

# SUSTAINABLE DEVELOPMENT IN URBAN PLANNING PRACTICE

A RESEARCH OF THE TENSIONS IN  
OPERATIONALISING SUSTAINABLE  
DEVELOPMENT THROUGH SUSTAINABILITY  
TOOLS IN URBAN PLANNING PRACTICE

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# Abstract

The pressure to deal with urbanisation and environmental challenges strain current urban planning institutions. Translating sustainable development into urban planning practice is an urgent task for urban planners, to secure future needs of cities. A gap in literature is identified, and this research questions how urban planners operationalise sustainable urban development through sustainability tools in urban planning practice. This research explores practice cases and urban planners' stories from Copenhagen-, Odense-, and Aalborg Municipality, in relation to how they have designed sustainability tools and practices of sustainable urban development planning; how they are reflexive; and how they position themselves in the tension between practice and theory of sustainable development. To achieve the goals of sustainability it is crucial to develop an urban planning practice, by which urban planners can communicate and facilitate sustainable development. There are, however, challenges for the urban planners in finding their legal authority role as well as their role as process- and dialogue facilitators, by which the tools are representations of the need for more collaboration and coordination between actors, in order to cope with current institutions ill-equipped to cope with the ideals of sustainable development.





# Dansk Resumé

Dette kandidatspeciale undersøger bæredygtig byudvikling i kommunale byplanlægningspraksisser fra følgende problemstilling:

*Hvordan operationaliserer byplanlæggere bæredygtig byudvikling gennem bæredygtighedsværktøjer i byplanlægningspraksissen?*

Urbanisering samt stort pres på miljøet og ressourcer udfordrer byer til at skabe en mere bæredygtig udvikling, hvor der både tages højde for miljømæssige, økonomiske og sociale forhold. Nuværende institutioner, heriblandt byplanlægningspraksisser, er dog ikke skabt til at håndtere- og skabe bæredygtig udvikling i samfundet og må videreudvikles til at kunne sikre fremtidens behov for byernes funktioner. Bæredygtig udvikling blev introduceret i Brundtlandrapporten og har siden været svært at implementere og tilpasse til lokale byplanlægningspraksisser, fordi begrebet er bredt og frotolkes på mange forskellige måder.

Specialet tager udgangspunkt i København-, Odense-, og Aalborg Kommune som praktiske casestudier til at undersøge 1) hvad de institutionelle designs af bæredygtighedsværktøjerne udviklet af byplanlæggere er, 2) hvordan de lokale byplanlæggere er refleksive over bæredygtighedskonceptet i forhold til deres byplanlægningspraksis, 3) samt hvordan byplanlæggernes position ændrer sig i forhold til at sikre bæredygtig byudvikling.

Problemstillingerne undersøges med udgangspunkt i teoretiske koncepter om institutionel design- og forandring, refleksivitet i byplanlægning og byplanlæggerens position i forhold til byplanlægningspraksis. Historier fra lokale byplanlæggere/professionelle, som arbejder med bæredygtig byudvikling i praksiscasene, samt dokumenter danner det empiriske grundlag for undersøgelserne.

Den empiriske undersøgelse viser at bæredygtighedsværktøjerne primært er udviklet til at sprede en holistisk forståelse af bæredygtig byudvikling, til at skabe dialog omkring bæredygtige løsninger med mange aktører i planlægningsprocesser samt til at prioritere beslutninger i planprocesser. Dette for at legitimere arbejdet og beslutningerne omkring bæredygtig byudvikling i den kommunale byplanlægning. Den frie fortolkning af bæredygtighed viser sig dog i de tre grafiske modeller af bæredygtighedsværktøjerne, som er meget forskellige i temaer og form.

Undersøgelsen viser at alle praksiscasene er i en igangværende proces om at videreudvikle og tilpasse deres bæredygtighedsværktøjer.

