause – effect one but a very complex mechanism with several drivers and various impacts. As Baker et al. (2007) say; *"Climate consists of a set of highly coupled, tightly interacting physical processes. Understanding these physical processes is a massive task that will always be subject to uncertainty."* The figure below demonstrates this complexity as we understand it now, and presents how different factors are connected in this process.

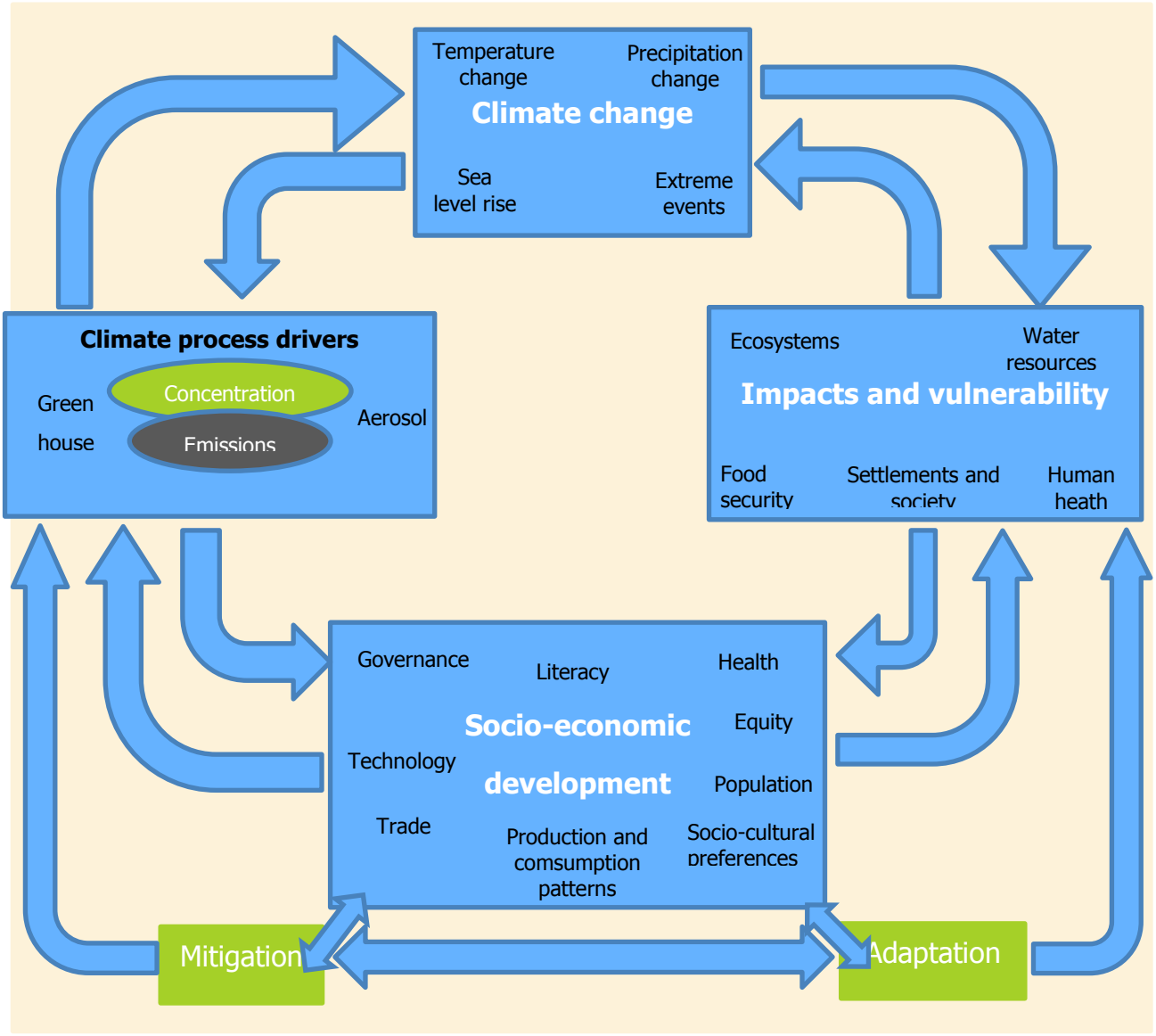

Figure 5. Schematic framework representing anthropogenic drivers, impacts of and responses to climate change, and their linkages. (Adopted from Bernstein et al., 2007, p.26)

The first report of the Intergovernmental Panel on Climate Change from 1990 predicted that temperatures would rise by 0,3 °C each decade if nothing was done to control greenhouse gas emissions. However, this proved to be a wrong estimate and by 2001 the IPCC gave a new estimate that predicted and average temperature increase of 1,5 to 4,5 °C in the 21st century. The fourth Assessment Report published in 2007 provides six Special Report on Emission Scenarios (SRES). The best estimates about temperature rises in these scenarios vary in the range of 1,8 to 4,0 °C. (Bernstein et al., 2007)

These changes in estimates clearly demonstrate the difficulty of knowing what and in how large a scale will happen in the future. No international team of experts can say with absolute certainty just how bad global warming will get. This is due to the fact that the Earth's climate is very sensitive and small changes in many different physical processes that have an influence on climate can lead to major changes. Another problem is that all of these physical processes are not understood very well and are difficult to make scientific models of. (Biello, 2007.)

Despite extensive research in to the subject and great technological advancements, the existing uncertainty in climate projections has not changed significantly during the past 30 years. It seems that efforts that have been aiming at reducing uncertainty in climate projections have been hindered either by a flawed conception of the climate system or by a piece of the system's underlying nature. If this problem can be solved at some stage, it will have important implications for climate research and policy. (Baker et al., 2007)

According to Allen et. al (2007); *"Once the world has warmed 4°C conditions will be so different from anything we can observe today… that it is inherently hard to say when the warming will stop"*. This quote brings forth the essential problem, warming will change the conditions of life in the planet in a way that cannot be predicted before it happens. It is precisely because of this fact that action is needed now, to preserve a change to have an impact on the warming of the climate. Furthermore, it cannot be guaranteed that it can be prevented by setting and achieving goals such as the stabilization of atmospheric CO^2 concentrations. Some suggest the only solution for tackling these problems is an adaptive

policy. *"Policymakers are always going to be faced with uncertainty and so the only sensible way forward to minimize risk is to adopt an adaptive policy."* (Biello, 2007) Biello (2007) writes that scientists and experts will have to start monitoring other measures than atmospheric greenhouse gasses also in order to catch catastrophic climate change developing. It is impossible for the adaptive policy to be accepted entirely before being sure about what should be monitored. One suggestion for such measures could be the "key vulnerabilities" that IPCC has identified in its' assessment reports. In the fourth assessment report these consist of 5 vulnerabilitis; risks to unique and threatened systems, risks of extreme weather events, distribution of impacts and vulnerabilities, aggregate impacts and risks of large-scale singularities. (Bernstein et al., 2007, p.64-65) The possibilities provided by SEA in such an adaptive policy approach are clear, as it is a tool that can be used to assess these key vulnerabilities in local, regional and even national levels.

