Integrating the Sustainable Development Goals into Strategic Environmental Assessment with a focus on Danish context

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Abstract:

Sustainable Development Goals are globally recognized and an established approach towards the sustainable development. Likewise, Strategic Environmental Assessment is a tool used to direct the decision-making of plans and programmes towards the sustainable outcomes. Both of the concepts are recognized for its set direction towards sustainable development. For that reason, this paper focuses on analyzing the possibilities of integrating the SDGs into SEA practise in Danish context. In order further develop the research, qualitative data such as interviews and literature review has been conducted. Firstly, this report analyses the direct and indirect inter-linkage between the SDGs and SEA, analyzing SEA as both a tool and a practise. Furthermore, different benefits of SDGs and its contribution to SEA practise have been analyzed, and ideas for how these benefits can be integrated into SEA practise has been proposed. Additionally, various aspects of what could possibly support and restrict the shift towards the objective-led SEA has been analyzed and discussed. Finally, a short set of recommendations has been provided for how to integrate the SDGs in SEA practise

Summary

The 17 UN Sustainable Development Goals (SDGs) are well-respected and a commonly established approach towards sustainable development. The SDGs expands the common understanding of sustainability through the three pillars onto 17 intertwined goals with 169 targets as a sub-layer. Similarly, Strategic Environmental Assessment is a tool used to guide decision-making of plans and programmes towards sustainable results and promote sustainable alternatives on the planning level.

It has been established that SDGs set the direction for sustainable development and SEA is defined by the SEA Directive as a tool for sustainability. Therefore, both could have the mutual potential benefits of being integrated.

This project is aimed at analyzing how the objectives of Sustainable Development Goals can be integrated into SEA practise and therefore contribute towards sustainable development in a Danish context. In order to answer the Qualitative methods as semi-structured interviews with SEA experts and practitioners, and literature review are used to set a foundation for the analysis.

The project analyses the interlinkage between the SDGs and SEA, on a direct and indirect level, as well as analyze the current efforts and benefits towards integrating the SDGs in Danish SEA practise. Furthermore, the project analyzes how the different benefits can contribute to SEA practise. Additionally, various aspects of what supports and what could possibly hinder the transition towards objective-led SEA are analyzed and discussed. Finally, the project provides a short set of recommendations on how to best utilize the added value of the SDGs.

Glossary and Abbreviations

The glossary and abbreviation's page is alphabetically listed with words and explanations further in this text.

Glossary

Practitioners *Practitioners in this project are regarded as individuals or group of people who participate in the performance of environmental assessment within public or private organizations*

Experts *Experts in this project are referred to as individuals or group of people who have pro-longed experience through practice or research in the field of SEA*

Authorities *Authorities - formal governmental or public authorities, defined by administrative or legal requirements*

Objective-led *The potential impacts of a proposal that are assessed against a series of aspirations environmental objectives, rather than against a baseline*

Sustainability Assessment *A tool that can help decision-makers and policy-makers decide which actions they should or should not take in an attempt to make society more sustainable*

Integrated assessment *collection of tools usually focused on policy change or project implementation*

Baseline-led *Consideration of environmental, social and economic aspects and the interrelation between the three pillars*

Impact-based assessment *Process of identifying the future consequences of a current or proposed action*

Ex-ante *A tool used to predict future outcomes e.g., as a policy change or an improvement in a production process*

Abbreviations:

EA: Environmental Assessment
EIA: Environmental Impact Assessment
IAIA: International Association for Impact Assessment
IA: Impact Assessment
LCA: Life Cycle Assessment
LCSA: Life Cycle Sustainability Assessment
MDGs: Millennium Development Goals
SA: Sustainability Assessment
SEA: Strategic Environmental Assessment
SDGs: Sustainable Development Goals

Contents

Part I

State of the art

1 State of the art - integrating SEA and the SDGs

This chapter is based on a review of current recognition of Sustainable Development Goals (SDGs) and the latest research carried out in relation to integrating the SDGs into Strategic Environmental Assessment (SEA) practise. Both, SEA and SDGs, are tools used to address sustainability towards decision-making. The topic of merging SEA and SDGs together is in the center of discussions between different experts and practitioners. However, the current knowledge on the subject matter seems to be rather undiscovered and novel. Therefore, the preliminary research aims at assessing both aspects of SDGs and SEA, and its interrelation between one another.

1.1 The new direction for sustainable development based on the SDGs

Sustainable development as a concept can be defined in a variety of forms and means. Brundtland [1987] report defines sustainable development as:

> *"Development that meets the needs of the present without compromising the ability of future generations to meet their own needs."*
>
> [Brundtland, 1987]

It has gained its recognition due to its integrative nature of sustainability, where all three pillars, specifically, economic, social and environmental are interrelated with one another [Gibson, 2006] . One of the most prestigious and commonly established approaches towards sustainable development are shaped in the form of The Millennium Development Goals (MDGs) and served as a noble aspiration to tackle poverty and set a foundation for partnership across the globe. The MDGs reached its deadline in 2015 and as a result were replaced by new set of goals known as the Sustainable Development Goals. As a result,

the SDGs were introduced as part of the new *2030 Agenda for Sustainable Development* [Group and UNDP, 2015]. The 2030 Agenda was agreed upon by all 193 UN member states, and followed by the agreement of the SDGs in September 2015, the new agenda came into effect in January 2016, marking a new growing path for sustainable development. The main initiative behind the development of the new goals was to make it accessible to all countries hence - universal. Furthermore, the aim was also to create a foundation for cooperation and liability and to help to transition to sustainable development across nations [Blanc, 2015] [Group and UNDP, 2015].
The SDGs are built upon the above-mentioned three pillars of sustainability, namely, environmental, social and economic while emphasizing the link between peace, human rights and development. The 16 of all 17 goals can be placed within the three pillars, with the exception of goal number 17, which concerns the partnerships aligning all of the goals, as illustrated in figure 1.1 [Stockholm Resilience Center, 2019].

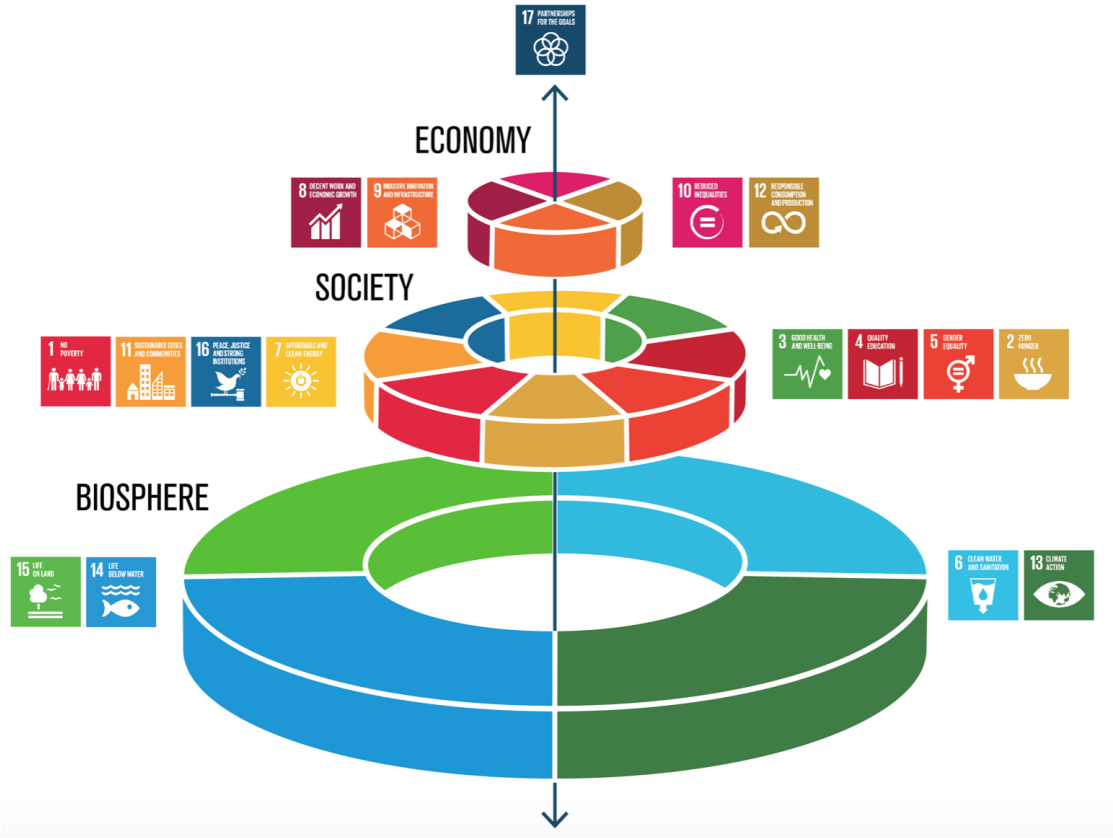

Figure 1.1: The SDGs related to the three pillars of sustainability [Stockholm Resilience Center, 2019]

Another developed structure of linking the SDGs can be referred to a paper [Blanc, 2015], where the author focuses on the linkage between the targets of SDGs to all the goals, and as a result, creating a network-based scheme. The links are based on analyzing the wording of each target to the suitable goals. It therefore implies that every target, apart from being linked to its own goal can be also connected to other goals. The methodology of this paper

focuses on linking the thematic areas of the targets, whereas the targets associated to the means of implementation are eliminated. For that reason, the paper analyzes all 16 SDGs, excluding the goal 17 [Blanc, 2015].

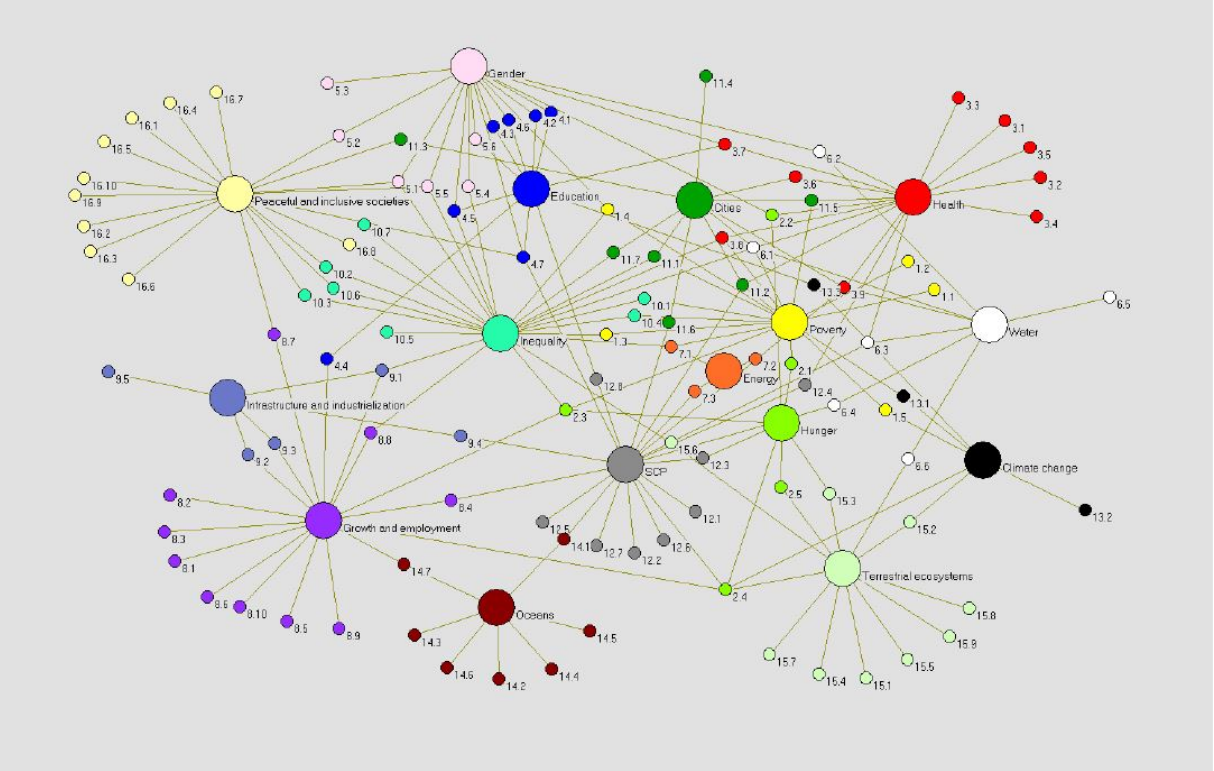

Figure 1.2: The links between targets and different goals [Blanc, 2015]

As it can be seen in Figure 1.2, all 16 SDGs, excluding the goal 17, portray the larger circles and can be distinguished based on different colors, whilst the targets are represented in the shape of smaller circles with the same color of assigned target. Each of the goal is linked to their own targets making a shape of a flower, whereas other targets linked to their own as well as the other goals, create a network. Based on this network scheme, 60 out of 107 targets are linked to at least one goal other than its own. Consequently, 19 targets link at least 3 or more goals [Blanc, 2015].
This network-based approach illustrates the inclusive characteristics of SDGs. It shows the possible linkages between different goals and targets, and thus the links between social, environmental and economic aspects.