Historierne fra lokale byplanlæggere/professionelle viser at deres refleksivitet over bæredygtighedskonceptet, byplanlægningspraksis samt af den samfundsmæssig udvikling

er repræsenteret i videreudviklingen af bæredygtighedsværktøjerne i kommunerne. En ændret forståelse af bæredygtig udvikling, fra snævre tekniske løsninger til et bredt helhedsorienteret fokus, viser sig i et større fokus på multifunktionelle løsninger og synergier i byplanlægningspraksissen. Ekstern interesse og pres på bæredygtighed gør at planlæggerne er refleksive over at inkorporere beregningsmetoder og eksterne forståelser for bæredygtighed i bæredygtighedsværktøjerne.

Historierne fra byplanlæggerne peger dog særligt på at både dialog- og juridiske handlemåder er essentielle for at lykkes med at skabe bæredygtig byudvikling. Begge er vigtige i at overføre de gode intentioner omkring bæredygtig udvikling til konkrete løsninger i praksis, da dialog ikke sikrer løsninger i sig selv, og på den anden side er de juridiske muligheder ikke ambitiøse nok i forhold til byplanlæggernes ønsker og at sikre byers fremtidige behov.

Byplanlæggernes opgaver i at sikre bæredygtighed er at kommunikere, informere og sprede den brede forståelse af bæredygtig udvikling, samtidig med at skabe en god planlægningsprocess med dialog, samarbejde og inklusion af mange aktører. Byplanlæggerens position hævdes derfor at være både talsmand og facilitator af bæredygtig udvikling i spændingen i at operationalisere, sikre og planlægge for en bæredygtig udvikling. Ifølge praksishistorierne ændrer byplanlæggerens rolle sig, i takt med stigende fokus på bæredygtig udvikling, i en mere proces faciliterende og medierende retning, fremfor kun at agere planmyndighed. Begge rolle er dog presserende i ønsket om at sikre, at byplanlæggeren kan skabe bæredygtig byudvikling i praksis.

Med udgangspunkt i de praktiske caseanalyser peger denne undersøgelse på tre essentielle spændinger, som byplanlæggeren manøvrerer i, i arbejdet med at sikre bæredygtig byudvikling: 1) spændingen i at arbejde indenfor institutioner der er dårligt udrustede til at sikre bæredygtig udvikling, 2) spændingen i arbejdet med forskelligartede interessefelter, dagsordner og initiativer for bæredygtig udvikling, 3) samt spændingen forbundet med det kommunikative rationale i planlægning, som fokuserer på dialog som en fremgangsmåde for handling i byplanlægningspraksis, set i sammenhæng med myndighedsrollen.



# Preface

This thesis is conducted by students from the master programme Urban Planning and Management at Aalborg University between 2<sup>nd</sup> of February until the 8<sup>th</sup> of June 2018.

The thesis explores the sustainable urban development planning practice through stories of urban planners, with a focus on sustainability tools and a connected practice developed by three Danish municipalities.

The authors of the thesis would like to thank Enza Lissandrello who has provided constructive supervision and feedback throughout the research.

The authors would further like to thank the five planners and professionals from Copenhagen-, Odense-, and Aalborg Municipality for participating in interviews, sharing their perspectives, experiences, and practices, providing insight into the development of sustainability tools and sustainable urban development planning practice.

## Reading Guide

The thesis is organised in four parts: 1) an introduction, where the research problems and questions are defined; 2) the theoretical frame including literature review, theoretical perspectives and the analytical framework; 3) the methodology of the research including research design, general method and data generation methods; 4) the empirical work and analysis covering contextual knowledge, three analysis parts, discussion, and concluding remarks. Within each part, the thesis is structured by chapters and sections which are enumerated. All tables and figures in the research are numbered in relation to the respective chapter and section they are placed within.

Havard citation style is used for references. All references are thereby cited as (Surname, year) in the written text or by referencing to the author in the text as Surname (year). In the end of the thesis, the bibliography is listed, with all references used, in alphabetic order according to the author(s) of the publication.