5.1.1 Mitigation and adaptation

(Source priceofoil.org)

One way for societies to prepare for climate change is via mitigation and adaptation. Mitigation and adaptation are actions that aim at reducing the potential effects of global warming. According to the IPCC mitigation is "*Technological change and substitution that reduce resource inputs and emissions per unit of output. Although several social, economic and technological policies would produce an emission reduction, with respect to climate change, mitigation means implementing policies to reduce GHG emissions and enhance sinks.*" (Bosch et al. 2007) The IPCC defines adaptation as "*Initiatives and measures to reduce the vulnerability of natural and human systems*

against actual or expected climate change effects. Various types of adaptation exist, e.g. anticipatory and reactive, private and public, and autonomous and planned. Examples are raising river or coastal dikes, the substitution of more temperature-shock resistant plants for sensitive ones, etc." (ibid.) To put it shortly, mitigation refers to measures that reduce GHG and adaptation to actions that help us adapt to effects that are likely to happen. Larsen et al. (2012, p.33) have defined how mitigation and adaptation are to be understood in conncetion with SEA; *"In SEA, mitigation refers to assessing the environmental effects of a plan in terms of potential emissions of greenhouse gases (GHG) resulting from the plan and the abatement of these. .. In relation to SEA, adaptation deals with climate change as an environmental problem of relevance to the plan and if and how it is expedient to adapt the plan to future climate change."*

The IPCC writes of the importance of including both mitigation and adaptation into climate change policies; "*There is high confidence that neither adaptation nor mitigation alone can avoid all climate change impacts. Adaptation is necessary both in the short term and longer term to address impacts resulting from the warming that would occur even for the lowest stabilisation scenarios assessed. There are barriers, limits and costs that are not fully understood. Adaptation and mitigation can complement each other and together can significantly reduce the risks of climate change"* (Bernstein et al. 2007, p. 65).

The incentives for making adoption and mitigation measures are not only environmental ones. The European Environmental Agency (EEA) recently published a report, where the costs of air pollution from the 10 000 largest industrial facilities in Europe in 2009 were calculated amounting to 102 – 169 billion €. (European Environmental Agency, 2011) The IPCC explains that societies' capacity to adapt and mitigate is connected to socio-economic and environmental circumstances as well as the availability of information and technology. At this moment more information about the costs and effectiveness of mitigation measures are available than about those related to adaptation. (EEA, 2011)

Adaptation and mitigation are measures that are also highly relevant for SEA. Larsen et al. (2012) point out that it is not only important to assess mitigation and adaptation in SEA,

but the synergies between these. This together with the EU's response to climate change is discussed below.

5.2 Climate change, the EU and SEA

As explained in the paragraph above, predicting just how bad climate change will be is nearly impossible. Considering this, it is understandable that it is difficult to come up with rules and regulations as to how to take climate change into consideration in various policy areas and programmes. However, many countries have published climate change policies and as shown in chapter 4, specific climate change focused SEA guidance has also been developed. As this thesis focuses on the EU, it is necessary to look at how climate change is integrated into the EU policies, more specifically what the plans are for SEA.

The EU has set climate change as one important policy area. Currently plans are being prepared as to how to prepare for climate change. In 2007 the EU Commission put forward a green paper about adapting to climate change. It recognises the importance of climate change and acknowledges the uncertainty within the issue by stating that; *"The effects of climate change in Europe and the Arctic are already significant and measurable. Climate change will heavily affect Europe's natural environment and nearly all sections of society and the economy. Because of the non-linearity of climatic impacts and the sensitivity of ecosystems, even small temperature changes can have very big effects." (EC, 2007, p.4)* The paper recognises the threats Europe is facing from climate change and calls for mitigation and adaptation measures. Early action is seen to bring economic benefits *"..by anticipating potential damages and minimizing threats to ecosystems, human health, economic development, property and infrastructure. Furthermore competitive advantages could be gained for European companies that are leading in adaptation strategies and technologies."* (EC; 2007, p. 9) So, not only threats are listed

and measures proposed to diminish and avoid them, but new opportunities are also recognised. However, making adaptation plans in the EU level is not so straight forward as severity of the impacts will vary from region to region. Adaptation to climate change poses a challenge to the authorities in Europe on many governmental levels. That is again where SEA can be of use as it makes it possible to assess adaption impacts in various levels of governance.

Following the green paper, a *White paper on adapting to climate change* was released in 2009. It introduces the framework for adaptation measures and policies to reduce the EU's vulnerability to the impacts of climate change. The first phase of this framework is described in the figure below.

Phase I: Preparation 2009-2012

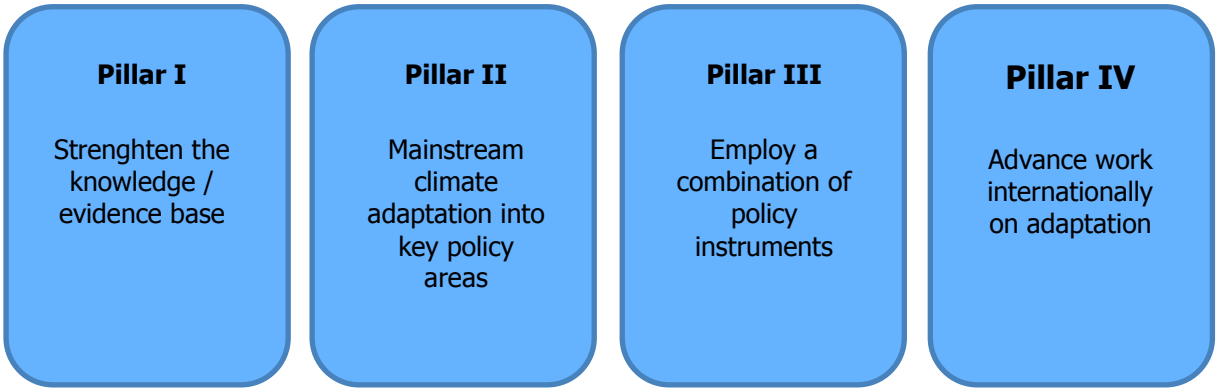

Figure 6. EU Climate change adaptation framework (Kuodys, 2010)

A search for a united Europe wide response to climate change that will guide the Member States climate strategies is emitted from the figure above. The White paper also makes a note of integrating climate measures to environmental impact assessments; *"the Commission will work with Member States and stakeholders setting guidelines and exchanging good practice, to ensure that account is taken of climate change impacts when implementing the Environmental Impact Assessment (EIA) and Strategic Environmental*

Assessment (SEA) Directives and spatial planning policies." (EC, 2009 b) Furthermore, a requirement about developing guidelines for securing the handling of climate impacts in the EIA and SEA Directives is included in the White paper. As mentioned in chapters 1 and 4, climate change guidance in the EU is currently being prepared. The White paper makes it clear that the EU recognises that SEA (and EIA) guidance plays a very important role in climate change integration.

However, even if the importance of SEA in climate change integration is recognised, it does not mean that it will be an easy task. As the discussion in this chapter has shown, climate change uncertainty is still a restricting factor in the humanity's fight against climate impacts. As not much progress in diminishing this uncertainty has happened during the last decades, it might never happen. This means that while making efforts to integrate climate change impact assessment as an essential part of SEA, we are still only relying on information available to us now and interpreting and predicting future climatic conditions and their impacts based on a limited set of information. The efforts put to mitigate and adapt to climate change today, might prove to be of no use in a 100 years' time. However, that is not to say that we shouldn't try. Carrying on as we are doing right now, with present level of e.g. GHG emissions will certainly not be an advantage in the future.

