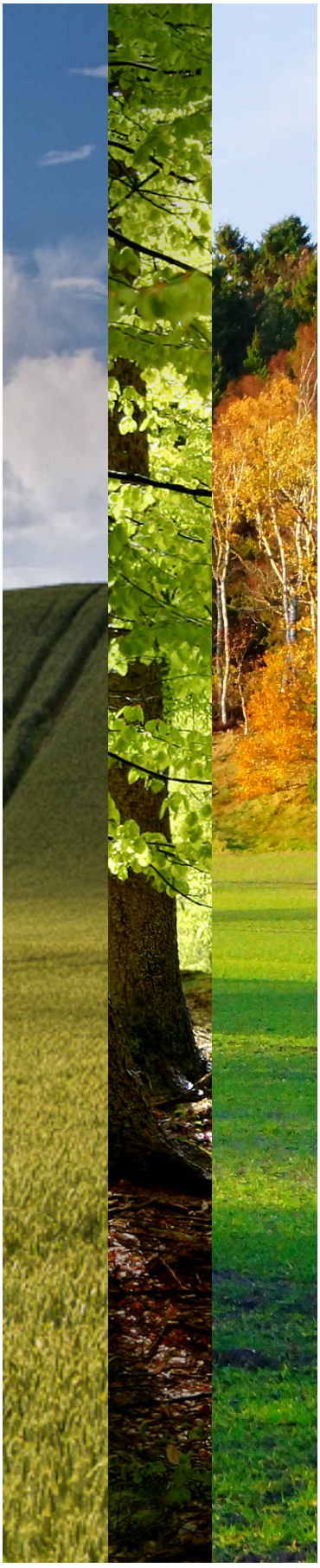

IMPLEMENTATION AND EFFECTIVENESS OF SEA

THE POTENTIALS AND PITFALLS OF STRATEGIC ENVIRONMENTAL ASSESSMENT IN DANISH MUNICIPALITIES

JUNE 2015

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Compendium - Questionnaire results

Appendix disk

Master Thesis

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Supervisor:	Sanne Vammen Larsen

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STUDENT REPORT

Abstract

The purpose of this thesis is to investigate the implementation and effectiveness of Strategic Environmental Assessments (SEA) in a Danish municipal context. The study is based on data from questionnaires and 11 interviews and applies theories on implementation and effectiveness evaluations. It is argued that the continuous production of SEA can be regarded as an un-going implementation.

The findings of the analysis point to different relevant implications of the implementation process. These are especially collaboration; capacity of the municipalities in terms of financial and human resources; engagement, will and interests of the fieldworkers; and how the decisions made by the Nature and Environmental Appeals Committee work as a feedback to the implementation process. The implementation results are likewise identified and they are the basis for the evaluation.

An evaluation of the substantive effectiveness, focusing on the legislative demands for SEA, reveals that SEA is somewhat effective in changing plans. However, when the legislative objective of promoting sustainability is addressed it is clear that this is not reached effectively.

A discussion of the implication and potentials of SEA proves that the implementation of SEA has been a troublesome process, where especially the policy design, in terms of guidelines and allocated financial resources, has constituted a problem for the municipalities. Furthermore, the potentials of SEA are found to be the flexibility of the screening and its ability to change plans, the systemised and strategic approach to environmental considerations and the possibility to integrate these into the planning process, and SEA's ability to open up the planning process and communicate the environmental considerations.

Resume

Formålet med dette projekt er at undersøge implementeringen og effektiviteten af strategiske miljøvurderinger (SEA) i en dansk kommunal kontekst. Undersøgelsen er baseret på data fra spørgeskemaer og 11 interviews og anvender teorier om implementering og evalueringer af effektivitet. Det hævdes, at den kontinuerlige produktion af SEA kan betragtes som en igangværende implementering.

Resultaterne af analysen viser forskellige relevante konsekvenser af implementeringsprocessen. Disse er især samarbejde; kapacitet i kommunerne i form af finansielle og menneskelige ressourcer; engagement, vilje og interesse hos markarbejderne; og hvordan de beslutninger, som Natur- og Miljøklagenævnet fungerer som feedback til implementeringsprocessen. Resultaterne af implementeringen er ligeledes identificeret, og de er grundlaget for evalueringen.

En evaluering af den substantive effektivitet, med fokus på de lovgivningsmæssige krav til SEA, afslører, at SEA til nogen grad er effektiv i forbindelse med ændringer af planer. Men når det lovgivningsmæssige mål om at fremme bæredygtighed er adresseret er det tydeligt, at dette ikke er opnået effektivt.

En diskussion af konsekvenserne og potentialer for SEA viser, at implementeringen af SEA har været en problematisk proces, hvor især politik designet, i form af retningslinjer og tildelte økonomiske ressourcer, har udgjort et problem for kommunerne. Desuden er potentialerne for SEA identificeret som at være fleksibiliteten af screeningen og dens evne til at ændre planer, den systematiseret og strategisk tilgang til miljøhensyn og muligheden for at integrere disse i planlægningsprocessen, og SEAs evne til at åbne planlægningsprocessen op og kommunikere miljømæssige hensyn.

Preface

This mater thesis is prepared as a result of a study of Strategic Environmental Assessments in Denmark done at Aalborg University, Copenhagen, Faculty of TEKNAT, School of Architecture, Design & Planning. The project accounts for 30 ECTS points and was conducted in the period from 2nd February 2015 to 8th June 2015.

The project has been executed by Helle David Jensen, Marie Rosenlund Nielsen, and Tine Alrø Christensen on the fourth semester of M.Sc. Sustainable Cities at Aalborg University, Copenhagen under the knowledgeable and inspirational supervision of Associate Professor Sanne Vammen Larsen.

The project has been done on the basis of a research of the implementation and use of Strategic Environmental Assessments (SEA) in Danish municipalities. The aim of the project was to investigate the implications of the implementations and the substantive effectives of SEA. It was, furthermore, strived to discover the potentials of SEA as a tool for integrating environmental considerations and promoting sustainable development.

This study was motivated by the interest in sustainable solutions to complex planning problems. We specifically became interested in SEA through our studies and found that SEA does not compose a completely flawless tool. The statement below by Therivel (2004) sums up these thought and consideration in a short and understandable manner.

> *"Strategic environmental assessment (SEA) is a process that aims to integrate environmental and sustainability considerations in strategic decision-making. It has the potential to make the world a greener and more liveable place. It also has to potential to be a dreary and resource-intensive formality, applied in a grudging minimalistic fashion by people who just hate having to do it, adding still further to some great useless administrative burden paid for by hapless taxpayers."*
>
> Therivel, 2004, p. 3

We found this somewhat complex situation interesting, which is why we chose to dig deeper into the implications of SEA in a Danish context.

In addition to this report a compendium is enclosed. The compendium contains the results from the data collection. Additionally, an Appendix Disc with the transcript of the interviews as well as the raw results from and data processing of the questionnaires is added. The Appendix Disc is confidential and must not be passed on without the authors' consent.

A poster has been prepared for this project, and can be viewed at the School of Architecture, Design & Planning's Poster Exhibition 2015 at Aalborg University, Copenhagen in the reception area of ACM15 from 15th June to 29th June 2015. A PDF-file can be required on request.

Many different people helped us develop, conduct, and finalise this project. We would like to extent our thanks to all these people in the following acknowledgements.

All references in this report have been done according to Harvard Reference System.

Acknowledgements

This project has been carried out by Helle David Jensen, Marie Rosenlund Nielsen and Tine Alrø Christensen. It would, however, not have been possible to complete the project without help from a number of different people.

This project could not have been done without the competent guidance of our supervisor Associate Professor Sanne Vammen Larsen. She supported us with qualified knowledge, inspiration, and helped us to focus and form this project. Her positive approach, encouragement, and understanding, along with her flexibility have made all the difference to us.
We would like to give our sincere appreciation to the 72 practitioners in the Danish Municipalities, and the five employees in Danish Consultancies, who responded to our questionnaire. We are astonished of the high response rate and grateful that so many of you found the time to help us.

A very special thank you to:

- Birgitte Krebs Schleemann, Aalborg Municipality
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- Rikke Tovbjerg Simonsen, Vejle Municipality

Who all participated in the interviews. Thank you, for letting us disturb you in your already busy workdays. This report could not have been made without your sincerity and kindness, and it has been a pleasure to interview such committed and engaged practitioners. We hope that this study in some way can contribute to you work, and that you can find inspiration in the other municipalities' experiences and procedures.

We would also like to express our sincere gratitude to Maja Knudsen (Rambøll) and Ulf Kjellerup (COWI), as well as Professor MSO Lone Kørnøv from Aalborg University and Associate Professor Matthew Cashmore from Aalborg University, for sharing you experiences and reflections on SEA. This project has been an interesting learning experience for us, and your knowledge gave us further insight into some of the most interesting aspects of the field. It was very rewarding to interview all of you.

A particularly thank you to Matthew Cashmore, who introduced us to impact assessments through his great class, which got us further interested in Strategic Impact Assessments.

Additionally, we would like to thank our incredible team of proof-readers, Cecilie Espersen, Bent Neergaard Pedersen, Peter Frydenlund Madsen, and Stinne Rosenlund Nielsen. You did a very good job and were a big help to us in the last stages of the project process.

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And lastly, thank you to our families and close ones for help, understanding and support. We could not have done it without you.

Sincerely,
Helle David Jensen, Marie Rosenlund Nielsen & Tine Alrø Christensen

Table of content

Chapter 1

Introduction

All over the world, the effect of human behaviour leaves its marks on the environment and the society. Our actions and constant pursuit of progress and development jeopardise the well-being of humans and the environmental conditions. For a long time decisions have been made with no or only partial concern to the world's limited resources and the preservation of nature and biodiversity. The consequences of this practice are becoming increasingly evident and prominent all over the world.

The effect on the environment reflects upon society, as droughts in California, smug over the rooftops of Beijing, bush fires in Australia, or extreme rain events causing floods in the streets of Copenhagen. It seems as if there are plenty of reasons to change the behaviour of mankind, however, the process has shown to be slow and challenging.

> *"We shall require a substantially new manner of thinking if mankind is to survive"*
> Albert Einstein

In 1962 the American writer, scientist and ecologist, Rachel Carson, published her book *Silent Spring*. The book brought focus to the damaging effects on nature and human health by the use of pesticides and thereby challenged the dominating agricultural practices at that time (Carson, 1962 & Lear, 1998). The book caused a shift in thinking and thus became the turning point in understanding the interconnections between human behaviour and the environment (iisd, 2012).

In 1987 the concept of sustainability was initially defined by the World Commission on Environment and Development (WCED) in the Brundtland Report (also known as *Our Common Future*), which laid the groundwork for the 1992 Earth summit. Sustainable development was in the report defined as being:

> *"[…] development that meets the needs of the present without compromising the ability of future generations to meet their own needs."*
>
> (WCED, 1987, p. 41)

In the report it was implied that sustainable development is limited, and that this limitation is determined by humans' ability to manage and improve technology and social organisation in a way that allows economic growth but without reaching the point where the biosphere is unable to absorb the effects of human activity (WCED, 1987). The need and global interest for integrating environmental considerations into development strategies were thereby established.

This interest became evident through international legislation, which aspired to influence the connection between development and the environment (Glasson et al., 2012). According to Tetlow and Hanusch (2012), the 1992 UNCED Earth Summit, the Rio Declaration, and Agenda 21 provided the national governments with incentives to incorporate environmental considerations into all levels of decision-making.

In order to ensure sustainable development a number of initiatives were carried out by the European Commission (EC) through the adoption of legislations and directives. One of the most established

incentives is the directive on Environmental Impact Assessment (EIA). EIA was initially introduced in the USA followed by an EU-directive, introducing EIA to the EU-member states in 1985 and subsequently spread to the rest of the world (Glasson et al., 2012). EIA proposes a systematic process, which provides decision-makers with knowledge on possible environmental consequences of suggested projects (Den Store Danske n.d.[a] & n.d.[b]).

EIA was supplemented with the concept of Strategic Environmental Assessments (SEA), which was first established in the USA in the early 1970s (Tetlow & Hanusch, 2012). SEA was introduced to the European member states through an EU-directive on the assessment of the effects of plans and programmes on the environment, published in 2001 (Council Directive, 2001). SEA takes the impact assessment to a strategic level by enabling assessment of programmes, plans and policies (PPPs), which are not finalised yet. The idea was that whereas EIA mainly concerns how projects should be carried out in order to map and minimise environmental effects. SEA should, furthermore, have an influence on the choices made concerning the plan in the early stages of decision-making and thereby facilitate a more proactive approach.

The legislation was implemented in Denmark in July 2004, where it resulted in the SEA of Plans and Programmes Act (SPPA). The act required that plans and programmes, prepared by authorities at all levels of the Danish planning hierarchy, should go through SEA, with only a few exceptions (Naturstyrelsen, n.d.[a]). According to Tetlow and Hanusch (2012), SEA can be implemented at many different levels of strategic actions. The implementation of the EU-directive in Denmark caused a division of the directive into two parts; a law on plans and programmes at the municipal level and a law on environmental assessment of policies on a governmental level (Naturstyrelsen, n.d.[b]). This study focuses on the first of these two.

The widespread global SEA implementation can be regarded as a response to the need to integrate environmental considerations with development and planning practices. SEA is a tool, which provides the planners with a method for mapping the significant environmental aspects regarding a plan or programme. This mapping is done through a screening, which is commonly described as a checklist of relevant environmental considerations (Danmarks Naturfredningsforening, 2011). The Danish SEA act includes a broad environmental concept, which addresses not only environmental aspects but also aspects regarding human health and cultural heritage (Miljøministeriet, 2013[a], SPPA), which should be included in the screening. If it is considered necessary a full SEA-report will be prepared, normally started by a scoping (Danmarks Naturfredningsforening, 2011). The process of SEA should be undertaken early in the planning process in order to showcase alternatives and inform the decision-making concerning planning options, such as reducing the environmental effects or mitigation measures (Naturstyrelsen, n.d.[b]). The SEA-decisions are furthermore subject to a hearing, which can be used for involving relevant actors. Lastly, the SEA act contains demands on monitoring (Miljøministeriet, 2013[a], SPPA).

According to Tetlow and Hanusch (2012), the best possible outcome of SEA implementation should be “a situation where SEA is more closely integrated into planning processes - possibly to the point where there is no longer a differentiation between SEA and planning, where sustainability issues are effectively considered and where SEA ultimately leads to political change” (p. 17). As this quote implies, SEA has quite a few goals to reach. However, according to academic papers, SEA has trouble doing so. Gonzalez et al. (2015) state that, at the moment, “despite the acknowledged benefits of evaluating meaningful alternatives in SEA (and, indeed, EIA) they remain a challenge in practice” (p. 52). In 2012 Runhaar and Driessen revealed through a literature review that “the impact of SEA/SIA in this respect seems to be modest” (p. 2), regarding the promotion of environmental improvement and sustainable development.

Acharibasam and Noble's (2014) evaluation of SEA's impact on plans and programmes identified "[...] the need for effectiveness studies across different SEA contexts in order to more fully understand the factors that enable or constrain effective SEA" (p. 185).

1.1 Problem area

To this day the SEA-legislation has been in force in Denmark for about 11 years. It is used at all levels of the Danish planning system, but is especially playing a significant role in the Danish municipalities, which are responsible for a great share of the overall preparation of plans.

Tetlow and Hanusch (2012) suggested, that "the biggest and possibly the most successful sector of SEA application is spatial planning" (p. 18). Spatial planning is relevant in a Danish municipal context since it is here both municipal plans and local plans, which administrate land use, are developed. However, spatial planning covers a broad variety of aspects, challenges, and problems, which arise in connection with planning, can be extremely complex and difficult to address.

The use of a somewhat limited tool in a world of complex problems can prove to be challenging. According to Albrechts (2004), strategic spatial planning has the ability in an open and creative way to respond to the growing complexity, new demands, and prevailing power structures. However, this means that SEA must be implemented in a way that gives the opportunity for openness and creativity, even though it is a very structured and rational approach to some very complex and dynamic problems.

In Denmark the Danish Planning Act (PA) has been the foundation for the planning practices since 1992. Danish planning is regarded as environmentally friendly in many regards, which is evident from the engagement of the municipalities and their approaches to planning aspects such as sustainable development. PA also contains a wide notion of environmental aspects. It could therefore seem as if an implementation of an environmentally friendly policy, such as the SEA-legislation would be rather unproblematic.

The implementation in Denmark did however not run as effectively as it could be expected, which will be elaborated further later on in this study. The continuous use of SEA can be regarded as a continual implementation of the legislation, which is why it is still interesting to investigate the daily practices and routines carried out in connection with SEA production. It is evident from this study that the current use of SEA is not trouble-free, which point to that the SEA implementation has not been evidently successful in a Danish context.

To study the continuous implementation of SEA and its potential regarding the intended and wanted outcomes, it is necessary to be aware of the significant implications of the content and objectives of SPPA. The adoption of SEA indicated an increased understanding of the link between development and the environment. This link is evident in the legislative objectives of the Danish SEA Act:

> *"[...] to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development, by ensuring that an environmental assessment is carried out of certain plans and programmes which are likely to have significant effects on the environment."*
>
> (Miljøministeriet, 2013, SPPA § 1)

The objectives thereby also point back to the inclusion of environmental considerations and the concept of sustainable development. Sustainability does play a role in the Danish political agenda. A research made in 2012 indicated a great willingness towards enhancing sustainable planning among the Danish municipalities, and eight municipalities had even created their own tool or approach for this purpose (Naturstyrelsen, 2012). However, it can be questioned whether or not SEA is the proper tool for addressing sustainability, and furthermore if SEA reaches the current legislative objectives of securing the environment and promoting sustainable development. And if it does not; does it have the potential to do so?

This outcome connects SEA not only with sustainability but also to a proactive approach to planning and decision-making. However, if SEA is to reach its aim, it is meant to inform the planners, who are making the planning decisions, on significant environmental impacts prior to the finalising of the actual plan, so they can use this information to improve the plans. But can a tool such as SEA be used for proactive measures or is it merely an idealistic idea?

In this study it has been strived to investigate the Danish municipal practices regarding SEA with the aim of developing an understanding of the relevant implications and challenges of the implementation, in order to evaluate how effectively SEA reaches the intended goals. This study is framed by the following research question:

How has the implementation of SEA in Denmark affected the practices and effectiveness in the municipalities and what are the potentials for improving these?

This paper will take basis in the implementation of SEA and investigate the relevant factors of this implementation, and thereby the continual production of SEAs, in a Danish municipal context in order to assess the substantive effectiveness. It is not strived to evaluate the effort of the municipalities but rather to use their experiences for having a critical view on SEA-legislation and SEA as a tool.

In order to find the answer to the research question, three sub-questions were developed. These are:

1. **What are the implications of the implementation of SEA in a Danish municipal context?**

   This question is answered by the use of implementation theory and a collection of data on the practices and experiences in the Danish municipalities. The data is structured by the theory in order to identify the most relevant implications and thereby examine the dynamics of the implementation process.

2. **Which effect do these implications have on the substantive effectiveness of SEA?**

   This question is addressed through the evaluation of substantive effectiveness taking basis in the legislative objectives and the implications of the implementation found through the analysis.

3. **What is the potential of SEA in reaching the legislative objectives and in general?**

   This question is answered by discussing the elements of the previous investigations regarding the implementation process and the effectiveness of SEA.

The sub-questions are used for structuring the research design. Our initial understanding is based on literature and supplemented by results from questionnaires. It is developed through the data collection, which is done by semi-structured interviews and the use of implementation theory. Furthermore, the

implementation theory is supplemented with theory on effectiveness evaluations, and these two constitute the theoretical framework of this study. The following analysis, evaluation and discussions are structured by this framework. The research design is described in more detail in Chapter 4: Methodology.

This report is structured by nine chapters. Chapter 2 presents the context of the investigation, explaining the features of the legislation and the Danish planning system. Chapter 3 describes the applied theories and the theoretical framework. Chapter 4 explains the framework and execution of the investigation with a focus on the methodical approaches to the data collection and treatment. Chapter 5 serves as a presentation and analysis of the findings made through the data collection shaped by the implementation theory. Chapter 6 is an evaluation of the effectiveness of SEA. Chapter 7 forms the discussion on three parts; the implementation of the legislation of SEA, SEA as a tool and its potential along with a third part on perspectives on SEA. Finally, Chapter 8 summarises the conclusions of the report and Chapter 9 provides reflections concerning future work in connection to this study.

In addition to the report, a compendium has been designed to present the questions and results of the questionnaires. Furthermore, an appendix disc of the confidential data collection has been prepared.

1.1.1 Limitations

In order to conduct the study with the set time frame, it was necessary to limit the scope.

First and foremost, it was chosen to focus on a Danish municipal context, and the main focus was furthermore put on spatial planning and even more specifically; local plans. A comprehensive study of SEA implementation and use at all levels of the Danish planning hierarchy would have demanded more resources. The choice to focus on spatial planning took basis in literature reviews done in the initial part of the study. It became evident through these that most SEAs were done on spatial plans, such as municipal and local plans, which means there are more experiences regarding these procedures. Furthermore, the fact that SEA is often handled in the planning departments of the municipalities was also a contributing factor to this focus, since it became less resource intensive to focus on these departments within the municipalities in connection with the data collection.

The primary aim of the project was to investigate the usefulness and effectiveness of SEA as a legislative implemented tool, thus it was not meant to compare the different municipal practices or efforts, but rather to use the experiences of the municipalities as a basis for understanding the usefulness and potential of SEA in reaching the legislative objectives.

1.1.2 Clarification of concepts

In this study some concepts are used frequently in connection with the mentioning of SEA procedures, outcomes, legislation, etc. These concepts are described in this section along with the abbreviations used in this study.

Screening: Refers to the screening made in connection with SEA preparation.

SEA-report: Report developed as a result of the SEA process (also called environmental report).

Plans and programmes: SEA-legislation covers both plans and programmes, but they are in this report referred to as plans in order to make the text easier to comprehend.

Sustainability: The understanding of sustainability relevant for this study is based on the definition by WCED.

However, the concept of sustainable development has developed through time. IPCC has in their report from 2014 stated that "sustainable development […] is intimately related to climate change" (p. 287). Moreover, the United Nations have published *Report of the Open Working Group of the Genereal Assembly on Sustainable Development Goals* (2014), where sustainable development is linked to poverty eradication; "poverty eradication is the greatest global challenge facing the world today and an indispensable requirement for sustainable development" (p. 6). In the literature sustainable development is linked to numerous aspects within both the social, environmental and economic development of the world (Scoones, 2014).

By the time it was presented by WCED in 1987 it was described as being development that preserves the interests of the future generations, based on the three main pillars, which were; economic, social and environmental aspects. Many global organisations still refer to these aspects of the concept (The World Bank, 2015; SD-Commision, n.d.; iisd, 2013 & IPCC, 2014), why this definition has been the basis for the understanding of sustainability in this project.

Addendum: The additions to the municipal plans prepared in between the adoptions of the municipal plans.

List of abbreviations

An overview of the most commonly used abbreviations.

EIA	Environmental Impact Assessment	*Miljøvurderinger*
EC	European Commission	*Det Europæiske Fællesskab*
EU	European Union	*Den Europæiske Union*
IA	Impact Assessments	*Konsekvens vurderinger*
MIM	Danish Ministry of the Environment	*Miljøministeriet*
NMKN	Nature and Environmental Appeals Committee	*Natur- og Miljøklagenævnet*
NST	Danish Nature Agency	*Naturstyrelsen*
PA	The Planning Act	*Planloven*
SEA	Strategic Environmental Assessments	*Strategiske Miljøvurderinger*
SPPA	SEA of plans and programmes Act	*Bekendtgørelser af lov om miljøvurdering af planer og programmer*

Chapter 2

Context

This chapter introduces the relevant aspects of SEA in a Danish context, including the historical development of the legislation along with a description of the Danish planning system. Lastly, the chapter will be summed up by a short presentation of the state of the art regarding studies on SEA and a clarification of the relevance of this study.

Planning in Denmark is carried out as a democratic procedure, where political decision-making processes take place with public participation and through balancing various interests. As a result of the reform of the local governmental structure in 2007, the municipal politicians are taking on an important role in regard to shaping the future of Denmark. Previously, these main decisions were the responsibility of the politicians on the county level (*amtspolitikere*). Consequently, the municipalities got the responsibility for the collective spatial planning for both urban and rural districts (By- og Landskabsstyrelsen, 2007). The Minister for the Environment stated in 2007, through a publication on the PA, that:

> *"Good planning requires appropriate regulation and tools in the legislation."*
> (By- og Landskabsstyrelsen, 2007, p. 3, translated from Danish)

In the context of SEA in Denmark, the various levels of legislation and instruments pursue this notion of good planning. Even though SEA is required on relevant plans at all levels of the Danish planning system, this study is focusing on municipal practices, particularly local plans, in regard to spatial planning. PA creates the foundation for the public authorities' administration of the land use. The act was adopted in January 1992, and the fundamental idea of the act was for the public authorities to balance the public and private interests in their planning of land use.

The following sections will map the context of SEA in Denmark, starting by a short introduction to the Danish planning system, followed by a section on the development of SEA legislation and a content presentation of the guidelines published by The Danish Nature Agency (NST). Lastly, a description of the state of the art will be presented.

2.1 The Danish planning system

The Danish planning system, along with the division of plans, is organised as Figure 1 below shows. EU-regulations set the frame for the national planning, which is divided into three levels. The top level is the governmental level, where legislation concerning national planning is carried out. The regional planning is located at the level below, where plans such as the Regional Development Plans (*Regionale udviklings-planer*) and the Raw Material Plans (*Råstof planer*) have their anchoring.

The municipalities are located at the bottom level. They are responsible for preparing the municipal and local plans as well as a variety of sector plans. These plans regulate the land use (By- og Landskabs-styrelsen, 2007).

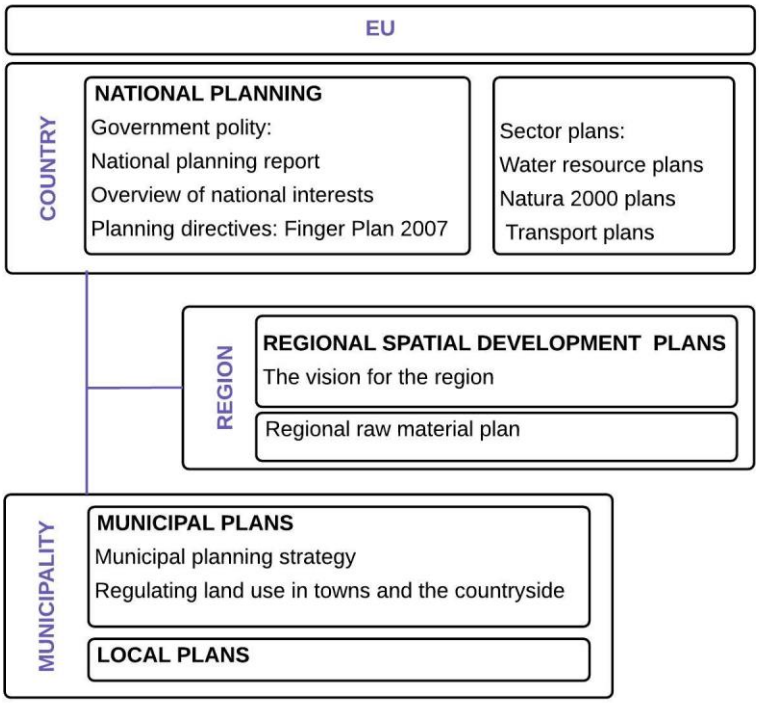

Figure 1 | Illustration of the levels in the Danish spatial planning system, after 2007 (By- og Landskabsstyrelsen, 2007)

Since the 1970s the Danish spatial planning system has been built on principles of decentralised decision-making and inclusion of the public, which leaves a great deal of responsibility to the municipalities (Naturstyrelsen, n.d.[c]). Decentralisation in Denmark is an organisational system where the government allocates block grants for the municipalities' disposal (Den Store Danske, n.d.[c]). Decisions and plans made at the governmental and regional level comprise a binding framework for the municipal planning, and the municipal plans must comply with these plans (By- og Landskabsstyrelsen, 2007). To balance changes in the municipal and regional expenses as a consequence of increased or decreased requirements the state regulates the block grants (Finansministeriet, 2014). In 2004, the block grant was increased as a result of the implementation of the law on SEA (Finansministeriet, 2004).

The map on the next page (in Figure 2) illustrates the division of Denmark into 98 municipalities, which are furthermore divided into five regions.

Figure 2 | Denmark and the geographical division in 98 municipalities distributed in five regions (Berlingske Buisness, 2015)

2.1.1 The municipal planning

As mentioned earlier, this study is focusing on the municipal level in Denmark in regard to SEA. As mentioned above, the municipalities are responsible for the local spatial planning and thereby make the decisions on land use, which they enact through plans, programmes, and strategies. In this project the main focus is on spatial plans, which are the municipal plans and local plans.

The aim of a municipal plan is to sum up and concretize the objectives for the municipal development. Furthermore, the municipal plans constitute the link between the national and local planning. The municipal plans cover a 12-year period starting at the date of adoption. However, the municipalities are obligated to fully or partly revise the municipal plans every fourth year (Miljøministeriet, 2013[b] & Naturstyrelsen, n.d.[d]).

According to PA the municipal plans have to form the foundation for a collective assessment of the municipal development (PA chapter 4 § 11, stk. 2). The plan consists of three main elements; the main structure (*hovedstruktur*) which outlines the overall goal for the municipal development and land use, guidelines for land use, and a framework for the local planning (Miljøministeriet, 2013[b]). Adjustments, changes, or additions to the municipal plans can be formed as addendums (*tillæg*).

The local plans have the same rooting in the Danish planning system as the municipal plans. There are different types of local plans. Some are setting the framework for the overall decisions regarding land use and housing, for instance the plot-ratio, these are called framework local plans (*rammelokalplaner*) (Post, 2009). Most local plans contain regulations in detail, such as regulations on the size of buildings and shops along with colour standards for buildings, among other things. Just like for the municipal plans, relevant maps supplement local plans. The plans must be accompanied by an explanation of the link between the specific plan, the municipal plan, and other plans covering the area. The municipal plan sets the frame for the local planning, why the local plan may not conflict with the municipal plan (PA § 13, stk. 1) (Post, 2009).

Furthermore, the municipalities are responsible for the municipal sector plans. Subjects that need special considerations in planning are attended to through sector plans. Municipal sector plans are plans for areas greater than the local plans and typically an area equal to the entire municipal area. The plans can for example deal with roads and traffic as well as management and distribution of water supplies, wastewater, waste, and heat. These plans are only mentioned when relevant in this study.

2.2 The historical development of SEA

Due to the rapid development in the post-war era, an increasing concern of its concomitant negative effects emerged, and with books such as *Silent Spring* by Carson (1962) a social backlash against environmental damage arose. As a consequence, impact assessment (IA) was formally established in the US in 1969, with the implementation of the *National Environmental Policy Act* (NEPA) (Cashmore & Kørnøv, 2013 & Glasson et al., 2012). The environmental effects of IA were interpreted broadly and often included socio-economic dimensions, and IA was initially used on development projects (Cashmore & Kørnøv, 2013). In other countries IA was established in various forms throughout the 1970s, and in 1985 the first EU-directive on EIA induced the EIA-legislation in many of the member states. The directive initially intended to enforce IA on projects, plans, programmes, and policies, but due to significant oppositions from a number of countries, the SEA-part of the directive was at first abandoned.

In July 1992 following a pilot study conducted by NATO, information on environmental education and training was sent to the NATO School (SHAPE). This pilot project was the basis for developing the course objectives for a course called *Responsibilities of Military Forces in Environmental Protection*. Further activities regarding environmental protection and pollution prevention were carried out, and in 1995

NATO published the report *NATO CCMS Report No 211*, which contained "environmental assessments of activities, pollution prevention and legal compliance, military noise, military land use issues, conservation and heritage management, environmental training and information technology in defence land management and training" (NATO, 2006).

This arising focus on strategic environmental considerations together with a number of conventions held by UNECE (United Nations Economic Commission for Europe) throughout the 1990s eventually lead to the final adoption of the EU-directive on SEA. SEA was thereby, 16 years after the first EIA-directive, on the agenda.

2.2.1 SEA in Denmark

In 2001, EU adopted a SEA-directive. This directive was implemented in the Danish legal system in 2004 by the enactment of SEA on Plans and Programmes Act (SPPA) (Den Store Danske, n.d.[d]). This act provides the legal foundation for SEA on plans in Denmark. SEA was hereby introduced to the Danish planning system. In Denmark, SEA added a more systematic and documented approach to the integration of environmental concerns (Kørnøv & Christensen, 2007). The timeline of the development after the adoption of the EU-directive is illustrated in the figure below.

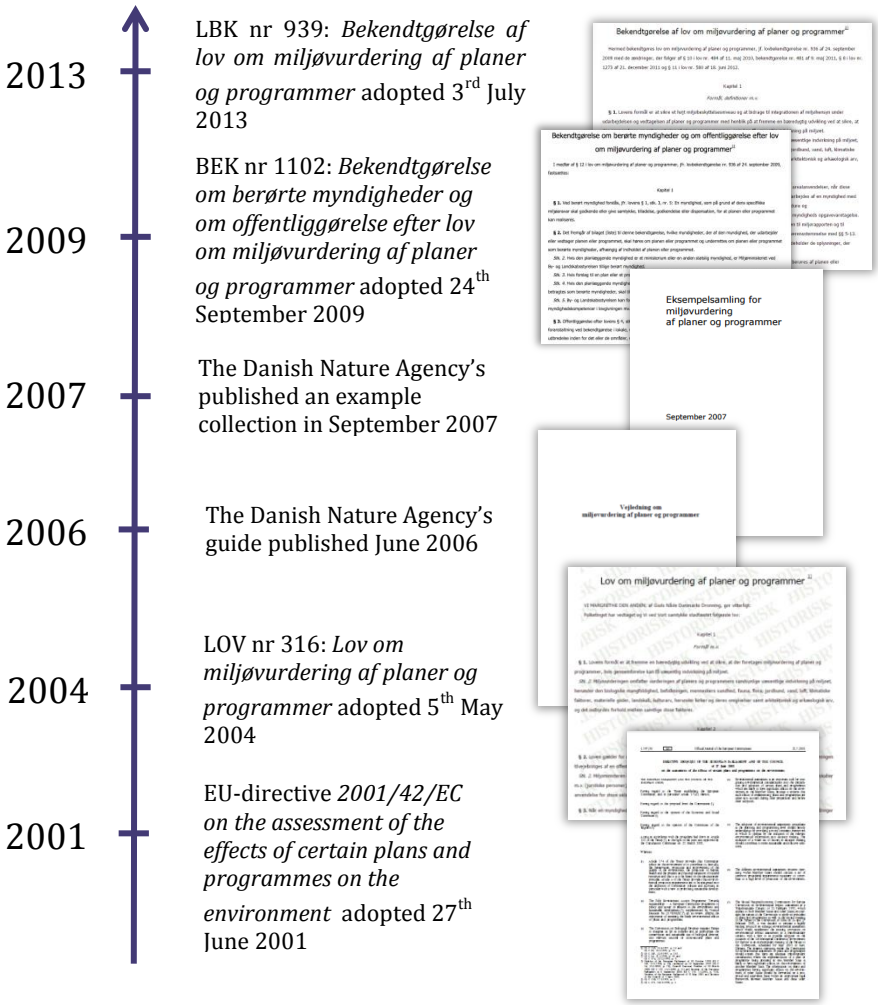

Figure 3 | The legislative highlights and publications regarding SEA

NST published *Guidelines for environmental assessment of plans and programmes* in the summer of 2006, as an addition to the legal requirements, to help the understanding of the required content and process. The purpose of the guidelines is to provide a thorough description of the legal requirements, content, and process of SEA. Furthermore, the guidelines provided potential methods and practical guidelines on how the act could be implemented (Miljøministeriet, 2006).

The guide was created from a collection of experiences on SEA preparation (Miljøministeriet, 2006):

- The preparatory work for the EU-directive
- The guidelines to the directive from the EC
- The preparatory work for the law
- The experiences found through pilot projects done in Denmark, the Nordic Countries, and the rest of EU

About a year later in September 2007, the Danish Ministry of the Environment (MIM) published an example collection to provide additional guidance and communicate examples produced during the first generation of SEAs in Denmark (Miljøministeriet, 2007). Today the Act of 2013 (SPPA) is in force (see Figure 3).