1.2 SEA and sustainable development

SEA is a strategic framework tool used to direct the decision-making of plans, programs and policies towards a more sustainable outcome, i.e. embracing more holistic approach and understanding of bio-physical and social implications of the proposed plans, programs or policies and thus enlarging the focus beyond the primary issues of original proposal [Partidário, 2012] [Brown and Thérivel, 2000]. The aim towards sustainable development was rooted at the early stage of SEA development, and was stated in Commission of the European Communities [1996]:

"This Proposal will be an important step towards securing sustainable development"

[Commission of the European Communities, 1996]

It can be further elaborated, that SEA contribution towards sustainable development is reinforced by integrating adequate environmental considerations at the plan or program level whilst including the assessment of alternative issues [Commission of the European Communities, 1996]. Likewise, Brown and Thérivel [2000] emphasize that SEA should aim at providing a process based on wider set of objectives, different perspectives and constraints rather than focusing on ones proposed by proponents or authorities responsible for the policy development. Brown and Thérivel [2000] also states that:

"The other perspectives and objectives need to be provided by other players, or by including other information sources"

[Brown and Thérivel, 2000]

Nonetheless, SEA can be perceived in several ways and thus can also be executed differently. The reason for the diverse notion of SEA can be linked to its state of development. The assessment was initially developed as a baseline approach with its origins coming from Environmental Impact Assessment (EIA) practice, with additional biophysical planning and policy input [Partidário, 2012]. Correspondingly, on the report of Hacking and Guthrie [2006], it is stated, that the baseline-led SEA assesses the potential impacts of the proposed PPP against a series of aspirational bio-physical objectives instead of the baseline. Due to fact that EIA-based SEA does not address nor facilitate the main intentions and purpose of the assessment, objective-led approach was introduced. The objective-led SEA was developed based on planning and policy-making concepts to strengthen the strategic nature of the assessment. Furthermore, the main purpose of the

assessment is aimed at evaluating the possible alternatives of the proposed developments with approach focused on the strategic decision-making and thus contradict the baseline-led application [Partidário, 2012] [Partidário, 2019]. Furthermore, Partidário [2019] argues that the objective-led assessments aims to evaluate the goals of a specific plan or program and to see whether the objectives of a plan or program can be improved and therefore adds value to the plan or program [Partidário, 2019]. As stated by authors Brown and Thérivel [2000], SEA also allows to:

> *"incorporate new objectives and constraints in policy formulation, the substitution of alternative objectives, policy instruments and implementation strategies [..]"*
>
> [Brown and Thérivel, 2000]

As stated in the *Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment* (SEA Directive), Strategic Environmental Assessment contribute to sustainable development by ensuring that environmental as well as health-related objectives are met. The directive states that, "the inclusion of a wider set of factors in decision making should contribute to more sustainable and effective solutions" [The European Parliament and The Council of the European Union, 2001]. Similarly, White and Noble [2012], in their review from year 2012, present several sources arguing for SEAs contributions to sustainability and sustainable development. These contributions include:

- adding structure and flexibility, allowing for early adoption of sustainability principles and identification of sustainability issues
- promoting development and consideration of more sustainable alternatives
- delineating and applying impact assessment criteria
- allowing for trickle down of sustainability principles and promoting transformational learning regarding sustainability [White and Noble, 2012].

Furthermore, Fischer [2015] adds that SEA can contribute with direct impacts in the form of changes in the design of a plan or programme as well as changes in other similar plans or programmes for more sustainable outcomes. However, White and Noble [2012] also highlights some of the challenges SEA is facing in regards to sustainability, including "variable interpretations of the scope of sustainability in SEA, the limited adoption of assessment criteria in SEA that are directly linked to broader sustainability principles, and the challenges for decision-makers in adapting PPP development decision-making processes to include sustainability issues" [White and Noble, 2012]. Additionally, Fischer [2015] articulates that determining the impact of SEA on the overall sustainable development can be hard due to wide range of factors interfering in the development process.

1.3 Sustainability Assessment and SDGs

Currently, the definition of the SDGs is the most commonly used framework for decision-making in relation to sustainability. Thus, the SDGs are recognized by different sustainability assessment communities. Correspondingly, a review by Hacking [2019] aims to conceptualize sustainability assessment [1] and further explores the potential to develop SDG-focused forms for use at the project level. The article indicates the novelty of the subject matter by stating:

> *"It is also not yet a common-place to structure emergent forms of sustainability assessment to support SDGs explicitly"*
>
> [Hacking, 2019]

The author further highlights the importance of developing different processes and techniques within the impact assessments that would support the SDGs.
Another article written by [Wulfa et al., 2018], analyzes the possibility of linking the SDGs to the Life Cycle Sustainability Assessment (LCSA) indicators. The main findings in this article show that the difference in goal and objective-led assessments can lead to different definitions of sustainable development, and thus the focus should be put on thorough selection of the indicators. Another finding led to the emphases on the variance between country or region assessment and process chain level, where weak or no linkage between indicators was found in product-based assessments i.e., Life Cycle Assessment (LCA) [2]
All in all, the literature review shows that the SDGs are an emerging topic of discussion between different Environmental Assessments (EA) practitioners and experts. In addition, few articles discovered the possibility of integrating the SDGs into different EA practises. However, the literature search resulted in limited amount of publications. The reason behind it, is the fact that topic of emerging SDGs and EA has only recently been introduced and thus the lack of literature sources. Nevertheless, more examples of SDGs and its integration in EA could be found in practise.

1.4 Lack of binding legislation

[1] A process that directs decision-making towards sustainability, [Hacking and Guthrie, 2008]
[2] It is a tool used to assess the potential environmental impacts from a product (or a service) from raw material extraction to final disposal [Thrane and Schmidt, 2004]

No legally binding SDGs

As stated in chapter 1.1 The new direction for sustainable development based on the SDGs, the new agenda for sustainable development was agreed upon by all 193 UN member states. All states committed to working towards a more sustainable future with the SDGs, and thus aiming to unify the policies of the member states. Each member state is expected to:

> *"Take ownership and establish a national framework for achieving the 17 Goals"*
>
> [United Nations, 2019]

Even though each state is expected to establish own frameworks, there are no legal requirements for implementing the SDGs and as such neither are there legal repercussions. Member states are expected to follow the general rules as well as to monitor and review their own progress [United Nations, 2019].

Lack of SDGs commitment in SEA legislation

The SEA directive came into effect in 2001, whereas SDGs were agreed upon in 2015, hence the directive has no reference of the SDGs. Nevertheless, in a Danish context, *the Environmental assessment etc. of plans and programs* was renewed in 2018. Despite of it, no mentioning of *"SDGs"*, *"Sustainable Development Goals"* or the Danish translation *"Verdensmål"* are present in the Danish legislation [Miljø- og Fødevareministeriet, 2018]. As we have already stated, the implementation of the SDGs and the 2030 Agenda is based on expectancy. Furthermore, SEA legislation does not explicitly mention the SDGs or the 2030 Agenda, nor does Danish legislation on Environmental assessment etc. of plans and programs. That being said, the link between the SDGs and SEA has to be found in the claim of SEA contributing to sustainable development.

1.5 Current efforts in integrating the SDGs into SEA practice

According to the SEA expert, Partidário [2017], impact assessment (IA) is an important tool and can play an essential role in achieving the SDGs. Partidário [2017] highlights the possibility of SDGs contributing towards more objective-lead IAs, and thus more relevant to the current path of sustainable development, i.e. achieving the 2030 Agenda and the SDGs [Partidário, 2017]. However, Partidário [2017] also indicates the possibility of SEA

becoming less context-specific and therefore less efficient, which could result in SDGs not being the main focus for private stakeholders and communities [Partidário, 2017].
An initial review of academic literature on various combinations of SEA and SDGs yielded very few results with most articles focusing on one or the other subject. Some articles emphasize the general link between SEA and sustainability. Taking into account that SDGs can be seen as a new, unified direction for sustainable development, link between SEA and the SDGs can be drawn.

Summarization

Based on the state of the art section, it can be established that the SDGs set a new course for sustainable development, built upon the three pillars of sustainability. Furthermore, as mentioned in the SEA directive and supported by the academic review by White and Noble [2012], SEA contributes to sustainable development, amongst other things, by positively affecting decision making as well as promoting and considering sustainable alternatives in plans and programmes. Nonetheless, Fischer [2015] argues that it is hard to determine the contribution of SEA to sustainable development. One of the solutions is provided by Hacking [2019], who debates that if the SDGs are setting the direction for sustainable development and sustainability assessments are working towards sustainable development, both should be able to contribute towards the same goal. It is further backed up by Partidário [2017], stating that impact assessments and the SDGs can have mutual benefits, as impact assessments contribute towards sustainable development, and thus achieving the 2030 Agenda, and the SDGs can contribute and progress towards more objective-lead rather than the impact based assessment.
An academic review of the current efforts on integrating the SDGs and SEA yielded very few results. Therefore, the focus in this paper will be based on the integration of the SDGs into the SEA practice.

Part II

Research design, methodology and theoretical framework

2 Research question and structure

Based on the the state of the art section, we have argued for a necessity of an objective based SEA approach that integrates the sustainable development goals in SEA practise. There is an existing consensus between different environmental and sustainability related practitioners and experts on commonality and synergies between SEA and SDGs. It can therefore have a potential to be correlated with one another. However, no supporting studies of in-cooperation of SDGs into SEA practise can be found. Further research has shown that sustainability assessments as LCSA and project-based IA have attempted to connect SDGs into its practises and concluded with somewhat positive results. In reference to the state of the art, the scope of SEA is weakly defined towards sustainability. Moreover, SEA has limited adaption of sustainability criteria, for that reason, in-cooperating SDGs into SEA practise might support and evolve the particular assessment towards the sustainable development. For that reason, the contribution of the thesis are to develop more generic, objective-led approach based on the framework of the SDGs that could be applicable to Danish context in SEA process. We want to further explore and discover possible methods for integrating the SDGs into SEA practice. The approach is aimed to be based on ex-ante, as the focus is put on improving the plan or policy before it is carried out within the specific context, and not on a retrospective approach. As stated in chapter 1.2 SEA and sustainable development, SEA is a key tool for sustainable development. Therefore, the SDGs will be used as the set of objectives that we as a society aim to achieve in order to work towards sustainable development.
In order to analyze the potential in integrating SDGs into SEA practise and to further support the contribution to sustainable development, we have put forward the research question:

How can the objectives of the Sustainable Development Goals be integrated into strategic environmental assessments in order to strengthen the SEA practice towards sustainable development in a Danish context?

With the aim of answering the research question, additional sub-questions have been proposed.

Sub-questions:

In order to determine the complementary benefits of the interrelation between SEA and the SDGs, we seek to analyze the relations between the environmental factors of SEA and the SDG targets. If the environmental factors can be directly linked to SDG targets, it can further create a transparent base and work as a starting point to develop objective-based, integrated SEA system. Additionally, we want to investigate the indirect links between SEA practise and the SDGs.

- How are the SDGs and SEA interrelated, and what are the direct and indirect links between them?

After analyzing the direct and indirect interrelationship between SEA and the SDGs, we want to establish how the SDGs can contribute to SEA practise and in which aspects of SEA practise the SDGs would contribute the most.

- Where in the SEA practise can the SDGs provide additional value?

Lastly, after analyzing the potential benefits of integrating the SDGs into SEA practise, we want to analyze what could enable the transition towards an objective lead SEA practise based on the SDGs. Additionally, we want to analyze potential obstacles that could impede this transition.

- Which aspects of SEA practise can support a transition towards an SDG based, objective-led SEA practise?

2.1 Delimitation

This section includes description of the scope of the project and the main focus areas of the scope. It further elaborates on aspects that are excluded in the thesis. Different factors that can limit answering the research question and thus can interfere with reaching conclusion are also outlined.
The aim of scope of the thesis is to assess possibilities of integrating SDGs into SEA practise in Denmark. Therefore, the scope of this paper is delimited from analyzing different country contexts of SEA practise. Furthermore, the SEA practise is analyzed within specific process areas and for that reason excludes assessing monitoring phase.
The research methods are based on literature review, case analysis and interviews of various practitioners of SEA. However, the methods used are limited to consultants and practitioners of SEA and exclude other viable respondents such as planners, clients or authorities ordering SEAs, public or other affected parties when conducting SEA. The project also excludes a thorough assessment of legislative facets i.e., SEA Directive or Danish regulations that could give another angle to the paper.

3 Research design

3.1 The research design of the thesis

The following chapter presents the research design of the thesis. The following chapters 4 *Methodology* and 5 *Theoretical framework* elaborates the methodological choices and theoretical frameworks used in the thesis. Figure 3.1 illustrates the overall project structure, the theoretical framework for each sub question as well as the data sources used for answering each sub question.