The global scale of consequences in the climatic system also poses challenges for developing SEA guidance and the practitioners preparing SEA's. The adoption of EU SEA guidance is likely to make the assessment of climate impacts in the European level more unified. Unified ways of assessment is also highlighted in the interviews done for this thesis (see chapter 5.3 and Blinnikka, 2011)

As SEA's are conducted in so many administrational levels, practitioners preparing them need a great amount of information and understanding of the process of climate change. Guidance can of course support the practitioners in this process but personal experience accumulated over time and experience can also be considered a great help. Therefore,

one could suggest that not only guidance is important but knowledge transfer within an organisation is also something that should be paid attention to. The scaling down in the public sector in Finland that was mentioned in chapter 4.2.3 could have a negative effect on knowledge transfer in e.g. situations where a practitioner with a long career with SEA in an organisation retires and no one is hired as replacement, but instead tasks are divided to various other practitioners.

(Source: Fliss Taylor)

5. 3 Analysis of the interviews in relation to climate change guidance

The practitioners that were interviewed for this thesis answered several questions that dealt with their familiarity with existing climate change guidance, the importance of climate concerns in the SEA process, climate change concerns' relation with other environmental issues and if they think new guidance is needed. This section will discuss the answers and insights gained via this set of questions.

5.3.1 The significance of climate change concerns and the familiarity and need for issue specific guidance

Question 11 (see appendices 2-7) asked about the significance of climate change concerns in SEA. The summary of these answers is that climate change is an important issue, the role of which is growing and becoming more important, but that at present it is not significant enough. Specific issues related to climate change that were raised as important in doing an assessment are greenhouse gas emissions, mitigation and adaptation.

When asked if they were familiar with any climate change related guidance (question 12), no one said yes. Two of the interviewees mentioned other sources dealing with climate change issues that they utilised when making an SEA. These include The Finnish Ministry of the Environment's report 20/2008 about adapting to climate change (also mentioned in chapter 4.2.2.), a website www.klimatilpasning.dk and other sources such as the Danish Energy Agency's and IPCC's websites. Ms. Anderssen, who works as a consultant, also said that there are climate change specialists in the company that assist him. In the light of the street-level bureaucrat approach, this suggests that the practitioners use their descretionary decision-making power when assessing climate change impacts. Lacking specific climate change guidance the practitioners resort to getting ideas and information from other types of documents and other sources of information that deal with climate change, but not with SEA.

In question 13 the interviewees were asked if they think that existing guidance is sufficient in order to perform a climate change assessment in SEA. Ms. Møller Nielsen's answer to this question raises the issue of uncertainty in climate change;

"With regards to greenhouse gas emissions, it is possible to forecast emissions for different development scenarios, and to propose options for reducing emissions. The importance of greenhouse gas emissions resulting from implementation of the plan can then be evaluated through how the plan contributes to achievement of municipal or national emission reduction strategies and goals, if such strategies and goals are established. And enhancing measures to make the plan contribute most efficiently to

achieving the goals could be applied, as required. This is in essence what can and should be done at the SEA level.

With regards to climate change adaptations, the assessment is more difficult, because we de facto do not know how quick the climate will change, and therefore do not know exactly what adaptations would be appropriate. The best we can do is to use the latest IPCC forecasts or the latest national forecasts as a standards for adaptation, preferably both the "most likely" and the "worst case" scenarios ought to be considered. Then politicians must decide what "risk level" they want to safeguard against." (Møller Nielsen, 2011)

The answer above suggests that exisiting guidance is not enough. The rest of the interviewees answered that using existing guidance climate change concerns can be partly assessed, and Ms. Andreassen didn't know . Ms. Blinnikka also added that in her opinion it is possible to take climate change in consideration as well as desired at the current state of things too, but that in order to make the assessments more unified in methods, guidance is needed. These answers are in line with question 7 that mapped what the practitioners use guidance for. As can be seen from Table 8, none of the practitioners have said that they use the EU or the national guidance documents for getting ideas about assessing climate change impacts. However, many of them do consult other types of documents for this purpose. This tells us that the practitioners do need assistance in assessing climate change impacts, but are these other documents enough? The direct opinion of the interviewees was obtained by asking them whether or not they think that SEA guidance on climate change is needed (question 16). Some of the practitioners had a clear opinion about this;

> *"Yes. There is a serious need for guidance of what climate scenario to use as a baseline for evaluation."* (A. Coutant, 2011)

> *"Yes. It would make the issue more prominent in assessment and in addition to this, guidance for the handling of climate change in assessment are needed and make the practical work easier."* (Blinnikka, 2011)

"Yes. Guidance + education tailored for the Finnish conditions about including climate change into different types of plans and programmes. I would like to emphasize the significance of the need for tangible instructions; precise instructions and best practices for different types of situations.

International guidance are also good in a sense that it is possible to get tips about how things are done elsewhere, possible new aproaches." (Kallio, 2011)

One person interviewed simply answered "Yes" and one had left the answer blank. Others were not so convinced of the importance of the necessity of climate change related guidance;

"Denmark: Maybe no - I have not thought about this. But I do not think that higher focus on climate change in SEAs in itself would contribute effectively to abate climate change. If the purpose is to abate climate change it is much more important that municipalities and sectors prepare, implement and monitor ambitious plans for reduction of greenhouse gas emissions. When goals and strategies for climate change management are set in municipal/sectoral/national plans, SEA may, however, be instrumental in implementing the strategies and achieving the goals, through assessment of the plan's contribution to achieving the goals and consequent correction of plans which are not contributing to achieving the set goals." (Møller Nielsen, 2011)

Mr. Tallskog's reply to this question was that he does not see new guidance as a necessity. Education and awareness rising are also very important in integrating climate change concerns in the process. (Tallskog, 2011)

As we can see, four practitioners interviewed think that there is a need for climate change guidance, either in international or national context. What the interviewees seem to need are instructions in the form of examples and "down to earth" instructions that provide

them with practical information and suggestions. The latter two answers that do not necessarily see the need for climate change guidance are not totally negative about the need of this type of guidance either. The first suggests that guidance could be useful for the planning sector. The second calls for more climate change plans from the authorities and only when this types of goals have been set does she see the usefulness of a climate change focussed SEA. Ms. Møller Nielsen seems to be suggesting that SEA is more useful in checking the climate change plans on different levels of governance after they have been drafting, finding their weaknesses and then corrected via SEA by checking if the plan is achieving what it was set to achieve, and correcting if this is not the case. This seems to refer to using SEA as a monitoring tool during the whole lifetime of the plan.

In order to get an idea about the types of guidance that the practitioners prefer, they were asked what makes guidance useful (Question 10). According to the answers, there is a need for specific instructions, user-friendly language, clear, consistent and demonstrative guidance (checklists, figures, tables, examples) that do not take too much time to study, practical, concrete examples, instructions for different types of plans and programmes, good practise / case study-type of instructions and definitions of concepts. So, it is obvious that the practitioners interviewed prefer clear guidance that is linked to examples. Out of the four guidance documents analysed in chapter 4, the UK climate change guidance seems to fit these wishes the best, although it does not provide case study type of instructions, it does contain some examples of situations. As none of the practitioners interviewed are actually familiar with this document, conclusions about its usefulness from the practitioners' point of view cannot be made here. This would require further research.

Climate change concerns are considered important in relation to SEA, even though their role is not yet as important as it should be according to the practitioners. They see the

importance of these concerns growing and becoming more and more significant. Even though none of the practitioners interviewed are familiar with issue specific climate change guidance, they have found other sources of information that guide their assessments. However, these are not considered to be quite adequate and practical climate change guidance is called for in order to better the process and make the practitioners work a little easier.