2.2.1.1 The content of SPPA

SPPA states that SEAs should be carried out on plans determining land use and construction permits. The act does not apply, when a plan only affects the environment insignificantly, for instance when a plan only covers a smaller area or only contains minor changes (Miljøministeriet, 2013[a], SPPA). Plans that affect Natura2000-areas will always have to undergo SEA (Danmarks Naturfredningsforening, 2011).

SPPA consists of five chapters and four annexes. Each chapter describes different aspects of the requirements of the act, while the annexes provide the practical information on content. The content of the act is as follows (Miljøminiseriet, 2013[a], SPPA):

Chapter 1:	Purpose, definitions etc.
Chapter 2:	Embodied plans and programmes etc.
Chapter 3:	Environmental assessment, environmental report (SEA-report) and the public etc.
Chapter 4:	Enactment and publication of the plan or programme, complaint etc.
Chapter 5:	Conditions regarding commencement and the intermediate stage
Annex 1:	Information regarding § 7, stk. 2
Annex 2:	Criteria for the decision on the possible importance of the environmental impact
Annex 3 & 4:	A list of subjects/development issues that have to be environmentally assessed. Annex 3 and 4 is identical with Annex I and II from the regulation on EIA

Chapter 1 presents § 1 stk. 3 which is a clarification of the act, categorised and explained in five stages, with a short presentation of what, how, and who are involved in the process. The stages are (Miljøministeriet, 2013[a], SPPA): **1)** Plans and Programmes, **2)** the Environmental Assessment, **3)** the Environmental Report, **4)** Public Participation, and **5)** Affected Authority.

The definition of *plans and programmes* covers documents, which set the frame for future development or land use, when these are prepared or adopted by public authorities (Miljøministeriet, 2013[a], SPPA).

The law encompasses a wide environmental concept, which is framed through the categories; biological diversity, population, health of the humans, fauna and flora, soil, water, air, and climatic conditions. These

categories each have their purpose for fulfilment, and the act ensures that they will be taken into account in relevant plans (Miljøministeriet, 2006). Furthermore, as mentioned in the introduction, the purpose of the act is:

"[…] to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development, by ensuring that an environmental assessment is carried out of certain plans and programmes which are likely to have significant effects on the environment."

(Miljøministeriet, 2013[a], SPPA § 1).

2.2.1.1.1 Plans and Programmes

Paragraph 3 from the act on SEA determines which kinds of plans and programmes the act embodies. Table 1 below provides an overview of the statements of the diverse sections of this paragraph. Close to all types of plans developed within the municipalities are embodied by the act. However, if the purpose of the plans is limited to determining the use of smaller areas, or if the plan only includes smaller changes in already existing plans, a SEA is only necessary if the plans assumedly will have significant impact in the environment (SPPA § 3 stk. 2). Apart from this, a selection of specific plans is excluded from the act (SPPA § 3 stk. 3). Plans, which cover areas of protected natural environments, are automatically embodied by the demand for a full SEA-report (Miljøministeriet, 2006).

Table 1 | Overview of the paragraphs on which plans are embodied by the law on SEA on plans and programmes (Miljøministeriet, 2013[a], SPPA § 3)

§ 3, stk. 1, nr. 1:	States that plans within agriculture, forestry, fishery, energy, industry, transport, waste management, water management, telecommunications, truism, spatial planning, and land use, as well as plans that set the frame for future facility permits for projects, are embodied by the requirement for SEA. The paragraph refers to the requirements of annex 3 and annex 4, which are both full lists on which plans are covered.
§ 3, stk. 1, nr. 2:	States that a SEA is required for plans with a significant impact on internationally protected areas.
§ 3, stk. 1, nr. 3:	States that other plans, which included a frame for future construction permits, have to undergo an assessment done by the authority to evaluate if there is any need for SEA.
§ 3, stk. 2:	The paragraph states that, if the plans mentioned in § 3 stk. 1 nr. 1 are determining use of small areas or only small changes, SEA is only necessary if a plan assumedly will have significant impact in the environment.
§ 3, stk. 3, nr. 1:	States that plans, that serve a purpose for national defence or civil readiness (*civilt beredskab*), are not embodied by the law.
§ 3, stk. 3, nr. 2:	States that the law does not embody plans regarding financials and budgets.
§ 3, stk. 3, nr. 3:	Co-financed plans covered by the period for programme scheduling by the EU council's enactments 1260/1999 and 1257/1999.

2.3 SEA procedure

The guidelines published by NST outline the SEA process in various steps as shown below. Initially, a screening has to be done, if there is any doubt of the need for SEA. Otherwise, the scoping phase is the first part of the SEA preparation (Miljøministeriet, 2006).

The screening phase is an assessment of whether the plan has significant consequences for the environment. This phase includes hearing of the relevant authorities, before the responsible authority can make the decision to perform a SEA or not. The screening procedure is elaborated in the next section.

The scoping phase sets the scope for the SEA and the most significant consequences of the plan are determined. Before the content and extend can be decided, the affected authorities have to be conferred. Alternatives (besides the *0-alternative*) can be put forward at this stage for later environmental assessment.

Environmental state: An assessment of the existing environmental state, with relevant aspects and the possible development if the plan is not carried out, is required and sets a benchmark for the development. The plan has to be compared to this benchmark also called the 0-alternative.

The assessment: The significant environmental impacts are assessed and the environmental report is prepared, including reasonable alternatives to the plan. The report includes the 0-alternative. The content of the report is presented in SPPA, Annex 1.

The hearing phase: The public and affected authorities must have the opportunity to comment on the plan or the SEA-report. The minimum time limit for the hearing in regard to SEA is eight weeks, except for plans with law requirements for a lower time limit, which in that case is overruling this minimum.

Final approval of the plan is made from the SEA-report, the comments and responses from the hearing and the summarised report from the planning authority. Both the final report and the ultimate approved plan have to be published.

Monitoring is done to follow up on the environmental consequences of the plan according to an established monitoring programme.

The processes of SEA and screening are presented in a simplified figure on the next page. Figure 4 illustrates the sequence of the various steps.

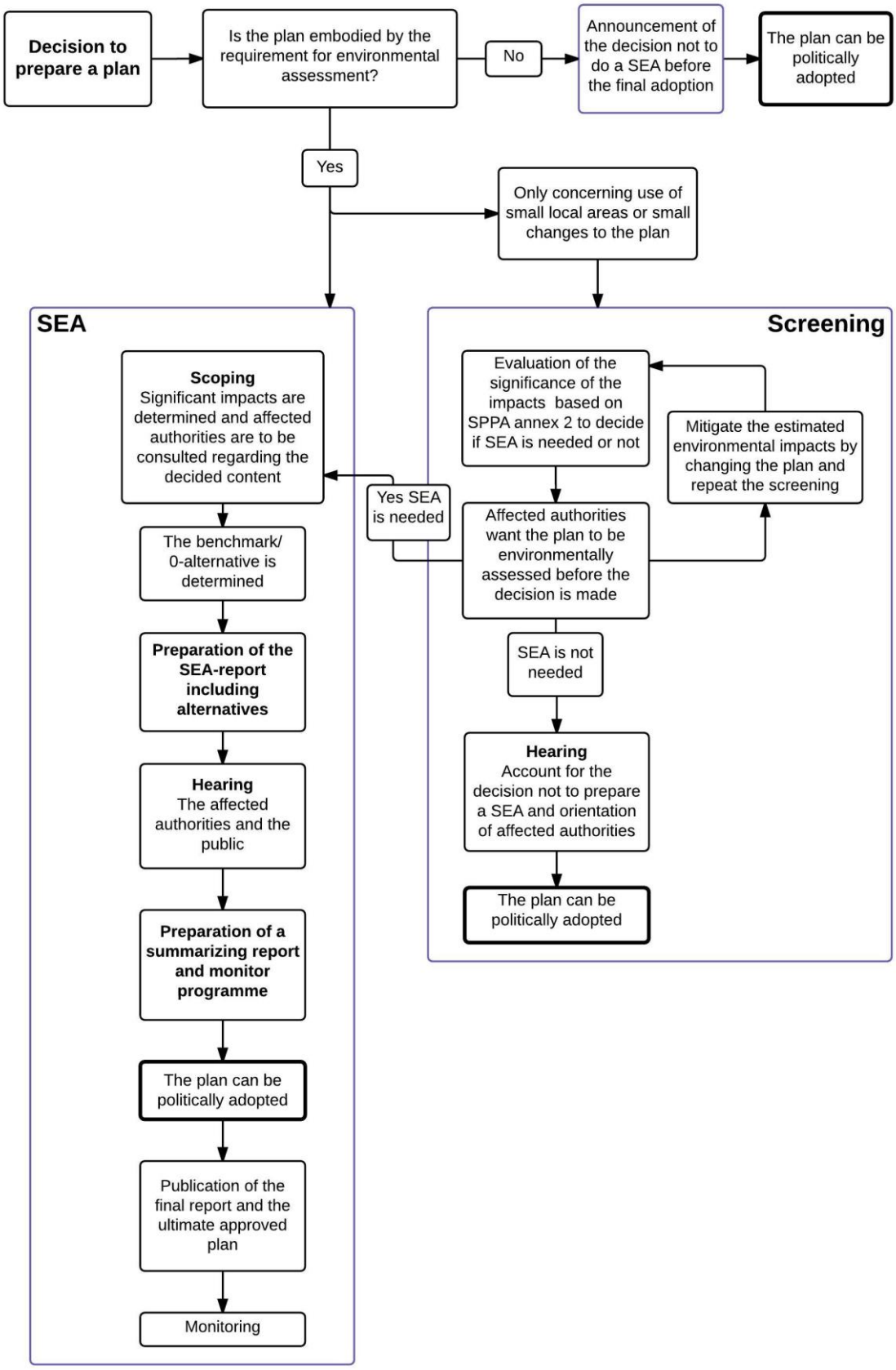

Figure 4 | Illustration of SEA and screening procedure

Screening procedure

As mentioned above, the screening is a tool for ensuring that the plans, which are not directly covered by the legislation, will be assessed in regard to environmental impacts, and which can possibly result in a complete SEA-report (SPPA § 3 stk. 1 nr. 3).

The screening-procedure consists of two steps, where the initial step is to assess, if there is a need for a full SEA-report, this is what is normally described as the actual screening. This shall be evaluated on the basis of annex 2 from the act. Annex 2 is a list of criteria, with the two main criteria being; characteristics of the plan and characteristics of the environmental impact.

The second step is for the planning authority to consult the other affected authorities before the final settlement concerning SEA. This is especially important if the initial assessment points to no need for a SEA-report. On the other hand, if there is an intention to do a full SEA-report, the consulting process, with internal and possibly external actors, can be merged with the later hearing about the content of the SEA (SPPA § 7 stk. 4). The affected authorities can both be internal departments and external authorities. The internal ones are the affected departments within the municipality itself, while the external authorities can be the neighbouring municipalities.

The final step of the screening is the decision to complete the SEA, mitigate the estimated environmental impacts by changing the plan and repeat the screening, or decide that a full SEA-report is unnecessary. If it is decided not to complete the full SEA-report, the screening-decision has to be announced with a four week timeframe for filing a formal complaint (Miljøministeriet, 2006).

Content of the environmental report

As mentioned earlier, the law encompasses a wide notion of the environment, which is framed through the following categories (Miljøministeriet, 2013[a], SPPA):

- The biological diversity
- Fauna and flora
- Material goods
- Population
- Soil, water, and air
- Landscape
- Health of the humans
- Climatic conditions
- Cultural heritage

In addition, the act obliges a line of requirements in regard to the preparation of SEA. It determines that the work has to be done during the preparation of the plan. The authority that is creating the plan has to devise a SEA-report that determines, describes, and evaluates the possible environmental impacts. Furthermore, the report has to provide reasonable alternatives, which consider the purpose and land use of the plan. Moreover, an account for how the authority will monitor the significant environmental impacts caused by the plan is required (SPPA § 9 stk. 2).

Participation and complaints

Hearings have been an incorporated part of Danish spatial planning since the Public Administration Act (*Forvaltningsloven*) was adopted 1st January 1987. The act contains regulation on the citizens' legal position in regard to the public administration and case management (KL, n.d.).

The UNECE Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters was held in Aarhus on the 25th June 1998 and entered into force by October 2001. The convention consists of 40 member states by September 2012, mostly from the EU (Denmark included) and entails three main areas, which are enacted to secure the citizens environmental rights; the right to knowledge, the right to participate, and the right to complain (Den Store Danske, n.d.[g] & Miljøstyrelsen, n.d.).

As mentioned earlier, a hearing in regard to affected authorities and a public announcement is required when the SEA-report and the plan suggestion is prepared, with at least eight weeks' notice for the public and other authorities to make their remarks (Miljøministeriet, 2003a SPPA). After the public comment period, the authority responsible for the plan has to devise an additional report, to the SEA-report, to sum up, conclude, and account for how possible comments will be taken into consideration. Furthermore, this report is to provide the description of the concluding plan for monitoring of the significant environmental impacts (Miljøministeriet, 2006).

Complaints and complaint authority

SPPA § 16 states, that the act, which sets the frame for the preparation of the plans, defines the rules regarding complaints. Plans prepared in accordance with PA makes it possible to complain in regard to legal questions, which make it possible to file a complaint if authorities decide not to prepare a SEA. Furthermore, complaints can entail the level of information in the SEA-report, the decision on who the relevant authorities are for the hearing, or lack of attention to the procedural requirements of the law.

Complaints regarding plans prepared in accordance to the PA have to be filed to the authority that made the decision. If the authority is determined to maintain their decision, the authority has to forward the complaint to the Nature and Environmental Appeals Committee (NMKN), which makes the final decision.

2.4 State of the art

This study addresses two areas within the field of impact assessment. The first one is the concept of effectiveness evaluation, and the second one concerns the SEA-implementation in a Danish municipal context. The state of the art for these two areas is examined in the following. For a broader perspective on state of the art of SEA, the study refers to Tetlow and Hanusch paper from 2012; *Strategic environmental assessment: the state of the art*.

2.4.1 Effectiveness

Even though the potential of SEA as a tool for ensuring and preserving the environment is widely recognised in the academic world, the effectiveness of reaching this potential is the basis for much discussion.

In 1996 the *International Study of the effectiveness of environmental assessment* prepared by Barry Sadler was published. The three year study mapped the strengths and limitations of environmental assessment (EA) worldwide with the aim of *"evaluating practice to improve performance*". Since then a lot of academic papers have evaluated the effectiveness of environmental assessment in different contexts, and with that a lot of different evaluation frameworks have followed.

In the study from 1996, Sadler introduced; *The effectiveness Triangle,* which operates with three different forms of effectiveness. It evaluates how well the EA process conforms to the principles set (*Procedural effectiveness*), reaches the objectives (*Substantive effectiveness*) and does this efficiently (*Transactive effectiveness*).

In an evaluation paper from 2003, Baker and McLelland added a fourth category; *normative effectiveness,* and by that converted the triangle to a circle of effectiveness (see Figure 5 on the next page). Baker and McLelland (2003) define normative effectiveness as a policy's ability to achieve normative goals. In 2009 a special issue of *Impact Assessment and Project Appraisal* (27(2), June 2009) was published, bringing an update on the state of effectiveness within the impact assessment field, as an update to Sadler's study.

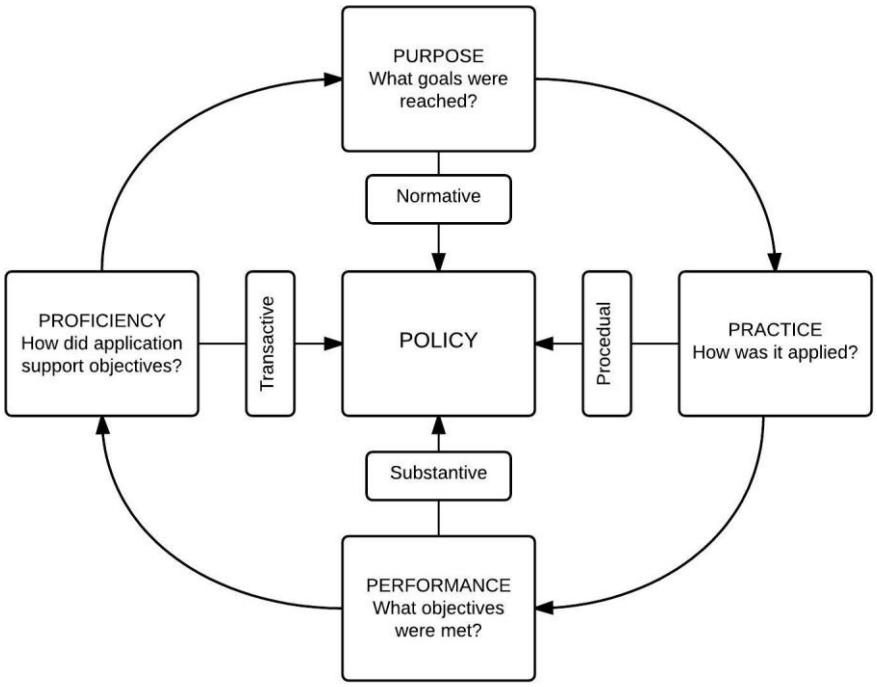

Figure 5 | Circle of effectiveness (inspired by Baker and McLelland, 2003)

The four mentioned categories of effectiveness constitute the most used framework for evaluating effectiveness in the academic research. In 2013 Chanchitpricha and Bond did a literature-review on the definition of evaluation in IA processes, as well as a review of evaluation criteria for the four mentioned effectiveness categories.

Others have looked into more specific types of effectiveness, where especially the substantive effectiveness has been evaluated, such as Doren et al. (2012), Cashmore et al. (2004) and Acharibasam and Noble (2014). Furthermore the effectiveness of SEA in different countries and in different contexts has been investigated, for instance for Italy (Fischer & Gazzola, 2006), China (Bina et al., 2011) and wind energy in UK and Germany (Phylip-Jones & Fischer, 2015).

Besides the evaluation, a lot of research has been dedicated to investigating which different factors influence the SEA process and thereby the effectiveness. Here are examples of research published within the recent three years; a review of critical factors for SEA implementation by Zhang et al. (2012) and a look at planners' ownership by Stoeglehner et al. (2012). Furthermore, research has been looking into the power structures of SEA (Hansen et al., 2012), the different steps of SEA, such as scoping (Polido & Ramos, 2014) and SEA's ability to promote sustainability (Thérivel & Minas, 2002 & White & Noble, 2012).

2.4.2 Danish context

In 2003 Henrik Hvidtfeldt and Lone Kørnøv published *Strategisk miljøvurdering af kommuneplaner III*, which objective was to inspire the municipalities on how to organise SEA into their planning practice. The paper was the last one of a trilogy of reports from Forskningscentret for Skov og Landskab on the process of SEA, to help the Danish municipalities integrate the new directive. The report looks at how to integrate the SEA process with the PA, which had introduced Agenda 21 strategies in municipal planning in year

2000. The report looked at the links between municipal plans, SEA and Agenda 21 strategies, as well as the legal requirements and content of the SEA process. The fundament for the suggestion and discussion in the paper was based on 56 municipalities' responses to an internet-based questionnaire on the municipalities' planning procedures and practices.

In 2009 COWI published on behalf of the EC, DG ENV the report *Study concerning the report on the application and effectiveness of the SEA Directive (2001/42/EC).* The report was based on a questionnaire, a literary review of reports and analyses completed in the period 2001-2007 along with a review of country-specific data collected by local consultants. The report reviewed 27 member states implementation and undertaking of SEA.

The findings from the study on the Danish practices showed that for a number of ministries' plans and programmes; SEA is not undertaken, and furthermore that SEAs on a municipal level often are made in the very last minute and therefore have no influence on the plan or programme. The study also showed that SEAs made in Denmark often merely comply with the minimum requirements set by the EU directive, except from requirements in regard to public participation, where the initiatives for local and municipal plans excel the legal requirements. In 2009 Denmark found it too early to make any conclusion on the problems arising when preparing a SEA, and even though the report finds that the implementation of SEA has changed the process for preparing plans in Denmark, no conclusion of the actual impact is made.

Besides the study from COWI, the case of Denmark does not get much attention in the SEA literature. Most of the literature is mainly focusing on integrating the issue of climate change into SEA, such as the papers by Larsen et al. from 2012 and 2013 respectively. In general research of SEA in connection with spatial planning is limited, with most research within the last three years focusing on either the case of Italy, where Andrea De Montis has published papers on master plans and spatial planning tools in a municipal context (De Montis, 2013 & De Montis et al., 2014), or the case of England. The research on the English context has focused on how impact assessments in spatial planning are done and should work (Tajima & Fisher, 2012).

In light of the research mentioned above, it seems that at this point, almost 11 years after the implementation of SEA in Denmark, a status report on the implementation and effectiveness of SEA in a municipal context is relevant.

Chapter 3

Theories on implementation and effectiveness

This chapter firstly describes the implementation theory with focus on the integrated implementation model as a frame for understanding the implementation process and the relevant factors for this process. The second part of this chapter presents different aspects of effectiveness, which are discussed, and it is argued why this study is focusing on substantive effectiveness.

3.1 Implementation theory

In order to investigate the effectiveness of SEA, it is necessary to examine the implementation of SEA-legislation in a Danish context. The concept of implementation does in this study cover the process from adoption to enforcement, which is the process the political decision undergoes. The implementation of SEA in Denmark is considered as being a continual process in the sense that SEAs are continuously prepared in the municipalities. It is therefore difficult to delimit the implementation process. To aid the comprehensiveness, the implementation process of SEA is divided into two levels, as can be seen in Figure 6 below.

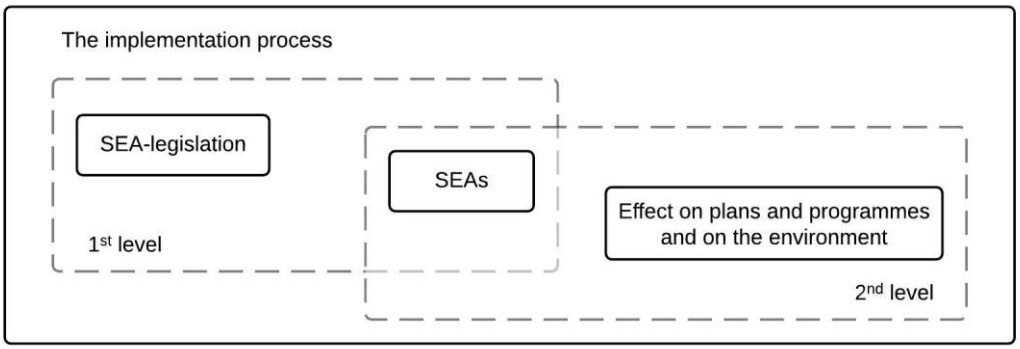

Figure 6 | The levels of implementation within the overall implementation process

These two levels of implementation comprise the full process of implementation of the EU-directive to the preparation of SEAs, which has an effect on the formulation of plans and on the environment.

- *The first level* of the overall implementation process covers both the implementation of the EU-directive regarding SEA, which resulted in the Danish SEA-legislation; SPPA (as described in Chapter 2: Context), and it includes the implementation of this act in a Danish context. It thereby describes the implementation of SEA-legislation in a Danish context and how it has been received by the municipalities. This study will mainly focus on the implementation of the Danish SEA-legislation (including NSTs guidelines). Nevertheless, the implementation of the EU-directive is considered in relation to the policy formulation in a Danish context and will be described and discussed, when it is relevant.

- *The second level* of the overall implementation process is the implementation of each SEA[1] within the municipalities, which is continuously done in the municipal practice. This level is relevant on a daily basis, since it covers the preparation and implementation of the actual SEAs within the municipalities. The SEA-process within the municipalities can have an effect on the content of plans and programmes and/or result in a full SEA-report. This will lastly lead to an effect on the environmental conditions.

This study covers both implementation levels, but the main focus will be on the continuous implementation of SEAs within the municipalities.

The book *Implementering af politik*[2] by Søren C. Winter and Vibeke Lehmann Nielsen (2008) is focusing on the field of implementation research. This field of study strives to answer the questions "[...] why does implementation succeed at some times and places? Why are there variations within the implementation results?" (p. 19, translated from Danish). This focus is used in this study, and in this chapter, *the integrated implementation model*[3] is presented as a framework for understanding the full implementation process, and as a basis for understanding, elaborating and evaluating on the substantive effectiveness of SEA.

3.1.1 The integrated implementation model

In this study it is strived to examine the implementation and substantive effectiveness of the SEA-legislation in Denmark and the continuous use of SEA in municipal practices. In order to do so the integrated implementation model is used as a frame for understanding the implementation process and the relevant aspects of this process.

The integrated implementation model was presented in the book *Implementering og effektivitet*[4] by Søren C. Winter (1994) and a slightly revised version is presented in Winter and Nielsen (2008). The integrated implementation model is the result of the most significant theoretical contributions to implementation research. It presents a number of factors, which can be the reasons for variations in the implementation results.

The model is general and is applicable on most type of policy areas (Winter, 1994). Nevertheless, the model is mainly associated with the implementation of social politics, which is evident through some of the definitions of the different factors, such as the description of the fieldworkers, which will be elaborated later. Despite the fact that SEA covers both social and environmental aspects, some elements of the model are slightly less relevant and these are therefore adjusted to the context. This will be elaborated further in the theoretical framework.

The integrated implementation model is used for identifying the implementation barriers and variations. The model implies that the implementation is affected by the actors' incitement to either push forward the legislation or to hinder the implementation, why it is interesting to map the relevant actors and their effect on the implementation process and results (Winter, 1994).

It can be challenging to determine whether or not an implementation process is successful. This partly depends on the implementation results, but in order to evaluate the implementation process it is necessary to set up some evaluation criteria (or evaluation standards), which will determine whether or

[1] In this context, SEA is regarded as both the screening and the complete SEA-report. This means that, if the screening has an effect in itself it is considered as an effect of the SEA-process and thereby the implementation of SEA.
[2] English title (translated from Danish): *Implementation of Policy*
[3] Danish: *Den integrerede implementeringsmodel*
[4] English title (translated from Danish): *Implementation and Effectiveness*

not the policy reaches its aim. This will be elaborated further in the section 3.4 Theoretical framework. Winter (1994) claims that the most common evaluation criteria are the official objectives set in the legislation. These goals and objectives are also a good basis for evaluating whether a policy is substantive effective, why this study uses substantive effectiveness to evaluate the implementation process.

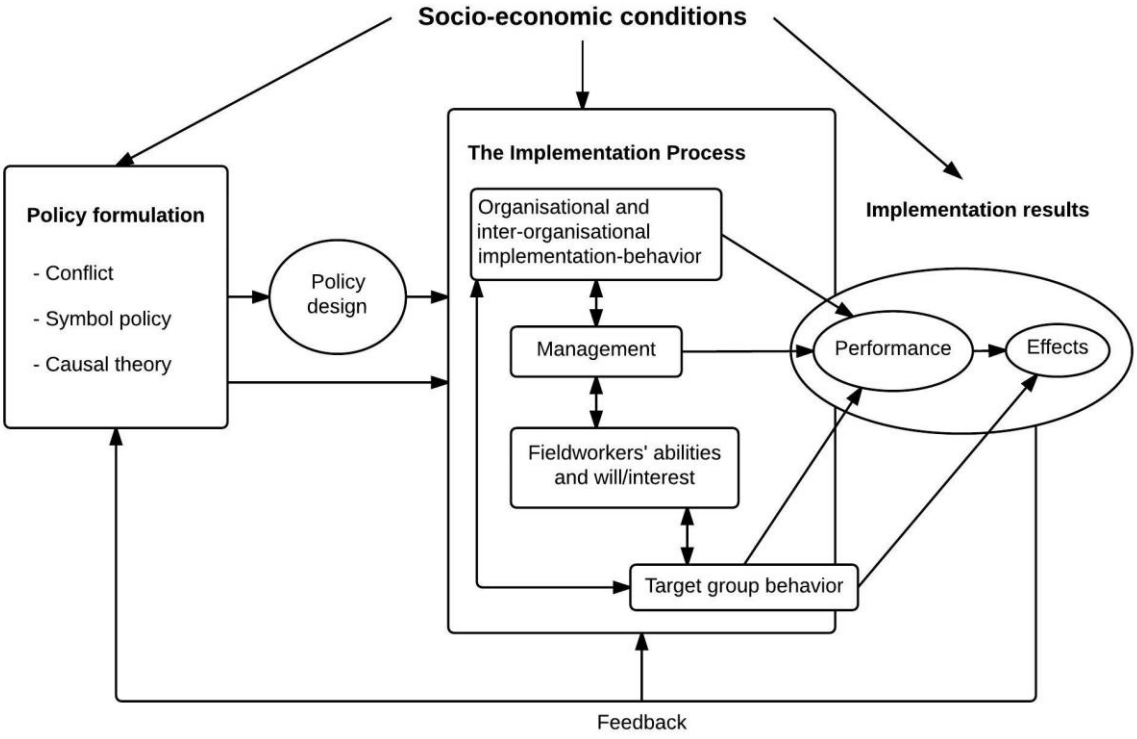

Figure 7| The integrated implementation model (Winter & Nielsen, 2008, p. 18, translated from Danish)

As can be seen in Figure 7, the model consists of three phases; the policy formulation, implementation process and implementation results. These three phases contain different aspects, which are described in the sections below. Emphasis has been put on the relevant aspects of the two levels of implementation. This is done in order to create a framework for understanding the relevant implementation parameters. Furthermore, there is a focus on the implementation results, which can indicate the overall effectiveness of SEA implementation.

As can be seen at the top of Figure 7, *the socio-economic conditions* affect all three parts of the model. These conditions can affect the implementation results; the performance and effects, differently than expected at the policy's creation (Winter, 1994). In a SEA context, environmental conditions are equally relevant for the implementation process. These can be weather events or other physical conditions, which affect the state of the environment. Environmental legislation in general is likewise affected by how environmentally aware the public opinion is (Winter, 1994).

At the bottom of the figure, an arrow designated *feedback* connects the implementation results with the other two parts of the model. The feedback mechanism indicates that the final implementation results can affect the overall implementation process. Experiences from the implementation process can lead to a revision of the political formulation or changes in working procedures on fieldworker-level, cooperation, organisation and management (Winter & Nielsen, 2008). The feedback mechanism makes the model less linear and shows that the process has a circular course.

3.1.1.1 Policy formulation

The policy design is a result of the policy formulation. The policy design contains the aim of the legislation and the political instruments, which are the tools for realising the policy. It is also established which authorities and organisations have the responsibility for carrying out the legislation (Winter & Nielsen, 2008).

Winter (1994) emphasises that the official goals, for a policy, often are more abstract, vague and antagonistic than goals set by for instance a private company. Furthermore, Winter and Nielsen (2008) claim that "most laws have some kind of somewhat contradictory or competing goals" (p. 42, translated from Danish), but they emphasise that capacity-building among the fieldworkers and target group along with commitment creating initiatives can make up for an unclear aim.

The legislation will most commonly consist of a combination of different political instruments[5]. However, it is not always obvious to the politicians, which instruments are the best choice. There exists no complete study of the effect of policy instruments. Nevertheless, economic instruments are often an effective incentive for goal realisation or cost reductions. Some implementation researchers recommend that the implementation process is as simple and automatic as possible, but this approach can lead to lack of accuracy towards the behaviour, the legislation is aiming at changing (Winter & Nielsen, 2008). Winter and Nielsen (2008) claim that an attempt to sharpen the accuracy often leads to an increase in rules, bureaucracy and complexity.

Three aspects can be the cause of an ineffective policy design (Figure 7):

Conflict: the policy formulation is often subject to compromises among politicians in order to solve conflicts of interests. This is the result of politicians trying to secure their long-term interests and can lead to an ineffective policy design.

Symbol policy: symbol policy is normally adopted if there is a distinct wish among the citizens for solving a specific problem (Winter & Nielsen, 2008). Symbol policy consists of too ambitious goals, which are set without the necessary resources for accomplishing them. It can therefore not be expected to lead to goal realisation.

Causal theory: causal theory is the expectation that, the assigned resources will lead to the policy's goals. It will undermine the policy design and the accomplishment of the goals will either be complicated or precluded, if this theory is not valid.

The policy design can show to be ineffective due to one of these aspects. It is not always a premediated action to create an ineffective policy design. The choice of an ineffective policy design can be caused by lack of knowledge on the effect of the policy design or on the political instruments (Winter & Nielsen, 2008).

Sometimes an ineffective policy design can be chosen due to political motives that have to do with re-election and popularity. In this case the choice is intentional, and is most clearly expressed through symbol policy (Winter & Nielsen, 2008).

[5] Political instruments include: rules regarding permits, orders and prohibitions, economical incentives along with information.

3.1.1.2 Implementation process

The second part of the model is the implementation process. In this context this part of the implementation takes place within the municipalities. It is divided into four parts: organisational and inter-organisational implementation behaviour, management, the fieldworkers' ability and will/interest, and target group behaviour.

Most political decisions need involvement of fieldworkers and relevant actors in order to be implemented successfully. The integrated implementation model is built on the assumption that relevant actors' interests are relevant for the implementation process. It is therefore necessary to be aware of who is involved in the process.

Organisational and inter-organisational implementation behaviour: This part of the model covers the involvement of different public and private authorities. It has to do with both involvement and collaboration, but also the internal dynamics. In a SEA context the relevant authorities are primarily the municipalities, state institutions, and NMKN. NMKN is an independent organisation, which is comparable to a court of law (Naturstyrelsen, n.d.[e]). The state institutions and NMKN safeguard the rule compliance and the overall audit.

The organisational and inter-organisational behaviour is especially affected by the degree of involvement and collaboration. Collaboration occurs, when the involved authorities consider it beneficial. This can be that the involved organisation possesses some competences, resources or knowledge that is valuable. Furthermore, the social capacity and the amount of trust also greatly influence the collaboration (Winter & Nielsen, 2008). The amount of collaboration is especially interesting for the second level of the implementation in the SEA preparation phase.

According to Winter (1994), institutions always represent some kind of interests. Some institutions have the same goals as the government, but institutions with many professionals do have a tendency to develop their own substantial interests. These different types of interests will be described later.

Management: The engagement in SEA of the management within the municipality can be relevant for the level of ambition. Furthermore, the management is relevant in setting up constructive working procedures and for securing the quality of the final SEAs. The level of communication and the exchange of information are also relevant aspects, when it comes to management (Winter & Nielsen, 2008).

The management is often located at the head of department but the municipal council has the overall responsibility for managing the municipality.

Fieldworkers' abilities and will: The fieldworkers' will is defined as incentives and interest, while ability (also called capacity) is based on the resources, such as economic or human resources (Winter, 1994). The fieldworkers affect the implementation in the way that their judgement and interpretation of the legislation will affect the final implementation results (Winter & Nielsen, 2008). Furthermore, their competences affect how well they can carry out the implementation.

Winter & Nielsen (2008) has identified three types of interest, which may influence the implementation, when it is carried out by an institution:

- Substantial interests: these are impacted by professional opinions on the field of work, which the institution handles along with goals for the institution.
- Institutional interests: institutional interests are affected by the economy, survival, status, and

growth of the institution.
- Individual interests: these interests origin from the individual members of the institution. They are affected by these members' interests, such as workload, job security, salary, and status.

For the first level of implementation, the governmental agencies are the fieldworkers. They are the ones to implement the EU-directive in Danish legislation. These agencies, which are mainly MIM and NST in this context, are the ones to formulate the Danish legislation and make sure that the policy design is sufficient for an effective implementation.

For the second level of implementation, the fieldworkers are the municipal employees but also the employees at consultancy companies, who produce SEAs[6]. In the implementation theory, the fieldworkers are described as the ones "who has the responsibility for the policy being "delivered" to the citizens" (Winter, 1994, p. 62, translated from Danish). However, since SEA is not a social policy, this is not entirely the case in this context. Instead, the fieldworkers are regarded as being the ones closest to the citizens in the sense that they are the ones to deliver the SEA and to take the answers from hearings into consideration.

Normally, the fieldworkers are affecting the implementation in a so-called *joint-production*, meaning that they depend on inputs from the citizens. In this context these inputs might come from other actors, such as neighbouring municipalities, NST or other relevant authorities, as well. The fieldworkers have to navigate these inputs and thereby judge what is important and what is not. This can be a challenge due to the fact that there is almost no knowledge or consensus on the methods or prioritisation. Additionally, they are limited by resources. The fieldworkers' work are therefore always up for debate (Winter & Nielsen, 2008).