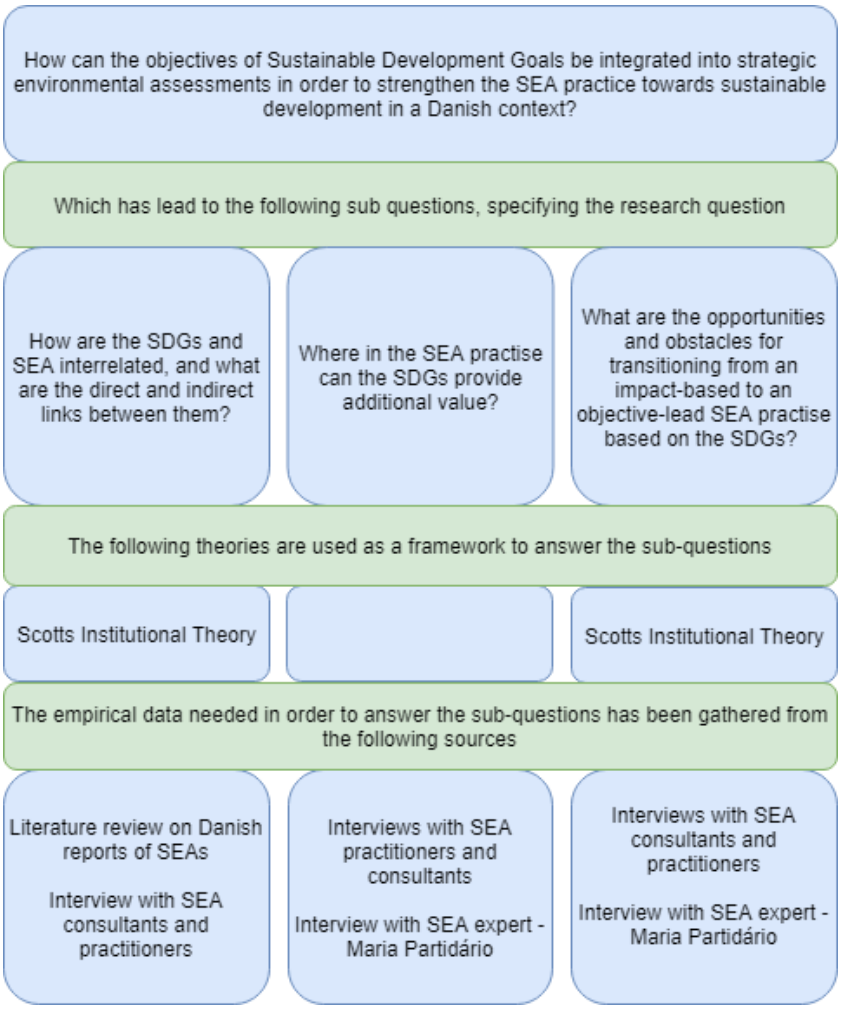

Figure 3.1: The research design of this thesis

This paper is focused on an exploratory research approach, as we are aiming to map the current practise of SEA. Furthermore, the research done previously within the field of study is very limited. Thus, the basis for this study is to investigate the practise of SEA from the point of view of various practitioners working with SEAs [QuestionPro, 2019]. The data is gathered mainly from qualitative data sources. The scope of the thesis is limited to Danish SEA practise in order to gain in-depth knowledge of the SEA process, as well as propose changes to the Danish SEA practise in order to integrate the SDGs. However, since the Danish legislation is almost identical to the SEA directive, we do see opportunities of expanding the findings in this thesis to SEA practises in general.

The aim of this thesis is to provide a new approach for SEA practise that integrates the SDGs and thus a shift towards a more objective based SEA practise. This correlates well with the arguments stated above.

Presumptions - May be easier to fill out after we've developed the model (presumptions could be something like "we presume that the screening and scoping has been done properly, since we work with the environmental report", if that is the way we end up going

3.2 Applied research approach to the thesis

The aim of this thesis is to explore the opportunities for integrating a sustainable development agenda in the form of the SDGs into SEA practise. This is well suited for an applied research approach. According to Baimyrzaeva [2018] the aim of applied research is to:

"Develop practical solutions for real world (...) problems"

[Baimyrzaeva, 2018]

This is seconded by Kothari [2004], stating that applied research:

"Aims at finding a solution for an immediate problem facing a society"

[Kothari, 2004]

Additionally, Reserach-Methodology.net [2019] states that the purpose of applied research is closely related to finding solutions for real life problems.
In this thesis the problem at hand is the integration of the sustainable development goals into the real world context of SEA practise. Baimyrzaeva [2018] provides an overview of

the elements in the applied research approach, see figure 3.2 *Elements of applied research, based on Baimyrzaeva [2018].*

Figure 3.2: Elements of applied research, based on Baimyrzaeva [2018]

In order to better understand the use of applied research in this paper, the following will elaborate on each element and how it is used in this thesis. Some of these elements are further discussed in the following chapter 4 *Methodology.*

Research Focus

The aim of this study is to elucidate the opportunities for integrating the Sustainable Development Goals into SEA practice. The goal of this is to investigate opportunities and barriers of moving from an impact based to an objective based assessment and thus more considerations of the overall contribution to sustainable development from SEA.

Existing information

As stated in chapter 1.5 *Current efforts in integrating the SDGs into SEA practice* the current research within this field is very limited. Some articles look into the link between SEA and sustainability, but not explicitly in relation to the SDGs. As of this thesis we have not found any approach to conducting SEA that include the SDGs. This is also the foundation for the research- and sub-questions, focusing on current efforts (sub-question 1), the inter linkage between SEA and the SDGs (sub-question 2) and the opportunities and barriers for integrating the SDGs into SEA practice (sub-question 3).

Research methods

In order to answer the questions presented above data is needed. Interviews with SEA practitioners has been used to answer all three sub-questions (see chapter 4.2.2 *Interviews with SEA consultants*). Additionally, to answer the first sub-question we looked into SEAs that have already been done. For the second sub-question we interviewed Maria Partidario, which also helped answer the third sub-questions (see chapter 4.2.1 *Interview with Maria Partidário*). Furthermore we held a group discussion setting with SEA practitioners in order to discuss initiatives to integrating the SDGs into SEA practice. To read more about the methodology, see chapter 4 *Methodology.*
The problem based learning model utilized at Aalborg University, and as such in this thesis, suits the applied research approach very well. The problem based approach finds the problem at hand through the state of the art section, in this case section 1 State of the art - integrating SEA and the SDGs, and continues to solve the problem through research and data collection [Ryberg, 2013]. In this thesis the data mainly consist of literature studies and interviews. The state of the art works with the newest knowledge within the field of study, providing a solid base for uncovering relevant knowledge gaps.

Qualitative empirical data

The nature of the sub-questions are qualitative, and as such the empirical data is gathered through qualitative methods as well. The semi-structured interviews are conducted with an interview guide, but the questions are open-ended and the semi-structured approach enables exploration of responses from the interviewees during the interview. We have chosen fewer interviewees to gain more in-depth knowledge about SEA and the interrelation with the SDGs, rather than going for more interviewees by e.g. sending out a survey (The methodological approach is further elaborated in chapter 4 Methodology. Furthermore, the thesis aims at exploring a deeper understanding of the interrelation between SEA and the SDGs, as well as a deeper understanding of the opportunities and challenges facing an SDG infused SEA process. The qualitative data collection aligns very well with the applied research approach [Baimyrzaeva, 2018].

Data handling

The data used in this thesis has been collected through semi-structured interviews and literature studies, and the data sources are mainly qualitative. The interviews has, for the most part, been transcribed, and the raw data from the has been analyzed through a *Grounded Theory* approach. To read more about the data handling and read more about our grounded theory approach, see chapter 4.2.4 *Grounded theory approach for data handling.*

How are we using our sources (Will be elaborated in methodology in a figure of the interviewees)
Connectivity between all that we're doing (Will maybe be illustrated in a model if figure 3 Research design is not enough)

4 Methodology

The emphases in this chapter is put on analyzing both, different types of data compiled as well as the methods used to collect it. Further, primary and secondary data is used as a foundation for this paper. This paper is developed based on literature review, case analysis and semi-structured interviews in order to obtain relevant data and to further help to answer the research question. Primarily, qualitative data has been gathered in order to reach the objectives of the thesis. A link has been posted in the beginning of appendix with access to all the empirical data used in the project.

4.1 Literature review on SEA and the SDGs

In order to gain an overview of the latest research carried out in the field of the SDGs and SEA, an initial literature review was conducted. At first, the review was based on search terms like "SEA", "Strategic Environmental Assessment", "SDGs" and "Sustainable Development Goals".
After the initial search yielded only few results, the search was expanded and included terms like "Sustainability AND SEA" and "SDGs AND Impact Assessments" in order to broaden the search. The results of the search can be seen in **figure**
The search for literature sources was carried out by using the academic search engines such as *www.sciencedirect.com* and *www.scholar.google.com*, as well as the Aalborg University Library. Furthermore, literature related to the current practises of Impact Assessments such as Partidário [2017] was found through the International Association of Impact Assessment (IAIA) website, *www.iaia.org*. IAIA is the worldwide leading network of professionals working with the impact assessments on all levels (plan, program, policy and project) [International Association for Impact Assessment, 2019].

4.2 Semi-structured interviews

In our thesis, we conducted six semi-structured interviews with various consultants and practitioners to acquire information on the SEA practise carried out in Denmark as well as to gain in-depth knowledge about the recent research done in integrating SDGs into

SEA. Conducting the interviews further enabled to support the exploratory nature of the thesis.

The interview with IA expert and one of the two leaders of IAIA special task forces - Maria Partidário was structured around her published work and was aimed at exploring SEA and SDG linkages on a meta level. Whereas interviews conducted with practitioners i.e., Rasmus Lie Nielsen (NIRAS a/s) and Rasmus Hejlskov Olsen (Rambøll A/S), Morten Bidstrup Ramshev (Aalborg Municipality) and Søren Sloth Lave (Aarhus Municipality), aimed at obtaining information on SEA practise and current efforts done within SDGs in Denmark.

The content of the interviews were primarily based on the framework of institutional theory, as the interviews were aimed at answering the first sub-question. However, additional questions regarding sub-question two and three were also addressed. The practitioners were chosen based on their role and experience within the SEA practise in order to gain perspectives of various domain of interests. For instance, two consultants were chosen based on their knowledge and work done within the Danish consultancy. Whereas, the two practitioners from both Municipalities were selected based on their involvement in SEA practise from municipal perspective. The interviewee Maria Partidário, was selected based on her extensive knowledge and research done in SEA practise in general.

The semi-structured approach was chosen to give a framework to the interviews, as well as to enable to pursue and to explore relevant themes and questions that could be raised during the interviews. For each interview, an interview guides were created. The guides were characterized in accordance to the sub-questions and subsequently into thematic areas.

Name and description of interviewee	The interviewee is perceived as	We are using the information from the interviewee as
Maria Rosario Partidário *Professor at the University of Lisbon and former head of IAIA*	Maria Partidario is viewed as a leading expert within the field of SEA. She has experience both as a practitioner and a researcher, and is currently researching within the field of SEA and SDGs	The input from Maria Partidário has mainly been used to establish an overall knowledge base of the SEA process and how the SDGs can add to that process
Rasmus Lie Nielsen *Project employee in the Danish consultancy NIRAS working with EIA*	Rasmus Nielsen is viewed as a consultant with focus on EIA, but also with considerations towards the broader aspects of SEA	Rasmus Nielsens input has been used as overall inputs, given his focus on EIA
Rasmus Hejlskov Olsen *Chief project manager in the Danish consultancy Rambøll working with environmental assessments*	Rasmus Olsen is viewed as an expert on conducting SEA from a consultancy point of view	The information from the interview with Rasmus Olsen has been used to gain an in-depth look into the aspects of SEA from a consultant perspective
Morten Bidstrup Ramshev *Environmental engineer at the environmental and energy utility*	Morten Bidstrup is viewed as a practitioner and SEA expert, working within a municipality and having experience with the entire SEA process, including the pre-SEA steps	The interview with Morten Ramshev has been used to outline the SEA process from a municipal point of view, as well as gaining in-depth knowledge on the SEA process and its limitations
Søren Sloth Lave *Environmental and infrastructure planner in Aarhus Municipality*	Søren Lave is viewed as a practitioner working as an authority in the SEA process with experience	The interview with Morten Ramshev has been used to outline the SEA process from a municipal point of view
Louise Lundbeck Krog *Head of the section "Traffic and planning" at the Danish consultancy COWI, working with SEA*	Louise Krog is viewed as an expert on SEA from a consultant point of view	The information from the interview with Louise Krog has been used to gain an in-depth look into the aspects of SEA from a consultant perspective

Figure 4.1: Overview of the interviewees of the project

4.2.1 Interview with Maria Partidário

Firstly, an interview was carried out in April, 2019 with IA expert Maria Partidário from the University of Lisbon. Maria is one of the leading researchers within the field of impact assessments, a former head of the IAIA, and head of the IAIA SDG task force. She is currently conducting a research in relation to SEA and the SDGs. The main purpose of conducting the interview with Maria Partidário was to gain the latest information on the SDGs integration in SEA practise, the different possibilities and challenges in the particular area. The interview also aimed at presenting our thesis and the current research we have done so far.