5.3.2 Climate change and other environmental concerns

The practitioners interviewed were also asked about climate change and it's relation to other environmental concerns that are assessed via SEA (question 14). First they were asked how important a role does climate change play in SEA compared to other issues, such as biodiversity, flora, fauna, etc. There was a lot of variation in the answers to this question. Two persons answered that climate change concerns play a less important role today than other environmental concerns. These two were two consultants from Denmark. The third danish practitioner said *"It depends on the plan or programme in concern. If it is a national plan or programme, climate change considerations in terms of greenhouse gas emissions are most important. The same goes for many sector plans, such as energy plans, and transport plans, waste management plans etc. where energy production/ consumption is the key issue. For plans like amendments to municipal plans or local plans for e.g. a gravel pit, or a factory, other sustainable development issues may be equally important (e.g. biodiversity, surface and ground water protection or human health). Climate change considerations in terms of climate change adaptations are, in my opinion, normally equally or less important than other environmental concerns, depending on the plan in concern."* (Møller Nielsen, 2011) One finnish person considered it's role to be more important, adding *"at least it should be"* in brackets. Another one said that it is circa as important or more important and that it has clearly received an enhanced role. Mr. Tallskog considered climate change having an equally important role, but that it depends entirely on the plan or programme assessed. One person did not answer this question.

There is an interesting division in the answers to this question. Ms. Møller Nielsen from Denmark is saying there's a difference depending on the plan or programme that is assessed. According to her they receive priority in national plans, are equally important in municipal level and climate change adaptation might have a less important role in some cases. Mr. Tallskog from Finland seems to be suggesting something similar by saying that it depends on the plan or program assessed. The rest are divided two from Denmark saying less important and two from Finland saying equally important or more important. This division could be explained by difference in experiences and tasks within SEA or simply personal interests and opinions. Differences in national priorities could also play a part in this, but then again both countries are bound by EU policies and the answers of Ms. Møller Nielsen and Mr. Tallskog also seem to speak against this. The fact that the Danish interviewers work for consultancies and the Finnish on the public sector could also explain this difference. In the street-level bureaucrat theory in chapter 3 some scholars suggested that institutional resources and incentives are the most important restrictions to a street-level bureaucrat. By making the division between public and private, this theory could explain the difference in the answers by looking at the institutional resources that both groups of practitioners have in use. Some of the consultants interviewed have mentioned that they use climate experts within the company to help them with the assessment of climatic impacts. None of the consultants have answered anything similar, which could tell about the difference in resources that are in disposal of the practitioners.

The practitioners were also asked if they think that the enhanced publicity that climate change has received during recent years has influenced other issues that are assessed using SEA (question 15). Two interviewees left this question unanswered. The other answers were;

"Apart from climate change adaptation, no." (Møller Nielsen, 2011)

"Yes, it has become more important." (Coutant, 2011)

"Yes, even if it's less important than other concerns, it is more important than it was years ago." (Anderssen, 2011)

"Maybe. Due to the enhanced publicity of climate change more plans and programmes are covered with an SEA in general. In the Helsinki metropolitan area these include e.g. traffic related plans. But in my opinion this has not affected the quality or level of the assessment of other issues." (Blinnikka, 2011)

In the interview with mr. Tallskog that was done via phone, he was asked the same question as the practitioners have answered above and this was supplemented by asking how can we make sure that integrating climate change does not happen on the expense of other environmental concerns. He said that climate change has received an enhanced role, but in his opinion the assessments do not face problems where one issue would be forgotten on the expense of another issue. He carried on by saying that the process involves so many people with a lot of experience, so this is not a problem. (Tallskog, 2011)

Through these answers, it can be argued that the integration of climate change in SEA as a result of enhanced publicity received by climate change has not affected the quality of the assessment of other environmental concerns. However, Ms. Blinnikka suggests that this has resulted in more plans and programmes being covered by an SEA. According to Mr. Tallskog, it is the amount and experience of people involved in an SEA that secure that all concerns are dealt with properly. The only answer that seems to be suggesting the opposite is the one by Mr. Coutant, who say that climate change has become more important. However, as he does not explain his opinion further, it is difficult to know if by saying this he means that other concerns have suffered due to this.

This chapter has discussed climate change, the uncertainty that lies within in, climate policy-making in the EU and combined these in relation to SEA. The information received via interviews concerning climate change and guidance was prsented and discussed. The next chapter will make a conclusion of the findings of this thesis, and based on those some recommendations for future climate change guidance are put forward in chapter 7.

6. CONCLUSION

This thesis has shown that SEA guidance documents are a valuable tool in assessing climate change concerns for practitioners. Via the information gained through interviews the ways the practitioners use guidance has been mapped and the need for further climate change specific guidance confirmed. The following part of the conclusion aims at briefly answering the main research question, as well as the sub-questions that were defined in the introductory part.

6.1 Summary of results for the main research question and sub questions

This part shall give a short summary of main findings and provide a clear answer to the research questions.

As laid out in chapter 1.3, the main research question is;

How can it be assured that a new guidance will make a difference and contribute to the integration of climate concerns in strategic environmental assessment?

Based on document analysis, applied theory and vital information that was gained by interviewing SEA practitioners there are several factors that need to be considered. The most important factor is the form and language of the guidance document. Based on the theory of street-level bureaucracy, the practitioners have a level of discretion in their disposal when making decisions and delivering policy. The bureaucrats, i.e. practitioners are influenced by their working conditions and institutional resources and have to prioritise in order to cope with expectations placed on them. As practitioners make decisions based on these constraints, simple tool that would assess them in their decision-making would

be of high value. Therefore, when writing climate change guidance it is vital to take these restrictions and wishes of the practitioners in consideration. To summarise the answer, the practitioners are asking for a guidance that is clear, tangible, uses easily understandable language and provides them with practical examples. As the practitioners resources are limited, they need a tool that is very user-friendly and precise providing lots of ideas and that will not take them overly long to get to know and understand.

Furthermore, the four sub questions also presented in chapter 1.3 need to be answered.

How are existing SEA guidance materials used by practitioners, and what criteria are found significant for a guidance to make a difference in practice in relation to secure the integration of climate concerns?

The document analysis in chapter 4 combined with the information received from the practitioners interview form the answer to this sub question. The existing guidance documents that provide a limited set of tools to assess climate change among other things are very familiar to the practitioners as most of them have read most of the respective national guidance in Denmark or Finland. The EU guidance is not so well-known to all of the practitioners, but most of them have read it. The EU guidance is mainly used for clarifying legal issues and getting hold on terms. The national guidance documents are used for the same two things, but also to clarify who should be consulted in SEA, to get ideas for alternatives, how to assess impacts and to get ideas for mitigation. Neither of these documents are really used for getting ideas about climate change or how cumulative and synergistic impacts should be assessed. The practitioners have noted that they use other documents for these purposes, which suggest that guidance on these two issues is also necessary, but just not available at this time. A new guidance that integrates all these aspects would simplify the practitioners work.

The interviews also aimed at clarifying what makes a guidance useful. According to the answers, the practitioners prefer clear guidance that is linked to practical examples. So in

developing useful climate change guidance this wish for practicality, tangibility and clarity should be paid attention to.

On which areas does the practitioner need more guidance in order to cover the need of implementing climate concerns in SEA?

Most practitioners were of the opinion that existing guidance only make it partly possible to assess climate change in SEA. A need for unification of assessment methods was called for in the interviews, but others also emphasized the need for tailored, case specific instructions. A clear answer to what climate change scenario that should be used as a baseline for evaluation also came up. In addition to these, existing guidance was not deemed helpful in mitigation, adaptation and assessing cumulative and synergistic impacts.