Many of the problems, the fieldworkers are facing, are very complex and do not have an unambiguous solution. Some solutions might even create further problems (Winter & Nielsen, 2008).

SEA preparation is a cross-disciplinary task, which demands a high level of cooperation across departments within the municipalities and consultancy companies. Communication and cooperation are therefore crucial elements at the fieldworkers' level. Furthermore, inter-agency collaboration might be necessary. These types of collaboration depend on the type of relationships among the actors (Winter & Nielsen, 2008).

Target group behaviour: The target group varies according to which level of implementation is considered. It can be hard to distinguish the fieldworkers from the target groups.

For the first level of implementation, the target group can be said to be the fieldworkers of the second level of implementation, which are the municipal employees. They are the ones to receive the legislation and implement it in their everyday working procedures. They are important for the last part of the implementation, where the political decision is turned into effects, because they decide whether or not they will comply with the legislation (Winter & Nielsen, 2008).

At the second level of implementation, the target group is the citizens and relevant companies. These groups will be affected by the changes, the SEAs result in. The citizens can affect the implementation results by making their opinions heard. They can do this by engaging in hearings or in other ways letting their opinions be heard.

[6] If this study had focused on SEA in a broader context, the fieldworkers for this level of implementation would have been the practitioners at the other levels in the planning system, such as national and regional level.

The municipality itself is to some degree also the target group in the sense that the municipal employees working with SEA take some of the results from the SEA process into consideration, when finalising the plans.

3.1.1.3 Implementation results

The implementation results are divided into performance and effects.

Performance: The performance (also called *output*) is defined by Winter (1994) as the behaviour directed at the citizens or affected companies. Furthermore, the performance is connected to those fieldworkers, who are in direct contact with the citizens. The performance can be expressed through plans and programmes, which clarify the intentions of the municipality (Winter, 1994). The performance is in this case mainly expressed through the content of the SEA-reports or the changes in the plans, which have been caused by the SEA-process.

Effects: Effects (also called *outcome*) are by Winter (1994) described as the policy's effect on the target group's behaviour. He does, however, also mention that environmental policies also intend to affect the environmental conditions, such as the CO_2-emissions or drinking water quality. In a SEA context the environmental effects are considered as being the primary implementation effects.

The behaviour of the target group is mainly relevant for the first levels of implementation, where it is intended that the legislation should affect the planning practices within the municipalities.

The implementation process can affect the performance, but it can also, as indicated in Figure 7, impact the effects of the implementation (Winter & Nielsen, 2008). In this context the performance is mainly expressed through the content of the SEA-reports, which is aiming at securing and thereby affecting the environment.

It can be difficult to clearly define, when the implementation process is finished (Winter & Nielsen, 2008). In this context, the continual production of SEAs means that the implementation process is constantly reconstructed. However, it is possible to address some outcomes of the process, as it will be elaborated further in the next section; 3.2 Effectiveness. Other outcomes, which are first evident over a longer time frame are, nevertheless, difficult to detect and measure, which is why it has been necessary on the current effects of SEA and less on the overall development of SEA's outcome.

As Winter and Nielsen (2008) point out, the implementation results can vary from place to place. These variations can be visible on the individual fieldworker level or they can depend on the implementation authority. This is interesting in a municipal context, where there are different employees within one municipality, who carry out SEA. Furthermore, the entire implementation process can vary from municipality to municipality.

As mentioned earlier, the evaluation of the overall implementation of the SEA-legislation can be said to be an evaluation of SEA, since the second level of implementation covers the continual preparation of SEAs within the municipalities. The current result of the overall implementation can be evaluated by looking into its effectiveness in reaching its objectives, which is explained in the following.

3.2 Effectiveness

As described in the state of the art, in the field of evaluation of impact assessments, the term *effectiveness* has been widely used and discussed. There is no comprehensive definition of effectiveness, as well as a clear picture on which elements affect this effectiveness. The latter is in this report mapped by the implementation model, while the former is discussed in this section. Two questions are relevant when addressing effectiveness:

- What makes an impact assessment effective?
- How do you measure and evaluate it?

An assessment is effective when what was intended with the assessment match the outcome of the process. This means that to evaluate the effectiveness, the intention connected to it must be used as the overall evaluation criteria. The intention of impact assessment can be measurable, such as to ensure mitigation, secure the environment, and promote sustainability. Others are more open and big goals, such as to make a change in the world, or for instance Sadler's (1996, p. ii) statement:

> *"The real test of successful performance is the extent to which EA has "made a difference"".*

This statement, along with other wider measures, leaves a lot of questions unanswered, such as how do you measure and quantify it?

The evaluation criteria for this project are built upon the hypothesis, that a policy meets its intention, when it reaches its objectives. Which is also the common evaluation criterion according to Winter (1994). In this project SEA is thus defined as effective, when it reaches the official objective of SPPA, this approach is recognized as *substantive effectiveness*. Substantive effectiveness, as well as the other three common effectiveness categories, is explained below, taking departure in definitions and understandings from academic papers on effectiveness of impact assessments.

3.2.1 Substantive effectiveness

Substantive effectiveness evaluates the way SEA influences and changes plans and programmes (Zhang et al., 2012). A SEA process is substantive effective, when it supports and informs the decision-making process, and when planners, politicians, and stakeholders use SEA to make a decision, which has taken all environmental considerations into account. It also evaluates how the environmental report is used as a reference for discussion between all actors involved, including the public. Substantive effectiveness thereby measures the influence of the tool on discussion and decisions, but also on how well it contributes to the protection of the environment. These aspects are also evident through how plans are corrected and changed, which can happen either simultaneous with the SEA process or as a result of the final SEA-report (Doren et al., 2012).

Influential factors for substantive effectiveness can be regulatory framework on the integration of SEA in decision-making, as well as its attributed value within the decision-making, and the public awareness of the tool. The collaboration between different sectors and stakeholders, the integration in the planning process, and the planner's involvement are other influential factors.

How the environmental findings are presented can also influence the substantive effectiveness, thus clear comprehensible and well-communicated documents are more likely to be understood and used by stakeholders and in the decision-making process (Canchitpricha & Bond, 2013).

The substantive effectiveness is evaluated based on the results from the analysis of the SEA implementation in Chapter 6, and the factors influencing the effectiveness are further elaborated in the discussion in Chapter 7.

3.2.2 Procedural effectiveness

A policy works procedurally if it is undertaken accordingly to the expected procedures and principles. Procedural effectiveness is thereby measured by how well the process of SEA follows the established principles and how well the end-result, the actual assessment, meets the required standards (set by law) (Baker & McLelland, 2003). Examples of this can be whether or not, in the development of SEA, the correct consultation techniques are used, and if the requirements for public participation are followed.

The effectiveness lies in how well the procedure used by the practitioner follows the expected procedures (Therivel, 2004). Procedural effectiveness is thereby when the implementation and execution of SEA meets the procedural requirements set by SPPA. Examination of the procedural effectiveness requires an investigation of how the policy is applied in praxis and the used methods (Baker & McLelland, 2003).

In this study we are not interested in whether or not the planners are following the established procedures, but we are interested in whether or not the planners perceive the procedures as effective for reaching the substantive effectiveness. We are not evaluating the procedural effectiveness, but we are analysing the procedures of the municipalities through the implementation model, thus we are able to discuss strengths and weaknesses in the established procedures.

3.2.3 Transactive effectiveness

Transactive effectiveness is evaluated by investigating the resources (time and cost), which are used to achieve the procedural principles and the substantive objectives (Baker & McLelland, 2013). Transactive effectiveness is reached when the best results are achieved with the minimal amount of resources. It is not evaluated only by the cost of an impact assessment, but also by the management of the available resources. As with the procedural effectiveness, the transactive effectiveness is not evaluated, but the municipalities' viewpoints on resources and capacity are analysed and discussed, in order to shed light on the effect on the substantive effectiveness.

3.3.4 Normative effectiveness

Normative effectiveness relates to societal changes, such as changing perceptions, perspectives, behaviours, and principles in institutions, organizations, cultures, and among people etc. Changing perceptions of the tool or the policy itself is a normative effect, but also achieving normative goals, such as promoting sustainability or raising the awareness on environmental considerations, is also such an effect (Chanchitpricha & Bond, 2013). Norms can change through learning experiences, and the normative effectiveness is, therefore, closely connected to the ongoing implementation of a policy.

Normative changes rarely happen from day to day, thus evaluating normative effectiveness requires insight into the development over larger timeframes as well as an overall historical perspective. The normative effectiveness is not as simple and easy to measure as procedural and substantive effectiveness, and the goals are often not as clearly described, as for instance the established objectives of a policy. Hence, the normative effectiveness is not formally evaluated, but normative changes are discussed when relevant throughout the discussion. Additionally, the findings from this study are compared to former studies), in order to investigate if there have been some obvious normative changes in the respective time period.

3.4 Theoretical framework

Firstly, the integrated implementation model was adjusted to the context of SEA. Secondly, the effectiveness aspects have been connected to the integrated implementation model in order to create a basis for understanding, which factors of the model are relevant in relation to the effectiveness aspects. These two parts will constitute the framework for the further analysis of SEA implementation and use in a Danish municipal context.

3.4.1 The implementation model in a SEA context

Figure 8 shows the use of the integrated implementation model in this context. The figure is mainly describing the second level of implementation as this is the level, which has been investigated most thoroughly in this study. However, some aspects from the first level of implementation are still included when they are relevant.

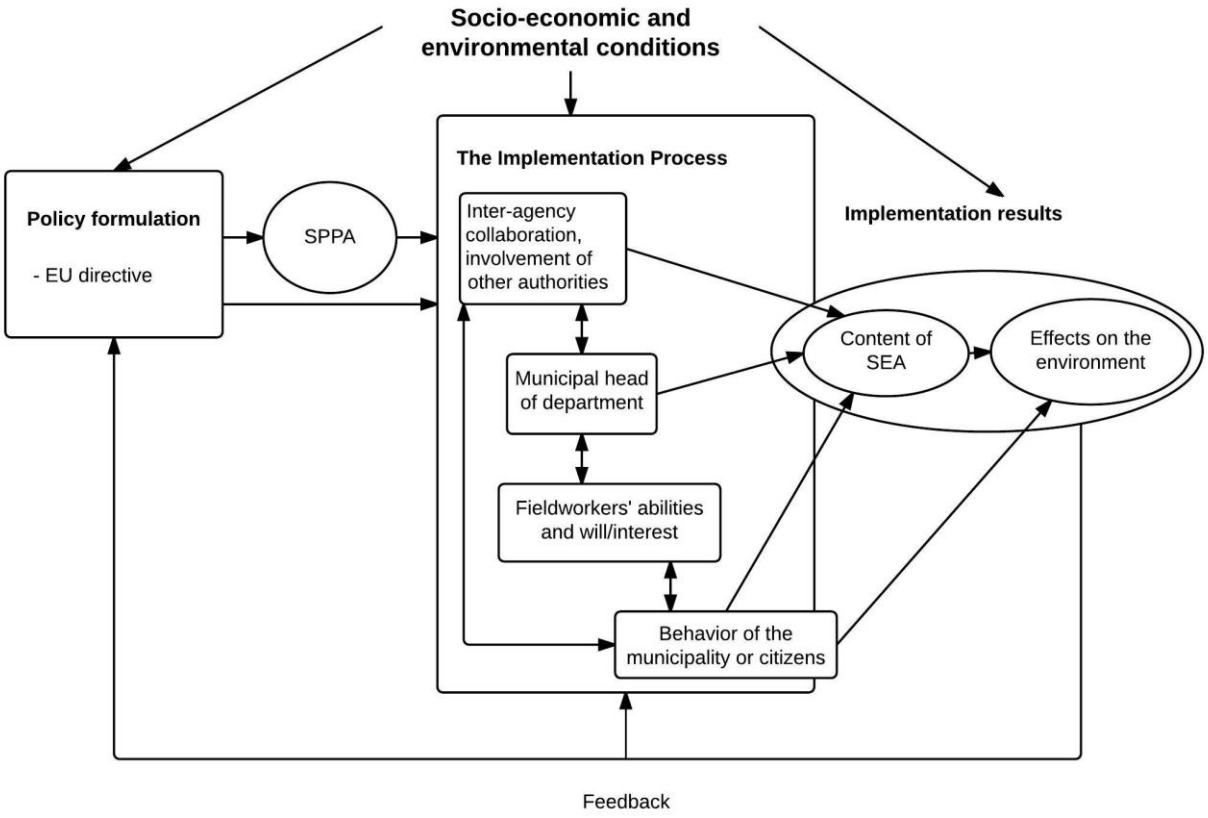

Figure 8 | The use of the integrated implementation model (inspired by Winter & Nielsen, 2008, p. 18)

As can be seen in the figure, environmental conditions have been added at the top. This aspect is mostly relevant for the second level of implementation, where the experiences of each municipality can affect the implementation process and results. This means that municipalities with greater experiences in planning for special environmental areas might benefit from this knowledge when preparing SEAs.

The policy formulation is taking basis in the EU-directive and has resulted in SPPA, which is the policy design. SPPA contains the legislative demands and the aim of the law as described in Chapter 2: Context.

As mentioned earlier, the guidelines by NST can be seen as part of this policy design, and it will therefore also be taken into consideration. The guidelines were published early in the SEA implementation process, where there were only few experiences to learn from. The guidelines were supplemented with an example collection (as described in Chapter 2), which contains the later experiences.

In the legislation, it is stated, which organisations are responsible for the implementation of the policy (SPPA § 1 stk. 3, 5.). These organisations then carry out the production process, which result in the performance and effects. The preparation process can thereby be described by four steps:

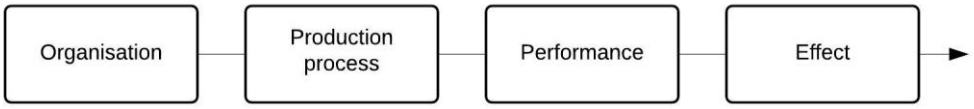

Figure 9 | The four steps in the casual chain (inspired by Winter, 1994, p. 17, figure 1.1)

The performance in this case is the content of the SEA reports (as shown in Figure 8). This content affects the plans, but it also affects the final effects on the environment. This process will be used to understand the link between these four elements.

The implementation process includes four important factors, which can be seen in Figure 8. At the top, the behaviour of other authorities, such as governmental agencies, and collaboration is mentioned as a factor, which can affect the implementation. Also the management, which lies at the head of department, is relevant along with the municipal employees' abilities and interests. The employees are helped by their experiences and competences but might be limited by the available resources. Lastly, the behaviour of the target group, which is citizens and the municipality itself, is a significant factor in this part of the overall process.

The implementation results are, as earlier described, mainly; the performance of the SEAs, which is expressed through the content of the SEA-reports, and the effects of SEA on the final plans, the environment but also on human health and wellbeing. These results are considered to be the collective results from both levels of implementation.

The integrated implementation model has to some degree a static structure, and it is fair to assume that most implementation go through a more dynamical process and would thereby be less linear. In a SEA context the dynamical nature of the implementation is made visible through the engagement of relevant actors in more than one part of the implementation process. The target group, which is the municipal employees for the first level of implementation, is the fieldworkers of the second level, and they can therefore affect both levels of implementation.

3.4.2 Effectiveness evaluation of SEA

As mentioned earlier, the common evaluation standard for implementation theory is the official goals. This can be connected to Sadler's (1996) understanding of the EA process; "[…] an EA process can only be understood and evaluated in relation to the policy and institutional framework, in which it operates" (p. ii). This means that the framework stated in the policy is the basis for an evaluation, and that it is necessary to be aware of the overall context, which is described by the factors in the integrated implementation model.

To investigate the effectiveness aspects, it is necessary to focus on some parts of the model and identify the most relevant factors within these parts. The feedback loop of the integrated implementation model is examined to fully understand the development of the continual SEA implementation, since the EU-directive was adopted. Furthermore, what is important to focus on in a SEA context is the usefulness of the policy design (especially the aim and thereby the established goals for the law), the dynamics of the implementation process (with a focus on collaboration, procedures regarding the preparation of SEA, along with the stakeholders' perception of and effect on the SEA process) and the final content of the SEA-reports along with the effects of the overall SEA process. SEA is evaluated, by looking at what outcome the SEA process has on the following factors:

1. **Plans and programmes**
   To what extent does SEA actively change the plans to ensure the environment considerations?

2. **Decision-making**
   How does SEA influence planners', politicians', and the public decision-making?

3. **The objectives**
   Does SEA succeed in reaching the legislative objectives set in SPPA ?

Chapter 4

Methodology

The following chapter provides a presentation of the methods used in this research. Firstly, the research method is outlined, followed by the research strategy explaining the general aspects of the orientation in relation to this study. Then, the methods for the data collection and treatment will be presented and finally, a reflection on the whole research strategy is described.

In the 1.1 Problem area a research question along with three sub-questions were presented. The basis for answering these is the data collection and treatment, which is why it was strived to shape the data collection in accordance with these.

4.1 Research Design

In this part of the framework the collection and analysis of data will be presented along with the considerations done in regard to the choice of research strategy. Figure 10 provides an overview of the project process; from stating the research question to the final conclusion. From the figure it is possible to see, how the project is structured, and what parts are premises for the next ones. The methodical aspects of each part of the figure are numbered and described in the following.

The **first** step of the research design was the choice of SEA as our subject of research and the formulation of the research question. The research question has been slightly moderated during the project process in order to fit it to the gained knowledge and experiences. The one shown in the figure is the final one for this study.

The **second** step illustrates the initial action, which was necessary to further focus and limit the study. To do this on a qualified basis we collected data through questionnaires to get an impression of the general experiences with SEA within the Danish municipalities. By developing a questionnaire we were able to reach as many municipalities as possible within a limited amount of time and thereby map the most common practices and opinions.

In the **third** step, the data from the questionnaires was treated statistically in order to identify the tendencies. Furthermore, it was used to detect differences among municipalities with different population sizes. Lastly, the data was used to identify municipalities and companies, which could be relevant for in-depth interviews.

Step **four** presents the second part of the data collection, which was to carry out semi-structured interviews. Both the choice of interviewees and the interview guides were based on the insights and knowledge gained through the treatment of the questionnaire responses.

The data preparation for the analysis was processed in two separate data treatment processes, shown as step **five** and **six** on the figure. This was done by coding of the relevant interviews and questionnaire comments.

In step **seven**, based on this data, an analysis of the implementation process, with basis in the theoretical framework, was performed. The evaluation of the substantive effectiveness of SEA in Denmark was made using the results from the analysis, and using the criteria mentioned in the theoretical framework.
A critical discussion of the implications of the legislative implementation, SEA as a tool and perspectives on SEA, are presented in step **eight**. The discussion is taking basis in both interviews and literature reviews. Lastly, in step **nine**, the results from the analysis and discussion are summed up in a conclusion, which provides an overview of the key findings and points.

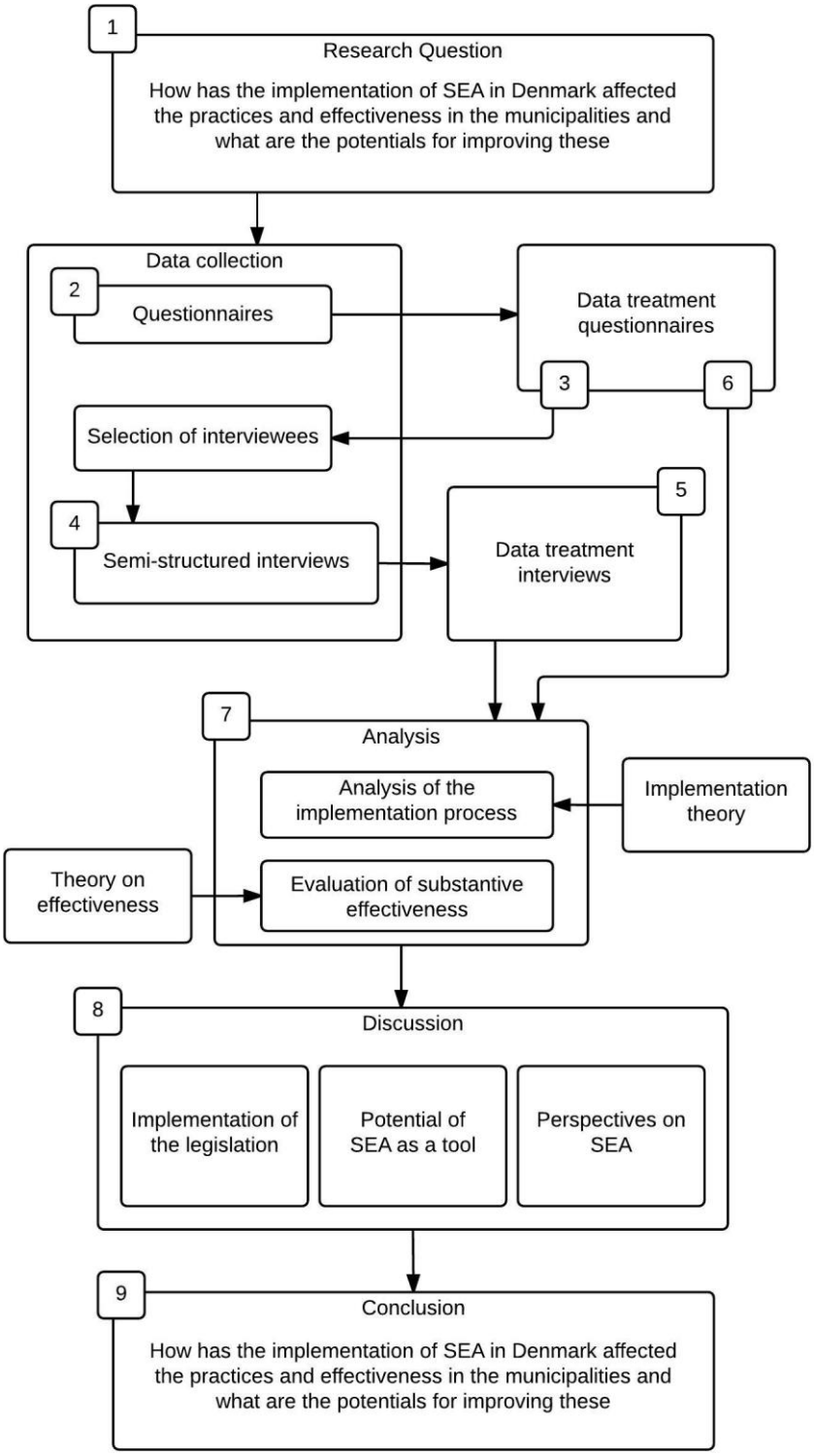

Figure 10 | Process diagram of the overall research design, which is the frame for the study. The various steps are explained in the text on the previous page.

Summed up, we **analyse** the factors that influence the implementation of SEA, using the integrated implementation model, and from the results we evaluate the effectiveness. We **discuss** the implementation, the elements and potential of SEA as a tool, the European context of SEA, along with SEA in a future perspective. Lastly, we **conclude** on the findings of the study and strive to answer the research question and provide some recommendations on SEA.

4.1.1 Research strategy

This section explains the general orientation, which has been the foundation for the execution of social research within this study. In social research, a number of fundamental positions, such as world view and methods, should be taken into consideration in regard to the investigation. According to Bryman (2012), social research is influenced by a variety of factors: *theory*, *epistemology*, *ontology*, *values*, and *practical considerations*. Figure 11 below shows the relations between these factors.

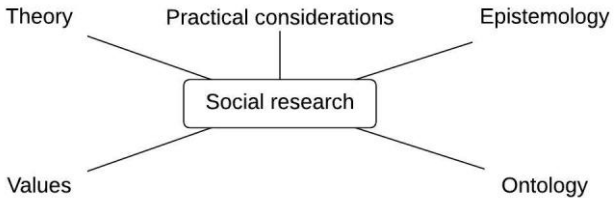

Figure 11 | The influencing factors in social research (Bryman, 2012)

The practical considerations are included as a part of the research design, which was described in the part above. The epistemological considerations, in the position of critical realism, provide a view on collected knowledge as a valid research method for understanding social action. These considerations are followed by ontological thoughts, which state that constructivism is the position of this study and concerns how social constructions are regarded as being a dynamic process in an on-going reconstruction of itself.

These considerations, along with the choice of theories, and a reflection on our role as researchers, and in that context our values, are presented in the next sections. When these parts have been clarified, the overall research approach is presented.

Epistemological considerations

Epistemology is a theory on knowledge and philosophical considerations regarding the dimensions of realisation, definition, structure, origin, and boundaries (Den Store Danske, n.d.[e]). Epistemological issues concerns what is regarded as acceptable knowledge in research disciplines.

Epistemology deals, among other things, with the question of whether or not the social world should be studied in the same way as natural science (Bryman, 2012). The epistemological positions; *positivism* and *interpretivism* concern the application of natural science methods to the study of social reality. While positivism advocates it, interpretivism requires a respect towards the differences between people and objects of natural science. Thus, interpretivism implies that a social scientist is needed to grasp the subjective meaning of social action. As a middle ground *critical realism* "[…] recognize the reality of the natural order and the events and discourses of the social world and holds that we will only to understand – and so change – the social world, if we identify the structures at work that generate those events and discourses" (Bryman, 2012, p. 29). The critical realist finds the identification of the context for the researched object crucial for comprehending its social world. The crucial part of

critical realism is that this identification makes it possible to introduce changes to the social world, which can transform the status quo.

The position of critical realism is applied to this study, thus SEA is investigated with the purpose to feed into the knowledge for identifying the main potential, pitfalls, and challenges concerning effectiveness and implementation of SEA in Danish municipal practices.

Critical realism is partly an approach to understand the social reality by observing it through the eyes of the actors partaking in this reality. Thus, in this study the actors working with SEA on various levels, such as planners, researchers, and advisors, provide the insights on SEA practices. Not only is the view of the critical realism approach used to create an insight but also as a way to grasp the planners' opinions on the SEA procedures, the legal requirements, and SEA as a tool.

Ontological considerations

Ontology is a theory that belongs to philosophy concerned with the fundamental ways in which something can be. Classic ontological issues are the relationship between abstract and concrete things like the psychical and the physical existence and the nature of time and space (Den Store Danske, n.d.[f]).

According to Bryman (2012), issues concerning the conduction of social research cannot be separated from questions of social ontology. In a social-research-context ontology concerns whether the nature of the social entities is a social phenomenon, where external facts are beyond our reach of influence, or if it is continuously built up and changed through the perception and actions of social actors. The former is the notion of objectivism and the latter constructivism (Bryman, 2012).

In this study the social actors in the context of SEA are regarded as constructing actors, who build and reconstruct the social setting through a dynamic process. Through this constructionism position, the procedures on SEA preparation are seen as a continuous implementation of the approach to ensure the environment. Furthermore, the decision to take a point of departure in the municipalities' experiences and opinions on the notion of SEA underlines the position of this study as constructionism.

Theoretical considerations

The exposition of the theories, which provide the frame for the analysis of this project, explicitly shows a practical approach to this research.

The choice of theories reflects the general approach to the project as a social science study. Our values as engineering students resulted in a solution-oriented approach with a focus on setting up a structured model for our data presentation and analysis.

The implementation theory was chosen in order to develop a framework for understanding the implementation process in regard to SEA. The implementation process is a well-structured theory, which can even be regarded as being less dynamic than reality. However, it is useful for investigating implications, relevant factors and casual links. This theory helped us answer the first sub-question.

The theory on effectiveness created a basis for the evaluation. This choice was taking basis in our need for a structured approach to the evaluation. Furthermore, it is the most common approach to SEA, as it was described in 2.4 State of the art, which made it reliable. This theory helped us answer the second sub-question.

Values

This section is used to present our personal beliefs and feelings as researchers of this project. Our values play an important role in the selection of research design, thus affects the execution of empirical data collection, the analysis method, and the presentation of the results.

In the position of positivism "science must (and presumably can) be conducted in a way that is value free (that is, objective)" (Bryman, 2012, p. 28). In this project we undertake the position; that researchers cannot be entirely free of values, thus personal beliefs and feelings should be recognized and acknowledged. It is the researchers' responsibility to be self-reflective and exhibit a reflective presentation of their values and their role in the research (Bryman, 2012).

This report is our final master thesis. It is the result of a study carried out in connection with our study programme; M.Sc. Sustainable Cities at Aalborg University, Copenhagen. Our choice of getting enrolled in this master programme can be considered as being a wish for taking part in a societal change by the use of sustainable solutions, thus it expresses a belief in sustainable solutions. The master-programme gives us an idealistic view on sustainable development. It furthermore made us aware of challenges in connection to different aspects of this type of development, such as limited resources, codes of conduct, and simple communication. Furthermore, all three group members have a bachelor degree in engineering from the Technical University of Denmark (DTU). Through the educational programmes at DTU, which were solution-oriented, we have been provided with practical approaches to research.

Our incorporated values advocated the choice of research area, in the sense that SEA can be considered a part of the on-going process towards environmentally friendly solutions and sustainable development. Our educational backgrounds as engineers, made us approach the investigation with interest in the potential of SEA as a tool for securing environmental aspects. This initial idealism was challenged through the study. The study made us interested in the challenges arising in implementation and daily use of SEA. With the assumption that the planners in the Danish municipalities follow the societal tendency of embracing sustainable development, we decided to investigate SEA, as a legislatively obligated tool, with the intention of promoting this type of development. Thus, the study took basis in the fieldworkers' experiences, who could shed light on the pitfalls and potentials of the tool.

Our roles as "objective" interviewers were challenged by the initial wish to promote sustainable development, and it was difficult to avoid asking questions, which led the interview in this direction.

We have throughout the whole process been critical against our own standpoint and perception of SEA, and we have chosen to be open for other perspectives in order to be critical against our own aim of research. We have thereby gone through an interesting learning process, where our initial understandings have been questioned, challenged, and discussed every time we made new discoveries. This resulted in a quite remarkable shift in our understanding of SEA, which initially was very positive and to some degree had the perception that SEA should be used to a wider extent. This changed to a conception that was somewhat critical with a focus on the potentials of SEA and how to make use of the most beneficial parts of the tool, rather than blindly use it. Furthermore, we realised that it is not easy to locate the origin of pitfalls and challenges, since they occur throughout the entire SEA process. This made us chose not only to evaluate the effectiveness but also to be critical towards the entire implementation process, the legislative demands, and thereby the tool itself.

4.1.1.1 Research approach

On the basis of the different considerations in regard to the research strategy, a research approach can now be presented. The relationship between research and theory is generally described by the two distinguished approaches; *deductive* and *inductive* theory. The deductive approach is the process from a theory-based hypothesis to data collection and findings that can confirm or reject the hypotheses, which will possibly revise the theory. The inductive approach is considered the opposite line of sequence, where observations and findings provide the basis for making theory (Bryman, 2012).

In this case it is not one or the other of the approaches, which dominate the study. It is rather a mixture of both that is shaping this study, which is well in line with critical realism. The investigation of the current state of SEA done through the questionnaires provided us with a broad understanding of the situation and relevant aspects in regard to SEA. This initial investigation led to issues worth investigating further, which was done by semi-structured interviews. The investigation focused on the implementation of SEA in Denmark, which shed light on relevant factors. In order to conduct a thoroughly investigation of the potentials and challenges of SEA, an evaluation of the substantive effectiveness of SEA was carried out. The outcome of this study will be a conclusion on which factors are relevant for the implementation process and how substantive effective SEA is in Denmark.

The data collection performed was carried out as a combination of questionnaires and semi-structured interviews, which can be classified as a quantitative and qualitative research method, respectively. Questionnaires are often regarded as quantitative research approaches. In this study the data was collected through questionnaires in order to receive structured responses, which could enable a comparison of experiences and opinions across the municipalities. These responses, furthermore, helped in the formation of the semi-structured interviews. After the data collection, theory was applied in order to help the understanding of the reality revolving around SEA procedures. This approach was used to describe and ultimately give an explanation of the state of SEA in Denmark. The collection of data is presented in the next section.

4.2 Data collection

The data collection for this study has been done in two parts; questionnaires and semi-structured interviews. The questionnaires were, as earlier described, done to examine the field of study, detect patterns, and experiences, as well as acquire the necessary knowledge on the municipalities' and consultancies' practices. The second part was formed by semi-structured interviews, carried out with selected municipalities and experts, in order to elaborate and understand the structures and opinions that are the basis for the implementation and use of SEA in Danish municipalities.

The two methods for data collection are described and discussed in the sections below, along with the arguments for the choice of methods, and how the data was processed.

4.2.1 Part 1: Questionnaires

In order to investigate the current practices regarding SEA performed on a municipal level, two questionnaires were created.

Questionnaires are regarded as a structured approach when collecting data compared to methods such as interviews. The approach is structured in the sense, that the researcher is the one to determine the shape of the questions. This is convenient for the researcher, since it makes the results easier to structure and analyse and, furthermore, useful for generalisation and comparisons, as mentioned earlier. One of the significant pitfalls of this approach is that the researcher is not capable of asking for clarification or

elaboration of answers, why it can be difficult to know what motives, knowledge, or experiences are behind the answer. Consequently, this makes the results more superficial (Gillham, 2000).

Questionnaires were chosen as the initial method for collecting data, due to the fact that they provided us with comparable information regarding the SEA-procedures in the Danish municipalities. This gave us an idea of the general experiences, practices and opinions on SEA as a tool for ensuring the environment.

The questions for the questionnaires were formulated as a mix of so-called *open* and *closed* questions. Generally, the questions could, where the response was in text-form, be categorized as open, while the questions, where the respondent picked the answer from a list or scale, were closed questions (Gillham, 2000).

Two questionnaires were prepared for municipalities and consultancy companies respectively. The questionnaires were set up in Google Docs' Questionnaire-template.

Figure 12 | Screenshots of questionnaire, Google Docs

The next sections present the questions, which constitute the questionnaires, the data treatment and the method.

4.2.1.1 Questions for the municipalities

The questionnaire for the municipalities was prepared in Danish and sent to all of the 98 Danish municipalities (the questions can be found in the compendium). The questions were structured into four parts:

Part 1: Background information

In this part, the questions regarded the municipal experiences concerning SEA. This was investigated through questions regarding the preparation and procedures concerning of SEAs within the municipality.

Part 2: Procedure

This part concerned the legislative requirements in order to investigate the usefulness of the law in a municipal context. The questions addressed how often the screening led to a full SEA-report, the hearing, and resources spent on the SEA-preparation.

Part 3: SEA and sustainability

The questions in this part regarded the political goals concerning the environment and sustainability and how SEA can help accomplish these. Furthermore, the aim of this part was to investigate the effect of SEA on environmental and sustainability aspects.

Part 4: The effect of SEA

The aim of the last part was to examine the effects of SEA on environmental aspects in the municipality, on the plans and programmes, and on political decision-making. Lastly, a question regarding the use of tools was added.

Some parts were slightly overlapping, but all questions were different. In total 24 questions were asked.

There was for all questions added an *I don´t know*-option. Most questions were answered by picking from a scale, which contained a list of responses. For instance options reaching from *Never* to *Always*, and the levels in between were *Infrequent*, *(Half the time)* and *Often*. A description of the remaining response options can be found on the Appendix Disc. Five questions were answered by picking from categories. This was the case for questions, where the respondents should answer questions regarding their educational background or their experiences with preparing SEAs for different types of plans.

Six questions were answered exclusively by text. And for five questions, an *Other*-option gave the respondent the option of writing a short text. The comments from these questions were collected and are presented in the compendium on results.

We received 72 responses from 63 different municipalities in total.

4.2.1.2 Questions for companies

After receiving the first responses from the municipalities it became clear, that it was quite common practice to let consultancy companies handle both whole and parts of SEAs. To get a better impression of the experiences and practices it therefore became relevant to include the companies in the survey. This would also make it possible to compare the municipalities' experiences with the companies'.

Thus, a questionnaire in Danish was sent out to a selection of nine different companies (the list of qustions for the consultancy companies can be found in the compendium). The companies were chosen from a systematic online review of Danish engineering consultancies and selected if environmental assessment was mentioned on their homepage. However, two companies responded to our request and told us that they did not provide the type of expertise, we were investigating.

The questionnaire was made-up of the following parts:

Part 1: Background information

The first part of the questionnaire concerned the employee's job title and department.

Part 2: Procedure

The second part regarded the procedures concerning SEA preparation for municipalities. These questions addressed the preparation of SEAs, the engagement in the full SEA-process, and the cooperation with the municipalities.