4.2.2 Interviews with SEA consultants

Secondly, a set of interviews we did with three practitioners from Danish consultancies working with environmental assessments: Rasmus Hejlskov Olsen from Rambøll, Rasmus Lie Nielsen from NIRAS A/S and Louise Lundbeck Krog from COWI A/S. Two of the interviews, with Rasmus Lie Nielsen and Rasmus Hejlskov Olsen were conducted in April, 2019, whereas the interview with Louise Krog was conducted in May, 2019. All interview had the purpose of acquiring information on SEA practise and its relation to the SDGs, current efforts of integrating the SDGs into SEA practise and future possibilities in the particular field based on Danish context.
The information obtained during the interviews with practitioners gave us a foundation for developing the first and second part of the analysis - analyze the SEA practise and assess possibilities for integrating SDGs in SEA as a foundation to develop a tool that aims at communicating different options for practitioners, planners, developers to in-cooperate the SDGs into SEA.

4.2.3 Interviews with practitioners from Municipalities

Another set of interviews were conducted with two municipal employees: Morten Bidstrup Ramshev from Aalborg Municipality and Søren Sloth Lave from Aarhus Municipality. Both interviews took place in the beginning of May, 2019. The two municipal representatives were interviewed with the purpose of investigating the current practise of SEA as well as assess different possibilities of integrating the SDGs into SEA practise. The two interviewees were selected based on their role in SEA practise, which would help to obtain information from experts working with the aspects of SEA from a municipal point of view. Interviews conducted with Morten and Søren gave us a thorough basis for understanding the aspects of SEA from a municipal point of view. It also provided inputs on different considerations of SDGs in SEAs in current practises. It further helped to assess various possibilities and obstacles of integrating SDGs into SEA practise from regulatory angle.

4.2.4 Grounded theory approach for data handling

Grounded theory is commonly used method for qualitative research. This particular method is based on inductive approach, where the data obtained forms generic patterns [Bryant, 2014]. In reference to [Olsen, 2003], grounded theory usually aims at generating new theory, however, it is not the purpose of our thesis. Therefore, a pragmatic approach of grounded theory is used. Moreover, different data such as literature source, web pages etc., can be used for grounded theory method [Bryant, 2014]. Nevertheless, in this paper only data abstracted from interviews will be utilized.

The reason for using grounded theory approach is to firstly code the raw data gained from the interviews. Secondly, to analyze and present the data in a transparent way.
Grounded theory operates with different levels of *coding*. Tanggaard and Brinkmann [2009] present eight levels of coding. Given that this paper does not focus on creating new theories hence only the first three levels of coding will be used further in analysis:

- *open*
- *axial*
- *selective* coding

Open coding is a good way to create an overview of the data. In other words, answering the question *What is going on?* The open coding compiles data within categories or themes, creating a more clear overview of the data [Tanggaard and Brinkmann, 2009].
The next step is axial coding. Within this step, the main categories or themes are analyzed in-depth and with more detail. The categories or themes are thus further explored [Tanggaard and Brinkmann, 2009].
The final step of the grounded theory approach relates to the selective coding. This step looks for patterns and common ground consequently creating overarching themes [Tanggaard and Brinkmann, 2009]. These themes are then used to structure the analysis and are further explored.
For our analysis part, raw data acquired from the interviews are first processed using the online transcription software. Further, *grounded theory* approach is used to analyze the raw data gathered from the interviews. The following steps of grounded theory approach can be described as: firstly, the transcribed interviews were divided into themes based on the relevant sub question. Next, these themes were divided and added in the table under the title *open coding*. Further, the themes, which were similar to their context and meaning were combined under the section *axial coding* in order to discern correspondence between practitioner statements and inputs. Afterwards, similar statements were combined and a new theme under section *selective coding* was created. Lastly, these themes, which corresponded to the same information but were stated by different respondents, were used as a basis for creating analysis. The data and coding processes can be found in appendix A.2 Example of coding of interviews.

4.3 SEA reports

12 SEA reports were assessed in order to analyze the documentation of SEA practise - its main characteristics and the nature of SEA practise applied in Denmark. Firstly, the reports were chosen based on the year they were implemented - only the ones carried out after January 2016 were selected in order to gain up-to-date information and the main tendencies within SEA practise. Another criteria used to choose specific reports

was based on whether SEAs were completed or not i.e., only finished SEAs were analyzed further. Next, the selection criteria was based on the authority or responsible institution for conducting SEA. Afterwards, different elements such as the scope of SEA, methodology, objectives and assessment of the plan or program were analyzed. Scope of SEA was chosen in order to have an insight to whether SEAs focus on impact-based or objective-led approach. Methodology was used to distinguish what type of approach is used to conduct an environmental report. Section of SEAs on 'other assessments' was included and studied mainly to see if objectives from other plans or programs were taken into consideration and what role does it play in the SEA report. An overview of the reports can be seen in figure 4.2 *Overview of the analyzed SEA reports*

SEA report	Year completed	Level of plan	Municipal or consultancy?
Hedensted	2018	Revising the municipal plan	Consultancy
Thisted	2017	Revising the municipal plan	Consultancy
Egeskoven	2018	Local plan and addition to municipal plan	Consultancy
Brønderslev	2017	Revising the municipal plan	Municipality
Herning	2017	Revising the municipal plan	Municipality
Ringsted	2017	Revising the municipal plan	Municipality
Ikast-Brande	2017	Revising the municipal plan	Municipality
Aarhus	2017	Revising the municipal plan	Consultancy
Rødovre	2018	Revising the municipal plan	Municipality
Roskilde	2016	Revising the municipal plan	Consultancy
Viborg	2017	Revising the municipal plan	Municipality
Trekantsområdet	2017	Common municipal plan for seven municipalities	Consultancy

Figure 4.2: Overview of the analyzed SEA reports

From the analyzed SEA reports, five were done by consultancies and seven by the municipality itself.

4.4 Interrelating the SDG targets with the environmental factors of SEA Directive

As part of the initial analysis, we linked the SDG targets with the environmental factors from SEA directive. The approach had two phases: *Finding key words for each environmental factor* and *aligning the key words with the SDG targets*. The purpose of this exercise was to, first of all, see whether any direct connections between SDG targets and SEA can be made. Secondly, to analyze if these links could be further expanded to link every SD goal and its target, taking into consideration main drawbacks of such interlinkage. Lastly, the purpose was also to see whether such generic approach could establish direct links between SDGs and SEA, and if so, to indicate that connections between SEA and SDGs can be drawn.

4.4.1 Finding key words for the environmental factors

In order to find appropriate key words associated with the environmental factors, we went into the underlying directives and regulations that constitutes the basis for assessing the environmental factors in SEA Directive. For this reason, we looked into the following directives and regulations with the corresponding environmental factors shown in bullet points underneath the respective directive or regulation:

- DIRECTIVE 2009/147/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of November 30 2009 on the conservation of wild birds
  - Fauna
- Directive 92/43/EEC conservation of natural habitats and of wild fauna and flora
  - Biodiversity
  - Flora
- Directive 2000/60/EC of the European Parliament and the Council of 23 October 2000 establishing a framework for Community action in the field of water policy
  - Water
- Natura2000 areas (amended by 97/62/EC) - adapting to technical and scientific progress 92/43/EEC on the conservation of natural habitats and of wild fauna and flora
- Regulations (EU) No 1303/2013
- Regulation No 1305/2013 on support for rural development by the EU Agricultural Fund for Rural Development (EAFRD) and repealing Council Regulation (EC) no 1698/2005

For the environmental factors that did not originate from other directives, we selected the key words based on definitions from various institutions, such as The World Bank

[2005] (population), World Health Organization [2019] (Human Health) and United Nations Educational, Scientific and Cultural Organization [2017] (Cultural Heritage), or environmental agencies, such as Scottish Environmental Protection Agency [2018] for Climatic Factors based on the context and meaning.

4.4.2 Aligning key words with SDG targets

After we established the key words for each environmental factor, a cross reference with the SDG targets was made. For the cross references we only considered those containing the chosen key words, and as such we did not include targets or goals that might be directly related to environmental factors based on our knowledge or meaning in general. The complete results can be seen in appendix A.5 *Cross references between environmental factors and SDG targets*

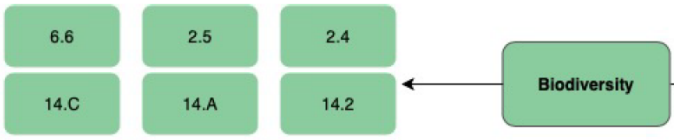

Figure 4.3: Example of relations between an environmental factor (biodiversity) and a number of SDG targets

5 Theoretical framework

This chapter comprises of analysis on institutional theory. The emphases within this section is put on outlining the theory and its main characteristics. The theoretical framework will be used as a basis for analysis, therefore application of institutional theory is explained further in this chapter. The first part will explain the theoretical aspects of institutional theory, whereas the second part will elaborate on how institutional theory is used to shape the analysis of the project.

5.1 Theoretical framework of the analysis

5.1.1 Scott's institutional theory

In this project, institutional theory is applied in order to assess the current SEA practise in Danish context. The concept of institutional theory is used to help to assess, where in the practise SEA can contribute in integrating SDGs or which elements of SEA neglect the development towards objective-led practise. The focus will be put analyzing both, regulatory and normative aspects of SEA based on the empirical data collected, whereas cultural-cognitive element of SEA will not be studied further.

Concept of institutional theory

According to Scott [2001], institutions are social entities that both enable and restrict actions of an individual or organization. Institutions serve a purpose to give stability and to maintain order although, they can endure change as well. Thus, institutions are not only described by Scott [2001] as "property or state of an existing social order", but they can also be described as process. Furthermore, the institutions are composed of three pillars that compose or support the institution and can be described as following:

- The *regulatory* pillar, which is referring to e.g., rules, laws and sanctions, all elements that are asserted through coercive power
- The *normative* pillar, which relates to social obligations, i.e. which social obligations drive actions

- The *cultural-cognitive* pillar, which refers to routines that are taken for granted within the specific institution

[Scott, 2001]

The regulative segment of institution characterizes the regulation or constrain of behaviour. Whereas the normative pillar enhance norms and values. The two pillars i.e., regulatory and normative can strengthen each other. The cultural-cognitive pillar is based upon social constructions of common meaning and characterizes a belief or knowledge of individual or organization [Scott, 2001].

Institutions are embedded in a set of elements that author refers to as *carriers*. These carries are divided into four categories: *Symbolic systems*, *Relational systems*, *Routines* and *Artifacts* [Scott, 2001]. The carriers transfer different elements within each pillar. The carriers can be seen in figure 5.1.

Carriers	**Regulative**	**Normative**	**Cultural-Cognitive**
Symbolic systems	Rules, laws	Values, expectations	Categories, typifications, schema
Relational systems	Governance systems, power systems	Regimes, authority systems	Structural isomorphism, identities
Routines	Protocols, standard operating procedures	Jobs, roles, obedience to duty	Scripts
Artifacts	Object complying with mandated specifications	Objects meeting conventions, standards	Objects possessing symbolic value

Figure 5.1: The institutional carriers of Scott

The symbolic systems can be described as rules or laws from regulatory aspects, whereas collective values and expectations characterize normative facet. Symbolic systems can transform information, for instance, about rules or regulations as well as different norms or standards [Scott, 2001].
Relational systems are connections between different actors either individuals or collective set of actors and are based upon their roles and positions within the institutions.
The routines can be described as repetitive actions that implicitly display the knowledge of actors. Routines emphasize the organizational resilience and thus accounts for stable performance [Scott, 2001].
Last but not least, the artifacts are characterized as material assets or objects that accommodate performance and secure reliability [Scott, 2001].

Another concept that is interrelated to institutions is *actors*. Actors can be categorized as: *individuals*, *organizations* and *societies*. These actors can effect the social world by developing or changing the rules and use resources and act to either generate, maintain or change the social structures or entities [Scott, 2001].

Institutional theory applied in the thesis

Institutional theory is used as the framework to answer the third sub-question about the opportunities and challenges to transition from the current SEA practice to an SDG-based objective led approach.
In order to analyze what is currently prohibiting the institution from changing towards SDG-driven objective led approach, we examine different obstacles. Subsequently, we investigate the possibilities of changing the institution and thus we explore which carriers of SEA practise can facilitate changes.

Part III

Analysis

6 Interlinkages between SDGs and SEA practise

In order to establish how the SDGs can contribute to SEA practise, we first need to establish the benefits of working with the SDGs in SEA practise, current efforts of linking the SDGs to Danish SEA practise, as well as explore potential links between the SDGs and SEA practise.

6.1 What are the benefits of working with the SDGs in SEA practise

Although there is consensus that the SDGs do not play a significant role in Danish SEA practise at the moment, there are possible benefits of integrating them into the SEA process. Both S. Lave and L. Krog believe that the SDGs could contribute at the municipal level in municipal strategies.
L. Krog adds that the SDGs could add a new layer of knowledge to the SEA practise, and new discussions about how the plans are contributing to sustainable development. This is backed by R. Olsen, suggesting that the SDGs could be used as a way to assess the overall goals of sustainable development. R. Olsen believes that the SDGs could be a more explicit way of addressing the contributions towards sustainable development, a statement supported by S. Lave. R. Olsen believes that the environmental concept of SEA needs an update. This update can be provided by utilizing the SDGs, as they are more precise in showing how broad the environmental concept of SEA practise and the concept of sustainability are. Additionally, L. Krog adds that SDGs could enable SEA practitioners to reflect on how they are currently conducting SEAs. She believes the SDGs could help to adapt the SEA process in order to reflect the global concerns of today. It could also add a new element of discussion between consultants and their customers [Krog, 2019].