What requires implementation of a climate assessment in relation to other environmental concerns also included in SEA and planning today?

Chapter 5 provided a discussion to about the effect of climate change uncertainty to SEA and why the uncertainty poses challenges for climate change integration in SEA as the information that we possess today is simply not exhaustive, or something that can absolutely be relied on being also true in the future. However, another side of the coin in this issues that speaks for the need and usefulness of climate change integration in SEA is that observed evidence that suggests that climate change integration is vital because the impacts of climate change will affect other environmental concerns too. Climate change brings with it e.g. rising sea levels, warming temperatures and melting glaciers, which in turn have an impact on e.g. biodiversity as the living conditions of flora and fauna change. This also emphasizes the need for assessing synergies between climate change and other environmental concerns.

How can it be secured that assessment and integration of climate concerns does not happen on the expense of other environmental concerns like biodiversity, flora, fauna, etc?

This last sub question was also researched via the interviews. The practitioners had differing opinions about the role of climate change in relation to other environmental concerns. It was concluded that according to the practitioners' opinions one way of securing this is the fact that the SEA process involves so many people with experience that climate change concerns do not prioritised over other concerns. The practitioners didn't seem to think the risk of this would be too big. However, as mentioned in chapter 4.1.3 the assessment of synergies is not something that is common place in SEA today. Here in lies a potential risk, which needs to be tackled when developing climate change guidance.

7. REFLECTIONS

Based on the interviews and combined data, this section provides some recommendations for future developing of SEA climate change guidance and discusses further research ideas.

For the writers of new guidance documents, the findings of this thesis have shown that practitioners value tangible documents with practical content and clear language. Areas where guidance is especially needed are assessing climate impacts in general, mitigation and adaptation (emphasis on the latter) and assessing synergies between these and other environmental concerns. This thesis has not gone into detail about assessing synergistic impacts, but other researchers have pointed out that this is an area that is largely overlooked in SEA's today. (See Larsen et al., 2012) It is also important to remember that the practitioners work with limited resources, so guidance needs to come to terms with these in order to be found valuable by the practitioners.

Another approach that was raised in chapter 5.2. was knowledge transfer. It was stated that this is something that should be paid attention in an organisation in order to assure that accumulated information and experience stay in the organisation by transmitting this to other practitioners. This could be done e.g. via education, which is something that Mr. Tallskog also considered important (see annex 1). The role of knowledge transfer in SEA procedure could be something that could be studied further.

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ANNEXES

Annex 1: Summary of the interview with Lasse Tallskog

Note: Due to a technical failure this interview is not a word to word transcript of the interviewees answers, but is based on notes and memory of the interviewer immediately after the interview.

Q: On what kind of basis is SEA guidance done in Finland? Are guidance documents from other countries/ institutions used as an example?

A: Guidance is written based on all available information, including guidance in other countries. In addition to SEA guidance, documents such as instructions and guidance related to Structural funds, traffic projects, scientific discussion and experiences are utilised.

Q: Do you find some specific types of guidance created especially useful? In other words, is the best possible usability thought of carefully and tested in the writing phase of guidance documents (for example check lists vs. descriptive explanation, diagrammes and tables, practical examples, etc.?

The key words are clarity, operationality and consistency. The type of instructions that require a lot of time and effort to understand are not good.

Q: Is SEA guidance that would provide advice as to how to integrate climate change concerns in the SEA process being planned in Finland?

A: No, at least I am not aware of this type of guidance being planned. I am not sure about the planning side of things, the department of constructed environment?!?!? Is responsible for this. Finland doesn't have a general guidance covering the whole SEA field at the moment.

Q: Is the guidance related to climate change needed in your opinion? Could/Should climate change related issues be better integrated in the SEA procedure than it is now?

A: I don't see new guidance as a necessity. Education and awareness rising are also very important in integrating climate change concerns in the process.

Q: How important is the role of climate change in SEA in your opinion?

A: It is important but it is entirely up to the plan or programme that is under assessment and what needs to be evaluated. There are so many types of assessments after all.

Q: What is the importance of climate change in relation to other environmental issues (such as biodiversity, etc.) in SEA?

Equally impotant, depending on the plan or programme, what needs to be assessed and how different issueas are emphasized in it.

Has the publicity that climate change has received in recent years affected other issues that are assessed through SEA? How can we be sure that climate change integration doesn't happen on the expense of other environmental concerns?

It is evident that climate change has an enhanced role but in my opinion this does not create a problem in assessment, other concerns are not forgotten either. The SEA procedure involves so many experienced people so this is not a problem.

In your opinion, how can it be assured that new guidance is effective and would have a positive effect in integrating climate change in SEA assessments?

The quality of the content is of course the most important thing.

Annex 2: Interview with Seija Savo

1. Could you introduce yourself and describe your job description (in relation to SEA)?

I work as SEA-contact person for the Center for Economic Development, Transport and The Environment. The job consists mainly of formal guidance, and identifying programs and plans requiring SEA proceedings.

2. For how long have you worked with SEA? Mark X.

( ) Less than a year
( ) 1 to 3 years
(x) more than 3 years

As long as the legislation has been in force

3. How much of your time do you spend with SEA? Mark X.

( ) More than half

( ) 25-50%

(x) Less than 25%

4. What kind of tasks within SEA do you work with? Mark X.

In relation to screening:

( ) I do 'full' screening across all parameters in legislation (fauna, air, soil etc.)

( ) I contribute to screening within a limited scope

( ) I do other. Please write here:

(x) I do not participate in screening

In relation to the full assessment

( ) I do assessment of environmental parameters within all parameters

( ) I contribute with assessment for some parameters

(x) I do other. Please write here: Organising the proceedings, and the hearings involved, handling the case as a whole.

( ) I do not participate in the assessments

5. Are you familiar with existing SEA guidance?

( ) Commission's Guidance on the implementation of Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment

(x) The Finnish Ministry of Environment's 'Suunnitelmien ja ohjelmien vaikutusten arvioinnin (SOVA) tukiaineisto'

( ) Other, which one?

6. How much have you read of the guidances?

	Everything / almost everything 100-70%	Most of it 70-40%	Some 40-10%	Very little or not at all (0 – 10 %)
Commission's guidance			X	
Ministry of Environment (FIN)	X			
Other				

7. In what kind of situations do you utilise guidance?

	Commission's guidance	Ministry of Environment (FIN)	Other
To clarify legal issues	X	X	
To get a hold on terms (like e.g. screening, mitigation)		X	
To clarify who should be		X	

consulted in the SEA			
To get ideas for alternatives			
To get ideas for how to assess impacts		X	
To get ideas for mitigation			
To get ideas about climate change			
To get ideas to how cumulative and synergestic impacts can be assessed			
Other			

8. If you are not using guidance – is it then because:

( ) I have not known of them

( ) I have not had the time to open them

( ) I have not found them useful

( ) I can do the assessments without them

( ) Other

9. How important a role does guidance play?

( ) Very important

(X) Important

( ) Less important

( ) Not important at all

10. Are there some guidances you find more useful than others? If so, what makes them useful (e.g. Checklists vs. Textual explanations, figures and tables, etc.)?

11. How significant are climate change concerns when making an SEA?

12. Are you familiar with any climate change related guidance? If so, which one?

13. Do you find that existing guidance are sufficient in order to know how to do assessment of climate change in SEA?

( ) Fully or to a large extent

( ) Partly

( ) Limited

( ) Nearly not or not

( ) I don't know

14. In your opinion how important a role do climate change concerns play in the SEA procedure today compared to other environmental concerns (biodiversity, etc.)?