Part 3: SEA and sustainability in municipal planning

This part addressed the effect of SEA on environmental and sustainability.

The questions for the companies resembled to a large degree the questions for the municipalities. The *I don't know*- and *Other*-options were both added to all questions. Nevertheless, there were some minor changes. Instead of asking for a response on a scale divided into categories, we asked them to answer on a scale from 1 to 5. This was done, because we expected that this would ease the data treatment. However,

in order to be consistent the data from both the municipalities and the consultancy companies was treated in the same way.

We received five responses from four different companies. The two responses, which came from the same company, came from offices in different parts of Denmark.

4.2.1.3 Data treatment

Six municipalities had answered more than once. For some questions, we were only interested in the tendency among the municipalities, while for others, we were interested in the experience of each employee working with SEA. For the questions, where we wanted the tendency among the municipalities, we therefore had to sum up each municipality's responses so they only counted as one in total. We did this by letting each of these answers account for the share equal to the number of answers for the specific municipality[7]. These questions were question 5M, 7M, 9M, 10M, 11M, 12M, 13M, 19M, 20M, 21M and 22M (see compendium). As a rule of thumb, these are the questions, which regard the municipality as a whole, for instance questions such as question 12M *Does your municipality have any political targets regarding climate, the environment and sustainability?* However, for questions 5M and 22M the approach was slightly different. Question 22M is for instance *Which (if any) types of tools are developed in your municipality to ease the preparation of SEAs?* Here each respondent counted as one, unless there were overlaps in answers within one municipality then the response was only counted once. This was done since it was assumed that it was fair to say that some employees did not know all the approaches to developing SEAs within the municipality.

This means that for some questions the total amount of responses are 72, while for others the number is only 63 – dependent on whether the focus was on the experience among employees or on the tendencies among the municipalities.

For the companies it was chosen to count the two responses from one company as equally important, since they were from two different offices, why the data has not gone through the same procedure as the municipal responses.

Most data was treated by using the default statistic sheet by Google Docs, which was exported into Excel in order to do the last calculations and statistical considerations (which are described in the section below). However, when data for specific municipalities was needed or data had to be compared, it was necessary to export the sheet to Excel and do the entire data treatment there. This data was then treated by the use of the function COUNTIF(range;variable) together with some changes in the standard setup of the Excel sheet[8] was used for counting the amount of responses for each municipality.

Statistics

Some response options – also called variables – are *categorical* in the sense that they measure a scale by setting a set of categories, such as educational background. It is not possible to calculate an average for such variables. These are said to be part of a *nominal scale* and has no "low" or "high" end, and they are to a high degree qualitative (Agresti & Finlay, 2009). To get an impression of the tendency, the mode, which is the variable with highest frequency, will be used when presenting the data further on (Kumar, 2014).

Question 7 (see compendium) is special in the sense that the variables are intervals, thus they at first sight could be classified as quantitative. Each interval (1-3, 4-6, 7-9, …) has a width of three except for the first interval; none (0) and the last 15+. Normally, in order to make an estimate of the average value, the class

[7] If for instance one municipality had two answers, each would count one half. If a municipality had three answers, each would count for one third and so forth.
[8] For instance were text pieces divided into more columns in order to count them.

interval's midpoints (2, 5, 8, …) would be used. However, this is complicated due to the fact that none (0) and 15+ are part of the scale even though they are not intervals. Furthermore, 15+ is not a specific value, why it is not possible to include it in the calculations. It can therefore be argued, that the variables are of a qualitative character, and therefore fit into an *ordinal scale* (Kumar, 2014).

This is also the case for other questions, where the levels in the scale have a clear order. These are the type of questions answered by scales reaching from for instance *Never* to *Always*. These ordinal scales are as the nominal scale referred to as *categorical*, but they differ from nominal scales, since they have a natural ordering of the variables. These scales are therefore neither nominal nor intervals, since there is not definite distance between the levels of the scale. Therefore, it is hard to determine, whether these type of scales are strictly qualitative or quantitative.

According to Kumar (2014), ordinal scales are treated as qualitative. It is in this case, normal procedure to identify the median or percentiles. On the other hand, Agresti & Finlay (2009) argue that they can resemble an interval scale, and the variables can be assigned values and thereby be treated as quantitative ones. To do so require good judgement and can result in miss interpretations of the results.

However, this approach was difficult to apply to our results due to the way the scales were created with no fixed distance between the response options. Some might interpret a scale, such as *Never – Infrequent – Half the time – Often - Always* differently from others. It has therefore been chosen to treat the scales as qualitative. The median is determined as the response in position; $\frac{n+1}{2}$, if *n* is odd, or as the average of the two responses in positions; $\frac{n}{2}$ and $\frac{n+2}{2}$, if *n* is an even number (Johnson, 2011, p. 25). The results will be presented in Chapter 5: The implementation of SEA.

4.2.1.4 Validity and reliability

For a measure to be valid and reliable, it has to measure what it is intended to measure, and it must be consistent in the sense that it is replicable. In order to secure the validity of the questionnaire, some considerations have been made (Agresti & Finlay, 2009).

We received responses from 63 municipalities out of the 98 in total. Our overall response rate is thereby 64.3 %. In order to calculate the response rate for the consultancy companies it is necessary to define the actual responses and the population. This is complicated due to the fact that there were two respondents from one company, and that two of the contacted companies not even were in the target group for the questionnaire. It can therefore be said that we received four responses from different companies out of the seven relevant consultancies, we had contacted. This results in a response rate of 57.1 % (Bennekom, 2014).

It is necessary to consider if the response rate is large enough for the results to be replicable. The number of responses can be seen as the sample, and it is generally considered that the sample error decreases, as the sample size increases. This also means that the confidence level increases as the sample size increases (Agresti & Finlay, 2009). For some questions a share of the respondents have chosen to pick the *I don't know*-option, this does not affect the response rate for these question, as *I don't know* also is an indication of the general experience and knowledge within the municipalities.

By summing up the questionnaire comments it was possible to get an impression of some of the critique that the respondents had towards the form and content of the survey. These types of comments were fairly few, compared to the total amount of answers. The critique mainly addressed three issues. Some respondents criticized the respond options, saying that they were not diverse enough for some questions.

Some pointed out that it was hard to distinguish between, questions only regarding the screening or the complete SEA. Furthermore, it was mentioned that some answers depended on our definition of sustainability.

These comments are relevant, when we consider the validity of the questionnaire and whether it measures, what it is intended to measure. If the respondents have misunderstood the question, it can threat the overall validity of the results. As mentioned earlier, these comments were relatively few, and most of them addressed a specific question and was followed by an explanation of their interpretation of the question. This made it possible for us to verify that they had understood the question as intended.

Another interesting thing was variations within the responses from the municipalities with several respondents. Some of these variations could be categorised as actual disagreements, for instance when the options were [yes/no] and the two respondents have picked an option each. This observation is interesting, since it indicates a certain amount of uncertainty, and that the answer – even on questions regarding the municipality as a whole – can depend on the specific employee's experiences, opinion, and knowledge.

Respondents

The aim of the questionnaire was to identify tendencies among the experiences within the Danish municipalities. The population is therefore in most cases the 98 Danish municipalities. If we had been interested in experiences from all employees working with SEAs, the population size would have become a whole lot bigger – and would, furthermore, be very hard to estimate.

For the companies, nine questionnaires were sent out, but only seven of these were in the target group for the questionnaire. There might be more consultancy companies working with SEA, thus the actual population might be bigger.

Overview of the total amount of responses to the questionnaires:

Questionnaires for	Target group	Responses in total	Total entities
Municipalities	98	72	63
Companies	7	5	4

To ensure that the sample is representative for all Danish municipalities, some characteristics of the sample have been investigated. The geographical regional distribution of all municipalities and the samples has been illustrated in the table below.

Table 2 | The distribution of the sample according to geographical location

Region	All municipalities (share of all municipalities)	Sample (share of sample)
Region Hovedstaden	29 (29.6 %)	16 (25.4 %)
Region Midtjylland	19 (19.3 %)	13 (20.6 %)
Region Nordjylland	11 (11.2 %)	7 (11.1 %)
Region Sjælland	17 (17.3 %)	13 (20.6 %)
Region Syddanmark	22 (22.4 %)	14 (22.2 %)

As it can be seen from the table, the sample is distributed fairly similar to the national distribution. The distribution according to population size can be seen in the table below.

Table 3 | The distribution of the sample according to population size

Population size	All municipalities (share of all municipalities)	Sample (share of sample)
< 25,000	18 (18.4 %)	10 (15.9 %)
25 000 - 50 000	43 (43.9 %)	28 (44.4 %)
50 000 - 75 000	20 (20.4 %)	14 (22.2 %)
75 000 - 100 000	10 (10.2 %)	7 (11.1 %)
> 100,000	7 (7.1 %)	4 (6.4 %)

As shown in Table 3 above, most of the municipalities responding had a population between 25 000 and 50 000. The collected results of the questionnaires can be found in the compendium on results.

4.2.2 Part 2: Interviews

11 interviews were carried out as part of the data collection. As explained earlier, interviews and questionnaires are very different methods for data collecting in regard to the possibility of elaboration and clarification of the statements. It was therefore chosen to carry out interviews in order to further investigate and clarify the experiences of the respondents. Thus, a selection of municipalities and two consultants were chosen for interviews. Furthermore, two experts in the field of SEA were interviewed in order to get a broader perspective on the SEA practices and the overall implementation of the SEA legislation.

Some interviews were done face to face, while others were done by telephone due to the geographical distances. Common for all of them were that they were recorded, and notes that were written both during the interview and based on the recording. The notes were corrected by listening to the recordings and sent to the interviewees for approval in order to avoid misunderstandings and to get quote-approvals.

All interviews were carried out as semi-structured interviews. This form of interview allows the interviewer to structure the interview through an interview guide, but still leaves a great deal of leeway for the interviewee and allows the interviewer to follow interesting points made during the interviews.

The interview guide used in semi-structured interviews makes it possible to focus the investigation and address specific matters in the semi-structured interview, and thereby steer the interview. Furthermore, the structure of a semi-structured interview makes comparability possible, when the investigation involves multiple interviewees' point of view and experiences with the same issue (Bryman, 2012). These aspects were relevant in this study, since data from 11 different interviews had to be to some degree comparable. Additionally, it was necessary to collect information on the questions put forward in this study.

Another type of interview is the unstructured interview, which is considered to be the least structured type of data collection in regard to interviews. It is by an unstructured interview strived to produce an interview, which resembles an everyday conversation, thus the interviewer does not want to control the interview. The interviewer, therefore, only structures the interview by simple notes and maybe a few

questions (Bryman, 2012). This type of interview was considered as irrelevant in this context due to the fact that it was more relevant to investigate professional opinions and experiences regarding the SEA preparation process, than it was to examine personal opinions. These types of interviews could be carried out if the study was meant to dig deeper into the dynamics of the SEA preparation process, but since this study focuses on the overall SEA experiences and implementation, it was considered as being unnecessary.

The interview guides, which will be described later, were used to structure and steer the interviews. The purpose of the guides was not strictly to structure the interview, but rather to make sure that the most important aspects and themes were covered in the interview. However, since the interview guides were fitted to each interview, the reliability and validity decreases. This is also due to the fact that some questions can be regarded as ambiguous, concerning opinions and attitudes (Champion et al., 1997).

Structured interviews, on the other hand, enhance the reliability and validity of the data collected (Champion et al., 1997). Since we had already done structured data collection through the questionnaires, the semi-structured interviews were regarded as a further investigation of the responses and were therefore comparable with the data collected in the questionnaires. Furthermore, within the limitation of semi-structured interview, a higher validity can be gained by making sure the same topics are covered, and that the questions are well phrased and articulated, as well as making sure the interviews are to some extent made under the same conditions such as; time period, interviewer, and sentiment.

This study strategy is replicable, but it is important to be aware that with the position of critical realism approach and constructivism belief, a lot of factors will influence the results. A reproduction will be affected by factors that will have changed in the social constructions and thus be performed in another time and setting of the dynamic process. In other words; a reconstruction will be affected by different questionnaire respondents, different interviewees, and changed circumstances.

The interviewees represent the municipalities, companies, and departments in which they are employed, but they remain independent entities. That entails a focus on whether the interviewees are expressing personal opinions or the views of the municipality or company. By making the objective of the interview clear for the interviewee, and by interviewing them in their professional roles, it is possible to reduce the risk of strong personally remarks. Nevertheless, it is also important to note, that this research is focused on the experiences and opinions of the SEA conductors and therefore to some extent welcomes personal comments.

4.2.2.1 Interviews with municipalities

The interviews with the Danish municipalities were done in order to investigate the experiences with SEA in a municipal context. The interviews provided us with a collection of experiences from the municipalities. The interviews were mainly aiming at understanding the implementation process and the daily practices regarding SEA in the municipalities along with the employees' reflections on SEA as a tool and the impact of the SEA process.

The following section describes the considerations concerning the sampling method for selecting the interviewed municipalities, presenting the interview method, and lastly the structure of the interview guide.

Sampling

The results from the questionnaire (described in section 4.2.1 Part 1: Questionnaires) were used as the primary basis for picking municipalities for interviews. It was endeavoured to pick municipalities with different viewpoints, but also to find some that represented the most common views.

In order to represent all the municipalities in Denmark, it has been strived to pick a sample that covers the most significant aspects of the municipalities' characteristics. This has been done by *stratified random sampling* described by Bryman (2012). Stratified random sampling allows the researcher to pick an amount of *categories* (*strata*), which are determining the choice of sample. The sample is picked from a population. The population is in this case all the Danish municipalities. The categories are determined by a *stratified criterion*, which in this case could be geographical location. The categories are normally done on the basis of a simple criterion, in the sense that they split the population into clearly defined groups. In this case these categories connected to the geographical location could be Jutland, Funen, Zealand, along with the remaining islands.

Using stratified random sampling, thereby, ensures that the sample will be distributed in the same way as the entire population in terms of the stratified criterion. The chosen municipalities in each category are randomly sampled from all Danish municipalities within this category (Bryman, 2012).

In this study, a clearly defined criterion could be, as mentioned earlier, the geographical location of the municipalities. However, there are criterions, which may be less straightforward to use such as population size. In order to use such a criterion, it would be necessary to divide the population sizes into categories, such as "big" and "small". Other criterions are difficult to use due to the lack of concrete data, such as natural environments. These are therefore used more as a guideline to secure that different types of municipalities have been chosen. It is in this case also difficult to limit the amount of criterions to a reasonable number, since the municipalities are characterised by several different aspects, which are relevant in relation to SEA.

Five criterions are described in this section. Firstly the geographical location and the type of municipality (urban or rural), then the area and population size of the municipality and lastly criterions, which are of a "softer" character, and regards aspects, which are included in the environmental concept stated in the legislation and thereby have been recognised as important for the overall state of the environment. Therefore, the last criterions described in this section are rather used as guidelines for distributing the sample, than a reflection of the exact distribution for the entire population.

Geographical location

38 of the 98 municipalities in Denmark are located in Jutland, 42 on Zealand, eight on Funen, three on Lolland-Falster and seven are island-municipalities[9].

Region	Number of municipalities
Region Hovedstaden	29
Region Midtjylland	19
Region Nordsjælland	11
Region Sjælland	17
Region Syddanmark	22

[9] The municipalities of Læsø, Samsø, Fanø, Langeland, Ærø, Bornholm and Morsø

As mentioned earlier, Denmark is divided into five regions, and the municipal-distribution in these can be seen in the overview on the previous page. The regions might have different ways to approach certain issues or different priorities, and since they are located above the municipalities in the planning system (see Chapter 2: Context), their decisions might influence the municipalities within their region.

Type

The geographical location of the municipalities is the basis for the sampling. However, there is a high concentration of urban municipalities on Zealand and it is therefore important, in order to get a representative sample, to look at the division between urban and rural municipalities.

The municipalities in Denmark are divided into urban and rural districts taking basis in the two reports *Mere liv på landet – Landdistriktsprogrammet 2007-2013* and *Regional- og landdistriktspolitisk redegørelse 2014 – Regeringens redegørelse til Folketinget* by Ministeriet for Fødevarer, Landbrug & Fiskeri (2006) and Ministeriet for By, Bolig & Landdistrikter (2014), respectively. By this distribution 35.7 % of the municipalities are urban municipalities, while 64.3 % are rural municipalities (Ministeriet for Fødevarer, Landbrug og Fiskeri, 2006 & Ministeriet for By, Bolig og Landdistrikter, 2014). This means that the greater share of the municipalities is rural.

Area and population

The physical size of the municipalities is a key factor[10], due to the fact that SEAs are related to spatial planning and thereby to the types and use of area within the municipality. It is fair to assume that larger municipalities contain a greater variety of different landscapes, and the size can thereby be an indicator for this aspect. This factor is therefore strongly related to a factor on natural environments, which is described below. The population density is also relevant[11] in order to get an impression of the amount of resources available. The population size and density naturally depends on whether the municipality is dominantly urban or rural.

Other factors

As described earlier, some factors are not as easily comparable as the above described factors. The process is less straightforward regarding these factors, since they cannot be quantified the same way as the other factors. These last factors are therefore used as guidelines in order to ensure that all types of municipalities are represented.

Natural environments

The conditions for the different municipalities might also differ depending on the different natural environments being present within the municipal borders. For instance, it is relevant to consider whether the municipality has coastal areas, forests, lakes, or is mainly urban. This is important since the SEA legislation is focusing on environmental factors such as biodiversity, fauna, flora and water (EU-directive part f, annex 1 & SPPA part f, annex 1).

It is time-consuming and problematic to find the areas and types of these natural environments. Instead, it has been noticed whether there is a significant type of environment present in the municipality. For this purpose the mapping tool showing preserved nature in Denmark provided by Danmarks Miljøportal (n.d.) along with Danmarks Naturfredningsforening's map (n.d.). There is a significant higher amount of preserved natural areas in Jutland than on Zealand.

[10] The municipalities vary in size from Ringkøbing-Skjern municipality (1 469.7 km^2), which is the largest as regards area, to Frederiksberg municipality, which is the smallest (8.7 km^2)(Danmarks Statistik, n.d.).

[11] The municipality of Copenhagen is the municipality with the largest population (493 893 pers.), whereas Læsø municipality is the smallest (1 730 pers.) as regards to population size (Danmarks Statistik, 2015).

Cultural and historical aspects

According to SPPA part f annex 1, another important factor is cultural heritage including architectural and archaeological heritage. For this purpose a map from Kulturstyrelsen (n.d.) was used.

Furthermore, it is necessary to investigate municipalities with different conditions, such as political goals for environmental or sustainable development, resources and challenges within the municipality. The questionnaire gave an impression of these aspects.

Seven municipalities were chosen for interviews, among the respondents to the municipal questionnaire. The seven municipalities are illustrated on the figure below.

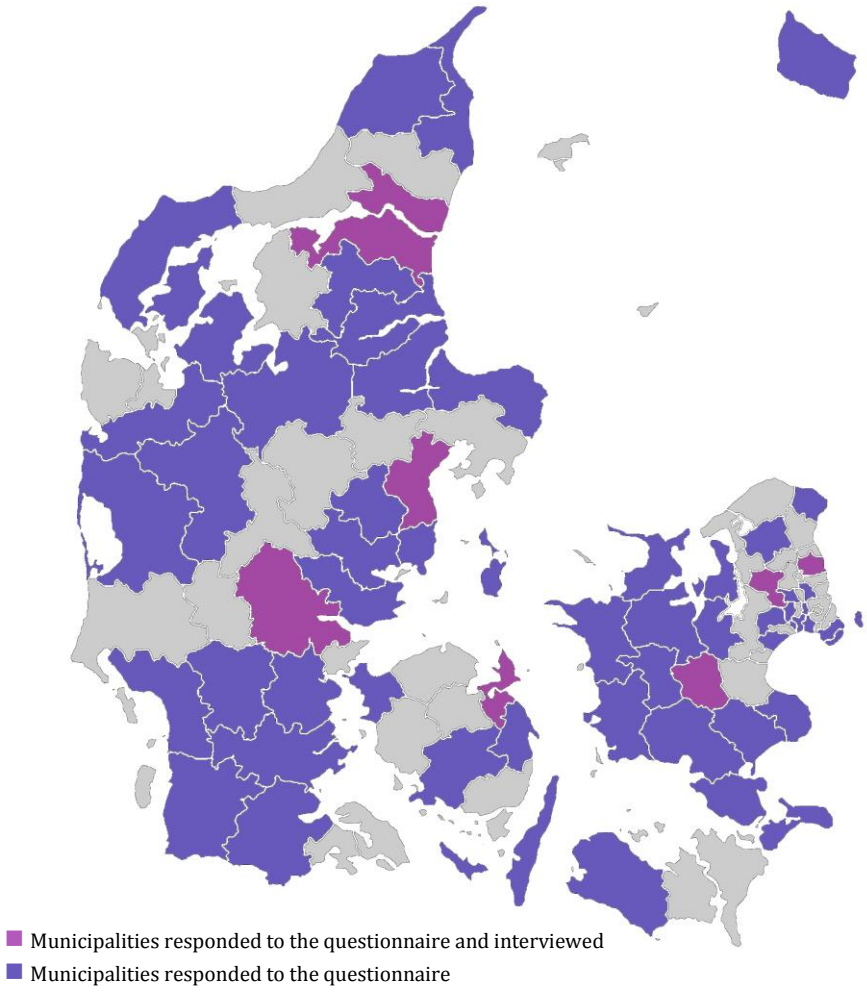

Figure 13 | Illustration of Denmark divided into municipalities marking the geographical location of the seven municipalities that participated in the interviews and the respondents to the questionnaire.

The municipalities were chosen with the stratified criterions in mind as well as their responses to the questionnaire.

Table 4 | The chosen municipalities for interviews and their characteristics (Danmarks Statistik, 2015; Ministeriet for Fødevarer, Landbrug & Fiskeri, 2006 & Ministeriet for By, Bolig og Landdistrikter, 2014)

Municipality	Location	Type	Population	Area (km²)
Aalborg	Region Nordjylland	Urban	207 805	1 137.3
Aarhus	Region Midtjylland	Urban	326 246	467.9
Egedal	Region Hovedstaden	Urban	42 573	125.9
Hillerød	Region Hovedstaden	Urban	49 108	213.5
Kerteminde	Region Syddanmark	Rural	23 728	205.8
Ringsted	Region Sjælland	Rural	33 573	294.6
Vejle	Region Midtjylland	Rural	110 471	1 058.4

Table 4 above shows the seven chosen municipalities and their primary characteristics. As mentioned in the section on sampling, the highest number of municipalities is located in Region Hovedstaden, which is why two municipalities from this region have been chosen. However, this choice affects the type distribution, since most municipalities in Region Hovedstaden are urban (Ministeriet for Fødevarer, Landbrug og Fiskeri, 2006). Thus, four of the chosen municipalities are characterised as urban municipalities, while the three remaining are categorised as rural. As it can be seen from Table 4 the chosen municipalities vary in both population size and area.

The choice of municipalities was, furthermore, based on the presence of natural environments and cultural heritage. It was assumed that the larger municipalities often had protected natural environments within their areas, which is why a greater share of these were chosen despite the otherwise effort to reflect the national distribution. The maps, described earlier, likewise supported this assumption.

Figure 14 | The cultural heritage in Aarhus Municipality (left) and natural protection zones in Vejle Municipality (right) (Danmarks Miljøportal, 2015)

Figure 14 above shows the cultural heritage and historical sites in Aarhus Municipality (to the left) and natural protection areas in Vejle Municipality (to the right). The maps were used for analysing the remaining municipalities and it was strived to include municipalities with different characteristics. This procedure can be seen on the figure on the next page.

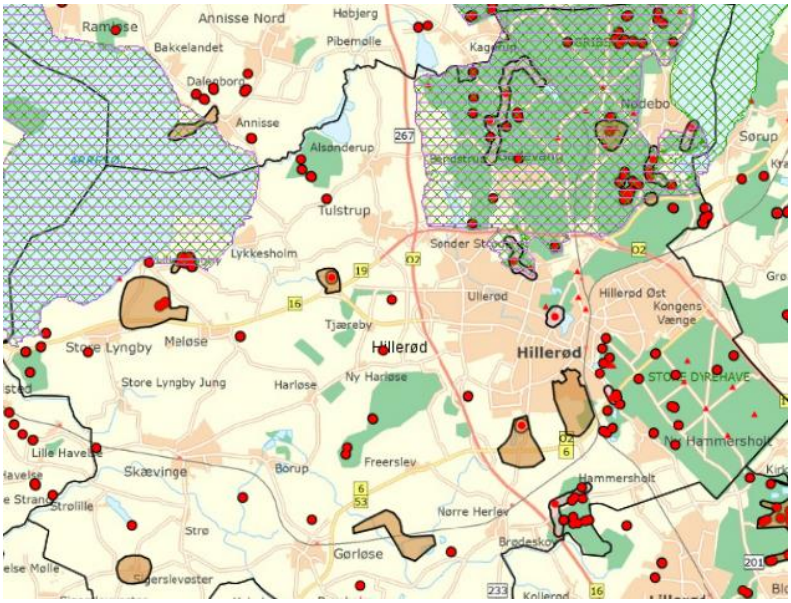

Figure 15 | Hillerød Municipality's protected areas (Danmarks Miljøportal, 2015)

The figure shows both of the aspects for Hillerød Municipality. It was, however, also strived to choose municipalities with less presence of these aspects in order to secure that the choice was representative.

Each municipality was contacted by e-mail and invited to an interview. When it was possible the invitation was sent directly to the responder of the questionnaire (contact information could be added in the end of the questionnaire and was the basis for this contact), but when that was not the case, the invitation was sent to the department responsible for conducting SEA in the chosen municipality. The interviews were scheduled so that they would be carried out throughout two weeks of April.

As the presentations of the interviewees below show, there is a variation in the characteristics of the interviewees. They are employed in different municipal departments, have varying academic backgrounds as well as titles. All interviewees work in technical departments, consistent with the intended research area, and all had experience and knowledge on SEA practices within their respective municipality.

The interview persons in each municipality were:

Aalborg Municipality

Conducted: Friday, 17. April 2015

Birgitte Krebs Schleemann, environmental caseworker [telephone interview]

B. K. Schleemann is educated environmental engineer and works in Aalborg Municipality's environmental department. Her main tasks are monitored and approval of companies. Her department had the primary responsibility for SEA from 2008 until 2014, where an organisational change placed it in the planning department. However, Schleemann's department still contributes to the preparation of SEAs.

Aarhus Municipality

Conducted: Wednesday, 15. April 2015

Ole Gregor, land surveyor [telephone interview]

O. Gregor is educated land surveyor and has been working with EIA at both at MIM, in different municipalities and in the consulting company, Rambøll, since both EIA and SEA were introduced in Denmark. He is currently employed in Aarhus Municipality, where he participates in the preparation of EIAs on infrastructural projects and planning. Additionally, he has been contributing to the preparation

of several EIAs and SEAs. He has been working on SEAs for three different municipal plans.
During his time at MIM he was partaking in the preparation of the act on affected authorities and the Danish guidelines for EIA. Additionally, Gregor has published literature in the Danish publications, *Landinspektøren* and *Byplan*, relevant to his profession, discussing EIA and SEA in Denmark.
The interview with Gregor was influenced by his experiences from the early implementation stages, from multiple levels of the planning hierarchy, and his reflective approach to the subject. This distinguished the interview from the interviews with the other municipalities.

Egedal Municipality

Conducted: Thursday, 23rd April 2015

Heidi Troelsen, planner [telephone interview]

H. Troelsen was educated nature geographer in 2005. Today, she is employed in Egedal Municipality, where she has been participating in the implementation of SEA and is currently coordinating the SEA processes. She started out in the environmental department, but she is now working in the planning department.

Hillerød Municipality

Conducted: Tuesday, 14th April 2015

Marianne Brink Sørensen, project manager [interview]

M. B. Sørensen has been working in Hillerød Municipality for 20 years. She started out in the environmental department, but she is currently working in the city planning department (*byplan*). Her tasks cover project work and planning, and she has participated in the development of waste plans, environmental action plan, plan strategy, and local plans. Furthermore, she has been project leader on the municipal plan, and she participated in the implementation of SEA in the administration.

Kerteminde Municipality

Conducted: Monday, 13th April 2015

Jacob Hansen Rye, planner [telephone interview]

J. H. Rye has an educational background in biology, and today he works as an urban planner. He has been employed at Kerteminde Municipality since the end of 2007, where he has participated in the preparation of a risk management plan and five EIAs on projects concerning wind turbines and an expansion of the harbour among others. Furthermore, he has contributed to the development of two municipal plans and various local plans.

Ringsted Municipality

Conducted: Monday, 20th April 2015

Britt Vodstrup Andersen, planner [telephone interview]

B. Vodstrup works as a planner in Ringsted Municipality. Firstly, her main tasks concerned local plans, but today she is also contributing to the planning of rural districts and bigger, cross-sectorial plans along with SEA and EIA. Furthermore, Vodstrup has been participating in the updating of the SEA-procedures within the municipality.

Vejle Municipality

Conducted: Tuesday, 14th April 2015

Rikke Tovbjerg Simonsen, planner [telephone interview]

R. T. Simonsen has been working with planning since 2000, and she has been preparing SEAs since the legislation was implemented in Denmark. She is working as a planner in Vejle Municipality, where she participates in the local and municipal planning.

As mentioned earlier, an interview guide was used for structuring the interviews with the municipal employees. The interview guide formed the basic structure for all the municipal interviews based on elements from the implementation model, as well as interesting elements brought forward by responses to the questionnaire. For each municipality the interview guide was adjusted with individual additions

based on their responses to the questionnaire and thus fitted to the specific municipality. The guide was divided into three main parts: the procedure, screening, and the assessment. The content of the various parts is listed below. For the full interview guide (in Danish) see Appendix Disc.

The content of the interview guide:

Part 1: The procedure

The aim of the first part was to investigate the procedures, division of responsibilities and the level of integration in regard to the preparation of SEAs and the planning process in the municipalities.

Part 2: Screening

The second part of the interview guide had the purpose to investigate different aspects of the screening, such as the procedure, the qualities, the disadvantages, the potential, and the outcome.

Part 3: The assessment

The third part of the interview guide focused on the assessment, asking about the procedure, the qualities, the disadvantages, the potential, the outcome, and SEA in a political context.

The interview guide was updated throughout the interview process, according to experiences and knowledge gained in the previous interviews. In interviews late in the process points and statements from earlier interviews were included in the guides, in order to confirm or disconfirm tendencies and coherent experiences and to get further knowledge on the subjects.

4.2.2.2 Interviews with consultancy companies

As mentioned earlier, the responses to the questionnaire made it clear that a little more than 18 % of the municipalities made use of consultancy companies for preparing or contributing to SEAs. Furthermore, in the interviews, some of the municipalities mentioned differences between internal developed SEAs and SEAs made by external consultancies. Therefore, we chose to contact two of the employees from consultancy companies, who had responded to the questionnaire.

The interview persons from consultancy companies were:

Ulf Kjellerup, COWI [interview] — Conducted: Thursday, 16th April 2015

U. Kjellerup is employed in the consultancy company, COWI. He works with the preparation of SEAs for the municipalities (but also for plans at higher levels in the planning hierarchy), why he has a very broad knowledge on the challenges and possibilities regarding the SEA-process. Nevertheless, Kjellerup does not only have experience with SEAs from his work at COWI, he has also played an important role in the implementation of the SEA-legislation in a Danish context.

Maja Knudsen, Rambøll [interview] — Conducted: Thursday, 30th April 2015

M. Knudsen is a landscape manager at Rambøll and has experience with preparing several SEAs for various municipal plans, local plans, waste water plans, and climate adaption plans. Furthermore, Knudsen has prepared SEAs on and national and regional plans. Knudsen's experiences with the preparation of SEAs provide her with a perspective to the municipal statements regarding the SEA procedures.

The interview guides for these interviews were based on the structure of the municipalities guide, but just as the questionnaires, they were adapted to fit these specific interviews. The aim was to understand the procedures regarding SEA preparation by consultancy companies, as well as getting a different perspective on the overall SEA process within the municipalities. Both of the interviewees have worked in the field for a long time, and just as Ole Gregor from Aarhus municipality, some of the interviewees had a

more reflective and historical perspective on SEA. That meant that parts of the interviews to some degree resembled an expert interview.

4.2.2.3 Interviews with expert interviews

To get historical insight and knowledge on the development of SEA, as well as perspectives from more experienced researchers, two interviews with experts within the field of impact assessment were conducted. Two experts from the Danish Centre for Environmental Assessment were chosen in order to further investigate the implementation and development of SEA. The experts were chosen on basis of literature reviews and advice from our supervisor.

The interview guide was personalized for each interview based on the interviewees' expertise and research. The interviews were placed relatively late in the data collecting process, based on the philosophy that the more the interviewer knows about the topic, the better question can be asked, and the better answers will be received (Kvale & Brinkman, 2008).

Lone Kørnøv

Conducted: Wednesday, 15th April 2015

Aalborg University [telephone interview]

L. Kørnøv is a professor and researcher at Aalborg University in Aalborg, Deputy Head of the Department of Development and planning and Head of *The Danish Centre for Environmental Assessment* (DCEA). Kørnøv did a Ph.D. on SEA and has done research in SEA practise with focus on why or why not SEA is used. For 6-7 years Kørnøv managed her own consultancy company regarding the preparation of SEAs. Furthermore, Kørnøv has published a great number of periodicals regarding approaches for environmental assessment and has written a big share of the Danish literature on the subject. She is continuously doing research within environmental issues and planning.

Matthew Cashmore

Conducted: Friday, 8th May 2015

Aalborg University [interview]

M. Cashmore is associated professor at the Department of Development and Planning at Aalborg University, Copenhagen. Cashmore is originally from the UK, with a Ph.D. in Environmental Assessment and experienced teacher in Master courses regarding EIA and Environmental Management. A lot of his research cuts across EIA/SEA boundaries. Furthermore, Cashmore has been doing capacity building and training on SEA and SEA legislation in the Balkans and partaken in the production of guidance for SEA in Vietnam. Cashmore has an overview of the SEA procedures in several European countries, and he provides a historical perspective on the development and implementation of the EU-directive.

Furthermore, NST was contacted concerning an interview option, but unfortunately no one in the relevant department had time for an interview.

4.2.2.4 Reflections on interview process

As mentioned earlier, some interviews were done face to face (designated *interview* in the above lists of interviewees), while others were done by telephone due to the geographical distances. The procedure with both note taking and recordings functioned well and especially, when the recording failed, which it did twice, this procedure showed to be valuable. Two group members took notes, while one was leading the interview. This made it possible to create a coherent set of notes, in spite of the failed recordings.

During the semi-structured interviews the interviewee had the possibility to speak freely, but with the distance created in a telephone-interview the lack of body language and facial expressions made it more difficult to interpret the things said. Furthermore, the intention to perform the interviews as

representative for the opinion of the municipalities was difficult to control, though precautions were made, because personal opinions naturally came across when asking about the daily routines and performance of SEA as a tool.

4.2.3 Reflections on data collection

The questionnaire respondents were treated anonymously, which the respondents were informed before entering the survey. When treating the data, it was evident that there was a fairly negative view on SEA.

The interviewees got the opportunity to be anonymous and were further informed that they would represent their municipality, and that the interview therefore would focus on the municipal experiences rather than the employees' individual interests and motives, as mentioned earlier. However, none of the interviewees chose to be anonymous. The results from the interviews differed from the questionnaire results in the sense that they were more positive and reflective.

This difference could be a reflection of the two different data collection methods, and the fact that the questionnaire respondents were anonymous, while the interviewees were mentioned by name and furthermore should represent their entire municipality. Additionally, the interview process is by nature more reflective, which means that statements made in the questionnaires became more explicate and detailed during the interviews. The variation of opinion and reflective statements that emerged from the questionnaires and the semi-structured interviews, respectively, provided the investigation with insights on both positive and negative opinions, which broadened the insight this project encompasses. This notion supported the epistemological considerations, critical realism, regarding the investigation and provided the project with a more comprehensive knowledge about the substantive effectiveness of SEA in Denmark.

The choice of methods and interview persons reflected the focus on this study, where it is strived to map and analyse the experiences and practices within the municipalities. A case study could have given a more detailed picture of the conditions within one single municipality. A case study would probably also have resulted in interviews with more employees from one municipality, which had made it possible to interview people from different departments, from management, and possibly even citizens. Nevertheless, this was not the aim of this study, and it would have limited the possibility to conduct interviews with several municipalities, since this study was limited by time and resources.