Additionally an appendix report is assembled with the interview guide, documents for document analysis, and transcriptions of the interviews. The appendix report is uploaded in connection to the thesis. Throughout the thesis the appendix report is referenced, e.g. (see appendix report, Appendix A).



## Part I

# Introducing Sustainability in Relation to Urban Planning

*The introduction part presents the concept of sustainability as a response to environmental stress. The concept is connected to urban planning, by relating environmental issues to urbanisation. Sustainable development is presented in relation to different policy levels: the global perspective; the national perspective with a focus on Denmark; and the local perspective, which focus on sustainability in relation to urban planning and the urban planner. The introduction explores the challenges of sustainability and sustainable development in urban planning and poses a research question. This is followed by the scientific approach to the research, as well as an overview of the structure of the following thesis.*



# 1 Sustainability at Multiple Policy Levels Related to Urban Planning

*"Over the course of this century, the relationship between the human world and the planet that sustains it has undergone a profound change."* (World Commission on Environment and Development, 1987, in 'From One Earth to One World', part IV, article 101, pdf p. 26)

*"Scientists bring to our attention urgent but complex problems bearing on our very survival: a warming globe, threats to the Earth's ozone layer, deserts consuming agricultural land. We respond by demanding more details, and by assigning the problems to institutions ill-equipped to cope with them."* (World Commission on Environment and Development, 1987, in 'Chairman's Foreword', pdf p. 6)

Increasing environmental stress, amongst others, caused by resource consumption leading to e.g. climate change as well as awareness of societal issues, such as poverty and hunger, draws attention to the need for action (World Commission on Environment and Development, 1987). The response to the issues has been to demand more information, as well as a blaming institutions.

As a response to the complex problems, and as a way to address these issues, the concept of *sustainable* is argued (see e.g. World Commission on Environment and Development, 1987; Wheeler, 1996; Wheeler and Beatley, 2004; United Nations, 2010; Wheeler, 2013; United Nations, 2015). The concept sustainable is used *"to describe a world in which both human and natural systems can continue to exist long into the future"* (Wheeler, 1996, p. v). Different variations of the concept sustainable are used, e.g. *sustainability* and *sustainable development*.

The challenge of sustainability and sustainable development has been faced in many fields, including the fields of planning. According to Campbell (1996) the idea of sustainability has become acknowledged and somewhat a given. It is no more a variable, but a part of almost any future scenario for development.

It is especially relevant when addressing environmental stress and societal issues, to consider the concept of sustainability, specifically the concept sustainable development, in a context of the global world in which trends of urbanisation is still progressing, and calls for attention with regards to managing the urban development in a sustainable way (United Nations, Department of Economic and Social Affairs, Population Division, 2015).

*"With good planning and governance, the increasing concentration of people*

*in urban settlements can facilitate economic and social development, while also offering opportunities to mitigate the adverse impact of consumption and production on the environment. However, rapid and unplanned urban growth threatens sustainable development when the necessary infrastructure is not developed or when policies are not implemented to protect the environment and ensure that the benefits of city life are equitably shared.*" (United Nations, Department of Economic and Social Affairs, Population Division, 2015, p. 1)

United Nations (UN) exemplifies the important connection between sustainable development and urban planning. These are intertwined, and they argue that sustainable development cannot be achieved without considering the urban policy level. UN further link sustainable development to urban planning, stating that actions at the local level are important in order to secure the goals of sustainable development globally. UN point towards the link between global strategies and local planning, and this connection's ability to secure the needs of humanity while protecting the environment (United Nations, Department of Economic and Social Affairs, Population Division, 2015).