( ) More important than other concerns

( ) Equally important

( ) Less important

15. Do you think that the enhanced publicity that climate change has had in recent years has influenced other issues that are assessed via the SEA procedure?

16. Do you think new SEA guidance on climate change is needed? Why?

Annex 3: Interview with Tuomas Kallio

1. Could you introduce yourself and describe your job description (in relation to SEA)?

I work with planning and realization of the assessments', with respect to regional councils' SEA plans.

2. For how long have you worked with SEA? Mark X.

( ) Less than a year

( ) 1 to 3 years

(X) more than 3 years

Approximately one year as practitioner, and approximately five years in Research and Development (as a researcher and so forth)

3. How much of your time do you spend with SEA? Mark X.

( ) More than half

( ) 25-50%

(x) Less than 25%

4. What kind of tasks within SEA do you work with? Mark X.

In relation to screening:

(x) I do 'full' screening across all parameters in legislation (fauna, air, soil etc.)

(x) I contribute to screening within a limited scope

(x) I do other. Please write here:

(x) I do not participate in screening

All the above. 'Screening' as a term in Finland is quite rare, it is not commonly used. A separate screening phase is often omitted.

In relation to the full assessment

(x) I do assessment of environmental parameters within all parameters

( ) I contribute with assessment for some parameters

( ) I do other. Please write here: Organising the proceedings, and the hearings involved, handling the case as a whole.

( ) I do not participate in the assessments

5. Are you familiar with existing SEA guidance?

(x) Commission's Guidance on the implementation of Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment

(x) The Finnish Ministry of Environment's 'Suunnitelmien ja ohjelmien vaikutusten arvioinnin (SOVA) tukiaineisto'

(x) Other, which one? Yes, as a researcher.

6. How much have you read of the guidances?

	Everything / almost everything 100-70%	Most of it 70-40%	Some 40-10%	Very little or not at all (0 – 10 %)
Commission's guidance	X			
Ministry of Environment (FIN)	X			
Other	X			

7. In what kind of situations do you utilise guidance?

	Commission's guidance	Ministry of Environment (FIN)	Other
To clarify legal issues	X	X	
To get a hold on terms (like e.g. screening, mitigation)	X	X	
To clarify who should be consulted in the SEA		X	
To get ideas for alternatives	X	X	
To get ideas for how to assess impacts	X	X	
To get ideas for mitigation	X	X	
To get ideas about climate change			
To get ideas to how cumulative and synergestic impacts can be assessed			
Other			

8. If you are not using guidance – is it then because:

( ) I have not known of them

( ) I have not had the time to open them

( ) I have not found them useful

( ) I can do the assessments without them

( ) Other

9. How important a role does guidance play?

( ) Very important

(X) Important

( ) Less important

( ) Not important at all

10. Are there some guidances you find more useful than others? If so, what makes them useful (e.g. Checklists vs. Textual explanations, figures and tables, etc.)?

Guidance which is more pragmatic is the best in my opinion. Concrete examples are most useful. It would be good to have guidance for different plan/program types, they can indeed be quite dissimilar from the viewpoint of the guidance. Best practice/case-study type of guidance would be the best ones to have.

11. How significant are climate change concerns when making an SEA?

Very important

12. Are you familiar with any climate change related guidance? If so, which one?

No (as far as I can recollect)

13. Do you find that existing guidance are sufficient in order to know how to do assessment of climate change in SEA?

( ) Fully or to a large extent

(x) Partly

( ) Limited

( ) Nearly not or not

( ) I don't know

14. In your opinion how important a role do climate change concerns play in the SEA procedure today compared to other environmental concerns (biodiversity, etc.)?

(x) More important than other concerns

(x) Equally important

( ) Less important

On average, of equal importance, or of greater importance; it clearly has an enhanced role.

15. Do you think that the enhanced publicity that climate change has had in recent years has influenced other issues that are assessed via the SEA procedure?

?

16. Do you think new SEA guidance on climate change is needed? Why?

Yes. Guidance + education tailored for the Finnish conditions about including climate change into different types of plans and programmes. I would like to emphasize the significance of the need for tangible instructions; precise instructions and best practices for different types of situations.

International guidance are also good in a sense that it is possible to get tips about how things are done elsewhere, and possible new approaches.

Annex 4: Interview with Päivi Blinnikka

1. **Could you introduce yourself and describe your job description (in relation to SEA)?**

   My duties include the tasks of SEA coordinator for Center for Economic Development, Transport and the Environment, in Uusimaa region. I – and others working with SEA – should notice the plans and programs in the specified region, that may require SEA application. Other environmental officers also consult us regarding potential SEA needs.

2. **For how long have you worked with SEA? Mark X.**

   ( ) Less than a year
   ( ) 1 to 3 years
   (x) more than 3 years

3. **How much of your time do you spend with SEA? Mark X.**

   ( ) More than half

   ( ) 25-50%

   (x) Less than 25%

4. **What kind of tasks within SEA do you work with? Mark X.**

   In relation to screening:

   (x) I do 'full' screening across all parameters in legislation (fauna, air, soil etc.)

   ( ) I contribute to screening within a limited scope

   (x) I do other. Please write here: I compile SEA statements and participate in the preparation of all SEA statements from the Uusimaa region, regarding all possible SEA topics.

   ( ) I do not participate in screening

   In relation to the full assessment:

   (X) I do assessment of environmental parameters within all parameters

   ( ) I contribute with assessment for some parameters

   ( ) I do other. Please write here:

   ( ) I do not participate in the assessments

5. Are you familiar with existing SEA guidance?

( ) Commission's Guidance on the implementation of Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment

(X) The Ministry of the Environment's "Suunnitelmien ja ohjelmien vaikutusten arvioinnin (SOVA) tukiaineisto"

(X) Other, which one?

I have familiarized myself to the SEA guidance through examples, how SEA is used in practice in similar plans. I have heard presentations at Finnish Environment Institute (SYKE) training events. I have also used the The Finnish Ministry of the Environment's report 20/2008 about adapting to climate change, as well as other reports and guidance on ad hoc basis.

6. How much have you read of the guidances?

	Everything / almost everything 100-70%	Most of it 70-40%	Some 40-10%	Very little or not at all (0 – 10 %)
Commission's guidance				X
Ministry of Environment (FIN)	X			
Other		X		

7. In what kind of situations do you utilise guidance?

	Commission's guidance	Ministry of Environment (FIN)	Other
To clarify legal issues		X	
To get a hold on terms (like e.g. screening, mitigation)			
To clarify who should be consulted in the SEA		X	X
To get ideas for alternatives			X
To get ideas for how to assess impacts		X	X
To get ideas for mitigation			X

To get ideas about climate change		X	X
To get ideas to how cumulative and synergestic impacts can be assessed			
Other			

8. If you are not using guidance – is it then because:

( ) I have not known of them

( ) I have not had the time to open them

( ) I have not found them useful

( ) I can do the assessments without them

( ) Other

9. How important a role does guidance play?

(x) Very important

( ) Important

( ) Less important

( ) Not important at all

10. Are there some guidances you find more useful than others? If so, what makes them useful (e.g. Checklists vs. Textual explanations, figures and tables, etc.)?

Guidance should be clear and instructive. Checklists, figures and tables often are like this, but also examples and processing them could be of use.

11. How significant are climate change concerns when making an SEA?

Their importance is growing in all our work; the prevention of climate change and the adaptation to climate change must be taken into consideration in planning and all practical work assignments.