In this study, the interviewees had a somewhat similar job position, but they were however able to reflect on the different aspects within the municipality, such as departmental differences. Furthermore, some of them had experiences from more departments or other municipalities, which gave them a broader and more detailed level of experience.

It could have been interesting to carry out interviews with NST or other relevant authorities. However, NST did not respond to our request and it was further chosen due to the lack of time to focus on expert interviews. These interview persons had lots of experience with the authorities' role in the SEA implementation and could thereby make statements on this topic.

4.3 Use of data

Analysing qualitative data is an intuitive, creative, and dynamic process, which requires the analyst to deduct, theorize, and interpret the collected information, in order to gain a deeper and broader understanding of the investigated area (Basit, 2003). Categorising and coding textual data can be a crucial step in order to analyse the collected data. By systematically assigning categories and subcategories to the

data, it is possible to notice and analyse phenomena and to discover tendencies, structures and differences (Basit, 2003). Coding also helps filter out irrelevant information, as well as abridging the relevant data. Single words, statements or whole paragraphs can be coded to one or more of the categories decided for the analysing.

In this research *Computer Assisted/Aided Qualitative Data Analysis* (CAQDAS) was used to sort the data, by coding transcribes and notes from conducted interviews. CAQDAS does not analyse the data, but merely provides a tool for the researcher to sort and mark relevant data. It can thereby be regarded as a technical alternative to cutting, marking and hand-noting data (Basit, 2003). The *QSR NVivo 10*-programme was used for the CAQDAS. The program uses the following terminology: the codes are *nodes*, the coding is called *references*, and the data files are called *sources*. Questionnaires were coded manually by hand, except for the comments, which were likewise coded in QSR NVivo 10.

All data from questionnaires and interviews was coded for the analysis by one researcher, to ensure consistency throughout the coding.

The coding was done to analyse the implementation process, as well as to categorise other important topics in relation to SEA. The node framework was based on the factors within the integrated implementation model. Both interviews with municipalities and experts along with comments from the questionnaire were included. The coding was double checked manually, when parts were added as points to the analysis.

Lastly, the two expert interviews and the comments from the questionnaires along with some parts of the other interviews were coded for opinions and experiences that could contribute to the discussion part of this study.

Chapter 5

The implementation of SEA

The integrated implementation model has been fitted to the context of SEA implementation, as described in section 3.4 Theoretical framework.

As mentioned earlier, the SEA preparation process can be considered as a part of the implementation process. The preparation process could, furthermore, be described by the four main steps, which are connected through a causal chain of effect (Winter, 1994):

1. Organisation
2. Production process
3. Performance
4. Effects

These steps were investigated through the questionnaire results and interviews.

This chapter is structured according to the integrated implementation model, and thus starts out by introducing the policy design, then the implementation process and the implementation results. Lastly, the overall implications of the model are described. It has by this study been strived to identify the most relevant aspects of each of these phases by analysing the data collected through the questionnaires and interviews and to find the interlinkages and causal effects by using the four steps of the preparation process listed above.

References in this and the following chapters

In this chapter and the following chapters the interviews will be referred to by the use of the name of the municipalities and the year, for instance *Ringsted Municipality (2015)*. Furthermore, the four expert interviews will be referred to according to this overview:

Lone Kørnøv, AAU	*Kørnøv (2015)*
Maja Knudsen, Rambøll	*Knudsen (2015)*
Ulf Kjellerup, COWI	*Kjellerup (2015)*
Matthew Cashmore, AAU	*Cashmore (2015)*

In this chapter results from the questionnaire have been used. The questionnaire results are presented by diagrams, pie charts and tables, and the question connected to the specific results can be found in the figure-text. For results not presented by a figure the reference would for instance for be "(*Questionnaire result, Question 8C, 2015)"*.

For some questions it was investigated how the responses were divided according to the population size of municipalities. These results were presented by for instance "*(Questionnaire result, Question 7M[add.], 2015)"*.

The comments from the questionnaires have likewise been added. For both types of questionnaire results, the question number is specified. If the number is followed by an *M*, it indicates that the question is from the municipal questionnaire, while a *C* shows that the question comes from the questionnaire from consultancy companies. The comments are referred to as for instance "*(Comm., Question 14M, 2015)"*. The full lists of questionnaire questions and the comments can be found in the compendium on results along with figures on the results not presented in these chapters. Furthermore

experiences from publications and earlier studies, presented in 2.4 State of the art have been used to get a more detailed analysis.

5.1 The policy formulation and design

The policy formulation took basis in the EU-directive, which resulted in the SPPA, and the guidelines published by NST. The usefulness of the policy design has been investigated through the questionnaire and the interviews. The policy design contains the legislative demands and sets the frame for the implementation. The content of SPPA is described in Chapter 2: Context.

According to Kørnøv (2015), SPPA is the result of the lack of integration of environmental considerations in the Danish planning. SEA was developed in order to systematically integrate these considerations. Furthermore, it includes a demand for monitoring and public participation (Kørnøv, 2015).

SPPA contains a very wide environmental concept (as described in Chapter 2). According to Kørnøv (2015), this is beneficial since it is not covered in other legislative documents, however, it is also a challenge for the planners to manage. Furthermore, SEA results in a need for cross-disciplinary work in the sector divided municipalities (Kørnøv, 2015), due to the wide environmental concept among other things.

SPPA contains demands for the SEA procedure, such as publication, involvement of external actors, hearing of the citizens and external authorities, content and the preparation of a non-technical summary (Miljøministeriet, 2013[a], SPPA). These demands create the frame for the implementation of SEA in a Danish municipal context.

Figure 16 below shows the responses to the question: *The legislative demands for SEA are...* from the questionaires.

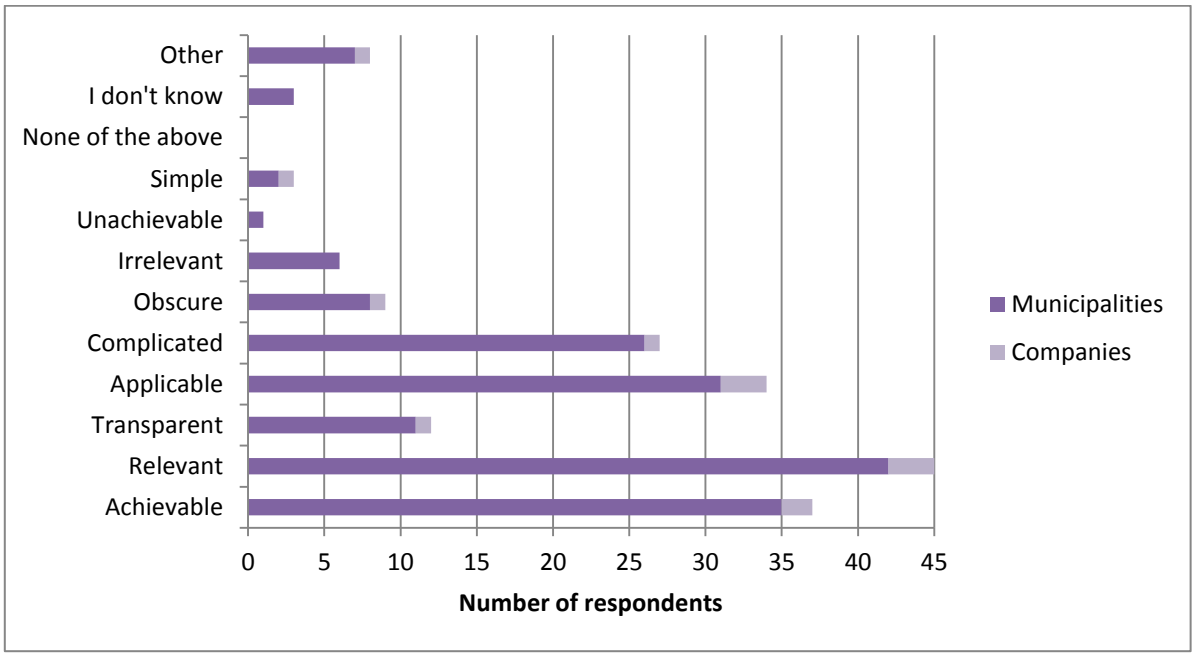

Figure 16 | Results from the questionnaires (Question 8M/Question 12C: *The legislative demands for SEA are...* [with the possibility to choose more than one response])

As it can be seen from the figure, the municipal employees and the consultancy companies almost agree on the characteristics of the legislative demands. A big share of the employees in the municipalities thinks that the goals are relevant (58.3 %), achievable (48.6 %) and applicable (43.1 %). However, quite a few also find them complicated (36.1 %). Gregor (2013) had the same experience in 2013, where it was emphasised that the legislative rules were regarded as being complicated by many planners.

For the *Other*-option responses such as; abstract and unnecessary, were added. It was underlined that the legislative demands were unnecessary, when the planning already was good and holistic. Furthermore, some municipalities expressed that it could be hard to determine the level of detail and to decide when an aspect should be classified as a significant impact, since it depended on subjective opinions and approaches (Comm., Question 8M, 2015). An employee of the consultancy companies added the response; necessary.

Kjellerup (2015) stated that there could have been wished for a policy design in which there had been expressed greater understanding for the planning practices and reality, and furthermore that there is a lack of such understanding in the current legislation.

5.1.1The guidelines

As described in Chapter 2: Context, NST published guidelines for SEA preparation in 2006. The guidelines were developed because the European guidelines had a very broad focus and had legislative properties. The Danish guidelines were based on international experiences, since the ones from Denmark were limited at that time. The guidelines were for that reason followed up by the example collection. The purpose of the guidelines was to ease the implementation, to be a help for the municipalities and to clarify and elaborate on the legislation. Furthermore, they would be the basis for a common structure, public participation and consistency (Kørnøv, 2015). Kørnøv (2015) participated in the preparation of the guidelines, but does not assume they are widely used anymore, since they are old.

The municipalities generally expressed, that they do not use the guidelines anymore, since they are outdated (Hillerød Municipality, 2015; Kerteminde Municipality, 2015; Aalborg Municipality, 2015 & Aarhus Municipality, 2015). Aarhus Municipality (2015) explained that they do not consider the guidelines useful anymore, since they are based on old rules. However, the municipality does use the example collection published in 2007 as a template for SEA on local plans. Vejle Municipality (2015) has used the guidelines as a basis for developing their manuals, but they do not use the guidelines actively anymore and believe there is a need for new ones. Knudsen (2015) said that at Rambøll they still use the guidelines for atypical cases. Kjellerup (2015) mentioned that the guidelines are too abstract and theoretical and that there is a need for guidelines on the methodical approach to SEA.

The overall usefulness of the policy design will be discussed in 7.1 Implications of the implementation.

5.1.2 The implementation process

To investigate the implementation process within the municipalities, some factors of the implementation model were investigated. This part describes the findings for each of these factors. Firstly, the basis for the preparation is described. Here it is investigated for which types of plans, SEA is prepared and how many SEAs are prepared. This knowledge gives an impression of the municipal practices, experiences, and approaches.

Secondly, the SEA preparation process is investigated with a focus on elements from the integrated implementation model, such as involvement; fieldworkers' capacity, interests, and behaviour; and public participation. The involvement covers both the approaches to internal and external actors. The

fieldworkers' capacity, interests and behaviour are the factors on capacity, management, and interests in the model, as described in 3.4 Theoretical framework. Lastly, the target group's behaviour is investigated by looking into public participation and the hearing.

5.1.2.1 The basis for the SEA preparation process

The focus of this study is on spatial plans, and generally the main focus has been put on the preparation of SEA for local plans prepared on the municipal level. The interviews and questionnaire revealed that these were the type of plans in which the municipalities had most experience. According to Hillerød Municipality (2015), this is due to the fact that this is the planning type, which is most frequently prepared and often leads to SEAs. A great share of the interviewees were planners, consequently their field of work often includes local planning. The data collection and the effect on the results have been discussed in 4.2.3 Reflections on data collection.

The questionnaire showed that 80.6 % (58 of the 72 respondents) of the respondents have been preparing SEAs for local plans. The remaining distribution can be seen in Figure 17 below.

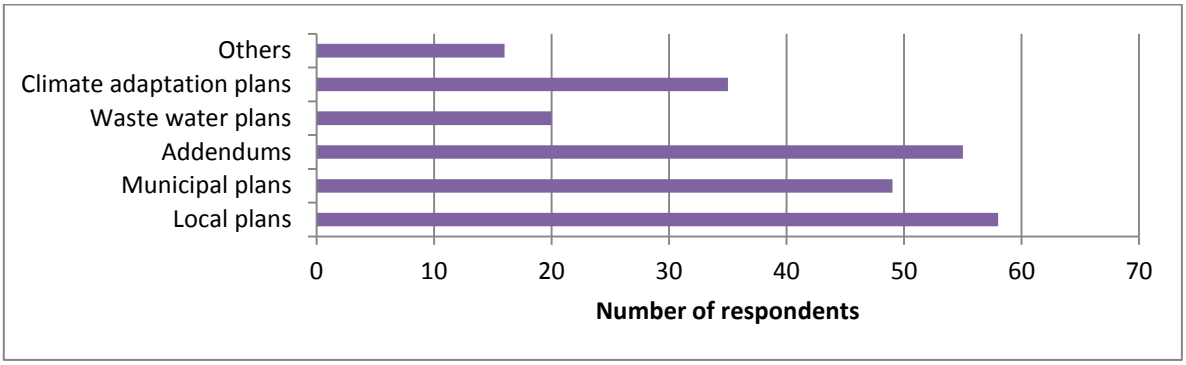

Figure 17 | Result from the questionnaire for municipalities (Question 4M: *For what type of plans have you participated in the preparation of parts of or the entire SEA?* [with the possibility to choose more than one response])

As it can be seen from the figure above 49 (68.1 %) of the respondents have done SEAs on municipal plans, and furthermore 55 (76.4 %) have done SEAs for addendums. For this reason it was strived to investigate the practices regarding municipal plans as well. For the *other*-option plans such as waste plans, traffic plans and water distribution plans were mentioned.

Furthermore, the questionnaire showed that most municipalities (35.5 %) prepared 1 - 3 SEAs in 2014. The results regarding the number of SEAs prepared are presented in Figure 18 below.

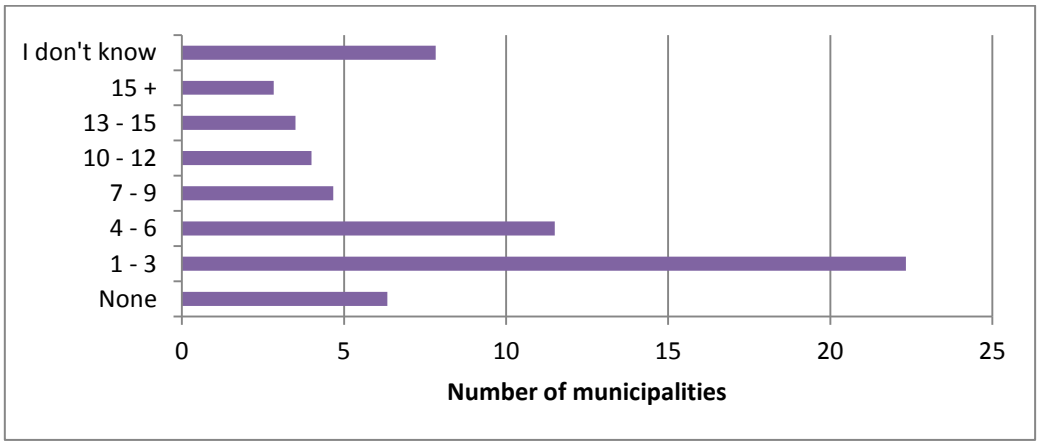

Figure 18 | Results from the questionnaire for municipalities (Question 7M: *How many SEAs were prepared in you municipality in 2014?)*

10 % of the municipalities did not prepare any, and 18 % prepared 4 - 6, the remaining prepared more than that or did not know, which can be seen in the figure. The responses to this question were further investigated for the different sizes of municipalities. This showed that it was most common for all sizes of municipalities to prepare 1 – 3 SEAs in 2014 (Questionnaire result, Question 7M[add.], 2015).

5.1.2.2 The SEA preparation process

The municipalities have different approaches to the planning process and thereby also to the SEA preparation process, which can, in accordance with the chain of effects, be regarded as the production process. From the interviews, it became clear, that the SEA process should run parallel with the planning process and can be a more or less integrated part of the planning. SPPA also implies that the two processes run parallel or at least that some parts of the processes are convergent, such as start-up and hearing (Miljøministeriet, 2013[a], SPPA).

Gregor's (2013) experiences showed that SEA was not an integrated part of the planning process in 2013, and that they were prepared so late in the process, that they had no actual effect on the plans, which is why it is interesting to analyse the current preparation process.

The SEA preparation process follows the structure of the tool (described in Chapter 2: Context), thus it begins with the screening.

Most of the municipalities explained that they started the screening as early in the process as possible (Kerteminde Municipality, 2015; Aarhus Municipality, 2015 & Egedal Municipality, 2015). Ringsted Municipality (2015) mentioned that they "typically start them [the screening], when the projects are so established, that it is possible to talk about the project – but not so locked, that you cannot make changes" (translated from Danish).

Kerteminde Municipality (2015) pointed out that some main topics of a specific plan almost automatically lead to SEA, for instance wind turbines. Vejle Municipality (2015) supported this statement by saying that they often know early in the process, when a plan will result in SEA. Furthermore, Vejle Municipality (2015) elaborated their SEA preparation process for local plans by explaining how it can be carried out in two different ways. If they were certain, that the local plan would not result in SEA the screening would be done in the finalising part of the planning process. Otherwise, the screening would be carried out simultaneously to the preparation of the local plan.

The remaining production process covers the preparation of the full SEA-report and the involvement of different relevant actors. The factors within the implementation model, as illustrated in Figure 8 in 3.4 Theoretical framework, are now analysed further taking basis in the experiences within the municipalities. This analysis will also elaborate further on aspects relevant in connection to the screening.

First and foremost, the dynamics of the production of SEA is examined by looking into the approaches to collaboration along with the capacity, management and interests within the municipalities. Afterwards, the involvement of citizens, and thus the effect of the hearing, is analysed.

5.1.2.2.1 Collaboration and involvement

The questionnaire gave an impression of the approach to SEA preparation. Figure 19 below shows how SEAs are prepared in municipalities.

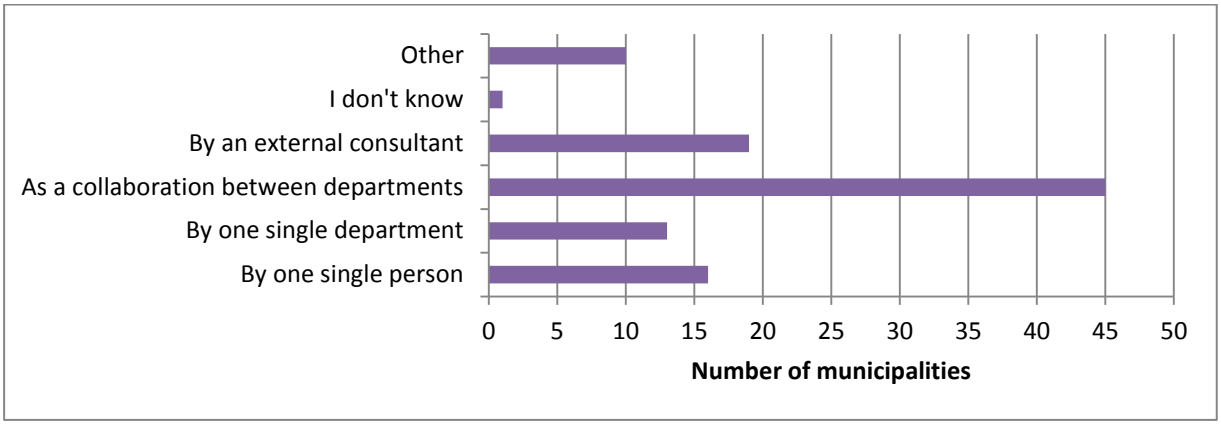

Figure 19 | Results from the questionnaire for municipalities (Question 5M: *How are SEAs prepared in your municipality?* [with the possibility to choose more than one response])

A large share of the municipalities responded that SEA is done by one single person. This could be due to the fact that they could chose more options and thereby considered one person as being the main responsible, while others were merely involved. However, it is interesting that such a great share of the municipalities have chosen this option, which at first seems to conflict with the idea that SEA is done as cross-disciplinary work. It is therefore interesting for the understanding of the municipal approaches and will be discussed further in Chapter 7.

As it can be seen from the figure the option of preparing SEAs through collaboration among departments is the most common one. It is likewise common to make use of external consultancy companies. These different approaches will be investigated further in the following parts.

Intern collaboration and involvement

Kerteminde Municipality emphasised, that it is a benefit that "two different people prepare the plan and the screening respectively, because a person will be too biased, if it is the same person who makes both the plan and screening [...]" (translated from Danish), thus collaboration becomes a necessity in the SEA process.

The interviews showed that most of the municipalities used internal collaboration in the SEA production process, but the degree of internal collaboration varied among the municipalities. As it could be seen from Figure 19 above, it is fairly common to prepare SEA as collaboration between departments. This interdisciplinary approach is used by several of the municipalities. Kørnøv (2015) mentioned that one of the side effects of SEA is that it leads to cross-disciplinary work in the otherwise sector divided municipalities. This can constitute a challenge in some municipalities but also prove to be beneficial.

The questionnaire results indicated that it is common that the planning department is responsible for the preparation of SEA, but also departments such as environment, city and other technical departments are involved in the process (Comm., Question 6M, 2015).

In Aarhus Municipality (2015), one department has the main responsibility, but all parts are written by the relevant professionals. The idea behind this approach is that SEA attains an anchoring in all the

different departments. Aarhus Municipality (2015) emphasised that "it is the cross-disciplinary approach that is a challenge, when the parts need to be interconnected" (translated from Danish).

Aalborg Municipality (2015) sets a production group, when a local plan is produced. This group includes many different departments, such as environment, traffic and waste water. Aalborg Municipality (2015) mentioned in the interview that cross-disciplinary work contributes to a better solution. However, they are not certain if the cross-disciplinary work is caused by the SEA-legislation, though they mentioned, that it does seem like the SEA legislation has resulted in more cross-disciplinary and holistic work.

Hillerød Municipality (2015) starts the screening by a start-up meeting involving numerous different departments, such as the department of city, infrastructure, planning, environment, and sometimes public health. The screening is then sent into hearing among the different departments in order to secure that everybody agrees on the identified significant aspects.

In Kerteminde Municipality (2015) the planning department is normally responsible for the SEA preparation. They involve relevant departments, such as traffic, environment, and nature. If in doubt they consult the head of department.

Both Hillerød Municipality (2015) and Kerteminde Municipality (2015) mentioned that the relevant actors sit close to one another and it is therefore easy to exchange information and to involve others.

In Vejle Municipality (2015) the screening table is developed in the planning department, but it is also used in other departments. Here it is also common practice to involve relevant professionals in the SEA preparation. The screening table also works as a basis for collaboration, which is likewise the case in Egedal Municipality (2015). Moreover, Ringsted Municipality (2015) emphasised that the dialogue takes place in the screening phase.

Hvidtfeldt and Kørnøv (2003) found in their study that the barriers for cross-disciplinary work are mainly lack of time, lack of understanding, and trouble communicating cross-disciplinary in municipal planning. Their study, additionally, showed that, 60 % of the municipalities want more cross-disciplinary collaboration. The different interests represented by the two main departments; planning and environment will be discussed further later.

Internal collaboration and involvement showed to be beneficial for the knowledge base for SEA preparation within the municipalities. As mentioned earlier, external actors can likewise be involved in the SEA preparation process.

External collaboration and involvement

Different external actors can be involved in the SEA preparation phase. The involvement of different actors can indicate which challenges the municipalities face. Furthermore, the degree of involvement indicates how SEA is affected by the external actors.

In SPPA it is stated that affected authorities should be heard in the SEA process (Miljøministeriet, 2013[a], SPPA). However, the interviews gave the impression that the municipalities also involved authorities out of free will. As described in 3.1.1 The integrated implementation model, this kind of collaboration would often occur if there were significant benefits from the collaboration, such as gained knowledge. Furthermore, the basis for collaboration could be trust. In this part some of the different authorities and their degree of involvement are presented.

Involvement of authorities

Kørnøv (2015) explained that NST is the overall authority regarding SEA, since they are the ones to prepare the legislation and let the environmental minister put it forward. However, Egedal and Hillerød municipalities (2015) do not involve NST in the SEA preparation process. Additionally, Hillerød Municipality (2015) emphasised that they cannot use them for professional discussions.

In Kerteminde Municipality (2015), they involve NST when it is relevant, for instance in cases where the coastal protection zone is a relevant aspect. They have experienced that the government will rather make comments on specific projects than plans, as they put it "they [the government] will rather make decisions than estimates" (translated from Danish). It is therefore not always easy to involve governmental actors.

Aarhus Municipality (2015) also experienced, that there is no response from authorities. They claim that if it is not a legally binding plan there is no interest from NST, which makes it difficult to prepare SEAs at a municipal level. However, MIM is sometimes involved in concrete plans.

Gregor (2013) explained that the hearing is often not detailed enough and that it is taking place before most things are finally decided on, which makes it difficult for the authorities to present a qualified reply. However, he stated that it often happens that the authorities will not bind themselves to written responses early in the process. This is especially the case for governmental authorities such as NST.

In Rambøll, they have had no problems with contacting NST earlier, but Knudsen (2015) expressed that she is not certain how well the communication works today. Kørnøv (2015) explained that NST only have limited resources and that the composition of educational background has changed, so that fewer employees have a planning background, which means the professional structure has changed. This could possibly have caused a lack of engagement in a tool such as SEA, which mainly addresses planning issues.

Kørnøv (2015) emphasised that she "[…] wished NST would play a more proactive role" (translated from Danish), for instance through professional development and initiatives to investigate SEA practice. The same is the case for NMKN, to whom the municipalities look for inspiration and answers.

Involvement of local actors

Some municipalities involve local actors. Egedal Municipality (2015) involves both Kroppedal Museum and Local History Achieve in the SEA process, due to the municipality's buildings worthy of preservation. In Vejle Municipality (2015), SEA is used as a tool for involving other authorities and for providing them with information on the planning. In that way it is possible to get their opinions. It is not a formalised process, but it gives the opportunity to start a dialogue. Hillerød Municipality (2015) always involves the neighbouring municipalities by a hearing in regard to local plans and municipal plans. Kerteminde Municipality (2015) also involves neighbouring municipalities, when it is relevant. They state that it supports the collaboration among the municipalities.

Kerteminde Municipality (2015) mentioned that the citizens were not involved, since they are not planning or environmental professionals. However, the citizens are involved to some extent through the hearing. The hearing of citizens is described later on.

Involvement of consultancy companies

As it was indicated by Figure 19 18.3 % of the municipalities involve consultancy companies in the SEA preparation. The involvement of consultancy companies indicates the need or wish for inputs from

experts in the areas in which the municipalities reckon they lack competences. This involvement could also be due to lack of time and human resources, which will be described further later on in this chapter.

In Hillerød Municipality (2015), they strive to do SEA themselves. Nevertheless, EIA and sometimes parts of the SEA-report, such as traffic, have been prepared by consultancy companies.

Egedal Municipality (2015) involves consultancies in bigger urban development plans. Their goal is also to prepare their SEAs themselves, but the consultancy companies work as a support on the hard-core technical parts of SEA on local plans. They use the screening as a basis for deciding who should be involved, and they claim that the consultancies are very professional but dissociated from the actual area. Additionally, they find that the consultancies go through all aspects of SEA slavishly, some of which the municipality finds irrelevant. Furthermore, they emphasise that it is very costly for the municipality to involve consultancy companies.

In Aalborg Municipality (2015), they reckoned that the benefit is that the consultancy company can cover aspects that the municipality cannot. Consultancy companies are involved if there are demands for traffic noise, wind or shadow diagrams. Vejle Municipality (2015) likewise uses them in cases, where there is a need for a part on traffic or noise. They mentioned that the companies have some competences that they do not have in the municipality. The municipality does however not use them often and almost never in the screening phase.

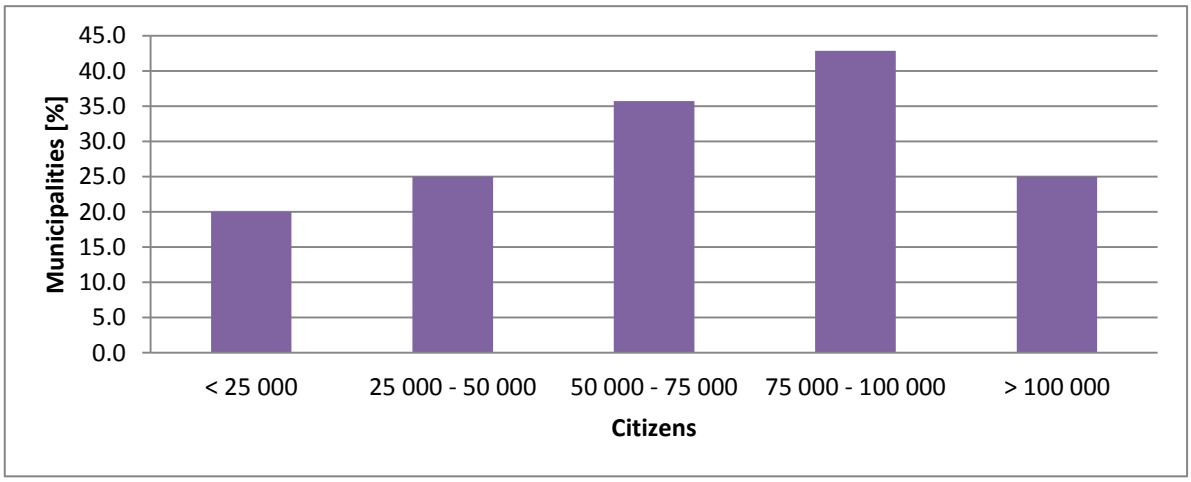

Figure 20 | Distribution according to population size (Question 5M[add.]: *How are SEAs prepared in your municipality?* in regard to the option: *By an external consultant*)

Figure 20 above shows that it is the bigger municipalities (75 000 – 100 000 citizens) that most often make use of consultancy companies (42.9 %), while for the smaller (< 25 000 citizens) it is only 20 % that involve consultancy companies in the preparation of SEA. This could be due to the available financial resources in the municipalities, which will be elaborated further later on.

The questionnaire for the consultancy companies addressed their approaches and experiences with SEA preparation. Figure 21 on the next page shows, which type of plans the employees at the consultancy companies have prepared SEA for.

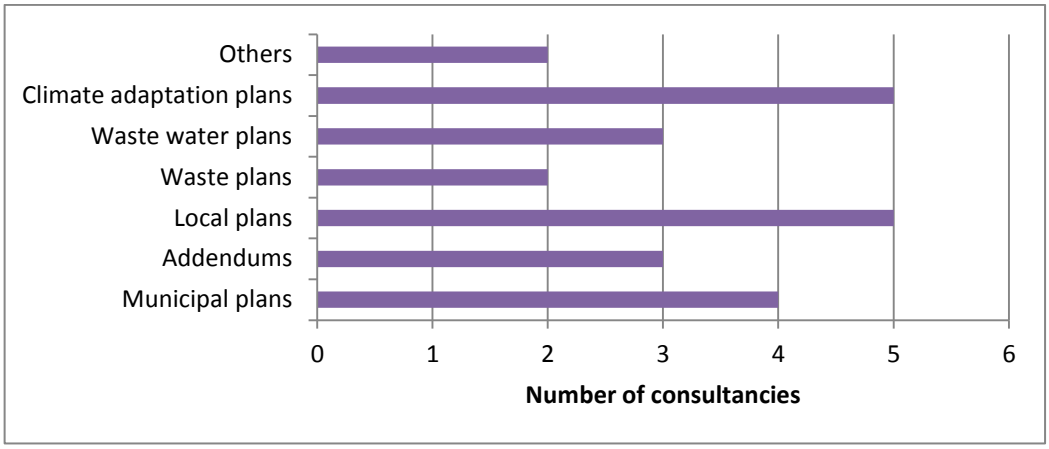

Figure 21 | Results from questionnaire for consultancy companies (Question 4C: *For what type of municipal plans have you developed parts or the entire SEA?* [with the possibility of choosing more than one response])

The questionnaire showed that, all five consultancies have prepared screenings (Questionnaire result, Question 8C, 2015). Furthermore, the employees at consultancy companies responded that the degree of collaboration between the company and municipality was fairly high for the preparation of SEAs (Questionnaire result, Question 7C, 2015), and 4 out of 5 companies are involved in the hearing of SEAs (Questionnaire result, Questions 10C, 2015).

Knudsen (2015) explained that in Rambøll they sometimes prepare both plan and SEA. Still, it is the municipality, which makes the decisions. Rambøll can do the entire SEA if they are involved early in the process, otherwise they normally contribute with inputs. Knudsen (2015) emphasised that it is the municipality's document, and that the degree of collaboration varies from municipality to municipality. Rambøll makes a draft for the screening and then has a meeting with the municipality, where the draft is revised. They use a template with a fixed structure, and then adapt it to the specific context. If the municipality is not satisfied with the focus and direction of the company's SEA they can say so (Knudsen, 2015).

Kjellerup (2015) said that COWI is involved when the municipalities are in doubt of what to do. This can be due to the lack of dedicated professionals within the municipality. COWI also uses a template, and if they are developing the plan as well, they typically divide the two tasks; to prepare the plan and the SEA respectively, between two employees in a so-called double team.

As mentioned earlier, the municipalities consider the companies to possess competences that they themselves lack. However, one of the challenges is that the companies write long and comprehensive reports, according to Aarhus and Vejle municipalities (2015), which affect the communicational value of the report. Gregor's (2013) experiences from 2013 showed that, the parts done by consultancy companies often were phrased in another way than those prepared by municipalities, which made them more distanced from the planning work and made it seem as if the SEA only had been done for formal reasons. However, Kjellerup (2015) disagreed with this and mentioned that the municipal SEAs lack detail and are too short. Knudsen (2015) also mentioned that the companies do not create small EIAs instead of SEAs, and that if the municipalities disagree with the content they can just point it out.

5.1.2.2.2 The fieldworkers' capacity, interests and behaviour

Within the municipality different factors can affect the overall approach to SEA and thereby the implementation and the implementation results. The investigation of collaboration indicated a need for involvement of other departments and external consultancies, whenever the tasks fell outside the

competences of the municipal employees. This aspect is strongly connected to the capacity of the fieldworkers.

Capacity

As mentioned in Chapter 5, the capacity is expressed through the knowledge and resources in the municipality. One municipality commented in the questionnaire that the content of SEA is dependent on the qualifications of the employee preparing it (Comm., Question 24M, 2015). It is therefore relevant to investigate the capacity of the municipalities and their employees.

Kørnøv (2015) mentioned that if the municipalities do not use alternatives in their SEA preparation, it is an indication that they do not use SEA as early in the planning process as intended, which could be due to the lack of resources and engagement. The engagement of the fieldworkers can be affected by the employees' interests, which will be described further later on.

Economic resources

Kjellerup (2015) mentioned that the municipalities only have received a very limited amount of resources in connection to the SEA implementation. There is no time or resources to document the important parts, such as the iteration between the planning and environmental departments "but you should not uncritically assign more resources to it" (Kjellerup, 2015, translated from Danish).

In Egedal Municipality (2015) most resources are spent on the screening in order to collect the necessary information and carry out meetings. Kerteminde Municipality (2015) finds that the SEA-reports take much more time than a screening, and sometimes they spent more time on the SEA-report than on the actual plan.

Kerteminde Municipality (2015) mentioned that there are enough resources spend on SEA for it to comply with the legal requirements. In Aarhus Municipality (2015), they sometimes spend many resources. They emphasised that it is stated in the legislation, that there only is a requirement that SEAs should be based on existing and available knowledge. Nevertheless, sometimes the planners want to go into greater detail than that, thus it gets more costly. Yet the extra information can be beneficial in future planning.

Hillerød Municipality (2015) expressed that it is difficult to be a frontrunner, when it is costly. SEA can be a very bureaucratic process, and it is a challenge to avoid this. Furthermore, they find that it combined with EIA is a very heavy burden. They mentioned that the screening in itself is not demanding and that the SEA-report does not take a lot more resources. However, the financial resources granted in the agreement regarding the municipalities' economy (KL & Regeringen, 2004) between Kommunernes Landsforening (KL) and the government is not enough.