M. Ramshev sees additional value in the SDGs, as he perceives them as something that creates a common language for actors within the SEA process. In relation to this, he also sees the SDGs as a good tool for communicating with politicians [Ramshev, 2019].

So far we have highlighted benefits that the SDGs could bring to SEA practise. These benefits range from adding a layer of explicit considerations towards sustainable

development, reflections of the SEA process as well as a communicative tool. These benefits can all amplify the contributions of SEA practise towards sustainable development.

6.2 Current efforts to integrate the SDGs in SEA practise

In order to explore links between the SDGs in SEA practice, it is necessary to establish an overview of the current efforts in regards to the SDGs and its use and application in practise.

A common statement from all of the practitioners is: The SDGs currently do not contribute to SEA practise. L. Krog and R. Olsen acknowledge that they currently do not work explicitly with the SDGs in SEA practise i.e., showcasing established SEA practise for integrating the SDGs. Likewise, R. Nielsen corresponds with a similar statement about environmental assessments in general. From a municipal perspective, both S. Lave and M. Ramshev echo similar opinions, saying that the SDGs have not had an explicit role in the plans they have assessed. However, they all speak of the fact that the SDGs and its sustainable aspect are often implicitly integrated in the SEA process [Olsen, 2019][Krog, 2019][Nielsen, 2019]. In other words, the themes of the SDGs are often relatable to their current practise, yet there are no explicit mentioning of the SDGs and no explicit, visible effects on the final product.
L. Krog states that a lot of their work within environmental assessments already relate to the SDGs. She says that much of the current effort already reflects some of the same themes. However, they need to improve in showcasing their efforts, and how they relate to the SDGs. Likewise, S. Lave says that several core municipal tasks are reflected within the SDGs such as clean water for everyone. M. Ramshev also indicates the Municipality of Aalborg works with SDGs in SEA implicitly.

Consultancies do prioritize working with the SDGs
Although all three consultants agree that the SDGs are currently not part of their environmental assessments, efforts has been conducted within their companies to work with the SDGs in their projects.
Rambøll has developed a tool that will help provide an initial overview of how the SDGs relate to the client's company, as well as unfolding new potentials [Rambøll, 2018].
NIRAS has developed the tool *SDG Capture*, a tool that can screen a project for its contributions, positive and negative, towards the SDGs [NIRAS, 2019].
COWI has, in collaboration with DTU Management, the Division for Quantitative Sustainability Assessment, initiated the development of a tool that aims at providing companies and institutions with easy-to-understand results on how they are impacting the SDGs [COWI, 2019].

In light of the lack of explicit integration of the SDGs in current SEA practise, there should be ample opportunities to explore the possibilities links between SEA and the SDGs.

6.3 Direct links

After establishing a lack of current examples of how the SDGs could contribute to SEA practise we will explore potential direct links between the operational level of the SDGs, the 169 SDG targets, and the environmental factors from the SEA Directive.

6.3.1 Links between environmental factors and SDGs

As established in section 1.1 *The new direction for sustainable development based on the SDGs*, the SDGs and their targets can be seen as a network of connections [Blanc, 2015]. As part of the effort of exploring synergies between the SDGs and SEA, the SDG targets has been cross-referenced with key words relating to the environmental factors as described in chapter 4.4.1 *Finding key words for the environmental factors*. The purpose of linking the environmental factors of the SEA Directive and SDG targets was to establish that there is a direct link and showcase the generic correlation. The reason for choosing the SDG targets was that the targets operationalize the overarching goals on a global scale i.e., they are guiding the effort for achieving their respective goals. The result of the interrelation can be seen in figure A.3 in appendix A.5 *Cross references between environmental factors and SDG targets*. To provide an overview of the connections, figure 6.1 is showing the same connections, but translating the SDG targets into SDGs for the sake of simplifying.

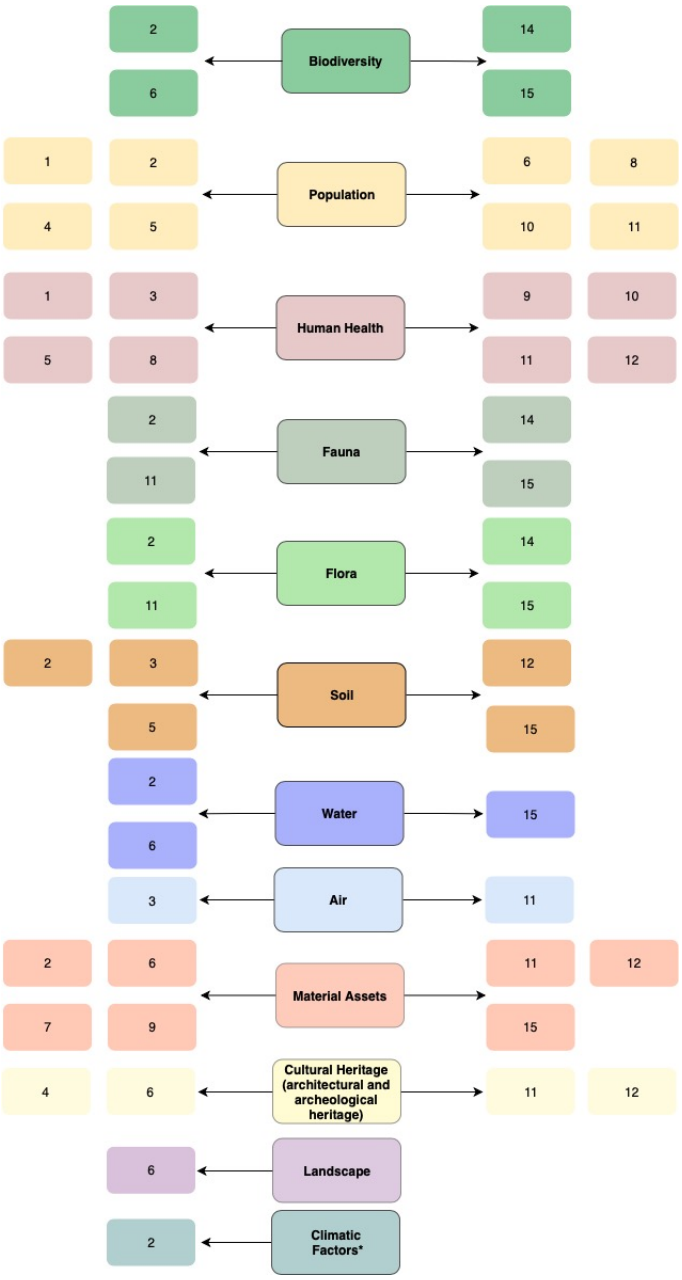

Figure 6.1: The interrelations between the SDGs and the environmental factors from the SEA Directive

The result of the cross-reference showed a total of *58* individual targets that are linked to the environmental factors, out of a possible *169*. A relation to a target has only been counted once, meaning that every target has only been counted once, regardless of the number of connections to environmental factors. 14 out of the 17 SDGs were included. The omissions are SDGs 13, 16 and 17. The total number of connections, when allowing two links to the same target to count as two, is *107*. However, we will argue that climate change is a strong parameter within environmental assessments, especially through the *climatic factors*, and as such could have direct connection to SEA. This is a limitation of the model methodology focusing only on links between the keywords. Besides, an additional

obvious connection to climate change, SDG 17 (regarding partnership for the goals) can also be seen as relevant, given that SEA should, in addition to assessing the significant impacts on environmental factors, assess the interrelationship between the factors [The European Parliament and The Council of the European Union, 2001]. For a complete list of keywords associated to the environmental factors, see appendix A.5 *Cross references between environmental factors and SDG targets.*

By creating the generic model, we have established a direct link between the environmental factors of SEA practise and 58 of the SDG targets. This shows a link between SEA and the SDGs.

6.4 Indirect links

So far we have shown a direct link between the SDG targets and the environmental factors of SEA. In addition to this connection, we also see indirect links between SEA and the SDGs.

6.4.1 What is the link between SEA as a tool and the SDGs

Several actors see potential in how SEA as a tool can contribute to achieving the SDGs. M. Ramshev says that SEA can be used to put sustainability on the agenda for some plans. In reference to chapter 1 *State of the art - integrating SEA and the SDGs*, the SDGs can be seen as the new agenda for sustainability. In addition to this, L. Krog states that SEA as a tool needs to match the current scope of sustainable development, which can also be interpreted as working towards the SDGs. R. Olsen presents a similar point of view, saying that he sees SEA as a tool for assessing contributions towards sustainable i.e. what the UN and its member states has agreed upon is the goal for development.
Furthermore, he also believes that the professionals making plans or programs would all agree that working towards fulfilling the SDGs is vital, and he sees SEA as a tool to aid that process. Additionally, R. Olsen see similarities in that what SEA addresses is very much aligned with what the SDGs are all about. He believes that the strategic nature of the SDGs aligns well with SEA.

6.4.2 What is the link between the practise of SEA and SDGs

In addition to the links between SEA as a tool and the SDGs, the practise of SEA can also be linked to the concept of the SDGs.

S. Lave believes that if the SDGs are perceived as the norm for sustainable development they should also be integrated into the individual topics within the environmental concept of SEA practise. This way the SDGs could be used as a benchmark for sustainability.
M. Ramshev believes that the SDGs are already implicitly part of the planning process, as many of the themes covered by the SDGs are also focus point in the plans.

United Nations Economic and Social Council [2017] present additional links between SEA and the SDGs. The SDGs emphasize stakeholder involvement, public participation, transparency and access to information, which are all core elements of SEA practise. Conversely, SEA can contribute to working towards SDG 16 about *promoting peaceful and inclusive societies* [United Nations Economic and Social Council, 2017].

By now we have established indirect links between SEA as a both a tool and a practise and the SDGs. As a tool the link is established through assessing contributions towards sustainable development, whereas the link at the practise level of SEA is established through the environmental concept of SEA.

6.4.3 Summarization

This section has elucidated what the SDGs could bring to SEA and that they are currently not integrated into SEA practise. Furthermore we have established a direct link between keywords related to the environmental factors and the SDG targets, creating a generic model showing a correlation between the SDG targets and the environmental factors. Finally, we presented indirect links between the SDGs and SEA as a tool and as a practise. These findings show an unfulfilled potential for utilizing the SDGs to add value to the SEA practise.

7 The SDGs adding value in the SEA practise

So far we have established benefits of integrating the SDGs in SEA, as well as both, direct and indirect links between SEA practise and the SDGs. This section will elaborate on how these benefits can be added to different aspects of SEA practise. As we are focusing on how the SDGs can contribute to SEA practise, the question of how SEA can contribute to the SDGs will be unfolded in the discussion chapter 9.1 *How could the SDGs contribute to SEA?*

7.1 Where in the SEA practise could the SDGs add value?

M. Ramshev and L. Krog agree that it would be beneficial and meaningful to integrate the SDGs at an early stage i.e., the plan design phase. L. Krog believes that it could provide an opportunity to handle different issues or risks that need to be addressed at the planning level by using SDGs as a way of illuminating strategic disputes. Moreover, M. Ramshev continues by stating that there are a lot of opportunities for including SDGs in the plan design phase and creating a dialogue with the developers.

These statements align well with the scientific literature. Therivel [2006] states that in order to achieve more sustainable outcomes of the assessment, the discussions and decisions should happen at a strategic level. In order to achieve better outcomes, focus should be placed on how the future should develop, what the aim of the development should be, rather than whether or not the negative impacts are acceptable [Therivel, 2006]. Additionally, Hacking [2019] presents several benefits of integrating SDGs at the strategic level. Firstly, the cross-sectoral nature of SEA makes it a favorable place for discussions of how different objectives are compared and evaluated. Additionally, Hacking believes that the SDGs can elevate the ambition level of assessments by clarifying the meaning of 'sustainability', making it more prominent. In relation to SEA, IAIA [2002] defines a good SEA process as, amongst other things:

"Ensuring appropriate environmental assessment of all strategic decisions relevant for attaining sustainable development"

[IAIA, 2002]

which aligns very well with the points of view of both practitioners and academic literature.

Both the empirical data and the academic literature states that SEA can provide the greatest contributions at the strategic level by emphasizing sustainable development, which makes the plan design phase the optimal place to integrate the SDGs. This suits the strategic nature of the SDGs and that it is in the plan design phase that the strategic discussions unfold and alternatives are assessed. Subsequently, we will unfold some of the benefits of integrating the SDGs in the plan design phase.

7.2 How can the benefits of the SDGs add value to the plan design phase?

There are numerous benefits of integrating SDGs into SEA practise, which we covered in section 6.1 *What are the benefits of working with the SDGs in SEA practise.* Some of the aspects of the SDGs could be valuable and positively contribute to the design phase.