UN connect sustainable development and urban planning. Wheeler (1996), however, described the term sustainable development as fuzzy, and with many questions surrounding it, among which he emphasise:

*"... can the term be applied to the process of urban and regional development which are proceeding at such a rapid pace around the globe, and which are creating the physical environments within which future generations will live?"* (Wheeler, 1996, p. v)

Sustainable development thereby links to local and regional actions and planning, and as argued the urbanisation is still progressing. The questions by Wheeler (1996) are still relevant, as urbanisation is still increasing, which is also argued by UN (United Nations, Department of Economic and Social Affairs, Population Division, 2015).

Increasing urbanisation influences land use, human welfare, social equity, and resource and energy consumption (World Commission on Environment and Development, 1987; Ahern, 2011), which indicates that the urban environment becomes a critical point in addressing the sustainability challenge. As argued by Ahern (2011):

*"(...) the challenge for sustainability in the 21st century will, arguably, be won or lost in cities and larger urban regions."* (Ahern, 2011, p. 341)

The connection between sustainable development and urban planning is thereby underlined with the trend of urbanisation, as in 1950 30 % of the world's population lived in urban areas, whereas in 2014 54 % live in urban areas. UN project that this will rise to 66 % in 2050 (see figure 1.1 on page 5) A growth of more than 50 % in only a century. The urban areas will increasingly have to accommodate increased populations, thereby also increased resource consumption, while it is still an interest to facilitate social life. For this Wheeler (1996) propose a definition:

*"Sustainable urban development seeks to create cities and towns that improve the long-term health of the planet's human and ecological systems."* (Wheeler, 1996, p. 55)