The implementation theory revealed that financial resources could be an effective political instrument for making up for unclear legislative aims, as described in Chapter 5.

In the questionnaire comments it was expressed that the amount of resources put into SEA does not match the outcome (Comm., Question 24M, 2015). The questionnaire results stressed this statement. Figure 22 on the next page below shows the responses to the question on to which degree the resources match the outcome of SEA.

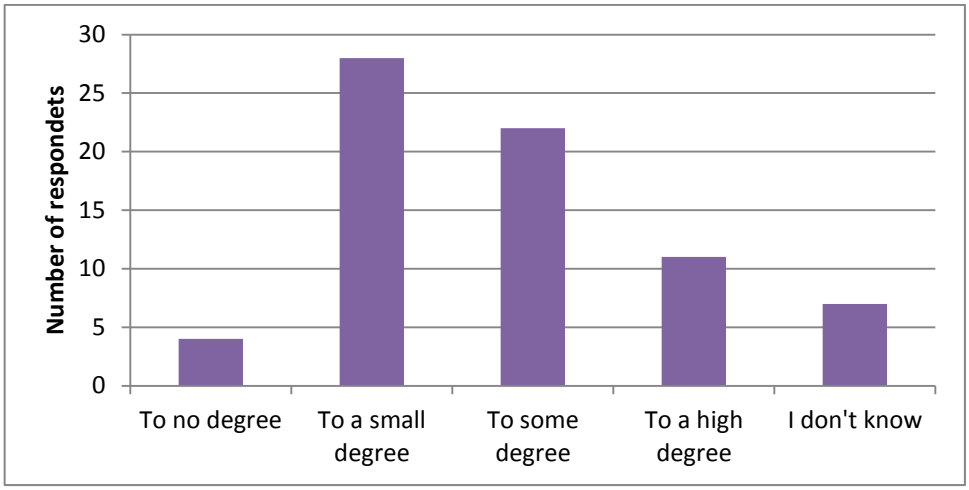

Figure 22 | Results from the questionnaire for municipalities (Question 11M: *To which degree does the outcome of SEA equal the resources spent on preparing it?*)

Vejle Municipality (2015) claimed that if the aim of SEA is to live up to the requests set by the citizens and politicians, the results of SEA fits with the resources spent. Yet, if the aim is to reach the objectives set in the legislation, it does not. This will be discussed further in Chapter 7.

The responses to this question were investigated further in regard to larger municipalities (more than 50 000 citizens) and smaller municipalities (less than 50 000 citizens) in order to examine, whether there would be any tendencies. Figure 23 below show the results of this comparison.

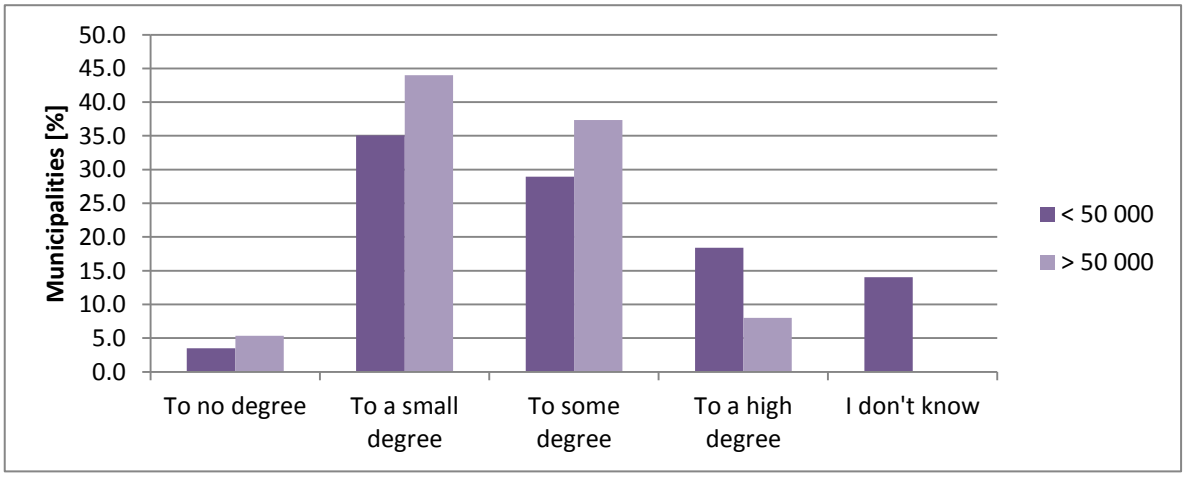

Figure 23 | Distribution according to population size (Question 11M [add.]: *To which degree does the outcome of SEA equal the resources spent on preparing it?*)

The figure shows that both larger and smaller municipalities had a tendency to pick the two middle responses, where the option *to a small degree* had the highest response rate of the two (35.1 % of the smaller municipalities and 44.0 % of the larger municipalities chose this option). However, while 18.4 % of the smaller municipalities chose the option *to a high degree* only 8.0 % of the larger did the same. Nevertheless, the smaller municipalities did not seem to obviously have a tendency to choose the more positive responses, since their most common option was *to a small degree* as well.

Human resources

Another important aspect in regard to capacity is the knowledge and competences, which the fieldworkers possess. Zhang, Christensen and Kørnøv (2013) claimed that "it is the competences of the

SEA team rather than any one individual who is involved that dictate the influence of a SEA" (p. 94).

Hvidtfeldt and Kørnøv (2003) did by their study conclude that significant environmental aspects are mostly evaluated by qualitative measures in municipal planning, which means that there is a need for qualified employees to handle this type of data. As discovered by the analysis of involvement of consultancy companies, it is often when the competences of the municipal employees show to be insufficient that there is a need for involvement, which results in a more costly SEA preparation.

Kerteminde Municipality (2015) stressed that the screening demands sufficient knowledge on the local area. Furthermore, Gregor (2013) emphasised that there is a need for broad environmental knowledge when carrying out SEA, and that the requirements for SEA resemble those for good planning.

As mentioned earlier, the legislation states that the environmental report should contain the information that is available or can be collected in a reasonable way (SPPA, § 7, stk. 2), which Knudsen (2015) also highlighted.

The fact that it is the same group of people, who develop the plan and is responsible for SEA can be a challenge. Kjellerup (2015) said that the municipalities need to take a mental step backwards from the plan, when preparing the SEA, but this shows to be a challenge since they lack an arm's length to the plan.

Tools

Some municipalities use different types of internally developed tools for the SEA preparation. These tools are often the basis for the SEA preparation and are thereby a part of the municipality's capacity. As mentioned earlier, the tools are used in different phases of the SEA preparation for different purposes, such as being a basis for communication, secure uniformity and as a quality control. It is therefore interesting to be aware of the tools used by the municipalities.

The most common tools for SEA preparation are screening tables, templates and guides. 43 of the 63 municipalities (68.3 %), which responded to the questionnaire, use a screening table for the preparation of SEA. Aalborg Municipality (2015) has created an SEA-table using the headlines from the legislation. The screening tables play quite an important role in both the SEA preparation process and in the planning process (Comm., Question 24M, 2015).

35 municipalities use a template (55.6 %) and 17 use a guide (27 %). Furthermore, procedures have been added by six municipalities to the *Other*-option (Comm., Question 22M, 2015). One municipality has developed a procedure for SEA preparation in their quality control program, which contains templates for enquires and hearings among others.

Some om the municipalities are doing quality control in a cross-departmental group. In Aalborg (2015) and Hillerød municipalities (2015) the group of professionals or the involved actors also work as a quality control of the SEA. In Vejle Municipality (2015) they additionally make sure to follow certain manuals and templates. In Egedal Municipality (2015), they have likewise implemented a certified quality management system with specific approaches on how to do the screening and report. The external auditor pointed out to them, that they lacked sufficient monitoring. Egedal Municipality (2015) reckoned that they have a tendency to file the report, when the plan is finished and thereby let it go, without following up on the monitoring program.

Another aspect regarding to the implementation process is the management of the SEA preparation and implementation. The municipal head of department is not necessarily a fieldworker in the sense that they do not prepare SEAs, but they do affect the behaviour of the fieldworkers and are therefore described in this section. In this context it has been investigated, how much politicians are involved and interested in SEA.

Management

Management is expressed through the engagement and interest in SEA of the head of department and at a higher level; the city council. Management has not been investigated in such great detail in this study as described in Chapter 5.

Egedal Municipality (2015) does not experience any interest from politicians. In Vejle Municipality (2015) the politicians are mainly interested in conflict cases, and they express no interest in the screening but sometimes in the SEA-report. In Aalborg Municipality (2015), the politicians show big interest for planning and sustainability. The effect of SEA on the politicians and the political agenda will be discussed further later on.

In Aalborg Municipality (2015), they have a very ambitious head of the environmental department, who made sure, that the SEA process is started early and that the municipal strategies were implemented in the SEA process.

Aarhus Municipality (2015) mentioned that it can be problematic, if the politicians want a plan to go through, thus the employees do not want to undermine it by finding something which could undermine the plan through SEA. The planner does generally not want to flash the weak points. This shows how the overall municipal management affect the SEA process. Furthermore, it highlights that too much engagement and ownership in the plan can cause a conflict of interests with the aim of the SEA process; to identify the significant environmental aspects, which will be discussed further in Chapter 7.

It is, however, not only the management's interest which affects the SEA outcome. As described in the 3.1.1 The integrated implementation model, the fieldworkers naturally have an effect on the implementation, which goes well hand in hand with the idea of constructing actors (as mentioned in Chapter 4: Methodology). It is therefore interesting to investigate their motives and interests.

Interests

As described in section 3.1.1 The integrated implementation model,, there are different kinds of interests, which might be evident through the fieldworkers' approach to SEA preparation and the content of the SEA-reports.

As mentioned earlier, it is common that the planning department is responsible for the SEA preparation in the municipalities. Furthermore, this study focuses on spatial planning, why it was relevant to interview the planners. However, it became evident through the interviews that planners and environmental employees could have different viewpoints on SEA preparation.

In Egedal Municipality (2015), in which the planning department made the statements, they pointed out that the environmental department has the idea that what they do already benefits the environment, which is why they consider SEA as being unnecessary or irrelevant. They prepare sector plans in order to protect environment, and the wide environmental concept from SEA (as described in Chapter 2: Context) is not relevant in regard to these type of plans, since they only concern one environmental aspect. However, they do like the SEA-reports, but it is not always that the demands set

in the SEA-report meet their expectations. When it is the environmental department, which corrects the SEA-reports, they are very professional, and their inputs are more accurate. Egedal Municipality (2015) emphasised that both departments take SEA seriously.

Vejle Municipality (2015) also reckoned there might be different approaches and views on SEA in the planning and environmental departments. Furthermore, they experienced a general discontent among planners. In the questionnaire comments it is expressed that SEA is regarded as inconvenient by the planners (Comm., Question 24M, 2015).

This state of mind can have originated in the substantial interests of the employees within the technical department and be based on professional beliefs.

Other interests are expressed through the ambitions of the municipality. Hillerød Municipality (2015) wishes to work with sustainability more proactively. This could both be a substantial interest but could likewise have to do with institutional interests concerning status and growth. Kerteminde Municipality (2015) emphasised that SEA promotes the idea of sustainability among the employees.

Egedal Municipality (2015) described that they could end up being in a dilemma with their own professional competences if they write something in the SEA-report that pointed out lack of environmental considerations in the plan. This supports Aarhus Municipality's (2015) recognition that the discontent with flashing the weak points. This conflict can be said to rise between two sets of substantial interest, but can also be an expression of a conflict between the substantial and individual interests of the employees, who are interested in keeping their jobs. Furthermore, it may be influenced by the institutional interests regarding the status and reputation of the institution.

It is furthermore expressed by some of the respondents that they consider the SEA aspects as being a natural element in good planning and therefore to some degree unnecessary. However, it is also commented that the fact that the process is now formalised and documented is a positive thing (Comm., Question 24M, 2015).

5.1.2.2.3 Public involvement

As described by the integrated implementation model, the behaviour of the target group may affect the implementation process and thereby the final results. It is in this context investigated how the citizens affect the implementation. The citizens are as the recipient of the effects of SEA involved in the implementation process through the hearing.

Target group behaviour

The questionnaire gave an impression of the interest in the hearing. Figure 24 on the next page showcases how big the interest is in the hearing.

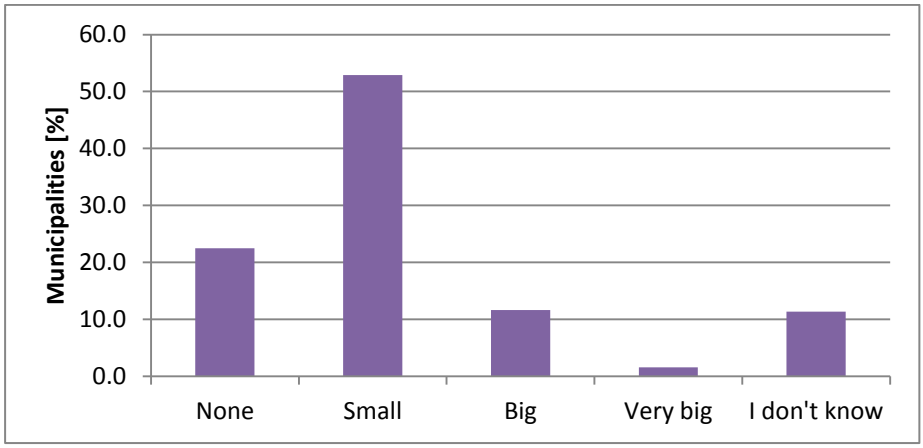

Figure 24 | Results from the questionnaire for municipalities (Question 10M: *How big is the interest among the citizens in the public hearing?*)

As it can be seen from the figure, most municipalities (52.9 %) consider the interest to be small, and 22.5 % consider it to be non-existent. Hillerød Municipality (2015) said that the interest is small, and that "the plans are very abstract to the citizens" (translated from Danish). Likewise, Aalborg Municipality (2015) claimed that they only received few responses from the citizens. Ringsted Municipality (2015) explained that the citizens are mostly interested in plans, which create a problem, such as wind turbines.

Egedal Municipality (2015) emphasised that SEA makes challenges visible to the citizens, and it is a tool for communication. Aarhus Municipality (2015) uses SEA as a presentation of the planning. They emphasised, that it is important it is written in a way so that both citizens and politicians want to and can read it.

In Vejle Municipality (2015), they receive many responses, but they also stated that the citizens mixed up the plan and the SEA. Sometimes they experienced that the citizens used the SEA hearing as a way to express their discontent with the plan. This is also an experience expressed in the questionnaire comments, where it is mentioned that the citizens use the hearing to complain about different matters (Comm., Question 24M, 2015). Furthermore, due to the SEA process the plans are prepared so thoroughly that it is uncommon that the citizens bring something new to the table. However, Vejle Municipality (2015) also recognised SEA as being a basis for communication.

Egedal Municipality (2015) mentioned that there might be a chance that the citizens will gain a greater knowledge on the area over time, and that it takes some time before people are aware of the possibility to complain, which might be a reason for the limited interest at the moment.

Kjellerup (2015) mentioned that it is uncommon that COWI receives any complaints about SEA. He claimed that it is important to explain, which choices have been made in regard to the planning in the SEA-report.

5.1.3 Implementation results

The policy design and the implementation process impact the final results of the SEA process, which can be expressed through changes in the plan or a full SEA-report.

The SEA-tool can perform in different ways. As mentioned earlier, the SEA process can be a more or less integrated part of the planning process; this can be further investigated by looking at the effect of SEA on

the plans. Furthermore, the SEA-reports' content along with the tool's value in connection to public participation and effect on the municipalities' political goals give an impression of the performance of SEA.

Through the four steps of the preparation process, it could be seen that the performance of SEA would result in the final effects. The effects are investigated by looking at the overall legislative aim for SEA and how well the SEA-tool reaches this aim. This aim addresses both sustainable development and the environmental aspects among other things.

Performance

The performance of the implementation is expressed through the content of the SEA-reports, but also through the effect of the SEA process on the final plans.

Changes in plans

Figure 25 shows the municipalities' responses to the question on how often SEA results in changes in a plan. Aarhus municipality (2015) mentioned, that SEA often results in changes in the plan, but there are limits to how much can be changed.

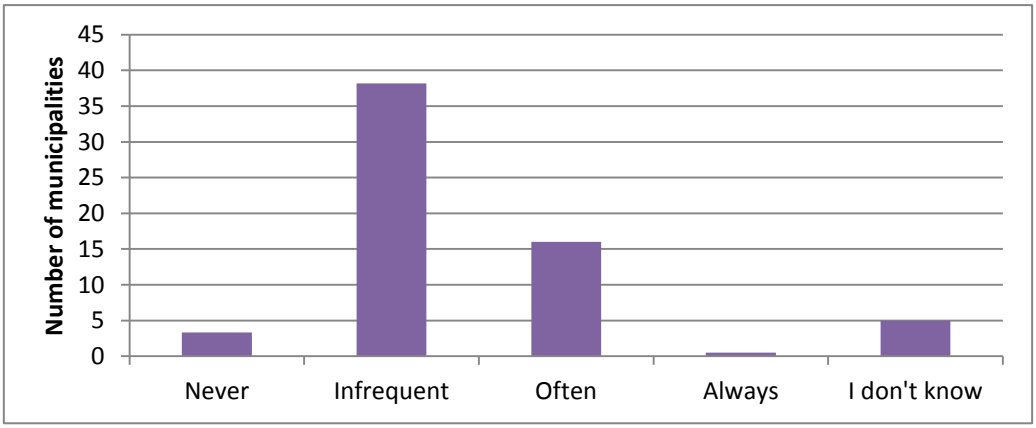

Figure 25 | Results from questionnaire for municipalities (Question 20M: *How often does SEA result in changes in plans?*)

Hillerød Municipality (2015) mentioned that it is not the SEA-report that leads to changes in the plans. The aim is to integrate environmental considerations into the planning procedures, but SEA works more as a checklist. Furthermore, Hillerød Municipality (2015) emphasised that there should be a focus on integrating SEA into the planning process, so that it would work as a decision-making tool, rather than a focus on whether or not it leads to changes. Thereby, by principle, the SEA-report should be unnecessary regarding securing the environmental considerations in planning.

Kerteminde Municipality (2015) supported this viewpoint by saying, that even though the screening does not often lead to SEA "[...] it is not a negative thing, it only means that we make plans, which does not affect the environment" (translated from Danish). The plan is changed in order to avoid significant impacts, thus the screening is not meant to change whether or not to prepare SEA – but to change the environmental impacts of the plan.

77 % of the municipalities responded in the questionnaire that the screening only infrequently results in a full SEA-report, and 10.6 % responded that it never resulted in a full report. 9.5 % responded that the screening led to a report about half the times (Questionnaire result, Question 9M, 2015). This tendency could present a general viewpoint on the effect of the screening on the planning process. These aspects of the tool will be discussed further in Chapter 7.

Public participation

Aarhus Municipality (2015) believed that SEA should be used as a tool for public debate and participation; "what they [SEAs] promote is the open decision-making process" (translated from Danish). Kørnøv (2015) also recognised SEA's potential in regard to an open and transparent process. She believed that the systematic mapping that is documented through SEA is a good basis for this process.

It is through the questionnaire comments expressed that it can be difficult to find the sufficient level of detail for the SEA-report (Comm., Question 18M, 2015). Kørnøv (2015) explained that the level of detail in the SEA-reports must reflect the plans. However, if the plan has a high level of detail, the SEA report might become very technical. Aarhus Municipality (2015) mentioned that SEAs can be hard to understand even for planners, and it can sometimes be difficult to identify which problems have been recognised. It must therefore be very difficult for the citizens to interpret and understand the findings of the SEA process. This could also cause a lack of interest in SEA.

Content

The municipalities and the consultancy companies were asked whether or not some environmental aspects were secured more than others by SEA. The results from the municipalities can be seen in Figure 26 below.

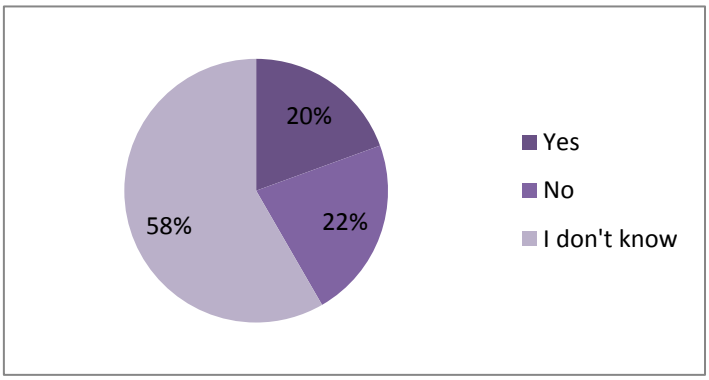

Figure 26 | Results from the questionnaire for municipalities (Question 16M: *Are there any environmental aspects, which SEA secures better than others?*)

As it can be seen from the figure, there is no clear tendency. According to the interviewed municipalities, some of the environmental conditions that most often are taken into account, when doing the screening are areas protected by legislation, such as Natura2000 (Hillerød Municipality, 2015), Paragraph 3-areas (Hillerød Municipality, 2015 & Vejle Municipality, 2015) and traffic (Vejle Municipality, 2015). Vejle Municipality (2015) mentioned that some areas covered by environmental constrains can be so weighty, that they will restrain from making plans for these areas.

The municipalities, which chose the option; *yes*, could add an explanation of which elements in the next question. The responses to this question showed that the municipalities especially felt that it was the measureable and the concrete parameters, which were often taken into account, such as noise measurements, traffic, protected natural areas, and species protected by legislation (Comm., Question 17M, 2015). As mentioned earlier, it is necessary to have employees with qualified competences and educational background in order to handle this type of data. Furthermore, it was evident that the municipalities chose to involve consultancy companies on the technical aspects of SEA, such as traffic or noise measurements, which is why it seems as if the resources for handling this type of data are limited within the municipalities.

It is mentioned in the questionnaire comments that it is parameters, which can actually be affected by the planning, while parameters of a so called "softer" character, such as landscape and architectural aspects are left out (Comm., Question 17M, 2015). Kjellerup (2015) emphasised that he misses a qualified decision on whether these factors are relevant for the environmental aspects. He said that he experiences that there is a tendency to choose the indicators available rather than considering the casual effect. As mentioned earlier, it is stated in the legislation that SEA should be based on data, which can be provided by the municipality in a reasonable way. This will be discussed further in Chapter 7.

For comparison; four out of the five consultancy companies chose the option; yes for this question (the remaining chose the *I don't know*-option) (Questionnaire result, Question 9C, 2015). They had replied to the next question that SEA could make sure that the environmental considerations were done early in the planning process and thereby make a basis for a prioritisation of the location of the project. Furthermore, they emphasised that SEA forced the municipality to cover the wide environmental concept (Comm., Question 10C, 2015). Knudsen (2015) described how SEAs are connected to different areas, and it is therefore necessary to be aware of the relevant protected areas within the plan's range.

As mentioned earlier, SEA does also contain social aspects. According to Knudsen (2015), SEA should contain considerations on people and health, but these are only expressed through threshold values for noise and emissions. This could constitute a problem, when SEA is to reach its full potential.

It is in appendix 1, SPPA, h stated that SEA should include a short mapping of the reasons for choosing the alternatives, which have been treated in the SEA-report. Hillerød Municipality (2015) mentioned that if SEA should work as a proper decision-making tool it would be necessary to set up alternatives, but it is difficult to do so, since it does not fit well with the planning reality. This could therefore be regarded as a challenge for the municipalities in connection to comply with the legislative demands. As Kørnøv (2015) stated that, the lack of use of alternatives indicates that the municipalities do not prepare SEAs according to the legislative demands. The use of alternatives will be discussed further in Chapter 7.

Political goals

The questionnaire results revealed that 89.9 % of the municipalities have goals regarding climate, environment and sustainability (Questionnaire result, Question 12M, 2015). A comparison of larger and smaller municipalities showed that a slightly greater share of the larger municipalities (92.0 %) had political goals on these aspects compared to the smaller municipalities (88.6 %) (Questionnaire result, Question 12M[add.], 2015).

It was asked to which degree these were secured by SEA, the results can be seen in Figure 27 on the next page.

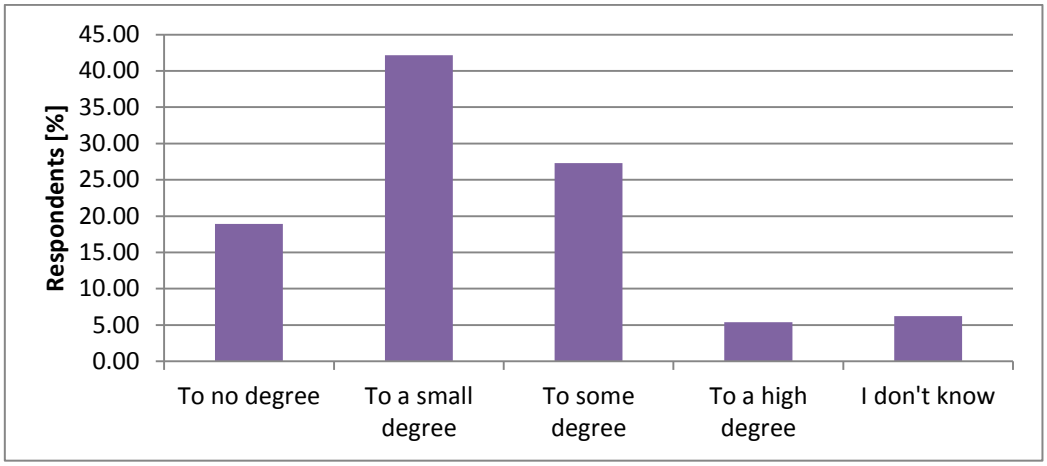

Figure 27 | Results from questionnaire for municipalities (Question 13M: *If yes; to which degree are SEAs a useful tool for achieving such political targets?*)

The results indicate that SEA to a small degree is a tool for securing political goals. Furthermore, only few respondents (5.41 %) have chosen the option *to a high degree*, which indicates that this very seldom is the case. The respondents added comments for question 14M regarding SEA's ability to secure political goals. Some municipalities responded that SEA does indirectly support the goal realisation. They elaborated that this can be done through changes in the plan in order to support the goals or by composing the screening table to contain a sum up of the political goals. But the most common answer is that SEA does not lead to realisation of the political goals or only does so to a very limited degree (Comm., Question 14M, 2015).

The responses to this question were compared according to larger and smaller municipalities. However, the comparison did not show any clear tendency within each of the groups (Questionaire result, Question 13M[add.], 2015).

Kørnøv (2015) generally experienced that more and more municipalities go beyond compliance in their SEA work, and that environmental considerations have been implemented in the planning process. However, Kjelleup (2015) was a bit more sceptical and still experiences that SEAs are prepared in order to comply with the legislative demands. The effort of the municipal employees in regard to SEA preparation will be discussed further in Chapter 7.

As mentioned earlier, the performance of SEA is expressed through the final effects.

Effects

SEA should according to the legislation secure environmental aspects. Furthermore, SEA includes a number of social aspects as well (as described in Chapter 2: Context). The performance described in the part above is what leads to the effects, as it could be seen from the four steps of the causal process described earlier in this chapter.

First and foremost, the effect of SEA is determined by the performance but it is also impacted by how effectively the actions, documented in the plan, are followed up on. Knudsen (2015) mentioned that it is necessary to link the mitigation measures to the existing monitoring, and that it is important to have a realistic monitoring-programme.

Question 15M in the questionnaire addressed the effects of SEA. It was asked to which degree SEA

reached any of these four aims:

1. To promote sustainable development
2. Integrate environmental considerations
3. Mapping of effects on the environment
4. Securing a high level of environmental protection

The results are presented in the table below.

Table 5 | Results from questionnaire for municipalities (Question 15M: To which degree does SEA achieve the following aims?)

	To promote sustainable development	To integrate environmental considerations	To map the effects on the environment	To secure a high level of environmental protection
To a high degree	8	21	29	19
To some degree	21	32	28	27
To a small degree	30	14	9	15
To no degree	9	2	3	7
I don't know	4	3	3	4

It can be seen from the table, that most of the municipal employees agree that mapping of the effects on the environment is the most common outcome of the SEA process (40.3 % chose the option *to a high degree*). Integration of environmental considerations and securing a high level of environmental protection are also happening to some degree according to the municipal employees. Whereas the aim of promoting sustainable development only is reached to a small (41.7 %) or some degree (29.17 %). However, there are few who chose the option of *to no degree* (12.5 %), which indicates that SEA does have some kind of effect.

The responses from the companies are likewise presented by table 6 below.

Table 6 | Results from questionnaire for consultancy companies (Question 15C: *To which degree does SEA achieve the following aims?*)

	To promote sustainable development	To integrate environmental considerations	To map the effects on the environment	To secure a high level of environmental protection
To a high degree	0	2	3	1
To some degree	3	2	2	2
To a small degree	2	1	0	2
To no degree	0	0	0	0
I don't know	0	0	0	0

By comparing the tables it is evident that the municipal employees and the consultancy companies almost agree on the outcome of SEA in regard to these four aspects.

Egedal Municipality (2015) described that the decisions made by the city council are the ones to support sustainable development, while SEA only secures that the planning is no harm to the environment. Hillerød Municipality (2015) agreed to this by saying that sustainability has an origin somewhere else in the organisation or planning practices.
Kjellerup (2015) expressed that SEA does not promote sustainability, but it does have the potential to

do so. SEA is a fundamentally defensive approach in the sense that it is a way to exclude the worst effects of the plan. However, Kjellerup (2015) also emphasised that "it is possible to use SEA more proactive – the potential is there, but it does just not happen" (translated from Danish, 2015).

Knudsen (2015) said that SEA "[…] is not a toolbox for improving things – so in that sense I would say; no, it does not necessarily promote sustainability. You would have to be critical throughout the planning process to do that" (translated from Danish). However, it does secure the environment.

In the questionnaire, the municipalities could elaborate their viewpoints on SEA's effect on sustainability. The most common comment was that SEA raises awareness on environmental aspects in the planning process and makes sure that all aspects are covered. However, it was also mentioned that SEA has a broad focus, and that it could sometimes be beneficial to focus on fewer relevant aspects instead of striving to include them all (Comm., Question 18M, 2015).

In the questionnaire, the municipalities responded to the question regarding the positive effect of SEA on environmental aspects within the municipality.

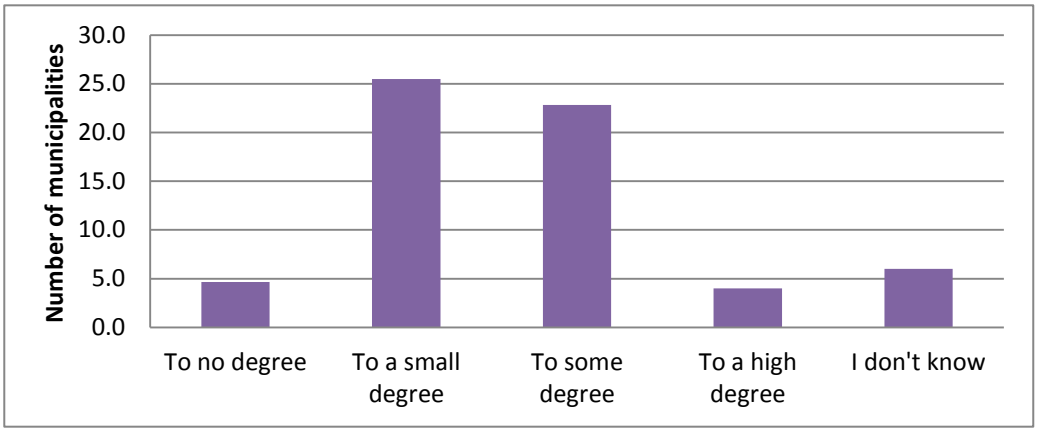

Figure 28 | Results from the questionnaire for municipalities (Question 19M: *To which degree does the preparation of SEAs have a positive effect on environmental aspects in your municipalities?*)

As it can be seen from the figure, most municipalities chose the two middle options (40.5 % chose the option *to a small degree*, while 36.2 % chose *to some degree*). While only few thought the environmental aspects were positively affected to no (7.4 %) or a high degree (9.5 %).

Among the companies there was a tendency to pick the middle option (60.0 %), which would resemble the option *to some degree* (Questionnaire result, Question 16C, 2015).

Figure 29 on the next page presents the responses according to the size of municipalities.

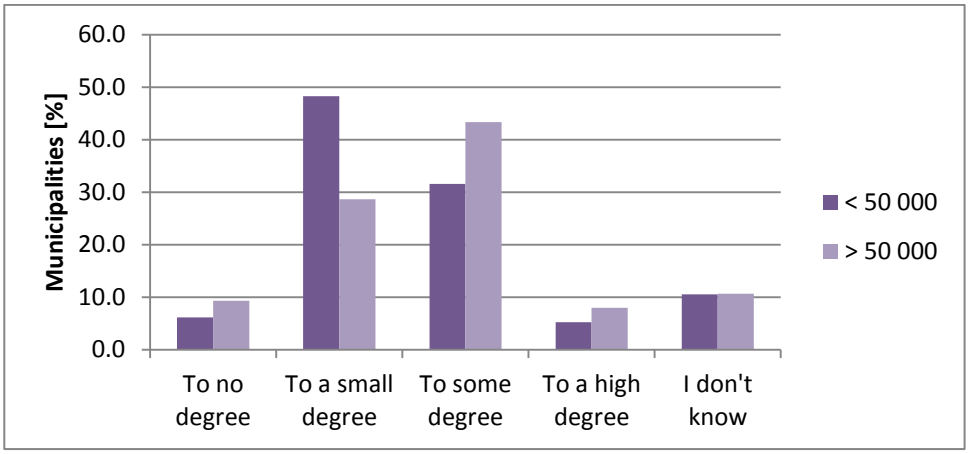

Figure 29 | Distribution according to population size (Question 19M[add.]: *To which degree does the preparation of SEAs have a positive effect on environmental aspects in your municipalities?*)

It is evident that there is a difference in opinions regarding the two middle options, and it seems as if there is a tendency for the larger municipalities to choose the options *to some degree* (43.3 %) and *to a high degree* (8.0 %), compared with the smaller municipalities, where the most common response is *to a small degree* (48.2 %). There is, however, also a larger share of the bigger municipalities (9.3 %), which has chosen the option *to no degree* than the smaller municipalities (6.1 %).

5.1.4 The overall model

In order to investigate the overall model, there has been put emphasis on the two outer factors; socioeconomic and environmental conditions and the feedback mechanism. The conditions affect all the different states of the implementation process, since they set the frame for the municipal work. The feedback mechanism can give an impression of the dynamics and the interconnected elements in the process.

Socioeconomic and environmental conditions

The socioeconomic and environmental conditions have not been investigated in great detail, since it would require a broader analysis of the different municipal conditions.

As mentioned before, the environmental aspects can affect all three main parts of the implementation model. Firstly, the policy design contains the broad environmental concept, which contains both environmental and social aspects. These aspects are a product of the conception of the socio-economic and environmental conditions. It is furthermore stated in the legislation that existing environmental problems should be documented in the SEA report (SPPA, appendix 1, d).

The environmental aspects can affect the implementation, since they can be the basis for the municipal experience in regard to environmental planning. Egedal Municipality (2015) emphasised, that the screening tool can be used for collecting information on the environmental aspects. As mentioned earlier, some environmental aspects often have to be taken into consideration in the SEA preparation process, such as protected areas. Furthermore, the analysis has shown that certain environmental aspects can result in plans not being made, due to the fact that the SEA process would indicate that the plan is a great harm to the environment.

Lastly, the conditions affect the results in the sense that certain attitudes among the citizens and discourses in society can affect the focus of the SEA report.

Feedback

The feedback effect (see Figure 7 in Chapter 3) shows, how the implementation results can affect other parts of the model.

As mentioned earlier, many municipalities look to NMKN, when preparing their SEAs (Kørnøv, 2015). It was expressed in a response to the municipal questionnaire, that the NMKN often put emphasis on the legislative demands, which is what currently drives the area (Comm., Question 8M, 2015). Egedal Municipality (2015) supports this statement by saying that the level of detail is based often on the decisions made by NMKN. These decisions are done on basis of the complaints.