The SDGs can add new angels to discussions on sustainable development
As touched upon in the previous section 7.1 *Where in the SEA practise could the SDGs add value?*, the SDGs can add new elements to strategic discussions. This is possible due to the SDGs being a more detailed concept of sustainability with 17 focus areas rather than 3 pillars, providing a more explicit framework for sustainable development. This could illuminate potential actors and add new elements to the plan design. As an example, SDG 2 refers to *ending poverty.* In this case, it is referring to absolute poverty i.e. living for 1.90 $ a day [World Bank, 2015]. In Denmark, the number of people living for 1.90 $ a day is very low, 0.2 %. Therefore, this would probably not feature within discussions in the plan design phase. However, when assessing progress on SDG 2, Denmark usually measures relative poverty [Bertelsmann Stiftung & SDSN, 2018]. This means that the subject of poverty could be relevant to discuss when designing the plan, for instance by ensuring that new retail stores would have to give surplus food to organizations helping homeless people. Additionally, the SDGs could be used to assess how the plan contributes to sustainable development by assessing the contributions towards the SDGs. This could enable new perspectives and reflections of some efforts. For example, green urban spaces are sometimes part of plans. Green urban spaces can contribute to climate change adaptation through e.g. water retention. An obvious SDG related to this would be SDG 13 about *combating climate change.* An addition to this, the green urban spaces could be incorporating learning aspects

about climate change, which is target 13.3. This can add value that would otherwise not have been considered.

The SDGs add a common language for sustainable efforts
In addition to adding a source of inspiration and a new perspective to the discussions in the plan design phase, the SDGs can provide a common language for communicating the aspects of the plan. This can go for internal communication between departments, but also between practitioners and stakeholders, like citizens or politicians.
For the citizens, the communicative value of the SDGs can come through simplifying technical aspects of the plan, if they are expressed through the SDGs. Additionally, it can provide a platform for discussing the aspects of the plan that does not require professional knowledge. The SDGs can also be used to communicate priorities as well as what citizens, and stakeholders in general, find important.

7.3 The SDGs can add value outside of the plan design phase as well

In the previous section we covered the contributions that the SDGs can provide to the plan design phase of SEA practise. In addition to this, some of the benefits can also be applied to other aspects of SEA practise.

The added prominence of sustainability initiatives can also be applied within the environmental report as a way of expanding the strategic element. It could be done similar to how SEA reports are currently referring to relation to other plans and programs, or the environmental protection goals. This could also benefit from being part of the dialogue between client and SEA practitioner.
Additionally, because the SDGs can make sustainability efforts more specific and explicit, they can also have a function as a way of localizing sustainability efforts. By having a more nuanced scope of sustainability, the SDGs could assist in citizens seeing a clearer link between their own values and priorities and objectives for sustainable development. This could for example be by specifying initiatives to provide *equality for all*, which would usually have been clarified as 'social sustainability'.

As L. Krog explains, the SDGs could also add reflections of current SEA practise. It would lead to reflections on whether or not current SEA practise considers different objectives and aspects of the SDGs.

Another aspect worth considering is, as M. Ramsev has pointed out, that the SDGs could be a great way of communicating with politicians. He says that the SDGs are very much part of the political agenda, thus making them useful for communicative purposes. He explains that just like he would usually refer to a legislation or a national guidance when a

plan is contradicting the interest of his department, he has successfully used the SDGs as a means of communication to illuminate a problem that set up the foundation for handling a similar problem [Ramshev, 2019].

7.3.1 Challenges outside the scope of the SDGs

This chapter has highlighted several possibilities for how the SDGs can contribute to different aspects of SEA practise. However, the SDGs are not suitable for solving every challenge within SEA practise.

The interviews with S. Lave and M. Ramshev presented an iterative SEA process with continuous dialogue and input from a range of professionals in the plan design phase.
However, when talking to R. Olsen and L. Krog from the consultancies, they provided a different perception of the process, where they weren't involved before the assessment of the impacts, thus antagonizing opportunities for providing input to the strategic discussions. According to L. Krog they have offered to join the strategic discussions for free, which was still turned down.
It seems like an issue of roles in the SEA practise, to which we do not see any immediate contributions from the SDGs.

Furthermore, whilst the SDGs can add additional perspectives to strategic discussions, they could also justify trade-offs that would usually not have been allowed, if the SDGs are misused by justifying negative impacts to some areas through vague positive contributions towards other SDGs.

Lastly, the value of the SDGs is mainly at the strategic level, in line with the objective led SEA approach. So far we have highlighted the strategic values of the SDGs, as well as argue for a need for objective led considerations in SEA practise, see section 1.2 *SEA and sustainable development*. However, a discussion of the drawbacks of the objective led approach is also needed. This will be further elaborated in section 9.3 *Objective led: Would it be complementary or total switch?*.

Summarization
This chapter has elucidated where and how in SEA practise the SDGs could add value. Both practitioners and the scientific literature accentuate the plan design as the part of SEA practise where the SDGs could add the most value. This could be through both added reflections, new topics for discussions based on a broader, yet more explicit concept of sustainability, as well as strengthening communication. Additionally, we see potential in integrating the SDGs in other aspects of SEA practise, e.g. in the environmental report to enhance the strategic discussions through the environmental protection goals. However, we have also highlighted some instances where the SDGs would struggle to add value.

Thus we have so far established the direct and indirect links between SEA and the SDGs, as well as where and how the SDGs can add value to SEA practise. Therefore, the following section will focus on which elements that could support a transition towards an SDG based, objective led SEA practise, as well as which elements that could hinder this transition.

8 How to support the integration of the SDGs into SEA practise

Up until this point, we have analyzed the benefits that the SDGs could bring to the SEA practise, the links between the SDGs and SEA practise and how these added benefits could be implemented into the SEA practise. Based on above-stated, the following chapter will present and discuss elements that either requires some alteration to support the integration of the SDGs, as well as elements that support the integration of the SDGs. Finally, we will add our own reflections on these elements, and provide our own input on how the SDGs could be integrated into Danish SEA practise.

8.1 What would need to change in order to integrate SDGs into SEA practise?

There are several reasons for why SDGs are not introduced in SEA practise yet related to SEA practise and/or the SDGs. This section will elaborate on what the interviewees deem to be the main elements that potentially need some form of change for the SDGs to be applied in Danish SEA practise, thus hindering changes to the current institution of Danish SEA practise, as well as discussing them at the end of the section.

8.1.1 Elements of SEA practise that requires change

The gap between the content of SEA and the scope of the SDGs
According to Partidário [2019], the current way of primarily assessing biophysical aspects in SEA is not compatible with the majority of the SDGs. This is because of the narrow scope that biophysical elements of SEA entail. A similar issue is raised by M. Ramshev, stating that SEA is an impact assessment of plans. Most plans are made in accordance with the law of planning, which subsequently only allows regulation of physical aspects. This limits the number of SDGs that would be relevant in an SEA, as well as skews the practise towards being impact-led.

Need for legal set up for the SDGs and SEA

Another strong aspect that might limit the SDGs from becoming a part of SEA practise, is the lack of legal requirements for integrating the SDGs. R. Olsen states that because the Danish legislation does not demand working with the SDGs, it could be seen as an add-on that would only increase the time and costs of the project. Additionally, the SDGs could add some level of confusion between what is legally required (the SEA) and what is additional (the SDGs). M. Ramshev also notes, that legal requirements are aimed at the traditional way of assessing environment, however evaluating social aspects is not part of the set up.

Moreover, L. Krog adds that private developers often solely perform only the legal requirements. She admits that some developers will go further of what is compulsory, however the majority would limit their contributions to what is legally required. Furthermore, M. Ramshev also says that some departments of the municipality are working within areas where the plans do not require an SEA, such as the social department and school department.

8.1.2 Elements of the SDGs that requires change

The need for localizing the SDGs to the context in which they are applied

Another common difficulty stated by the interviewees is the disparity in the scope of SEA and the scope of the SDGs i.e., the SDGs are not localized to fit the local context of SEA. M. Partidário states that translating the goals to make sense, within the context that they are applied in, is key. Furthermore, M. Ramshev emphasizes the need for localizing the SDGs to make them relevant in a Danish context. He still sees a lot of work ahead in order to make them operational because of its very broad nature i.e., being global goals [Ramshev, 2019]. This is seconded by S. Lave, saying that:

> *"If the SDGs can be operationalized at a level that is relevant in a Danish context, then I can see some opportunities in it"*
>
> [Lave, 2019]

Without localizing the SDGs, M. Ramshev believes the scope of the SDGs is too broad, and that all the goals might not be equally relevant in a planning context. Moreover, he points out that due to the wide scope of SDGs, it would be hard to assess the 'soft' values of the goals in the assessment process, as it could either lack the expertise on assessing these aspects or lack the meaning if not made context specific. Thus, he sees the merit in using the SDGs in SEA practise once they make more sense on a local level [Ramshev, 2019].

Need for a measurement or national reporting system
Another aspect that hinders the use of SDGs in SEA is the lack of a system that enables measurement of the SDG progress [Lave, 2019]. In addition to this, M. Ramshev says that he sees a need for a national monitoring system to which municipalities can report their contributions. If such a measurement system could be introduced, it would help to be more explicit and clear on the performance of municipalities or consultancies in regards to the national SDG goals. It would also help to reflect on the progress of particular institutions and its contributions towards sustainable development.

The addition of the SDGs could seem like another addition to a comprehensive process
Another potential difficulty related to the SDGs, is that some practitioners or other relevant parties might view it as being an unnecessary addition to the SEA process and an extra assessment on top of SEA [Olsen, 2019]. Conversely, S. Lave actually states that he sees no need to add additional elements to the environmental assessment process, just for the sake of adding them.

Rivaling sustainability initiatives M. Ramshev highlights the potential conflict between different sustainability objectives if the SDGs were integrated in the SEA process. It is due to fact, that some cities might already have designed their plans in accordance with other sustainability objectives, making the SDGs competitors. It would furthermore make it more difficult for the municipalities to integrate or prioritize one initiative over another.

So far, we have elucidated six essential elements that would require some sort of change in order to be more supportive of transition towards an SDG based objective-led SEA practise. These elements are based on technical aspects such monitoring system or perception of integration being too extensive or costly and alike. It also stems from the fact that legal requirements do not encourage additional content for SEA, outside of what is legally required. This can maintain a low motivation and initiatives from practitioners or authorities.
In consideration to above-discussed barriers, we will further assess the carriers that could potentially support the transition towards an SDG-led SEA practise.

8.2 Carriers that can enhance the integration of SDGs into SEA practise

We have analyzed what currently keeps the institution from supporting the integration of the SDGs. Therefore, we seek to analyze the aspects and efforts it would take to change the institution of Danish SEA practise from practitioners and consultants point of view.

Authorities taking charge and demand the SDGs to be a part of the assessment Several interviewees emphasize that the competent authorities could be the main driver for integrating the SDGs. S. Lave says that if the SDGs are to be utilized in SEA practise it requires the individual planning authority to decide that they want to work with the SDGs, and subsequently demand it in the SEA process. This is supported by R. Olsen, saying that the request needs to come from those ordering the assessment. He adds that the drivers behind the plan could also insist on the inclusion of SDG considerations into the SEA process. He believes that the actors ordering the assessment of the plan could make the claim to include the SDGs as part of the assessment. Likewise, it is a statement also agreed by L. Krog, as she expresses that demand for integrating SDGs into SEA practise should be raised by the government or municipality. Stating, that the government is the foundation of the city.
M. Ramshev adds to this point, that shaping an SEA after SDG-related categories should not be an issue, thus enabling the competent authority to use the SDGs to shape the SEA requirements.

Changing the legal framework to demand the inclusion of the SDGs Lastly, changes in legislation is also a way of integrating the SDGs in Danish SEA practise. According to L. Krog, legislation is very determining for the SEA process, and the legal requirements would carry a lot of weight when attempting to introduce the SDGs to the SEA process.
S. Lave presents a different option, saying that the guidance could present an overview of which environmental issues relate to which SDGs, although he himself has a hard time seeing that as a viable option. M. Ramshev indicates that changes in regards to use of SEA as a tool are needed, and not within the practise. He further states, if legislation would support proactive approach, it would give more benefits.

Reflecting upon the elements for change

Reflection based on what needs changes Several elements that require changes are linked and can thus affect one another. The discrepancy between the current SEA practise being impact based and the SDGs being strategic is enhanced by the current legal setup in that SEA is working towards mitigating negative impacts rather than setting a set of goals and working towards those. The SDGs could skew this towards the latter, if they are localized into something that suits the local context. An added benefit of localizing the SDGs could be that the added work it would require would strengthen the commitment towards the plan in that stakeholders could identify themselves with the plan and be more supportive, which could lead to off-sets in the amount of complaints and objections in the SEA process.
In regards to the national monitoring system it would make working with the SDGs in SEA

easier. However, the focus would be on how the efforts are contributing to national goals, i.e. still be an impact based approach. The focus when working with the SDGs could shift towards 'To what extent are we contributing to the national goals?', rather than using the SDGs to establish a set of local goals or targets to work towards. Some of the same arguments could be used in relation to legally demanding the integration of the SDGs. If the integration has to be legally enforced, coercive action would follow. This would require measurable contributions, which again leads back to being based on impacts, rather than objectives.
Finally, the rivaling sustainability initiatives would be an issue, though one could argue that the end goal is sustainable development, and a contribution based on another initiative is better than no contribution.