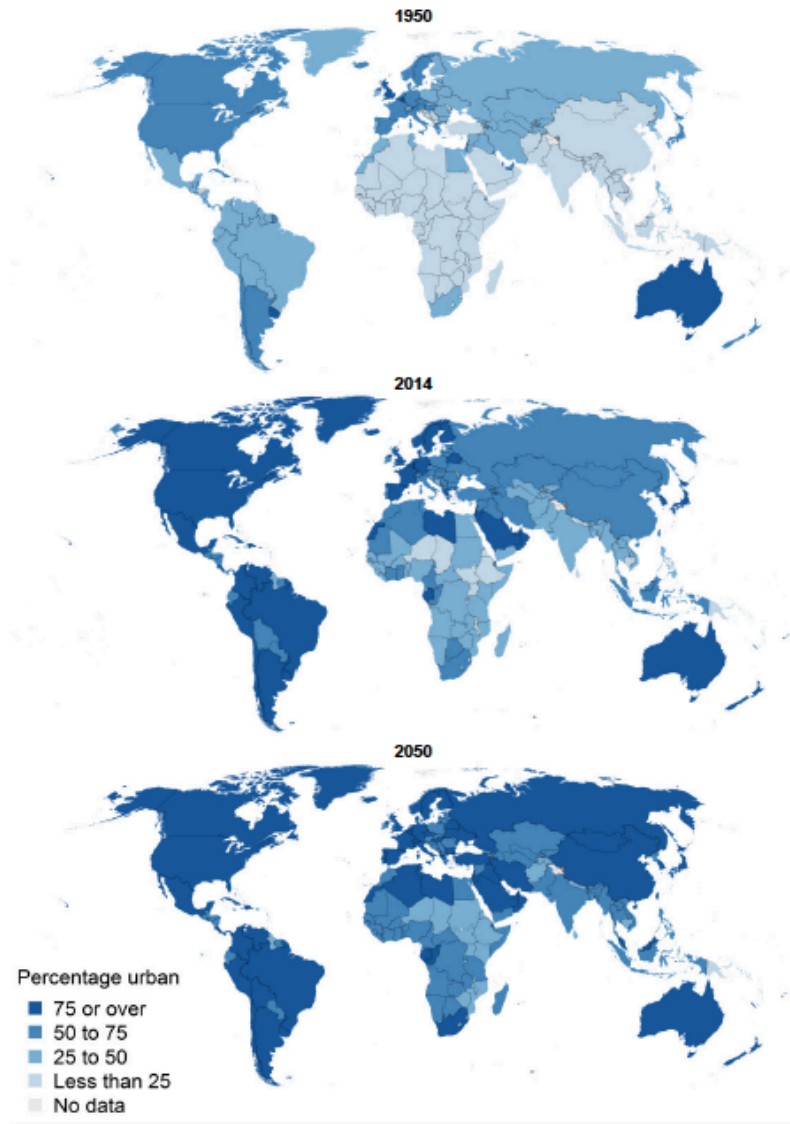


Figure 1.1: "Population concentrating in urban areas, in percentage, in year 1950, 2014 and 2050" (Figure 1.2 in United Nations, Department of Economic and Social Affairs, Population Division, 2015, p. 8).

Wheeler (1996) explains this definition is systems- and process oriented, acknowledging that uncertainty will always be present. Describing sustainable urban planning, Wheeler (1996) questions whether this is a new paradigm in urban planning. Wheeler (1996) concludes that this paradigm is still in the early stages, and that many policies still has to be figured out, as well as the political will to take actions needs to be found. In recent years Wheeler (2013) still emphasise that the practice need to be figured out.

With point of departure in UN emphasising the global perspective with focus on goals and strategies and the local level and planning, as well as Wheeler (1996) emphasising policies and political will to be figured out in relation to urban planning, our perspective is directed towards different policy levels of sustainability considerations and actions. Several researchers (see e.g. (Næss, 2001; Berke, 2002; Wheeler, 2013)) also stress the importance of considering all levels in securing sustainable development. The following sections will explore the international level, the national level with focus on Denmark, and the local level in relation to sustainability and sustainable urban development.

## 1.1 International Sustainable Development Initiatives

The sustainable development concept was introduced by UN in The Brundtland Report in 1987, even though the objectives of sustainable development had been in focus since World War II (World Commission on Environment and Development, 1987). In The Brundtland Report, UN define sustainable development as:

*"Humanity has the ability to make development sustainable to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs."* (World Commission on Environment and Development, 1987, in 'From One Earth to One World', I, 3, article 27, pdf p. 16)

The understanding revolves around securing that people's basic needs are met, both rich and poor, by creating international as well as local transformation of economy and society to be based on a long-term foundation. UN acknowledge that by defining sustainable development in this broad all-encompassing sense, it will be a long-term fight:

*"Yet in the end, sustainable development is not a fixed state of harmony, but rather a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are made consistent with future as well as present needs. We do not pretend that the process is easy or straightforward. Painful choices have to be made. Thus, in the final analysis, sustainable development must rest on political will."* (World Commission on Environment and Development, 1987, in 'From One Earth to One World', I, 3, article 30, pdf p. 17)

Developing a world on a sustainable basis is a long process of continues considerations to the the use of resources and creating investments that are comprehensive, now and in the future. Since The Brundtland Report, the sustainable development concept as well as actions towards it have been continuously elaborated. Starting with the UNCED conference in Rio de Janeiro in 1992, where *Agenda 21* was presented (UNCED, 1992). Agenda 21 defined policies and measures to achieve sustainable development, including equity, technology, and entrepreneurship. The Summit focused on creating local commitments to secure the global desires of sustainable development. In this relation Malbert (1998) highlights the slogan: *"think global and act local"* (Malbert, 1998, p. 19) as Agenda 21, links the global discussions of sustainable development to the local level in which it can be achieved. With Agenda 21, the understanding was broadened with specific goals and local policies that the Member States were committed to implement in national and regional policies (UNCED, 1992). Although the definition remained the same, the understanding of sustainable development became more operational towards local actions.