12. Are you familiar with any climate change related guidance? If so, which one?

I have used the Finnish Ministry of the Environment's report 20/2008 (as explained above).

13. Do you find that existing guidance are sufficient in order to know how to do assessment of climate change in SEA?

( ) Fully or to a large extent

(x) Partly

( ) Limited

( ) Nearly not or not

( ) I don't know

It is possible to take into climate concerns consideration as well as desired, but in order to have a unified way of dealing with climate change, specific guidance is needed.

14. In your opinion how important a role do climate change concerns play in the SEA procedure today compared to other environmental concerns (biodiversity, etc.)?

(X) More important than other concerns *(or at least it should be)*

( ) Equally important

( ) Less important

15. Do you think that the enhanced publicity that climate change has had in recent years has influenced other issues that are assessed via the SEA procedure?

Maybe. Due to the enhanced publicity of climate change more plans and programmes are covered with an SEA in general. In the Helsinki metropolitan area these include e.g. traffic related plans. But in my opinion this has not affected the quality or level of the assessment of other issues.

16. Do you think new SEA guidance on climate change is needed? Why?

Yes. It would make the issue more prominent in assessment and in addition to this, guidance for the handling of climate change in assessment are needed and make the practical work easier.

Annex 5: Interview with Inger Adreassen

1. Could you introduce yourself and describe your job description (in relation to SEA)?

I have more than 20 years of experience in case handling and consultancy jobs in the field of environment. Over the past year, I have particularly dealt with environmental assessment of projects and plans for private clients and municipalities.

2. For how long have you worked with SEA? Mark X.

( ) Less than a year
( ) 1 to 3 years
(x) more than 3 years

3. How much of your time do you spend with SEA? Mark X.

( ) More than half

(x) 25-50%

( ) Less than 25%

4. **What kind of tasks within SEA do you work with? Mark X.**

In relation to screening:

(x) I do 'full' screening across all parameters in legislation (fauna, air, soil etc.)

(x) I contribute to screening within a limited scope

(x) I do other. Please write here:
I gather contributions from specialist eg. water, nature, noise etc. to at full screening

( ) I do not participate in screening

In relation to the full assessment

( ) I do assessment of environmental parameters within all parameters

(X) I contribute with assessment for some parameters

(X) I do other. Please write here:

I gather contributions from specialist eg. water, nature, noise etc. to at assesment

( ) I do not participate in the assessments

5. Are you familiar with existing SEA guidance?

( ) Commission's Guidance on the implementation of Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment

(X) 'Vejledning om miljøvurdering af planer og programmer'

( ) Other, which one?

6. How much have you read of the guidances?

	Everything / almost everything 100-70%	Most of it 70-40%	Some 40-10%	Very little or not at all (0 – 10 %)
Commission's guidance			x	
Vejledning om miljøvurdering af planer og programmer	X			
Other				

7. In what kind of situations do you utilise guidance?

	Commission's guidance	Vejledning om miljøvurdering af planer og programmer	Other
To clarify legal issues			SEA legislation and decisions from MKN concerning SEA
To get a hold on terms (like e.g. screening, mitigation)		(x)	
To clarify who should be consulted in the SEA			SEA legislation
To get ideas for alternatives			SEA cases from other advisors, municipalities and the ministry of environment
To get ideas for how to assess impacts			X
To get ideas for mitigation			X
To get ideas about climate change			X
To get ideas to how cumulative and synergestic impacts can be assessed			X
Other			

8. If you are not using guidance – is it then because:

( ) I have not known of them

( ) I have not had the time to open them

(X) I have not found them usefull

( ) I can do the assessments without them

( ) Other

Vejledning om miljøvurdering af planer og programmer is not usefull in the assesment-work, because it focuses mostly on processes and not very much on the assesment itself.

9. How important a role does guidance play?

( ) Very important

( ) Important

(X) Less important

( ) Not important at all

10. Are there some guidances you find more useful than others? If so, what makes them useful (e.g. Checklists vs. Textual explanations, figures and tables, etc.)?

To make sure we get it rigt we have made our own ckecklists etc.

11. How significant are climate change concerns when making an SEA?

Not significant enough, but it plays at bigger and bigger role.

12. Are you familiar with any climate change related guidance? If so, which one?

NO - when climate is part of a SEA I get help from climate-experts within the company

13. Do you find that existing guidance are sufficient in order to know how to do assessment of climate change in SEA?

( ) Fully or to a large extent

( ) Partly

( ) Limited

( ) Nearly not or not

(X) I don't know

14. In your opinion how important a role do climate change concerns play in the SEA procedure today compared to other environmental concerns (biodiversity, etc.)?

( ) More important than other concerns

( ) Equally important

(X) Less important

15. Do you think that the enhanced publicity that climate change has had in recent years has influenced other issues that are assessed via the SEA procedure?

Yes even if it´s less important than other concerns, it it more important than it was a few years ago.

16. Do you think new SEA guidance on climate change is needed? Why?

Yes

Annex6: Interview with Margot H. Møller Nielsen

1. Could you introduce yourself and describe your job description (in relation to SEA)?

MSc in environmetal biology 1985. Worked in a major Danish consulting company and in Danida 1985 - today. Extensive experience with EIA, SEA and environmental monitoring from DK, Europe, Asia and Africa, including institutional capacity buidling, development of legislation and guidelines, training, accomplishment of SEAs in Africa and Denmark, accomplishment of EIAs in Africa, Europe and Denmark (mainly as project manager), public consultations and public hearings.

2. For how long have you worked with SEA? Mark X.

( ) Less than a year

( ) 1 to 3 years

(x) more than 3 years

3. How much of your time do you spend with SEA? Mark X.

( ) More than half

(x) 25-50%

( ) Less than 25%

4. What kind of tasks within SEA do you work with? Mark X.

In relation to screening:

(X[1]) I do 'full' screening across all parameters in legislation (fauna, air, soil etc.)

( ) I contribute to screening within a limited scope

( ) I do other. Please write here:

( ) I do not participater in screening

In relation to the full assessment

(X[2]) I do assessment of environmental parameters within all parameters

( ) I contribute with assessment for some parameters

( ) I do other. Please write here:

( ) I do not participate in the assessments

5. Are you familiar with existing SEA guidance?

(X) Commission's Guidance on the implementation of Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment

(X) 'Vejledning om miljøvurdering af planer og programmer'

(X) Other, which one? The OECD DAC SEA guidelines

6. How much have you read of the guidances?

	Everything / almost everything 100-70%	Most of it 70-40%	Some 40-10%	Very little or not at all (0 – 10 %)
Commission's		I have read it partially. But I		

[1] Nobody can do a full screening without involving experts, but I am typically the project manager for such screenings and screen a number of the parameters myself.

[2] Nobody can do a full SEA without involving experts, but I am typically the project manager for SEAs.

guidance		usually ask one of our company's environmental lawyers instead.		
Vejledning om miljøvurdering af planer og programmer		I only consult this document when I am forced to do so. It is written in a very user unfriendly language and presented in a user-unfriendly layout. I usually ask one of our company's environmental lawyers instead.		
Other		I have read major parts of the OECD DAC SEA guidelines, and I find its proposed approach to SEA very inspiring and very useful for the purpose of achieving the desired development objective in a sustainable way. This approach can be used in a much more visionary way than the EU SEA legislation. The World Bank SEA Toolkit is also providing good guidance and inspiration.		