Reflection on the carriers for change The legal changes could be the fastest way of forcing the SDGs into SEA practise. However, as stated in the previous sections, there are some limits to changing the legal aspect. Firstly, it would be a lengthy process of changing the legislation. Furthermore, a legally forced integration could result in a lack of local ownership over the SDG initiatives, limiting the possible effect of the SDGs. Secondly, it could be argued that legally demanding SDG implementation could become a time-consuming, complex process with the downside of having the limitations towards SDGs-led practise. For instance, similarly to SEA Directive that is aligned to limited environmental scope, it could become an issue that laws could marginalize certain aspects of the SDGs.

The main driver for integrating the SDGs in SEA would be the demand from competent authorities, as several interviewees point to. However, if the competent authority demands the SDGs being part of the assessment, it would limit the outcome of the integration, as the assessment would be impact based, given that the assessment happens after the strategic discussions. This means that the full potential of the SDGs would not be fulfilled, since it would be more about not having negative impacts, rather than setting up a framework for what the future should hold.

Although the authorities could demand the SDGs being part of the assessment, nothing prohibits the consultants from integrating the SDGs in their SEA practise. The 2030 Agenda states that the member states should integrate the SDGs themselves, not who within the member states that should do it. It could be emphasized that initiative from the actors themselves could benefit and contribute towards the integration of SDGs. We do agree with L. Krog that there is no case example of how to do it, we would likewise argue that it would be further incentives to be front runners and be the ones to make the case example.

Integrating the SDGs in the design phase of the plan In regards to where in the SEA process the SDGs could add the most value, the common agreement seems to be 'as early as possible'. Ramshev [2019] sees ample opportunities for introducing the SDGs in

the SEA process, especially in the design phase of the plan, presuming the legal scope of SEA is expanded to include this phase as well.

In conclusion, from the practitioners and consultants point of view, it seems the aspects of what might limit the transition to objective-led SEA out weight the ones of opportunities. On the one hand, it might highlight the practitioners and consultants mind set and reflect on the current efforts done in the area. For instance, if SDG integration is not extensively introduced and it is still a vague and uncertain subject in their practise, it can reflect on their common agreement that legislation and authorities are the ones that should be in charge of introducing the development goals. Further, lack of practise could contribute to the consultants and practitioners not being eager to shape the idea of them voluntarily introducing and creating a common dialogue about the SDGs. On the other hand, it might stem from the fact, that SEA practise is rooted in legislative process and thus underlines the difficulty for the institution of SEA practise to adapt to new changes. Besides, the common argument that demand should come from authorities shows the reactive response from practitioners and consultants and could therefore also be an element that keep the current institution from changing.

8.3 What could be done in order to integrate SDGs into SEA practise

Throughout this project we have established that the SDGs provide the most value in the strategic aspects of SEA practise. Therefore, we would recommend working with the SDGs as early as possible in order to utilize their strategic nature. Before getting started with the recommendations, it has to be said that when working with the SDGs there are ample opportunities of green-washing, or, SDG-washing, so self integrity is a virtue.
As a first step, use the SDGs to set benchmarks and end goals - decide which objectives to aim for, and discuss how the current plans and strategies are working towards fulfilling these objectives. If the current plans have significant omissions in relation to the SDGs, think about whether it is an important aspect. If yes, include it in the group of objectives. After determining the objectives, localize them. The SDGs as a set of global goals can be very broad, and localizing them is key. Involve key stakeholders, internal and external, in the localization process. This will not only provide a clear image of the important aspects of the SDGs, but could also result in increased support and engagement from stakeholders. Finally, create an action plan for how to reach the objectives by including the localized aspects.
A way of adding even more value to the plan could be to ask a simple question: *"How do you work with one SDG through another?"*. This way, the SDGs will add value to your plan by enhancing additional values.

Part IV

Discussion and conclusion

9 Discussion

9.1 How could the SDGs contribute to SEA?

Throughout the analysis, the emphasis has been placed on how the SDGs could be added to the Danish SEA practise. Therefore, this discussion section will explore some of the aspect of how SEA can contribute to the SDGs.

SEA can help to monitor and to report the effort of achieving the SDGs
Every member state that signed and agreed upon the 2030 Agenda, including the SDGs, is responsible for monitoring its own progress. SEA could work as a tool for assessing and monitoring SDG progress. Furthermore, SEA is applicable at many levels, making it feasible for local contributions as well as trans-boundary and international efforts.
Another strength of SEA is its relation with EIA. Together with the environmental assessments, both tools can assess the objectives (SEA) and the level of contribution (EIA).

SEA promoting SDGs It has been established that both tools are well aligned and are aimed at steering the decision-making towards sustainable development. If SDGs could be successfully integrated into the SEA practise i.e., at the planning level, SEA could further promote SDGs on the local or national level between other governmental institutions.

9.2 What are the drawbacks of using the SDGs in SEA practise?

Throughout the report we have analyzed multiple benefits of integrating the SDGs into SEA practise. Therefore, it is also necessary to discuss some of the drawbacks that the SDGs could bring.

Partidário [2017] present four disadvantages of using the SDGs in SEA:

1. The SDGs may make IA less context specific
2. The SDGs may make IA less effective
3. Add an extra element to a comprehensive process

These disadvantages will be further discussed in the following section.
Firstly, the SDGs as a set of global goals can, if not localized properly, bring several disadvantages. The local context of the assessment risks being neglected due to an increased focus on global goals. The SDGs could remove focus from the local aspects towards aiming at national/international goals instead, thus neglecting the local context. Furthermore, local impacts also risk being overlooked at the expense of focusing on and working towards other nationally set objectives. Secondly, the possibility for SDGs making IA less effective could be reflected on the extra time needed to assess additional objectives of SDGs. It could make the assessment less effective if more objectives are required to be assessed.
Moreover, SDGs could carry en extra burden due to fact that SEA already is a rather thorough and detailed assessment, which could perhaps result in adding more time and resources to the process.

9.3 Objective led: Would it be complementary or total switch?

A lot of emphasis in this project has been placed on the objective-led SEA approach and the advantages that follow it. Therefore, this section will discuss some of the elements of the objective-led, as well as the strengths of a complementary approach.

As highlighted in this report, the objective-led approach allows for strategic considerations and sets out objectives, which is the original purpose of SEA. However, it can be hard to legally enforce objective-led discussions, as taking coercive action could be a complex problem without explicit data. Another angle to look at would be at the current SEA practise and how would a complete switch to objective-led assessment affect it. There is a possibility that a switch to complete objective-led approach would decrease the overall quality of the practise due to the EIA-based SEA process that is embedded in practise as well as the required time to transition to the objective-led SEA. Similarly, it could be discussed to whether quality of SEA process and the outcomes would improve, or on the contrary - decrease due to more extensive assessement. Another perspective could be looked at to if the switch would occur, would the perception and understanding of strategic nature of SEA would change along with the integrated objectives or would it to some extent remain the same. For instance, if objective-led transition would be implemented, but no legal requirements enforced, people working with SEA, could still have different interpretations and understandings on how to use SEA.

9.4 Discussion of methodology

This section is composed of discussion on the methodology applied in the thesis. It will include a reflection on interviews and SEA reports as well as the generic model of links between SDGs and SEA for the purpose to assess how the data was interpreted and consequently how it might affect the results.

Interviews

Six semi-structured interviews with both, practitioners and consultants of SEA were conducted. Additionally, one interview with the expert and a leading researcher in IA was carried out to obtain qualitative data. The nature of semi-structured interviews is to enable open discussion with interviewees as well as to allow the interviewers to open up possibilities for them to lead the discussion towards different directions. Such type of interviews allowed us to gain more objective answers if compared to group discussions.
Two of the interviews were held in Danish and further translated into English, whereas the rest of it was done in English. The possible limitations to conduct the interviews in English with non-native respondents could lead to giving inaccurate data, because respondents might not clearly and fully express their ideas. Furthermore, translating data from one language to another might give misinterpretation of the content of the interview and further affect the outcome of the results. However, these limitations have a minor effect on the overall results.

Next, interviewees were chosen based on their expertise and position or role in SEA practise. Two of the respondents were practitioners working with SEAs and EIAs from municipalities, whereas three of the interviewees were from consultancy company. The limitation can arise of not including other relevant perspectives within the SEA process. For instance, employees from planning departments of municipalities, developers or other authorities could be included. It would help to gain more comprehensive information of the research topic and thus might give different outcomes. Another viable option could be interviewing an expert in legal field related to environmental assessments to obtain information from regulatory angle on the researched topic.
In addition, other individuals or organizations working with the SDGs could bring in different outlook based on their experience or examples.

SEA reports

Twelve different SEA reports were analyzed to gain an overall knowledge on the content of the reports as well as assess different elements of SEA based upon the documents. Additional option could have been to set a discussion with the practitioners working with

the specific SEAs to gain more detailed information on the SEA process.
Moreover, by looking at the documentation of SEA reports, the method is limited to only assessing one aspect of the whole process of SEA.

Links between SDG targets and environmental factors

Another method we used in our research was based on a generic approach to connect SDG targets with environmental factors. This approach includes several limitations. First of all, the links were made directly to the target level of SDG without looking at the goal level. The key word search was then applied to description of the targets to find the links. This process excluded the connection with overall goals that already had a direct link to the environmental factors. Next, the key words were chosen based on the underlying directives or well-known, recognized organizations, which limited the scope of assigning relevant key words and therefore could limit the connection to other relevant SDG targets. Besides, the key words itself could be expanded to include more words for the search purposes and, in that sense, have already opened up the possibility for more targets being relevant.
Secondly, to choose the environmental factors itself already limits the connection because they originate from the Directive of SEA and thus represent the narrow scope of SEA. In that case, if the links are used to directly connect or translate the SDGs, it would be solely limited to the same impacts as assessed in SEA and would not serve the whole purpose of SDGs.
From a broader point of view, this type of method is restricted to only show direct links and illustrate that there are connections between the two concepts. However, due to the limitations of the key word search it cannot stand alone as a universal model for the links between the SDGs and SEA.

10 Conclusion

The purpose of this project is to investigate how the SDGs can contribute to Danish SEA practise. The chosen methods reflect the research topic. The qualitative, applied science research approach provided the opportunity of in-depth exploration of the research area by talking to SEA practitioners working within consultancies or municipalities, as well as Maria Partidário, one of the two leaders of IAIA special task forces on the SDGs. The following research question provided the basis for this thesis:

How can the objectives of the Sustainable Development Goals be integrated into strategic environmental assessments in order to strengthen the SEA practice towards sustainable development in a Danish context?

With the following sub-questions clarifying the research objectives:

- *How are the SDGs and SEA interrelated, and what are the direct and indirect links between them?*
- *How can the SDGs provide additional value to the SEA practise?*
- *Which aspects of SEA practise can support a transition towards an SDG based, objective-led SEA practise?*

In order to answer the research question, empirical data was collected. Six interviews formed the primary foundation for data for our analysis. The first interview was conducted with Maria Partidario. The purpose of the interview was to get initial info on the SDGs and SEA process from a research-perspective. The outcome of the interview was rewarding in that it elucidated some of the challenges with SEA and the SDGs. The remaining five interview served the purpose of elucidating the Danish SEA practise. Each interviewee has had ample opportunity to express their own, personal opinion. More interviewees could have been included, though from a consultant side, the answers probably would not have significantly differed. In order to get a more thorough understanding of the Danish SEA practise we could have tried to interview more competent authorities. Additionally we tried to interview an environmental lawyer to get more in-depth knowledge on the legal aspects of SEA, but the appointment did not materialize.

Due to the novelty of the subject, literature review was limited to only few scientific documentations about the research topic. It supported the evidence, that research about SDGs integration into SEA practise is notably new and still under development.

How are the SDGs and SEA interrelated, and what are the direct and indirect links between them?
We have established both direct and indirect links between the SDGs and SEA practise. Firstly, a generic model was created based on a key word search approach. It created links to 58 different SDG targets from the environmental factors, and a total of 107 links. The results show a generic link between the SDGs and SEA, yet it cannot be said to stand alone as a tool for how to link the SDGs and SEA. The main purpose of linking SDGs and SEA was to demonstrate an option of linking the two concepts resulting in a successful outcome.
The indirect links were aligned based on two approaches - SEA being a tool and its connection to SDGs, and SEA as a practise and its possible links to the SDGs. The first link correlated with the concept of sustainable development and the objectives of both SEA and the SDGs. The other connection was created based on the fact that if the SDGs are seen as the norm for sustainable development, it should be possible to connect SEA practise with the SDGs.

How can the SDGs provide additional value to the SEA practise?
The Danish practitioners all pointed to the plan design phase as the best aspect of SEA practise to integrate the SDGs, which was backed up by the scientific literature. The SDGs can provide several benefits for the plan design phase, including a broader, yet more explicit scope for sustainability. Additionally, the SDGs can provide a common language for communication by e.g. expressing technical aspect of a plan through the SDGs.