Another aspect, which could affect the feedback loop, is the monitoring. As it can be seen from the above statements, it is often outer aspects such as the decisions made by NMKN, which affect the implementation process within the municipalities. However, internal experiences gained through monitoring were not mentioned by the municipalities.

Knudsen (2015) reckoned that new knowledge on consequences result in better reports. One of the reasons is that the legislation has been updated. Furthermore, they have in Rambøll gained experience and knowledge on the different opinions of the citizens through public meetings. It becomes clear, what the citizens worry about, and it is thereby easier to take this into account.

Political effect

The effect of SEA on the political agenda can be regarded as an overall effect of the SEA implementation. It is furthermore part of the feedback loop in the sense that an increase in political awareness can lead to changes of approaches and procedures within the municipality. This can thereby be connected to the arrow in the implementation model linking the implementation results with the implementation process, and thereby SEA preparation.

Vejle Municipality (2015) considered the effect of SEA on the political agenda to be insignificant. Aarhus Municipality (2015) expressed that if the plan shows significant environmental effects, the politicians have to be callous to let the plan go through. As mentioned earlier, Kerteminde Municipality (2015) believed that SEA can promote the idea about sustainability among the municipal employees. Yet, they also claimed that this does not extend to the politicians.

The questionnaire showed that the politicians and the political decision only are affected to a small degree (55.3 %), according to the municipalities, as it can be seen in Figure 30 below.

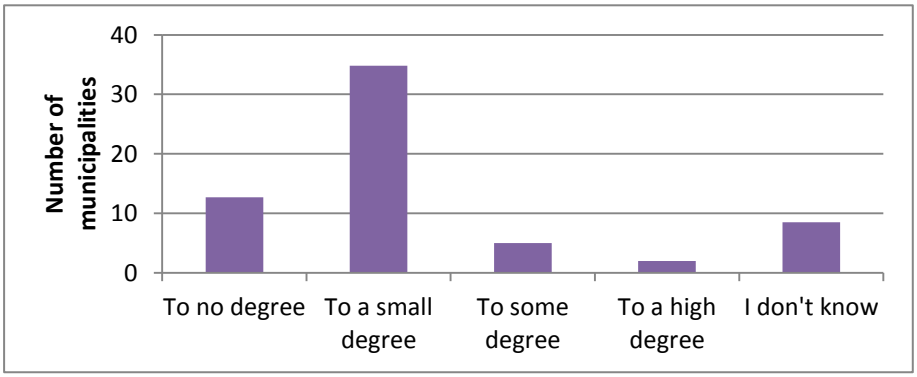

Figure 30 | Results from questionnaire for municipalities (Question 21M: *To which degree does SEA affect the politicians and the political decision-making?*)

Furthermore, the results indicate, that it is very uncommon that SEA affects the politicians to a high degree (3.2 %).

Kjellerup's (2015) experiences showed that in most municipalities, the politicians only read the non-technical summary, and if there are significant effects they will notice them, since they do not want to be associated with those. It is often preferred that SEA identifies some positive environmental effects. Knudsen (2015) also expressed that SEA is gaining recognition among the politicians in recent years.

The feedback loop and its effect on the different parts of the implementation model will be discussed further in Chapter 7: The implementation and potential of SEA.

Chapter 6

Evaluation of effectiveness

In the following chapter the substantive effectiveness of the implementation process is discussed in the light of the analysis. This evaluation is taking basis in the identified implementation results, but it is additionally addressing results which are regarded as the intended outcome of SEA as described in Chapter 1: Introduction. It is therefore evaluated whether or not the SEA process in the Danish municipalities changes the assessed plans, contributes to the decision-making process and reaches the legislative objectives set in SPPA.

6.1 Changing plans

When discussing whether or not SEA changes plans and thereby ensures the environment, it is necessary to look into two parts of the process; the screening and the production of the SEA-report. The analysis shows that the screening plays a crucial role in the SEA process within the municipalities. Firstly because many of the SEA processes never get further than to the screening phase. And secondly, because it from the analysis became clear that the integration of SEA into the planning process mostly happens while screening the plans. Most of the municipalities run two parallel processes of the screening and the finalising of a plan, respectively. Thus, when significant environmental impacts are identified by the screening; changes are made to the plan, and the identification of significant impacts in the screening is thereby reduced.

The majority of the municipalities mentioned that the two processes become very intertwined, and it can sometimes be difficult to distinguish between changes made as a result of the SEA process, and changes that would have been made anyway.

Vejle Municipality (2015) is the only one of the interviewed municipalities, which sometimes makes the screening in the last minute of the planning process, and therefore does not experience an effect in relation to the integration of SEA. Their argument for not using the screening early in the SEA process is that the municipality already consider the environmental aspects, which they have done even before the implementation of SEA. The screening therefore ends up only being produced for the sake of the legal requirements. In this case, SEA ends up being a waste of effort rather than a contribution to the planning. The analysis showed, that when the municipalities use the screening process actively and early in the process, SEA is effective in changing plans and in regard to communication, which will be elaborated in the next section.

It is another story when addressing the actual preparation of the full SEA-reports. The report seems to be made only when environmental issues cannot be avoided by changing the plans through the screening, and that means that the SEA-report is made to document these issues. Furthermore, the reports are used to ensure possible mitigations, but some municipalities mentioned that they are often overlooked, lack quality, and inadequate monitoring.

"[...] you kind of invent them [mitigation measures], because they often do not come naturally"
(Vejle Municipality, 2015, translated from Danish)

It seems the SEA-reports are made too seldom, or are used differently than intended in accordance to mitigation measures, to have an actual, evident effect on plans in the municipality. Due to the legislative

objectives in regard to covered plans, even for the 4-year municipal plans, the screenings are often only made on the added changes and addendums.

Some municipalities consider the SEA-report as a resource-demanding task and the use of the screening to avoid full reports is not uncommon practice. By this they ensure that the plan does not have any significant impacts on the environment, and thus do not need a full environmental assessment, which is costly.

The interviews and questionnaires paint the picture that the effectiveness of SEA is most prominent within the screening process, and the process of making the SEA report is to no avail. The screening seems to have taken the role of being the more creative and flexible part of the SEA process. This statement will be discussed further in the discussion of SEA as a tool 7.2 The Potential of SEA.

6.2 Informed decision-making

Even though there seems to be a tendency that the screening does change the plans in the municipalities, the use of SEA in the decision-making process appears to vary. As an information tool for decision-making, SEA is less effective, especially when it comes to public participation and political decisions.

Over half of the municipalities stated that the process of SEA is done as collaboration between departments (Figure 19 in Chapter 5), which indicate that there is a cross-sectorial approach to SEA. This cross-sectorial approach could be a consequence of the fact that new collaborative practices gain ground in connection to municipal planning. It seems that some kind of start-up meeting between relevant departments is a common approach to the screening process. However, the analysis also indicated that the planning department is primarily responsible for the SEA preparation.

The municipalities strive to begin the screening at a point, where the plan is not too locked and where changes still can be made. However, this specific point could show to be difficult to recognize in a dynamical planning process. If the municipalities do the screening at the point, where the plan is more or less finalised, and only check for environmental issues instead of integrating them in the planning, it would undermine the effectiveness of SEA in regard to the decision-making.

All the interviewed municipalities mentioned how they in some way or another use expertise from colleagues and collect information from relevant departments. In some municipalities the processes regarding the collaboration are more formalised than in others. Aalborg and Hillerød municipalities (2015) have a more formalised procedure regarding the involvement of other departments. In Aarhus Municipality (2015) the SEA production is distributed among the different relevant departments. These approaches make sure that SEA is implemented and thereby considered in different technical departments. In the smaller municipalities, such as Hillerød and Kerteminde municipalities (2015) it is common to ask the colleagues in a more informal manner, when there is a need for an input. This practise could indicate that there is less of a distance, both physically and socially, between the different departments and areas of responsibility in the smaller municipalities. There is, however, no distinguished division between municipalities using formal and informal approaches. So, even though it could seem as if there is a more informal approach to the collaboration within the smaller municipalities, due to the two examples, Hillerød Municipality (2015) still also makes use of a more formalised procedure. SEA's ability to inform the decision-making process within different departments is therefore in this project considered as being effective to some degree.

However, it seems, SEA's effect on decision-making does not get beyond the borders of the technical departments within the municipalities. Since most decisions are made in the screening process, the discussion rarely reaches the politicians and even more rarely the public.

The analysis showed that there is a limited interest among the politicians in the SEA process. It is often solely when the plans are prestigious, concern conflict cases or there are several significant aspects identified through SEA. Conflict cases, furthermore, are often subject for the public attention. The screenings almost never get the politicians' attention, but it was mentioned that the politicians do make sure the final plans are not tangled up in larger environmental issues and that conflicts are solved by the planners before the plan is presented. The analysis also presented that SEA does not affect the political agenda. SEA screenings and reports are thus not used as a decision-making tool at the political level of the municipalities.

The fact that changes often are being made in the screening process also affects the public participation. Public involvement happens through a hearing, when a screening determines that a full SEA-report is unnecessary or when a full SEA-report is made. However, the SEA-report is often perceived by the public as part of the appertaining plan, and it therefore happens that they address issues identified in the SEA-report through the hearing of the plan. Some municipalities, such as Aalborg and Aarhus (2015), use the SEA-reports as a communicative tool, while others only regard the SEA-report as an extra task in the administrative work, since it gives the public yet another opportunity to file complaints (Vejle Municipality, 2015). Since most of the decisions are made in the screening process, the public do not have much insight on environmental changes and possible alternatives regarding the planning. Vejle Municipality (2015) also stated that it is seldom the public presents something new in regard to the SEA-findings. However, this poses an issue in connection to the transparency of the decision-making process, which is debated further in the discussion 7.2.1.3 Communication.

6.3 The objectives

As mentioned in the 3.4 Theoretical framework the main evaluation criteria of this study is whether or not SEA reaches its objectives.

> *"[…] to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development, by ensuring that an environmental assessment is carried out of certain plans and programmes which are likely to have significant effects on the environment."*
>
> (Miljøministeriet 2013[a], SPPA).

As mention in the analysis, the municipalities use a screening table or something similar to make sure all environmental issues are considered. According to the planners, SEA is useful for mapping environmental issues, and to some degree secures the environment. From the interviews it became clear that the municipalities are well-aware of and consider the environment, but they do not all agree on whether that is a product of SPPA or of general good planning practices. A lot of planners have mentioned that they already were ensuring the environment through the planning and due to the demands set in various laws on environmental protection. Nonetheless, it seems that a lot of the municipalities use at least the screening process to check that all environmental aspects are considered. This approach does systemise and document the process, which the municipalities considered a good thing.

Some of the municipalities emphasised that SEA does not contribute to improving the environmental conditions. It is therefore, both by the employees of the companies and municipalities considered to be a rather reactive tool and not a proactive one. This could also be the reason why the municipalities do not

find SEA to be enhancing and promoting of sustainable development, which will be discussed further in 7.1.3 The concept of sustainability. Multiple of the municipalities think that sustainability is a general planning issue and not an issue connected to SEA. This could indicate that there is still quite a long way to go in regard to integrating SEA in the planning process. Enhancing sustainable development is in itself an active action, where it seems that SEA is regarded as a somewhat passive tool, only securing that the baseline stays the same.

SEA is effective in ensuring the environment in accordance with the minimum requirements, but it is not effective in promoting sustainable development. It seems that the screening is used to avoid significant impacts on the environment, by changing the content of the plans, but the integration and implementation of environmental and sustainable solutions through SEA in the planning process still poses a challenge. It is important to note that there is still a lot of variation in how SEA is used and thereby also what effect it has within each of the municipalities. However, the analysis showed, that there is a proportional connection between the municipality's (and the individual employees') interest in sustainability, the planner's ownership and views of SEA, and the effectiveness of SEA.

It should, furthermore, be mentioned that if this study had evaluated only on the results from the municipal questionnaire, the results would have been even less positive concerning SEA's effectiveness in regard to the legislative objectives. But as mentioned in Chapter 4: Methodology, the interviews were more reflective on the problems and issues in the SEA process, and showed that SEA was being integrated more than what the questionnaire unveiled and had a potential, which will be discussed further in section 7.2 The Potential of SEA.

The analysis presented the results on the comparison of smaller and larger municipalities. It became evident through this comparison that all municipalities did approximately the same number of SEAs in 2014. However, the larger municipalities do possess more resources in regard to the SEA preparation, both due to their income but also due to how the block grant is distributed. It was also a more common conception among the larger municipalities that SEA did have an effect on the environmental conditions within the municipalities. However, they did not recognize any significant impact of SEA on the political goals.

In overall the substantive effectiveness of SEA in the municipalities is low, due to its limited effectiveness in connection to reaching the legislative objectives in accordance with the aim of SPPA. Furthermore, SEA only seems to obtain its minimum ability regarding decision-making outside the technical departments. It does, nevertheless, affect the plans, which indicate that it affects the decision-making in the planning practices. This effect does, however, not seem to reach much further.

The interviews with the municipal planners revealed that there is a potential for SEA to be used as a tool for communication and decision-making, as well as a potential for better integration with the planning process. This potential and it problems is discussed in the following Chapter 7: The implementation and potential of SEA.

Chapter 7

The implementation and potential of SEA

This chapter takes basis in the implementation theory and uses the relevant aspects, interconnections and casual connections identified in the analysis along with the evaluation of effectiveness as a basis for a discussion of different relevant aspects of the SEA implementation and use.

Firstly, the implications of the implementation are discussed. This is done with a broad focus, including a short discussion of the EU-directive. It is in this connection discussed how the SEA legislation was received by the Danish municipalities. The concept of sustainability is also described and put into perspective in relation to its meaning in the legislative objectives. Secondly, the usefulness of SEA as a tool is discussed. This discussion takes basis in different implications and elements of the tool use and setup. These are elements such as the screening and the planners' role in relation to the SEA use. Lastly, it has been strived to add some perspective to the SEA implementation and to discuss the usefulness of SEA in the future.

7.1 Implications of the implementation

In this part it is strived to discuss the relevant aspects of the legislation and the implementation, identified in the analysis in Chapter 5: The implementation of SEA, in a municipal context. The usefulness of the legislation and its content is firstly described. Secondly, the reception by the municipalities and the concept of sustainability are evaluated.

7.1.1 Implementation of the legislation

The Danish SEA legislation is a result of the adoption of the EU-directive by the EC. The implementation of the EU-directive was not described in the analysis, since it was considered to be less relevant for the Danish context than the implementation of SPPA. However, it has relevance in a discussion of the overall implementation.

Cashmore (2015) described the implementation of the EU-directive as being not entirely trouble-free. When the EIA-directive was circulated and discussed in the late 70's and the 80's, it was meant to cover all policies, plans, programmes, and projects. It was, however, considered radical even to apply it to projects, and a number of countries, including Denmark, were not particularly keen on the implementation. Due to the voting system at that time the individual countries had more power than they have today, thus it was decided to step back from the SEA-part of the directive (Cashmore, 2015).

According to Cashmore (2015) it took longer time to get back to the part concerning SEA than the SEA-community had imagined. The EC required all member states to bring the EU-directive of SEA into force by the 21st July 2004. However, on the due date only nine of the, at that time, 25 member states had done so. At 2009, all 27 member states had finally transposed the directive. Furthermore, 23 infringement procedures were carried out by EC, mainly on the scope of SEA. Eight of these cases were by September 2011 still open (Tetlow & Hanusch, 2012).

The implementation of SEA in a European context has thereby not been unproblematic and the incitement to actually implement it did not solely come from inside of the organisation as described in Chapter 4: Methodology. The practices in other European countries will be discussed later on in section 7.3.1 European context.

In Denmark SPPA has been implemented as a result of the adoption of the EU-directive and thereby has its origin at the highest planning level in the Danish planning hierarchy, see Chapter 2: Context. In Denmark the SPPA to a large degree resembled the EU-directive.

According to Aarhus Municipality (2015), this direct implementation is a result of a troublesome implementation of the EIA-directive, which resulted in several demands for revision by the EU Commission. At this point it was therefore strived to make sure the Danish act lived up to EC's standards by proposing an act, which to a large degree resembled the directive (Aarhus Municipality, 2015). In spite of this Kjellerup (2015) mentioned that the implementation of SEA has been a complete repetition of all the things that went wrong in the EIA implementation. The possible implications concerning the challenging implementation are discussed in this section.

The purpose of SPPA is "[…] to secure a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes […]" (Miljøministeriet, 2013, p.1, translated from Danish), which means on a strategic level. Furthermore, the objective is to "[…] promote sustainable development […]" (Miljøministeriet, 2013, p. 1, translated from Danish). As described in Chapter 5: The implementation of SEA, the legislation includes a broad environmental concept, which is not covered by any other Danish legislation.

As described in Chapter 5, SPPA was a consequence of a lack of environmental considerations in the Danish planning processes and a need for a systematic way of incorporating it, according to Kørnøv (2015). However, the planners did express some resistance towards the implementation (Cashmore, 2015). This could be due to the fact that several municipalities emphasised that good planning practices already included the environmental considerations, as described in Chapter 5. Although Kørnøv (2015) understands this discourse, she claimed that PA and SPPA might have the same intentions but differ when it comes to content and procedures.

As mentioned in Chapter 2: Contex, PA constitutes the foundation for the Danish planning system. The aim of PA is to; "[...] contribute to protect the nature and environment of the country, in such a way that the development of society can happen on a sustainable foundation […]" (Miljøministeriet, 2013[b], p. 1, translated from Danish). Furthermore, PA includes aspects such as Natura2000, other types of environmentally protected areas, along with concerns regarding cultural heritage when concerning municipal planning (PA Kapitel 4). It is also mentioned in PA that the municipal plans cannot conflict with *Miljømålsloven*, which has the aim to "[…] establish the frames […] for planning in the internationally protected environmental areas" (Miljøministeriet, 2009, p. 1, translated from Danish). What is interesting in this context is that the analysis presented that a lot of municipalities found, the environmental aspects assessed in a SEA often were the protection environmental zones, which are already considered by PA. It could therefore seem as if SEA is just an extra task for the municipalities to solve when addressing environmental issues and sustainable development. PA also includes the EIA-legislation, which will be discussed in regard to SEA later in this chapter.

These perceptions have caused the before mentioned discourse among the municipalities, which basically results in the idea that SPPA is an over-implementation of the EU-directive. The Municipality of Vejle (2015) emphasised that they already considered the environmental aspects due to the aspects covered by

PA. Knudsen (2015) on the other hand argued that PA only focuses on land zone administration and the securing of the assigned use of these zones. Moreover, she explained that some parts of the legislations are somewhat similar, but that the environmental protection aspects differ and that the demands for mitigation and monitoring are solely covered by SPPA. Kjellerup (2015) likewise found that the Danish planning system was and still is environmentally orientated. However, he stated that it was strange that the municipalities find it difficult to document their environmental considerations if they already believe they are considering them. He mentioned that he considers the SEA legislation as being under-implemented. Cashmore (2015) did to some degree agree to this, when the implementation of SEA in a Danish context was compared to the implementation in other countries.

According to Cashmore (2015), the implementation in Denmark has been problematic compared to for instance the United Kingdom, which is not considered as environmentally progressive. Furthermore, he mentioned that countries such as Albania and Croatia go all out for the implementation and that the Danish approach does not go well hand in hand with the idea of Denmark as a "green" country.

Cashmore (2015) mentioned that if the law had been more procedural in its focus, the EU court of justice system possibly would have had something to say about the Danish system. Kjellerup (2015) was also certain that if the Danish practices were investigated in detail they would risk getting a verdict.

SPPA presents SEA as a systematic approach for addressing and documenting environmental considerations. The chapter 5: The implementation of SEA made the point that the implementation of SPPA met challenges concerning the allocation of resources, and the fact that the planners were sceptical towards its ability to reach its aim. These aspects could be a further challenge for gaining the planners' acceptance and will. Furthermore, the analysis revealed that the municipal employees found the legislative demands complicated and challenging to manage despite the fact that they actually found them relevant, achievable, and applicable. This opinion is well supported by the various comments from the questionnaires, regarding good planning practices, where it was stated that SEA was to some degree unnecessary, but that it could be beneficial that the environmental considerations were approached in a systematic and well-documented manner. Another aspect is the legislative objective regarding sustainability. It was found to be a very complex term, which has become hard to define by the municipalities. The concept of sustainability is discussed further later on in this chapter.

When SPPA was adopted, Lone Kørnøv and Joy Alrø decided to suggest that guidelines should support the implementation of the legislation in the municipalities (Kørnøv, 2015). This initiative by Kørnøv and Alrø can just be seen as an example of political practice, but it can, however, also be interpreted as a lack of understanding of the municipal practices among the governing authorities. As mentioned in the analysis, Hillerød Municipality (2015) claimed that municipal practices do not follow the procedures set by the legislation in terms of the use of alternatives in the SEA process, which will be discussed further in 7.2 The Potential of SEA.

The guidelines published by NST in 2006 were meant to ease the implementation in the municipalities. Nevertheless, the guidelines are no longer applicable due to the fact that they are outdated. Sometimes the EC creates their own guidelines, but it depends on the amount of resources and what is on the political agenda (Cashmore, 2015). According to the municipalities, NST is difficult to communicate with and only shows a limited interest in the SEA procedures. As mentioned in Chapter 5, both Kørnøv (2015) and Kjellerup (2015) expressed that NST could play a more proactive role in the SEA development, for instance; by engaging in research in SEA practices or by developing guidelines on the methodological aspects of SEA preparation. Furthermore, Kjellerup (2015) mentioned that the Danish ministries

themselves do not perform SEA as intended. This point is supported by Aarhus Municipality (2015), however, it is mentioned that the MIM to comply with the own legislation, which is why they do perform SEA on some plans. This lack of ministerial engagement may not affect the municipalities directly, but it does send a seemingly demotivating message.

7.1.2 The implementation in the municipalities

The analysis made the point that, in regard to capacity, the financial aspect is a challenge to the municipalities, and the dominating opinion is that the block grant assigned the municipalities in 2004 (KL & Regeringen, 2004) was not enough to cover the extra work necessary in order to comply with the legislative demands. This limited financial support could be a contributory factor in the lack of prioritisation of SEA in the municipalities, which has had a negative effect on the implementation of SEA. Kjellerup (2015) expressed that the amount of resources the municipalities received, in connection to the implementation, was limited, which challenged the municipalities on time and resources. As mentioned in Chapter 5, he did not believe that an uncritical allocation of resources would be the correct solution, unless the objective of the use of SEA becomes clearer. It was in the implementation theory found that financial resources often could be an effective political instrument for making up for an unclear legislative aim. The analysis showed that the municipalities spent their resources differently. Some consider the screening as being the part of the process, which the resources are primarily spent on, while others point to the SEA-report.

Another aspect identified in the analysis concerning capacity was the knowledgebase within the municipalities. This aspect was rather difficult to investigate, since the legislation states that SEA should be prepared based on existing knowledge or knowledge that could be retrieved by reasonable means (Miljøministeriet, 2013[a], SPPA). However, the results still showed that many of the municipalities chose to involve external consultancies, even though this conflicted with the amount of limited financial resources. This could be interpreted as an ambitious approach, which would indicate that the municipalities strive to go beyond compliance regarding the legislative demands or as if they simply have misunderstood the demands regarding content. It could, furthermore, be that the municipalities had experienced that they had to get inputs on some areas in order to minimise the amount of complaints or to comply with NMKN's decisions. The municipalities mentioned that the extra knowledge gained through the involvement of consultancy companies showed to be beneficial in the further planning process.

Kjellerup (2015) also emphasised that there is a need for employees within the municipalities, who are passionate about SEA. As mentioned in Chapter 5, Aalborg Municipality (2015) reckoned that their ambitious head of department had lifted the SEA work by ensuring the early start-up of the SEA procedure and the integration of environmental strategies. Furthermore, Kjellerup (2015) mentioned that a change in mind-set could be conducive for the SEA work. His experiences showed that a number of SEAs are done in order to comply with the legislative demands. As described in Chapter 5, the interests of the employees, the department, and the municipality as a whole can affect the implementation. The engagement can therefore arise at different levels, both by a single planner or at the head of department. However, the analysis showed that the politicians only show limited interest in the SEA process and, additionally, that the effect of SEA in promoting the thought of environmental awareness and sustainability only was presented among the employees working with SEA, which is limited to the technical departments. It could therefore seem as if the change in mind set should have an origin in the departments and thereby have an effect bottom-up. However, if the municipalities only meet limited engagement and support from the governing authorities, it can be difficult to make the fieldworkers to take ownership and claim responsibility. Furthermore, the bottom-up promotion of SEA conflicts with the remarks made by Egedal Municipality (2015) on how it can bring the employees in a dilemma with their own professionalism to

point out weaknesses in the plans. This statement sheds light upon another challenge for the SEA implementation regarding the interests of the employees.

Some municipalities emphasised the effect of the politicians and the political agenda on the SEA procedures, which indicated that it is not only up to the planners to affect the SEA procedures. Ringsted Municipality (2015) mentioned that if there is political pressure to get a plan adopted, sometimes the plan will be accepted even though it is harmful to the environment in that specific place. Sometimes the aspects which are most significant according to the SEA assessment can be lifted in another area, thus it is considered fair to implement the plan. Cashmore (2015) stressed that politicians are the ones to structure and change the system, and if a project is considered prestigious, it will be built despite the findings done through a SEA. It thereby seems as if the effect of the politicians on the SEA processes is bigger than the other way around, which supports the claim that it can be difficult for the municipal employees to lift the implementation task without the necessary political support.

As described in Chapter 5: The implementation of SEA, the feedback loop indicated the dynamic nature of the implementation. The feedback loop likewise pointed to some of the effects that the implementation results have on the policy formulation and the implementation process. As mentioned in Chapter 5, the feedback loop was mainly based on outer factors. Cashmore (2015) stated that monitoring could lead to an improved learning process, and that it becomes a static process, if the municipalities do not reflect on what they have done and want to do forward. The monitoring is described later in 7.2 The Potential of SEA.

The implementation results indicated that the municipalities felt that SEA did contribute to certain aspects, such as mapping environmental effects. However, the overall results did not prove to be positive concerning SEA's ability to reach the legislative objectives, especially regarding promotion of sustainable development. The majority of the municipalities chose to respond negatively to this aim. However, the results also showed that the municipalities did not completely neglect the opportunity that SEA could affect sustainable development. Cashmore (2015) claimed that there might be certain sustainability aspects regarding governance aspects, which might have been achieved. The reason for this attitude could also be that the municipalities do not evaluate on the outcomes and thereby do not recognise the effects. However, it could also be due to the fact that the concept of sustainability is difficult to grasp, which will be discussed further in the section below.

The analysis indicated that this objective depended greatly on the engagement and level of ambition within the municipalities, as previously mentioned. Cashmore (2015), furthermore, emphasised that the overall effects of SEA are marginal, and that it mainly influences the planning procedures by opening them up and by making additional opportunities for the public to participate. The public interest was, however, not significant, according to the municipalities, but they did, nevertheless, support the statement that SEA is useful for communication. These results indicated that in order for SEA to reach its full potential it could seem as if a greater focus on this outcome could be beneficial.

The continuous SEA production can be regarded as the continuous implementation, which is why it is interesting to investigate the development and potential of the SEA preparation. These aspects are discussed in 7.2 The Potential of SEA. As earlier mentioned, Kørnøv (2015) mentioned how she experienced that more and more municipalities went beyond compliance when they did SEAs. Knudsen (2015) likewise stated that the municipalities have become more aware of starting up the SEA procedure early in the planning process. Furthermore, Knudsen (2015) expressed that their own SEA-reports in Rambøll became better and better due to the fact that they had gained knowledge and experience through their work with SEA. This is an example of how the results affect the implementation process. However,

this implication was not very evident through the municipal interviews. Instead it seemed as if their revisions of their work were caused by the decisions made by NMKN.

7.1.3 The concept of sustainability

As described earlier, the legislative objectives include the aim of promoting sustainable development, however, the analysis made the point that the municipalities did not feel that SEA lived up to this aim. It is in this section strived to uncover why this is the case and how sustainability as a term can be the cause of misperception and confusion.

Scoones (2014) described sustainability as a boundary-term in the sense that it described the point, where science meets politics and vice versa. The concept has therefore been the basis for alliances, networks, projects and the construction of organisations and has played an important political role. SEA is a great example of this tendency. SEA is described as a decision-making tool by the municipalities and therefore plays an important political role. The aim of promoting sustainable development can be considered as a bridge between the political agenda and the environmental ambitions. It thereby shows the ambition to affect the current societal development and political agenda through SEA, which is based on environmental and societal measures.

Kerteminde Municipality (2015) mentioned that there would probably be no municipalities who would directly admit that they did not promote sustainable development. This shows how much prestige there is connected with sustainable development and the ambitions associated with it.

White and Noble (2012) found that when sustainability was mentioned in different academic literature in connection with SEA, some common themes were emerging, such as the notion that SEA can support sustainability and provide a framework for sustainable decision-making among other things. However, they conclude that in order to advance SEA for sustainability there is a need for certain actions. The relevance of these actions have been discussed in connection with the results presented in Chapter 5 in order to identify some of the pitfalls in the implementation when it comes to reaching SEA's aim of promoting sustainable development.

First and foremost, the scope of sustainability in SEA should be better defined (White & Noble, 2012). The concept of sustainability is met by critic that addresses the word's status as a rhetorical buzzword (Scoones, 2014). As described in 1.1.2 Clarification of concepts, the concept is commonly used in many different contexts today, which could be interpreted as raised awareness and thereby a good thing. Furthermore, the use of the term does not necessarily conflict with the original definition. However, the ambitions associated with the term along with the casual use and incorporation into routines, which is a fate most buzzwords suffer, according to Scoones (2014), cause a great deal of confusion and makes it difficult to determine what the concept of sustainability really implies and covers. Knudsen (2015) said that the concept of sustainability has become watered down, which is well supported by the arguments regarding suitability's status as a buzzword, which no longer has the same value and furthermore has no clear scope. Knudsen (2015) mentioned that this problem could be confronted by an update on the sustainability concept in the legislative objectives.

Cashmore (2015) however, has another view on this. He stated that he did not consider the lack of strict definition as being problematic. He argued that sustainability is context-dependent, and that sustainability in Denmark would be something different than sustainability in, for instance, Spain. Sustainability would thereby be a flexible culturally defined concept, in which political trends could be built in. Hillerød Municipality (2015) supported this idea by stating that sustainability is a very broad concept, which has to be fitted to the context. In some places of the world there is a focus on basic survival, therefore social

sustainability is the primary focus. However, in Denmark, due to the huge use of resources, the environmental aspect is in focus. Furthermore, they mentioned that at a local level, it could be relevant to ask oneself what sustainability was in a specific part of the city.

Furthermore, White and Noble (2012) identify a need for a description on the approaches to sustainability in the SEA framework, which should be made with focus on how to choose and operationalise these approaches. Furthermore, there should be provided guidance on how to operationalise broad sustainability goals. They put emphasise on the need for evaluation of alternatives, since this is considered a defining feature of SEA's ability to identify sustainable options. However, as mentioned earlier, the use of alternatives is challenging to the municipalities and does not fit well with the municipal reality (Hillerød, 2015). As mentioned in Chapter 5: The implementation of SEA, SEA secures that the plan does not lead to a worsening of the baseline condition, which goes well hand in hand with the definition by WCED of sustainable development. Nevertheless, it is a common conception that there might be a need for extra engagement if SEA should lead to sustainability, such as for instance a critical approach to the planning practices. As pointed out by Knudsen (2015), SEA does not provide the municipalities with tools for improving the plans, but is rather a procedure for securing that the current state is not degraded. However, it could show to be a necessity to improve the plans regarding environmental effects if the goal is to promote sustainable development.

Oftentimes the sustainability objectives are regarded as a set of social, economic and environmental goals, which fits well with the definition of sustainability by WCED. However, these types of goals might be difficult to comprehend, especially when addressing complex planning problems. Furthermore, they show to be difficult for the municipalities to grasp and evaluate. One municipality stated in the questionnaire that the responses to the questions depended on the definition of sustainability (Comm., Question 23M, 2015).

Lastly, the understanding on how to facilitate the institutional learning concerning sustainability through SEA applications should be improved (White & Noble, 2012). This action is interesting in connection to the Danish implementation practices regarding SEA. One of the points, White and Noble (2012) emphasise, is that institutions are unwilling to change and adapt. In connection with this they identify "[…] an inability or lack of willingness to examine past failures in decision-making and decision-makers themselves are sometimes unwilling to tackle complex sustainability issues through SEA" (White & Noble, 2012, p. 64). The analysis showed that the feedback loop of the implementation model in the case of SEA implementation in Denmark was greatly affected by decisions made by NMKN, while no municipalities mentioned that they used internal monitoring and evaluation.

In the interviews municipalities, such as Hillerød (2015) expressed the interest in sustainability. They mentioned that this possibly could be integrated in the SEA procedures. However, it seemed as if sustainability often was handled through other approaches than SEA. As described in Chapter 1: Introduction, some municipalities have developed their own sustainability tools. As it was mentioned in Chapter 5: The implementation of SEA, Aalborg Municipality (2015) strived to use SEA more ambitiously concerning sustainability. They achieved this by extending the screening so that it also includes the municipal strategies regarding climate, just as Egedal Municipality (2015) also did. Hillerød Municipality (2015) also expressed that they would find it beneficial to address sustainability in the SEA procedure.

The discussion of White and Noble's (2012) actions showed that the challenges met when striving to promote sustainable development through SEA have several different implications and origins. Furthermore, there is a need for actions on different levels of the Danish implementation system. It seems as if it there is a need for a general update of the concept of sustainability in the legislative objectives, but

likewise the municipalities need an updated approach to addressing sustainability goals and to learn from their failures regarding SEA.

7.2 The Potential of SEA

The analysis and the discussion on the implications of the implementation indicated that the practices and approaches regarding SEA in the municipalities vary. The municipalities have found different solutions on how to integrate SEA into their planning practices, and some have shown more commitment than others. Still, as it became clear from the analysis and the effectiveness evaluation, the way they use the tool has a lot of common characteristics. In this chapter the pitfalls and potentials of SEA as a tool will be discussed.

7.2.1 The SEA process

It seems there is a long way from the potential of SEA recognised in academic literature to what the policy's requirements, and an even longer way to the reality concerning the use of SEA in the Danish municipalities.

The legislation is rooted in a very rational approach, where there is a direct link between better decision-making and rational information on environmental effects (Stoeglehner, 2010). The policy calls for a description of the relevant environmental issues in order to ensure some more environmentally friendly plans. However, as described in the evaluation of effectiveness, it seems as if decisions are sometimes made before the necessary environmental information is in place, leaving SEA with only limited influence on the actual plans. The academic world seems to embrace a more collaborative and communicative planning approach, which belongs under the *Strategic Spatial Planning*-label, where the planning is regarded as a governance process (rather than governmental). This implies a focus on the stakeholders, who take part in the decision-making process (Albrechts, 2004). In this light SEA's potential lies within the process of SEA and not in the final SEA-report, but as mentioned in the section 2.4 State of the art, the definition of this potential is still very ambiguous.

One of the main concerns, presented in the evaluation, is that SEA seems to have been started too late in the planning process for it to have any actual effect. This implies that only the screening is carried out parallel to the planning process, but even the screening is not consequently started up early in the process. In order for SEA to reach its full strategic potential, the screening, scoping, and alternatives should be executed before settling on a final draft for a plan. One of the main problems is that, when the plan takes a point of departure in a very settled framework, it limits the possibilities for changes and the use of alternatives. In an ideal world, the planning framework for any spatial plan should go through a SEA. When for instance *Fingerplanen* is setting the framework for the municipal plans in the Copenhagen area, which then again set the framework for the local plans, all plans in this planning hierarchy should have been assessed in accordance with the demands of SEA. This way, the environmental impacts are considered on all levels of the hierarchy. It becomes an issue when plans at the top of the hierarchy are not assessed by SEAs, which has been described earlier and, additionally, COWI found to be an issue for ministries' plans and programmes in Denmark in 2009 (COWI, 2009). This issue arises due to the fact that the ministerial plans compromise the environmental framework for other plans further down in the planning hierarchy. The considerably strategic decisions are often made at the top of the planning hierarchy, thus local plans are bound by former decisions and therefore have limited options regarding alternatives. Local plans are often found to be in the grey area between a plan and a project, thus SEAs of these plans almost end up as small EIAs. In continuation hereof, Knudsen (2015) stated:

> *"I think it makes more sense to use the act on the plans being at a general level, on sector plans, and on municipal plans […]"* (translated from Danish)

The paradox here is that the general opinion among the municipalities was that they found it easier and more rewarding to make SEAs on local spatial plans than on abstract and fluffy plans, such as strategies and the quadrennial municipal plans. They claimed the reason for this was that the environmental impacts are more tangible to assess for concrete plans, such as local plans.