7. In what kind of situations do you utilise guidance?

	Commission's guidance	Vejledning om miljøvurdering af planer og programmer	Other
To clarify legal issues	X	X	
To get a hold on terms			

(like e.g. screening, mitigation)			
To clarify who should be consulted in the SEA			X In Denmark this appears from a specific regulation
To get ideas for alternatives			X
To get ideas for how to assess impacts			X
To get ideas for mitigation			X
To get ideas about climate change			X
To get ideas to how cumulative and synergestic impacts can be assessed			X
Other	To clarify process requirements	To clarify process Requirements	

8. If you are not using guidance – is it then because:

( ) I have not known of them

( ) I have not had the time to open them

(x) I have not found them usefull, se my answer to question 6

(x) I can do the assessments without them - because I have other sources of

information, see my answer to question 6

( ) Other

9. How important a role does guidance play?

( ) Very important

( ) Important

( ) Less important

( ) Not important at all

It is not possible for me to answer this generic question. A good guideline would be

valuable, a less good guideline is less valuable.

10. Are there some guidances you find more useful than others? If so, what makes them useful (e.g. Checklists vs. Textual explanations, figures and tables, etc.)?

So far, the best SEA guidance I have read is the OECD DAC SEA guidelines. The Danish "Vejledning om miljøvurdering af planer og programmer" is less useful as it is now. It contains a number of very valuable considerations and proposals. However it needs to be translated into a more user-friendly language, and it may need to be updated regarding how, specifically, international and EU environmental legislation should be addressed in an SEA.

11. How significant are climate change concerns when making an SEA?

Very important. Particularly in relation to emission of greenhouse gases, but often also in relation to climate change adaptation.

12. Are you familiar with any climate change related guidance? If so, which one?

I think that www.klimatilpasning.dk is a good entrance to the subject. I also use other sources of information, such as Energistyrelsen's website or the IPCC's website. I get information on emission factors from various technical manuals and product information sheets.

13. Do you find that existing guidance are sufficient in order to know how to do assessment of climate change in SEA?

( ) Fully or to a large extent

( ) Partly

( ) Limited

( ) Nearly not or not

( ) I don't know

I do not know exactly which guidance you are referring to.

With regards to greenhouse gas emissions, it is possible to forecast emissions for different development scenarios, and to propose options for reducing emissions. The importance of greenhouse gas emissions resulting from implementation of the plan can then be evaluated through how the plan contributes to achievement of municipal or national emission reduction strategies and goals, if such strategies and goals are established. And enhancing measures to make the plan contribute most efficiently to achieving the goals could be applied, as required. This is in essence what can and should be done at the SEA level.

With regards to climate change adaptations, the assessment is more difficult, because we de facto do not know how quick the climate will change, and therefore do not know exactly what adaptations would be appropriate. The best we can do is to use the latest IPCC forecasts or the latest national forecasts as a standards for adaptation, preferably both the "most likely" and the "worst case" scenarios ought to be considered. Then politicians must decide what "risk level" they want to safeguard against.

14. In your opinion how important a role do climate change concerns play in the SEA procedure today compared to other environmental concerns (biodiversity, etc.)?

( ) More important than other concerns

( ) Equally important

( ) Less important

It depends on the plan or programme in concern. If it is a national plan or programme, climate change considerations in terms of greenhouse gas emissions are most important. The same goes for many sector plans, such as energy plans, and transport plans, waste management plans etc. where energy production/consumption is the key issue. For plans like amendments to municipal plans or local plans for e.g. a gravel pit, or a factory, other sustainable development issues may be equally important (e.g. biodiversity, surface and ground water protection or human health).

Climate change considerations in terms of climate change adaptations are, in my opinion, normally equally or less important than other environmental concerns, depending on the plan in concern.

15. Do you think that the enhanced publicity that climate change has had in recent years has influenced other issues that are assessed via the SEA procedure?

Apart from climate change adaptation, no.

16. Do you think new SEA guidance on climate change is needed? Why?

Nationally, EU-based or internationally???

Re. Denmark: Maybe no - I have not thought about this. But I do not think that higher focus on climate change in SEAs in itself would contribute effectively to abate climate change. If the purpose is to abate climate change it is much more important that municipalities and sectors prepare, implement and monitor ambitious plans for reduction of greenhouse gas emissions. When goals and strategies for climate change management are set in municipal/sectoral/national plans, SEA may, however, be instrumental in implementing the strategies and achieving the goals, through assessment of the plan's contribution to achieving the goals and consequent correction of plans which are not contributing to achieving the set goals.

Annex 7: Interview with Albert Coutant

1. Could you introduce yourself and describe your job description (in relation to SEA)?

Urban planer with 10 years experience in working with EIA and SEA.

2. For how long have you worked with SEA? Mark X.

( ) Less than a year
( ) 1 to 3 years
(X) more than 3 years

3. How much of your time do you spend with SEA? Mark X.

( ) More than half

( ) 25-50%

(X) Less than 25%

4. What kind of tasks within SEA do you work with? Mark X.

In relation to screening:

(X) I do 'full' screening across all parameters in legislation (fauna, air, soil etc.)

( ) I contribute to screening within a limited scope

( ) I do other. Please write here:

( ) I do not participater in screening

In relation to the full assessment

(X) I do assessment of environmental parameters within all parameters

( ) I contribute with assessment for some parameters

( ) I do other. Please write here:

( ) I do not participate in the assessments

5. Are you familiar with existing SEA guidance?

(X) Commission's Guidance on the implementation of Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment

(X) 'Vejledning om miljøvurdering af planer og programmer'

(X) Other, which one? I have a large list of relevant literatur and exampels.

6. How much have you read of the guidances?

	Everything / almost everything 100-70%	Most of it 70-40%	Some 40-10%	Very little or not at all (0 – 10 %)
Commission's guidance	X			
Vejledning om miljøvurdering af planer og programmer	X			
Other				

7. In what kind of situations do you utilise guidance?

	Commission's guidance	Vejledning om miljøvurdering af planer og programmer	Other
To clarify legal issues		X	
To get a hold on terms (like e.g. screening, mitigation)	X	X	
To clarify who should be consulted in the SEA		X	
To get ideas for alternatives		X	
To get ideas for how to assess impacts		X	X
To get ideas for mitigation			X
To get ideas about climate change			X
To get ideas to how cumulative and synergestic impacts can be assessed			X
Other			

8. If you are not using guidance – is it then because:

( ) I have not known of them

( ) I have not had the time to open them

( ) I have not found them usefull

( ) I can do the assessments without them

( ) Other

9. How important a role does guidance play?

(X) Very important

( ) Important

( ) Less important

( ) Not important at all

10. Are there some guidances you find more useful than others? If so, what makes them useful (e.g. Checklists vs. Textual explanations, figures and tables, etc.)?

a) Definitions of concepts.

b) Check lists.

11. How significant are climate change concerns when making an SEA?

Climate change concerns are only sligtly significant.

12. Are you familiar with any climate change related guidance? If so, which one?

No.

13. Do you find that existing guidance are sufficient in order to know how to do assessment of climate change in SEA?

( ) Fully or to a large extent

(X) Partly

( ) Limited

( ) Nearly not or not

( ) I don't know

14. In your opinion how important a role do climate change concerns play in the SEA procedure today compared to other environmental concerns (biodiversity, etc.)?

( ) More important than other concerns

( ) Equally important

(X) Less important

15. Do you think that the enhanced publicity that climate change has had in recent years has influenced other issues that are assessed via the SEA procedure?

Yes, it has become more important.

16. Do you think new SEA guidance on climate change is needed? Why?

Yes. There is a serious need for guidance of what climate scenario to use as a baseline for evaluation.