The plan design phase is not the only aspect of SEA practise where the SDGs can contribute. The SDGs can add an element of assessment by assessing the level of contribution towards sustainable development, i.e. achieving the SDGs. Furthermore, by specifying efforts towards sustainable development the SDGs can also add an element of localization to sustainable development projects. Lastly, the SDGs carry a lot of political power, making them a great tool for communication within the political arena.

Which aspect of SEA practise can support a transition towards an SDG based, objective-led SEA practise? There are multiple elements of SEA practise that needs to adapt in order to support an SDG-based, objective led SEA approach:

- The discrepancy between the scope of the SDGs and the content of SEA
- An unbinding legal framework
- The need for localization
- A national reporting system
- The addition of the SDGs could add even more to a comprehensive process

- Rivaling sustainability initiatives

The discrepancy lies in that SEA is used as a tool for impact assessments, rather than its original purpose of being a strategic tool, whereas the SDGs are strategic by nature.
The legal framework is neither requiring nor inspiring the integration of additional sustainability measures when conducting an SEA, leading to SEAs assessing the minimum requirements, provided by legislation.
The broad scope of the SDGs can seem intangible to many, unless they are translated into local action - localized. Several interviewees, including Maria Partidário, emphasize the need for localizing the SDGs.
A national monitoring system to which municipalities could report their contributions was also mentioned as a way of initiating the integration of the SDGs.
Adding the SDGs to the SEA process could result in adding more to an already comprehensive process. Some interviewees even talk about making the SEA process shorter.
Rivaling sustainability initiatives could interfere with the integration of the SDGs, especially if a city has based their municipal developmental plan on that initiative. As such, there six elements in total, that need to adapt if they are to contribute to the achievement of the SDGs.

In addition to the six elements that hinder the Integration of the SDGs in SEA practise, two main aspect can support a change towards the objective led, SDG based SEA process. The two elements are changes to the legal process, which would be a long process and it might not even provide a great result.
The other element is that the competent authorities start demanding SDG implementation into the assessments of the plans. Although the majority of interviewees point to the competent authority as being the one that needs to take charge. That being said, nothing prohibits the other practitioners from taking on the leader role

- Which elements need to change?
  - Lack of local relevance
  - Lack of measuring system
  - Discrepancy between the content of SEA and the scope of the SDGs
  - Adding elements to a long SEA process
  - Other sustainability objectives
  - Lack of legal requirements
- Which carriers can potentially help to transition to integrating the SDGs in SEA?
  - Authorities taking charge
  - Integrating the SDGs in the design phase
  - Changing legislation

In addition to answering the research- and sub-question we provide a set of recommendations. In short they can be summarized as: Use the SDGs as benchmarks and localize

your efforts in order to gain local engagement towards your project.

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A Appendix

Link to every interview, soundfile, transcription, coding, etc. - https://drive.google.com/open?id=1q3xT6H
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A.1 Example of interview guide

Sub-questions	Themes	QUESTIONS
	Formalities	Could we tape the interview?
	Role in SEA	What is your role in SEA practise? What is your experience with SEA?
1. What are the characteristics of the current institution of SEA practice?	Perception of SEA	What is the purpose of SEA? What are the pros or cons of using SEA for PPP? How do you see SEA contribute to sustainable development?
	Regulatory aspects of SEA practise (based on institutional perspective)	How do you see the regulation restrict or enable practise done in real life?
	Normative aspects of SEA practise	As an authority, what is important when doing the scoping? - Are the environmental factors always the determining factor(s)? As an authority, when doing the scope of SEAs, do you always focus on impacts? - Are the objective-based measures considered in the scoping of SEA? - Are there a strategy or strategic aspects considered? How are you working with practitioners to enhance the impact of SEA? When do you use it?
	Communication between authorities, planners and practitioners	Regulations or norms on using SEA while developing the plan or program simultaneously? From perspective of practitioners working in municipality, how and when do you communicate with authorities proposing and developing the PP, consultants conducting the SEA and other involved parties?

Figure A.1: Example of an interview guide

A.2 Example of coding of interviews

	Open coding	Axial coding	Selective coding
Perception of sustainable development	-Use SEA at the end of the planning process (Rasmus R) -Is not addressed earlier in the planning process (Rasmus R) -Lack of understanding and good practise (Rasmus R) -Sustainability is both, very concrete and more broad perspective (Rasmus) -SEA not being high on agenda as a tool and as a practise (Rasmus R) -SEA putting sustainability on the agenda (Morten) -Aalborg Municipality doing their own scope on CE, our own sustainability strategy in SEA (Morten)	1. Use SEA at the end of the planning process (Rasmus R) -Is not addressed earlier in the planning process (Rasmus R) 2. Lack of understanding and good practise -SEA not being high on agenda as a tool and as a practise (Rasmus R) 3. Sustainability is both, very concrete and more broad perspective (Rasmus) 4. Aalborg Municipality doing their own scope on CE, our own sustainability strategy in SEA (Morten) 5. SEA puts sustainability on the agenda (Morten)	**1. SEA is addressed later in planning process** **2. Misuse of SEA** **3. Sustainability has a concrete and broad perspective** **4. Aalborg Municipality example on sustainability in SEA** **5. SEA and sustainability**

Figure A.2: Example of the coding process

A.3 SDG target connections - Asia

A.4 Full SEA process

A.5 Cross references between environmental factors and SDG targets

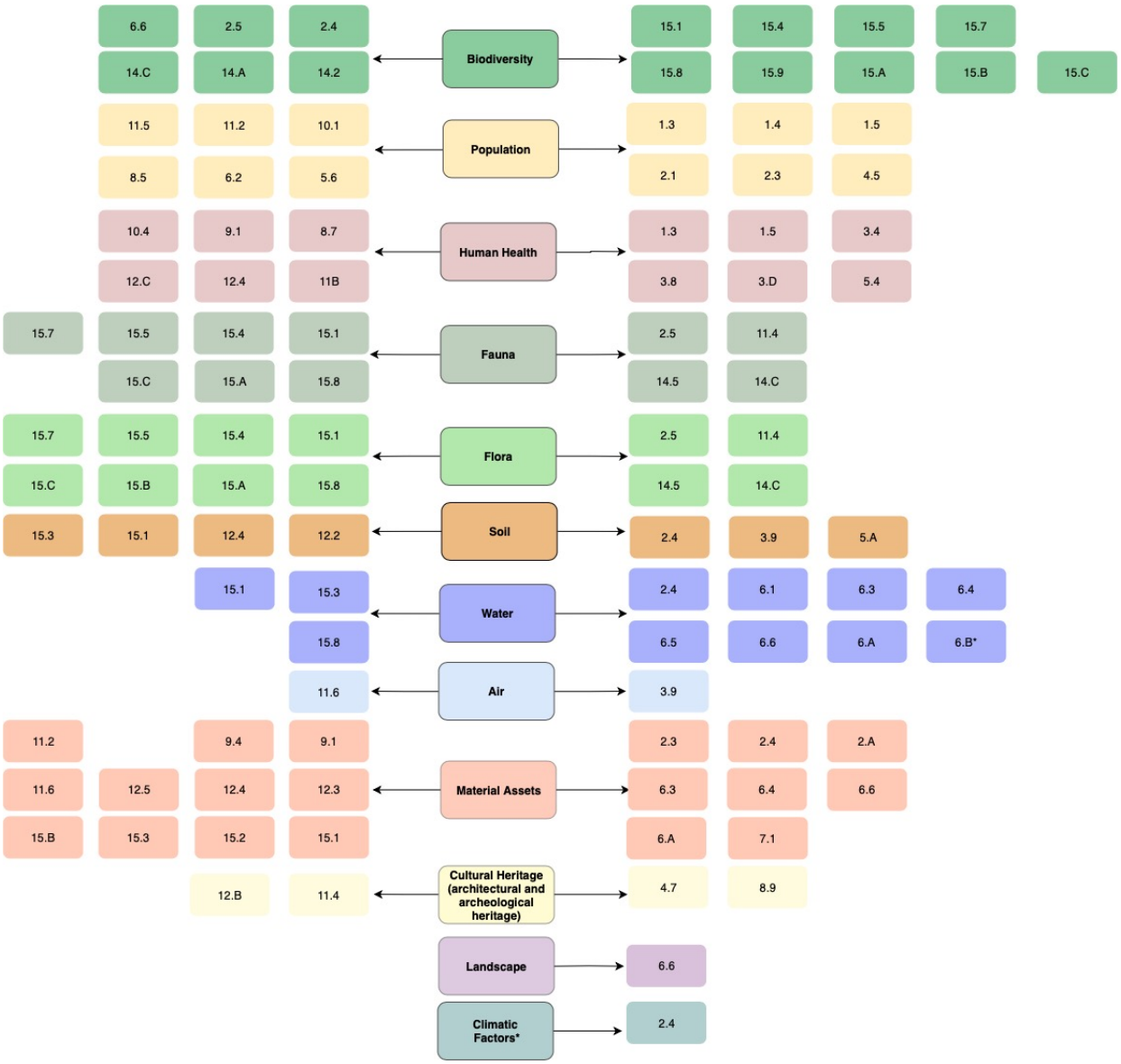

Figure A.3: The interrelations between the SDG targets and the environmental factors from the SEA Directive

A.6 SDG target connections - Asia

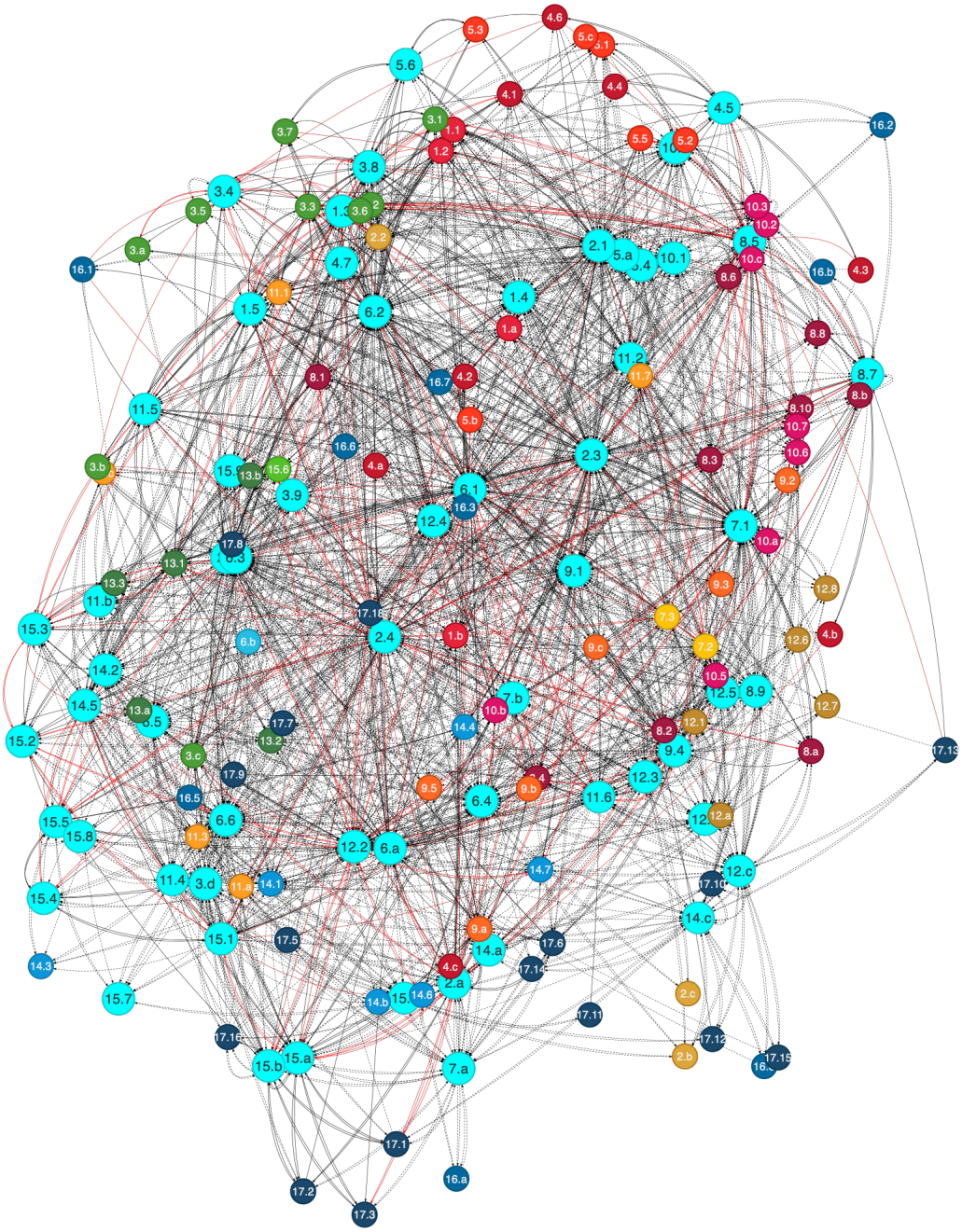

Figure A.4: The SDG targets found through the cross referencing with the environmental factors, and how they are linked to other SDG targets [Institute for Global Environmental Strategies (IGES), 2018]