Researchers have also, since the introduction of sustainable development and sustainability, continuously made contributions to the understanding and values. Based on the thoughts from The Brundtland Report, three dimensions of sustainability have been defined: social-, economic-, and environmental sustainability. These are explored in urban planning literature, as e.g. Campbell (1996) refers to the dimensions as economic, environmental and social justice. Wong and Goldblum (2008) refers to economic, environmental

and equity concerns, and Ahern (2011) describes the values as social and economic needs, health and undoing environmental mistakes of previous generations, to secure future generations. Literature continuously apply new notions, understandings and definitions of sustainability, sustainable development, as well as the accompanying values and objectives (Basiago, 1999). Wheeler (2013) states that there have been attempts to add new values to the general or condensed value-set of sustainable development such as empowerment and education. Other elaborations are attempted by adding indicators to the values of social sustainability with focus on democracy, community, culture, the public realm, safety, justice (Dempsey et al., 2011).

Related to sustainable development, Næss (2001) argues that the understanding includes a paradox: that in order to secure future generations, current generations has to limit their consumption, but for all people to have their basic needs met, the developing countries will increase their consumption.

In order to achieve ideals of sustainable development, UN continue to interpret values of sustainable development as well as develop initiatives. In 2010 the millennium declaration defined specific actions and goals of sustainable development (United Nations, 2000). With point of departure the declaration 8 sustainability millennium goals where defined: 1) eradicate extreme poverty and hunger, 2) achieve universal primary education 3) promote gender equality and empower women, 4) reduce child mortality, 5) improve maternal health, 6) combat HIV/AIDS, malaria and other diseases, 7) ensure environmental sustainability, 8) develop a global partnership for development (United Nations, 2010). The Millennium Goals thereby gave specific objectives on how to secure sustainable development, from a broad perspective.

The concept and actions for sustainable development has further been expanded in recent years, as United Nations (2015) promote sustainable development through 17 new sustainable development goals (SDG) (see figure 1.2 on page 8). The agenda is an action plan mainly to improve conditions for people, planet, prosperity, peace, and partnership. With the goals UN propose a new era to secure sustainable development:

*"In these goals and targets, we are setting out a supremely ambitious and transformational vision. We envisage a world free of poverty, hunger, disease and want, where all life can thrive. (...) A world where human habitats are safe, resilient and sustainable and where there is universal access to affordable, reliable and sustainable energy."* (United Nations, 2015, p. 3, item 7)

Although the vision is still general, each new goal has a more specified approach. The 17 new goals are still related to achieving basic human needs. They are, however, now more nuanced and also refers to how it is possible to do more than the basic needs.

Especially goal number 9 and 11 are relevant in relation to urban planning and development, and thereby this thesis. Goal 9: Industry, innovation and infrastructure: build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation; Goal 11: Sustainable cities and communities - make cities inclusive, safe, resilient and sustainable (United Nations, 2015). Sustainable urban development planning presents opportunities for regulation and focus on the indicators of these specific goals, as they specifically refer to regulation of the physical environment of cities and rural areas with a focus on sustainability. These goals show the acknowledgement of the need to adapt cities for the future needs taking into consideration the dimensions and issues of

a sustainable development. The 17 goals show the development of concept, actions, and focus of achieving sustainable development.



Figure 1.2: United Nations 17 goals towards sustainable development next 15 years (United Nations, n.d.).

Sustainable development, in concept and values, has been evolving since the day it was promoted as basis for developing our world. The broad understanding of sustainable development, introduced with The Brundtland Report is still present in the actions, understandings, and approaches to achieve sustainable development today. The concept has, however, been expanded and specified in relation to how to achieve it through specific development goals. The understanding and visions towards sustainable development can, as the different understandings indicate, not only be achieved at global level. It is important to create local actions where sustainable development can be accomplished.

## 1.2 National Actions Towards Sustainable Development with a Focus on Denmark

Agenda 21 was developed in order to secure that overall global visions were founded both nationally and regionally in the Member States, which underlines the perspective and exploration of sustainability in relation to the national level. This research focus on Danish urban planning practice, and therefore is Denmark explored as the national level.