> *"The municipal plan is on such a general level, which makes it difficult to prepare a SEA, because it is a flexible, which encompass matters we are not sure of yet"*
>
> (Kerteminde Municipality, 2015, translated from Danish).

This might be a consequence of the fact that the municipalities' experiences with impact assessments origin in EIA practices. EIA assesses already planned projects, thus the procedures and findings are comparable to those for SEA made on concrete and less flexible plans. Later on in this section the main implications of the two tools, EIA and SEA, will be compared.

7.2.1.1 The screening

As discussed in the evaluation of effectiveness, the screening has attained the status of being the most effective part of the tool. The flexibility of the screening has made it accessible for the planners to implement in the existent planning practices. Whether this is because, the screening has a quality as a discussion tool, or because the screening embodies the minimum effort and approach to the implementation of SPPA without having to significantly change existing planning practices, can be discussed. Either way, the reality is that the screening phase is where SEA ensures dialogue and environmental considerations, thus it is interesting to look into the screening's potentials. If the role of SEA is to identify and map undesired consequences of the planning, and then adapt the plans accordingly, the screening seems to be the right approach, but if SEA is intended to reach its full potential, valuable elements of SEA are lost.

The first challenge arises in the determination of the division of impacts, which are either significant or not. This determination of significance is entirely based on the practitioner's resolution, which means that the decision is based on a subjective estimate. This estimate can very easily be influenced by the practitioner's background, framing of plan, and intuition (Lyhne & Kørnøv, 2013). Furthermore, according to the implementation theory, the implementation can be affected by the interests of the municipal employees, and the analysis showed that in some cases the employees were hesitant in flashing the weak points in the planning. On the other hand, as the analysis of the employees' capacity has proved, their knowledge on local conditions was beneficial regarding the preparation of SEAs. Additionally, the planners possess professional knowledge and make use of the knowledge within the municipality through collaborative work, thus they can be regarded as the ones with the best qualifications in order to handle the responsibility.

SEA screenings require quite a lot of assessments, as well as knowledge and information on a lot a different aspects. This part is handled rather well in most of the municipalities, where collaborative planning across sectors is slowly making its entry. The problem is that the process of changing plans is not being well documented or published (besides the publication of the final decision), which means that there is no transparency or openness to this process. Furthermore, if the screening is carried out with the result of no identified significant impacts, there will be paid no further attention to it and all the information obtained will not get any further than the practitioners within the municipality. It leaves most of the SEA-work in the municipalities unevaluated and experiences are left unshared. Without taking the freedom, flexibility, and liability from the planners, a more systematic approach to significant impacts, as well as a higher transparency on the changes and decision made in the process, would improve the

potential of the screening. Kjellerup (2015) stated, that the whole SEA process would have an improved potential, if the iteration between planners and environmental practitioners was documented better.

The current practice, where the screenings do not lead to full SEA-reports, means that neither the public nor the politicians get any insight into the environmental affairs during the process (Stoeglehner, 2012). Ringsted Municipality (2015) mentioned that it is a win-win situation, when the screening does not lead to SEA, since it is both beneficial when it comes to minimising the environmental effects and is less resource intensive. Furthermore, Kerteminde Municipality (2015) elaborated that this situation simply means that they prepare plans without significant environmental impacts. The elements of the screening are by Hillerød Municipality (2015) regarded as being part of good planning practices, thus it could be assumed that the situation where the screening does not lead to a full SEA-report is a result of good planning. In light of the fact that the screening is being used rather effectively in the municipalities, a suggestion could be made regarding documenting it more thoroughly and openly.

Kjellerup (2015) mentioned that the municipalities "screen plans, they should not screen [but do a full report on]. Either because they do not want to or because they do not understand the legislation they administrate – and possibly also due to the fact that they are under a lot of pressure and do not have time enough" (translated from Danish). The municipalities found the legislative demands to be complicated and are possibly unsure on the requirements for a full SEA-report, and in continuation hereof there is some disagreement concerning which part of SEA requires most resources. Some municipalities already obtain a lot of information in the screening process, which means that in some cases documenting the screening might be 90 % of a SEA-report. Nevertheless, only performing a screening also implies that the alternatives never really get introduced to the decision-making, because they are identified in the phase after the screening process. Therefore, if the conclusion to the screening is that there are no significant impacts, there is no reason for searching for alternatives. For this reason, if the screening should somehow replace the full SEA-report, it would require a more open process, as Cashmore (2015) stated:

> *"The screening can only substitute the full report, when it is done carefully. There should be a report summarizing the reasons why, and what changes were made. It should not be done behind closed doors. There needs still to be participation opportunities in this practice."*

A more radical approach to the SEA practices is simply to make the preparation of a full SEA-report compulsory, and thereby go directly to the scoping. By this approach, the scoping would preferably be done parallel with the planning process (as the screening is intended to be now), and the actions would be better documented (Stoeglehner, 2007). However, this would also entail a lot of paperwork on plans, which do not require a SEA-report. Another option is to make the screening less extensive, but more sensitive to impacts, so it is only plans that do not impact the environment for certain, which are solely screened. The problem is, that the current practices of just meeting the law requirements indicates that fewer requirements to the screening process would only result in less SEA procedures, which would be the opposite of the intended.

Hillerød Municipality (2015) mentioned that "[…] a tool can kill the creativity" (translated from Danish), which is also an important point to have in mind. If everything needs to be documented, it might hinder the flexibility of the screening process, which seems to be the reason it has been well received by the municipalities. Many of the municipalities mentioned the "swiftness" of the screening as a benefit in the planning process, which indicates that it can be hard to find the balance between an efficient tool that the municipalities will use, and a tool which actually makes a difference.

7.2.1.2 Alternatives

The strategic part of SEA lies to a large degree within the assessment of alternatives, which in local spatial planning are mainly alternatives to the sites for plans and projects or alternative technical solutions. Introducing alternatives into the decision-making process gives SEA the possibility to shift from merely mapping and minimising impacts, to be a part of a more proactive process, where sustainable solutions can be chosen (Stoeglehner, 2012). Within this part of the process lies the possibility to integrate SEA with planning practices and use the alternatives to find environmental benefits, instead of only securing the baseline of planning (González et al., 2015). But as the analysis indicated, the use of alternatives is almost non-existent in the SEA processes within the municipalities. According to the municipalities, this is due to the fact that it does not fit well with the planning reality. Hillerød Municipality (2015) stated that it is difficult to outline multiple alternatives regarding, for instance, local plans, which are already bound by a bigger framework (as for the Copenhagen area; Fingerplanen), which limits the possibilities, thus making it difficult and sometimes redundant to consider the alternatives.

For alternatives to play a significant part in the SEA process, they must be considered prior to the finalising of the plan. The problem is that the municipalities seem to wait to start the SEA process until the point, where a rather well-established idea for a plan is made, instead of at the beginning of the planning process. As mentioned in the beginning of this section, the nature and reality of local planning often mean that site alternatives are not a possibility, since these land uses should have been allocated in the municipal plan. Nevertheless, alternative technical solutions should be possible to identify. Some municipalities mentioned that they already consider the environment in their general planning practices and are thereby reaching the best alternative for planning through the already established planning practices. However, this, as it was likewise the case for the screening, poses the issue of lack of transparency in the planning processes, as Cahsmore (2015) stated:

"Even if the system is operating effectively, even if the municipalities are doing a great job with environment, I think the transparency of the system is an issue"

7.2.1.3 Communication

In order to influence the decision-making, SEA must take on the role of a communicative tool, which can bring environmental values to the table in the decision-making process. To do so SEA must be flexible instead of being a streamlined sequence of steps (Vincente & Partidario, 2006). There is a difference between a tool that only does a technical assessment and a tool, which is embedded in the strategic decision-making context, and as Cashmore stated (2015) "it is just reality that the decision-making is different from this kind of technical model that we use for environmental assessments".

Runhaar and Driessen (2007) did a literary review on SEA's impact, which indicated that *a flexible SEA that fits into the decision making context* and *stakeholder participation* were the two most mentioned factors for contributing to the impact of SEA. As already discussed, the screening does seem to contain some of the required flexibility for the tool to fit into a decision-making context. Runhaar and Drissen (2007) also found that stakeholder participation was significant, when the stakes were high; meaning plans which could affect stakeholders' norms and values, or when plans had a high level of uncertainty regarding impacts and the cause of problems. Conversely, this also means that the stakeholders' involvement in more structured and already identified problems which are most common in municipal spatial planning, is not as needed for solving the environmental problems (Runhaar & Driessen, 2007). The analysis revealed that the municipalities do involve stakeholders, when they find it necessary.

The analysis showed that the politicians rarely engage in the SEA process, because it is seldom noteworthy enough to reach the political table. Hillerød Municipality (2015) also stated that SEA is a

checklist and a decision-making tool, where a selection of alternatives should be identified, but this is not always the way the municipal reality works. The analysis also revealed that public participation in SEA is rare. The municipalities do not get a lot of response regarding SEA, and hearing statements are often directed at the plan. This lack of interest might be caused by a lack of awareness among the citizens towards the opportunity of being involved in the planning processes or by a lack of knowledge and understanding of the environmental impacts identified through the SEA. Nevertheless, a likely reason could be that the majority of citizens in Denmark simply trusts that the planners are competent and well-aware of implications in relation to the citizens. Furthermore, they could be relying on the legislation to ensure the environment and to regulate the framework for planning practices. However, when the planners become the primary decision-makers and the main protectors of the environment, transparency, as mentioned before, becomes extremely important.

Some of the municipalities consider SEA to be a useful tool for informing the citizens on environmental issues and communicating the thoughts behind decisions made in this regard. Egedal, Aalborg, Vejle, and Aarhus municipalities (2015) emphasised the communicative value as a significant advantage of SEA. Egedal Municipality (2015) said, that SEA:

"[…] has visualised the problems for the citizens" (translated from Danish)

It therefore seems that one of the great potentials of SEA is to contribute to a more open planning process with the possibility of communication and participation, which could lead to more transparency.

7.2.1.4 The planners

From the above discussion it is fairly evident that the potential of SEA in the Danish municipalities can be found in SEA's role as an integrated decision-making tool for practitioners, which can be used in the planning process. Nonetheless, for this to work, the planners must embrace the tool as well as take ownership. Kjellerup (2015) also stated that the planners need the right mind-set for SEA to work as intended. Stoeglehner et al. (2012) argues that the elements of SEA are perceived by the existing planning practices, and that SEA as a maximum result can make minor changes to the established norms. If the SEA-policy does not already fit into the work routine, only the minimum requirements would be met. However, if SEA is interoperated into the planning process, and the planner can recognise the potential, it is possible to innovate the practices. The planner's ownership of SEA is thereby the key to its effectiveness (Stoeglehner et al., 2012). As the analysis revealed, there seem to be a clear division between planners in the municipality concerning their perception of the usefulness of the SEA legislation. One part of the planners seemed to have the opinion that it is a redundant policy, which does not bring something new to the table, and as a consequence the SEA process seems to have no effect in the municipalities. Others had recognised the potential of SEA and actively attempted to implement it into the existing practices, and some had even made changes to their working procedures. The interview results proved a connection between the level of commitment to SEA and its effectiveness. It should, however, be mentioned that some municipalities, which regarded SEA as an extra inconvenient task could recognise some of its potential regarding communication value and its ability to systemise and secure documentation of environmental considerations. It is also important to note that from the questionnaire responses and the interview with Vejle Municipality (2015) it became clear that even though SEA is not effective in the municipalities, the planners still believe that they are reaching the goals of SEA through other legislations and their established planning practices. However, it is important to be aware of the delicate balance between the integration of SEA into the planning process, and ending up with one practitioner conducting both spatial plans and SEA. As both Kerteminde and Aarhus municipalities (2015) mentioned, too much involvement and ownership of a plan can cause a conflict of interest with the aim of the SEA process. The cross-

sectorial collaboration is thus extremely important in the SEA process, as well as a susceptibility to inputs and changes from both the practitioners who are responsible of the plan, and the practitioners who are responsible of the SEA. Aarhus Municipality (2015) mentioned that this can be a challenge, because the organisation of the municipalities is very sector divided. However, the results from the interviews suggested that the municipalities are taking steps towards an improved internal collaboration.

7.2.2 SEA and EIA

As mentioned earlier, the EIA-legislation is included in PA. The interviewees were asked to compare EIA and SEA in order to give an impression of the pros and cons of the two tools. This comparison created a basis for a discussion of SEA's usefulness and potential in relation to EIA.

The municipalities had quite similar opinions when they were asked to compare the two tools. EIA was described as having a deeper meaning (Vejle Municipality, 2015), being more useful (Kerteminde Municipality, 2015; Ringsted Municipality, 2015) and more concrete and fact-based (Egedal Municipality, 2015). Whereas SEA was considered to be more "fluffy" (Ringsted Municipality, 2015 & Knudsen, 2015) and more superficial (Egedal Municipality, 2015) in comparison. Nevertheless, SEA had the benefit of being implemented earlier in the planning process, and thereby becoming a strategic element, which could be used for making changes to the plans (Aarhus Municipality, 2015) and to prioritise holistic planning (Knudsen, 2015). Furthermore, the SEA approach could seem more flexible and is less resource intensive (Cashmore, 2015).

Kerteminde Municipality (2015) reckoned that EIA is more detailed, thorough and comprehensive, since it covers all aspects, while SEA only covers the significant ones. They find that SEA becomes unnecessary when they do a full EIA on the same project. However, Kerteminde Municipality (2015) emphasised that SEA should not cover all aspects, since there are some aspects, which can easily be assessed, such as whether or not there are amphibians in the middle of the city, and these therefore become irrelevant to document. Aarhus Municipality (2015) likewise mentioned it as a positive thing that SEA does not cover all elements, but focuses on the significant ones. Thereby it is less likely that the significant and important aspects drown in information. Furthermore, it could prove to be problematic that EIA includes everything, since it thereby loses part of its communication value, in the sense that people do not want to read a lot of pages without any significant findings (Aarhus Municipality, 2015).

As the analysis revealed, the value of SEA as a tool for communication was strongly emphasised by the municipalities. In Egedal Municipality (2015) they experienced more awareness among the public regarding EIA. This could possibly make up for the longer reports. However, in Aarhus Municipality (2015) they experienced problems in connection with public meetings on the plans, since SEA is not an integrated part of the plan. This sometimes leads to debates on elements of the plans, which are already described by the SEA. Furthermore, SEA is not available at the planning system, so even if the citizens want to look into it, they will only find the plan (Aarhus Municipality, 2015).

The approaches to the two tools differ, even though they are regarded as being quite similar (Aalborg Municipality, 2015). In Aalborg Municipality (2015), EIAs are carried out by the environmental department, and the process is less formalised compared with the SEA procedure. According to Knudsen (2015), EIA can be easier to grasp, since it covers all aspects and it is therefore not up to the employees to determine which elements are relevant. Furthermore, Ringsted Municipality (2015) mentioned that there are better guidelines for the EIA procedures, compared to the guidelines for SEA, which, according to the analysis, were outdated and therefore not very useful in the current SEA practices. As mentioned earlier, the municipalities also regard SEAs on smaller, concrete projects to be easier to prepare, which could be due to the fact that they resemble EIAs.

Cashmore (2015) mentioned that the relevance of EIA and SEA naturally depends on the level of planning addressed. The SEA approach is relevant for strategic plans with wider options, which cover bigger scales, while the EIA approach makes sense for projects such as roads or sectorial plans (Cashmore, 2015). Vejle Municipality (2015) mentioned that EIA also differs from SEA in the sense that it covers both the construction and operation phases in relation to a project.

It is clear, that the two tools are regarded as similar in their focus, but the approaches differ remarkably and so does the values connected with them. The two tools do therefore not seem to supplement one another very well. If EIA was taken out of PA it would be easier to create synergies between the two, according to Aarhus Municipality (2015).

According to Cashmore (2015), there is a tendency to overrate the benefits of both tools. He emphasised, that they ultimately serve different roles, and their outcome depends on how they are used, but "[…] neither of them are well-used in the majority of cases". He mentioned that, sometimes they definitely do work and sometimes there are developers who are enthusiastic about using them and use them wisely, but in the majority of cases, the effects are marginal both for SEA and EIA.

7.3 Perspectives on SEA

In this study the focus has been on the implementation and use of SEA in a Danish municipal context. However, SEA is an international tool used in several different countries and on different hierarchical levels. This section puts SEA in perspective by firstly looking at the European context of SEA and secondly to try and discuss the future potential of SEA.

7.3.1 European context

As described in Chapter 1: Introduction, SEA has gone through a worldwide implementation. In this section some implications of the implementation and practices regarding SEA in a European context are shortly discussed. The implementation of SEA and SEA procedures in other European countries are interesting to look into to get a perspective on the Danish aspects described in the two previous sections.

The implementation of SEA was described in 7.1 Implications of the implementation, where it was mentioned how there were conflicting opinions on the matter of the degree of implementation in Denmark. Some municipalities expressed that the implementation was an over-implementation in the sense that environmental considerations already constituted an important and sufficient part of the planning practices. Furthermore, Cashmore's (2015) knowledge on the implementation in other countries along with Kjellerup's (2015) reflections on the Danish implementation proved that the implementation in Denmark had not been the most ideal.

Kjellerup (2015) mentioned that the municipalities too often avoid SEA by only doing the screening. According to Cashmore (2015), this is not the case in the UK, since they know that most of the bigger plans are in need of a SEA, so as soon as they start those processes they are well aware that SEA is needed. Ideally they are thereby on track with the SEA procedures and start straight away. Only very small plans are in a grey area (Cashmore, 2015). There could be several reasons for the lack of engagement in a Danish context. As mentioned earlier, the limited amount of allocated resources and engagement by authorities could be contributing factors.

Another difference is that there in the UK are several NGOs, such as RSPB (Royal Society for the protection of Birds), which is both popular and well-funded. They push the issue of birds, and another agency pushes issues of water quality regarding SEA considerations. Thus, there is a mix of actors that push a lot of

issues, and the only aspect that suffers is cultural heritage. This is not the case in Denmark (Cashmore, 2015). The lack of interest might be a contributing factor concerning the engagement shown by the municipalities and other institutions.

7.3.2 The future of SEA

We have in the previous sections discussed the implications of the implementation of SEA, the potential of the tool and the municipalities' approaches. We have furthermore shortly compared these aspects to practices in other countries. But one element is still undiscovered; namely the role of SEA in the future. This part will discuss the potential of the current SEA practices and the possibility of improvements in connection with the use of SEA in future planning by using the previous findings and the statements from interviews.

It might be argued that the EU-directive is not the right way to handle SEA, and according to Cashmore (2015), there might be an element of truth to that. He claimed, however, that the alternatives would fall at the same stumbling blocks, due to politics, reluctance to do things, and adequate resources. If the implementation should be successful, and it was strived to make this happen, it is necessary to have more people in place with specialist knowledge. Furthermore, there should be a commitment to keep these people in place, to train new ones and to make sure that these people have the sufficient time to do their jobs.

Aarhus Municipality (2015) mentioned, that they had to get used to the SEA legislation, since it is an expression of EU's opinion. Furthermore, EU has the opinion that especially EIA is one of the most important tools for securing the environment, and despite some resistance it was still implemented (Aarhus Municipality, 2015).

Cashmore (2015) likewise said that the practices regarding SEA are settling down as a routine object in environmental policy. It has received global status and is used all over the world, and it is there to stay for at least a while, regardless of whether it is effective or not. According to Cashmore (2015), some changes will happen, however, he assumed that they will be rather insignificant. Furthermore, he claimed that there will still be disagreements within the community regarding elements of SEA, such as time spent on the procedures and the monitoring.

According to Tetlow and Hanusch (2012), "[…]SEA is still evolving, with growing expectations of what it can deliver" (p. 20). Aarhus Municipality (2015) regard EIA as something that continuously has to be improved, even though it has already improved due to gained knowledge, which was also the experience of Knudsen (2015). Concerning SEA, it is claimed that SEA is evolving towards a more proactive process of developing sustainable solutions. Furthermore, despite it falling short in terms of the current objectives, it has potential to contribute to the decision-making (Tetlow & Hanusch, 2012). The analysis and discussion revealed that SEA especially had potential regarding communication and transparency. Cashmore (2015) said that "there are a lot of ways that SEA can be improved but I think the participation and monitoring are the most strategically important". Aarhus Municipality (2015) complemented this quote by saying that some of the planners of the old school might not approve of this approach, which includes openness and transparency, because they would have to admit to the fact that the planners do not have monopoly on the truth.

Almost 11 years after the implementation of SEA in Denmark, it seems that a lot of the challenges are still the same concerning the implementation of SEA. As discussed in the previous sections, this could seem to be a result of a poor implementation, lack of engagement from the ministry, in some cases lack ownership

from planners, and that SEA is a tool, which does not fit well with the municipal practices in the sense that it brings nothing new to the table.

Chapter 8

Conclusion

This chapter presents the findings of this study. The analysis of the Strategic Environmental Assessment (SEA) implementation process pointed to a number of relevant factors. The evaluation of substantive effectiveness showcased some of the more problematic features of this process and summed up SEA's overall effect and, furthermore, the discussion presented some implications in relation to the implementation and SEA's potential and added some perspectives on the use of SEA.

It is in this chapter strived to answer the research question stated in Chapter 1: Introduction. The research question is:

How has the implementation of SEA in Denmark affected the practices and effectiveness in the municipalities and what are the potentials for improving these?

This section is divided into three parts, which each address the three sub-questions, which were likewise presented in Chapter 1: Introduction. Lastly, some recommendations on SEA were made.

The implementation of SEA

The analysis done according to the integrated implementation model presented by Winter and Nielsen (2008) revealed a number of relevant factors in the implementation process. These factors are presented below and will be elaborated further in this section.

Policy	**Implementation**	**Results**
- Guidelines - Allocated financial resources - Legislative demands	- Internal collaboration - Capacity - External involvement - Engagement and interests	*Performance:* - Changes in plans - Content of the SEA report - Public participation - Political goals *Effects:* - Environmental effects

First and foremost, the policy design was met by critic. The guidelines published by the Danish Nature Agency in 2006 showed to be outdated. Furthermore, the resources allocated by the governing institutions in connection with the SEA implementation contributed to a limited capacity for the SEA preparation process within the municipalities.

The analysis showed that the municipalities in general found the legislative demands to be achievable, relevant, and applicable. However, they were also found to be complicated. It was, furthermore, stated that the legislative objectives to some degree were covered by the Danish Planning Act, and SEA was therefore sometimes regarded as an extra task.

The discussion elaborated further on the implications of the implementation of both the EU-directive and the SEA on Plans and Programmes Act in a Danish context. It became evident that some problems did arise in connection with the implementation in both cases. This study did, however, not dig deeper into the implementation of the EU-directive, but did merely use it as a frame for understanding the further implementation of the SEA on Plans and Programmes Act. The discussion of the implementation found that the reception of the act within the municipalities could be problematic due to some of the decisions made in regard to the policy design, as it was likewise pointed out in the analysis.

The analysis of the implementation process gave an impression of the work carried out within the municipalities including the need for cross-sectorial collaboration and external involvement. It furthermore, elaborated on the effect of the fieldworkers on the implementation.

The internal collaboration was mainly done through cross-sectorial teamwork. This type of teamwork showed to be beneficial in the sense that it gave the municipalities the opportunity to fully utilise the knowledge of the institution, which is necessary in order to cover the broad environmental notion of the law. The knowledgebase within the municipalities was often seen as sufficient in regard to many aspects of the SEA preparation, and that many municipalities stated that they primarily strived to prepare their SEAs themselves. However, it was sometimes necessary to involve external consultancy companies.

The external consultancies were used for preparing full SEAs or inputs on areas, in which the municipality lacked competences. The interviews pointed to some common areas for which the municipalities felt they needed extra knowledge. These were often traffic and noise. The municipalities did also meet some challenges in regard to the involvement of consultancies. They pointed to the long reports done by the companies and the lack of local connection, which caused the reports to be difficult to communicate and distanced. Nevertheless, the employees from the consultancy companies did not agree to this. Kjellerup (2015) even stated that the municipal reports often lack detail.

The external involvement did not only show whether or not the municipalities complied with the law on involving actors affected by the plan, but also the degree of involvement. It became evident, that the municipalities met some challenges in regard to involving the governing authorities such as the Danish Nature Agency. The municipalities claimed that it was difficult to get their opinions on matters in regard to SEA. However, Kerteminde Municipality (2015) experienced that they did get responses in regard to the coastal protection zone. The municipalities, furthermore, involved the neighbouring municipalities and other relevant actors, which, in accordance with the law, should be heard in regard to SEA. It, however, also seemed as if this involvement could be based on free will and the wish to inform others on the municipality's planning.

The engagement and will of the fieldworkers seemed to be influenced by their initial considerations in regard to planning practices. It became clear, that many municipalities regarded the considerations made in the SEA process as normal good planning practice, and consequently found no value in SEA.

Both the analysis and the discussion pointed to one common thing; that the outcomes and effects of SEA depend on the engagement and will of the fieldworkers. This idea is especially supported by the expert interviewees but is also evident through the experiences of the municipalities. One of the dilemmas for the fieldworkers concerning SEA was the critical approach to their own work and their discomfort in flashing the weak points of the planning. This showcased the conflict of interests, when it came to professionalism and the wish to do a good job.

The management within the responsible departments could likewise affect the approach to SEA. Aalborg Municipality (2015) had experienced that a head of department had changed the procedures to the better through engagement in SEA. However, it was not the experience of any of the municipalities that the engagement in SEA reached beyond the technical apartments in terms of management.

The analysis revealed some of the most significant results of the implementation. These were divided into performance and effects according to the implementation model.

The performances regarded the effect of SEA during the planning process, such as changes in plans and public participation. These elements were elaborated further in the discussion on the potential of SEA, which will be presented later in this chapter. Furthermore, the content of the full SEA-reports should reflect the relevant aspects of the area, which the plan covered. The interview and questionnaire results showed that some factors were easier to include, such as protected environmental zones or factors, which were quantifiable. Another performance of SEA was seen in SEA's ability to secure political goals in areas such as environment, climate, and sustainability. The analysis revealed that this only happened to a small degree.

The effects of SEA mainly addressed the legislative objectives, such as securing the environment and promoting sustainable development. The analysis revealed that the municipalities did not evidently find that these objectives were reached through SEA.

The analysis of the feedback loop gave an impression of the development of SEA practices over time and the factors that have been contributing to this development. The analysis of the feedback loop indicated that especially the decisions made by Nature and Environmental Appeals Committee were the basis for the revising of the municipal practices, while internal monitoring and learning primarily were mentioned by the employees at consultancy companies. Egedal Municipality (2015) reckoned that their monitoring was rather insufficient and could be improved. This could be the reason for the common absence of this aspect in regard to the feedback and internal learning.

Substantive effectiveness

The evaluation of substantive effectiveness took basis in the analysis. It became evident through the evaluation of the different aspects, that SEA did not live up to its objectives, according to the municipalities. Especially the aim of promoting sustainable development was under heavy fire from the interviewed municipalities. The questionnaire did to a large degree support their statements, but did however also indicate that sustainability could be promoted to a small degree, since only few had picked the option that the SEA reaches this aim to no degree at all.

It can likewise be concluded from the expert interviews that SEA in itself does not promote sustainable development, nevertheless the experts pointed to the option that engagement and the approach to SEA could possibly lead to the promotion of sustainability. Additionally, the legislative objective of promoting sustainable development was discussed in regard to whether or not the concept of sustainability was useful and comprehensible. This discussion revealed that sustainability has slowly become detached from the initial ambitions connected to the term and that it has, furthermore, become a buzzword with the need for an update.

Potential of SEA

The implications of the result of the evaluation were discussed and the potentials of the elements of SEA were further elaborated. It was also strived to clarify on SEA's ability to not only comply with the legislative demands but also to address complex planning problems.

The discussion of the implications of the implementation revealed that there could be a need for new guidelines and possibly a revised version of the legislative demands. Especially, when it came to the concept of sustainability, it seemed as if there was a need for an updated definition.

The evaluation of substantive effectiveness and the discussion revealed, that SEA had potential in regard to changing the plans. This was often done through the screening process, and the planners' regarded it as a good thing, since it meant that SEA minimised the significant environmental effects of a plan. This was especially found to be connected to the screening phase, whereas the full SEA-report had less evident effect on the plans.

Furthermore, the discussion showed that SEA especially had potential in regard to the openness and transparency of the planning process. These elements were important regarding public participation. This was also one of the areas in which SEA, if carried out the right way, showed to be rather effective.

The discussion revealed that the planners' ownership is the key to effectiveness. This goes well hand-in-hand with the basic idea of the implementation theory, that concerns how the planners' engagement, will and interests greatly affect the implementation, which is in this case also the continual use of SEA.

The comparison of SEA and Environmental Impact Assessment (EIA) presented the implications of both tools, according to the municipalities. It became clear from the discussion that the municipalities preferred EIA since it is a more concrete tool than SEA, which was on the other hand regarded as "fluffy". The potential of SEA in comparison to EIA showed to be the strategic element in the planning practices, and that it was more flexible and less resource intensive.

Whether the SEA practices have improved or not is difficult to determine through the interview results. The future development of SEA was discussed taking basis in the statements by the interviewees. This discussion indicated that SEA is now an established element in the planning practices, and that changes will happen slowly. Some objectives for transparency, participation and monitoring could be identified, which were well supported by the statements of the analysis on SEA's usefulness in regard to the openness and transparency of the planning process along with the lack of sufficient monitoring.

This study found that it made sense to investigate the SEA process and the outcomes in that relation, and to be less preoccupied with the changes SEA cause over longer time frames, since it is here SEA's full potential is most evident.

8.1 Recommendations

Taking basis in the findings of this study, 4 recommendations for future SEA practices and implementation improvements have been made. These recommendations are aimed at SEA practice in the municipalities but also address the policy formulation and the involvement of governmental institutions.

The first two recommendations regard the findings in connection with the investigation of the implementation. They mainly address the governing authorities' commitment. The last two concerns the continual implementation of SEA within the municipalities.

1. **Commitment from (governmental) authorities**
   This commitment includes the need for engagement in training of SEA practitioners and studies in SEA practices. The continuous SEA production and thereby implementation is affected by the feedback loop as it was presented in the analysis. However, it did not seem

as if this feedback process brought much improvement to the implementation, instead it indicated that the municipalities make use of the Nature and Environmental Appeals Committee's decisions, which point to the fact that they strive to comply with the legislative demands rather than to improve the internal procedures. As it was mentioned in the that an engagement from authorities could possibly open up for an increased municipal engagement. The engagement of the governing authorities is, furthermore, expressed through the legalisation, which will be elaborated below.

2. **Revising of legal framework and allocated economic resources**
   This recommendation is strongly connected to the one above. The legislative objectives of SEA showed to be rather complex especially because of the concept of sustainability. The concept can be useful due to its flexibility, but since so many municipalities chose to address sustainable development through the use of other tools, it could seem as if it is not clear how sustainability and SEA work together.

   The allocated economic resources showed to be insufficient, according to both municipalities and experts. This could be interpreted by the municipalities as lack of engagement and will of the authorities and was therefore not beneficial for the implementation process and everyday use of SEA.

   Furthermore, it could seem as if guidelines on the methods for SEA could be useful. The current guidelines were clearly outdated and therefore not useful. Such an update would probably especially show to be beneficial in connection with an update of the overall legal framework.

3. **Commitment within the municipalities**
   The municipalities must show commitment to integrate SEA into the planning practices and to further develop the tool in order for it to reach its full potential. The integration of SEA into planning practices entails an early SEA start-up, which supports the strategic element of SEA and the ability of SEA to support decision-making.

   As mentioned in the conclusion, both the analysis and the following discussions pointed to the importance of the fieldworker's engagement and commitment. The municipalities, which were determined to use SEA proactively and reflected on this in a more profound manner, were also the ones that seemed to get a better outcome.

4. **Make use of SEA's potentials**
   This study showed that SEA has a potential of changing plans in the screening phase. This is one of the aspects of SEA, which proves its strategic value. This could show to be beneficial in planning practices and in cases, where there is a need for a systematic assessment of the environmental considerations.

   SEA especially had potential in regard to communication value in connection with the planning process. Furthermore, SEA had the ability to make the process more open and transparent to other authorities, institutions, and citizens.

Chapter 9

Future work

If this study was to be continued, there would be several interesting aspects to dig deeper into. This section presents some of the implications, which could have been interesting to investigate further. The aim of this section is not to set up full research strategies for other studies but merely to point to interesting aspects of this study, which could be covered by further studies.

9.1 SEA implementation

An interesting aspect is the SEA implementation, which has been investigated in this study through the integrated implementation model presented in 3.1.1 The integrated implementation model. In this study the focus has mainly been put on the dynamics of the implementation. It could, however, have been interesting to dig deeper into the factors of the model.

First and foremost, the policy formulation and design could have been investigated further by focusing on collecting data from the governing authorities, such as NST. This would also have given a more thorough study of the first level op implementation as described in Chapter 3. NST was contacted for an interview in connection with this study, but unfortunately they did not have the time to participate. The policy design and formulation were therefore investigated through experienced expert interviews, which might not reflect the opinions and practices of the decision-making processes in regard to the legislation completely.

The implementation process was discovered through the questionnaires along with multiple municipal interviews and experiences from consultancy companies. In order to expand on the relevant factors for this phase of the overall implementation process, a case study could have been beneficial. However, it would have been difficult to get a representative study of these factors, unless the study had a long time frame and sufficient resources.

The feedback mechanism could have been examined through a more thoroughly investigation of NMKN's decisions and their concrete effect on the municipal practices. Furthermore, a case study could have revealed some of the internal feedback mechanism, which only became evident to a limited degree in this study. A case study would also have provided the researcher with a deeper insight into the outer socioeconomic and environmental conditions, which affect the municipal practices and level of experience, which is why this could have been an interesting approach.

Moreover, the investigation of the implementation in a Danish municipal context could have been supplemented with studies of the implementation on other levels in the planning hierarchy or of the implementations in other countries. The implementation could also have been compared to the implementation of EIA for another research focus.

9.2 Evaluation of effectiveness

As described in 3.2 Effectiveness, the effectiveness of a given context, can be evaluated in many ways. In the theoretical framework for this study, effectiveness was divided into four aspects; procedural, substantive, transactive and normative.

It was chosen for this study to focus on substantive effectiveness, due to limited resources and time, and because the outcome of SEA was found to be most interesting. The evaluation took basis in the

implementation model with a focus on the implementation results. The objectives were chosen as the evaluation criteria, but a number of other evaluation criteria could have been used, and the other effectiveness aspects could have been investigated by digging into other relevant aspects in regard to SEA.

Procedural effectiveness is mainly based on procedural aspects, why it would have been necessary to dig deeper into those. For this study a fairly broad focus was chosen, and to investigate the procedural aspects it would possibly have been more beneficial to do a case study. The analysis of this study showed that the effectiveness varied significant in the municipalities, and it could therefore have been interesting to look deeper into what makes the difference, how the integration of SEA into planning practices has been done and how the different stakeholders perceive the tool.

Normative effectiveness is rather difficult to measure, since it is often evident through small changes in aspects such as values, awareness and understandings over time. As Cashmore (2015) pointed out "[…] it takes a long time [to measure], and arguably we don't often have the resources to do the types of research that would be needed to actually measure that. Because you would have to do long time monitoring, so again you are basing it on gut-feeling". It could have been interesting to take a more historical approach on the implementation, and look at the development through the last 10 years. This project did not address monitoring of SEA, and the interviews showed that the municipalities do not really use it. Whereas this research engaged more in the proactive part of SEA, a further look into the evaluation and monitoring could have supplemented this study.

Lastly, a recurring discussion throughout our research period has been the necessity of SEA in Denmark. The expert interviewed in this study, all concluded that SEA has made the municipal planning more considerate of environmental impacts. However, some of the municipalities mentioned that the SEA legislation could be regarded as redundant. It could have been interesting to look more closely into the changes SEA has made on practices and what effect it have made on planning in Denmark.

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n.d. is an abbreviation for no date

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Table of figures and tables

AALBORG UNIVERSITY

STUDENT REPORT