The Danish Government has devised several overall sustainability strategies since the start of the 2000s (see Regeringen (2001, 2002, 2003, 2009, 2014)). In 2013 the ministry of environment further published an inspiration report of tools for the sustainable city to create actions towards the sustainability goals. In this report it is highlighted how cities and sustainability are interconnected and how cities in the future must develop in a sustainable way, and it provides a suggestion on how to accomplish and work with sustainable urban development and transition in practice:

*"Cities are one of the most important keys towards a sustainable development. It is necessary with solid knowledge on how to establish sustainable cities, to exploit this development potential and to tackle the social-, economic-, and*

*environmental challenges.*" (Miljøministeriet, 2013, p. 4, own translation)

Cities are important when seeking to develop Denmark in a sustainable direction, it is however a complex issue. It requires long-term actions and solutions in relation to all aspects of society.

In a regulatory context, The Danish Planning Act sets out the overall sustainable development objectives in planning (Erhvervsministeriet, 2018). The Danish Planning Act and the Danish planning system is thereby one of the most important overall tools towards a sustainable development in a Danish urban planning context. Sustainability, as explicit term, plays an important role in the overall purpose paragraph of The Danish Planning Act:

**Chapter 1 § 1.**

This Act shall ensure that the overall planning synthesizes the interests of society with respect to land use, contributes to protecting the countrys nature and environment, and provides a good frame for growth and development in the entire country, so that sustainable development of society with respect for peoples living conditions, for the conservation of wildlife and vegetation, and economic prosperity is secured.

(Erhvervsministeriet, 2018, own translation, inspired by the translated purpose paragraph from Danish Ministry of the Environment (2007))

It is clear that the sustainable development concept is embedded as an important focus, as it is written in the purpose paragraph. One of the main purposes of doing spatial planning is to consider the values related to sustainable development.

Sustainable development is also embedded in chapter 6a of The Danish Planning Act, where the commitment to Local Agenda 21 is founded. This chapter requires the Danish regions and the Danish municipalities to work and facilitate sustainable regional- and urban development (Erhvervsministeriet, 2018; Miljøministeriet, 2007) (the regional level is not explored in this thesis, as the regions do not have an actual influence on spatial planning in Denmark).

In Denmark the municipalities must consider the Local Agenda 21 frame every election period, which is often done in relation to the municipal plan (Miljøministeriet, 2007). The strategy must include political goals that contribute to reducing environmental impact, regional- or urban development/transformation, inclusion of citizens, and cross-sectoral cooperation. Malbert (1998), however, criticise the regulative institutionalised sustainable development, with point of departure in the Swedish planning system, arguing that the policy says more about what to achieve, namely sustainable development, rather than how to actually do it.

The Danish planning system, further, operates with planning tools in attempts to secure sustainable development, e.g. VVM (assessment of consequences on the environment), environmental assessments, and environmental reports. These tools are used in planning, when considered necessary. Their function is to secure environmental and social elements are analysed and assessed in relation to development projects.

The Danish Government is also concerned with how municipalities accomplish the task of implementing Local Agenda 21 objectives, and take local action securing a sustainable

development. In the reports 'Tools for the Sustainable City' and 'Assessment and Communication of Sustainable Local Plans', devised by The Ministry of Environment, there is created a focus on the sustainable city and how different Danish municipalities have worked with- and developed tools to secure sustainable development (Miljøministeriet, Naturstyrelsen, 2012a; Miljøministeriet, 2013). Tools developed by the individual municipalities in order to secure the national objectives of sustainable development, in local urban planning. The Ministry of Environment explained the work of the municipalities, with a notion of a further request:

*"The Planning Act, environmental assessments and Agenda 21 collectively form the point of departure for the work of the municipalities with sustainability. But still more request common frames of how sustainability should be implemented in local plans."* (Miljøministeriet, 2013, p. 6, own translation)

The sustainable development legal frames, tools and commitments, to secure a sustainable development, shows the political desire to create a sustainable development at the national level in Denmark. The challenge in practice is now how to achieve the sustainable development objectives in local urban planning.

### 1.3 Achieving Sustainable Development at the Local Level

Although the action at the local level is important, Næss (2001) points out that the local action and work should still happen within a more general frame, to secure that not only the local consequences are considered. Næss (2001), further, emphasise that the local level cannot solve the global issues of sustainability by themselves, but they are needed to implement initiatives of sustainability. With the focus on the local level, Malbert (1998) offers a perspective on the problems for planning practice in relation to sustainable development. With reference to the local Agenda 21, he states the issues for planners:

*"Studies of current local Agenda 21 processes show that these personnel sometimes have great difficulties in finding their roles and using their skills in the new situation, where the vision of sustainable development is still vague and cannot be tackled within standard operating procedures, and where public sector economy is put under strong pressure."* (Malbert, 1998, p. 24)

*"one can conclude that there is no generally accepted operational interpretation of the concept [sustainable development] and that practical applications most often are experimental; they differ from standard operating procedures of mainstream planning."* (Malbert, 1998, p. 21)

As mentioned, sustainable development in Denmark is embedded in the Danish planning system, however, as Malbert (1998) states that the issues for the planners are that the concept is vague and there is not a general accepted way to work with sustainability and practical use is often experimental. Malbert (1998) is critical of how the local level should manage sustainable development when the standard procedures cannot manage the issues, and when practical applications of the concept is still lacking, and he questions how general goals are to be met locally, and with which approaches.



Although Malbert (1998) is critical, there are examples of general approaches to manage sustainable development locally, e.g. the Aalborg Charter (European Cities & Towns Towards Sustainability, 1994) and the agreement commonly known as Aalborg Commitments (European local governments united in the European Sustainable Cities & Towns Campaign, 2004). Agreements to sustainable development made with inspiration from amongst else Local Agenda 21. The agreements include focuses on urban management and planning, and European Cities & Towns Towards Sustainability (1994) describes how the instruments, policies, and tools for sustainable urban development has been successfully applied in many cities, although they recognise that it is not the instruments themselves that secure sustainability. They continue describing their own roles as local governments:

*"In this process we are called on to develop our own strategies, try them out in practice and share our experiences."* (European Cities & Towns Towards Sustainability, 1994, section I.14, pdf p. 5)

With the emphasis on developing strategies, practice and sharing experiences, the role of the urban planner becomes an interesting perspective, as they have a role in the development of practice and sharing experiences.

The role of the urban planner in relation to sustainable development is as well underlined by Malbert (1998) and Næss (2001). The urban planner should promote sustainable development, communicate knowledge about solutions, and generate debate about values and interests. It is further the responsibility of the urban planner to point to likely consequences of different scenarios and alternatives in development projects. Malbert (1998), however, points out, no local actor, private or public, should be seen as the sole responsible for sustainable development. It rather takes coordination of decisions and actions from several actors, to work towards sustainability at the local level.

Campbell (1996) addresses the undefined role of local planning and local planners in relations to sustainable development, describing that the challenge for urban planners is to address competing interests, which goes beyond personal preferences and misunderstandings, and thereby the conflicts of sustainability could be managed by considering complementary uses and solutions.

Næss (2001), further, gives critical perspectives as he considers theories of planning in relation working with sustainable urban development planning. He points that incrementalism is not an option to achieve sustainable development, neither is the rational-comprehensive approach, even though goal-orientation is necessary. Collaborative planning, emphasising dialogue is also not alone the solution. According to Næss (2001) there is no single approach or theory of planning, which in itself can be used as a solution, relating to Wheeler (1996) arguing for a sustainable urban development planning paradigm.

In relation Malbert (1998) states that the established planning institutions limits the possibility for change, while he emphasises external forces like visionary politicians or societal movements as playing an important role in changing the institutions of planning, to accommodate the sustainable development objectives.

Malbert (1998, p. 22) offers a conclusion of the issue of achieving and working locally with sustainable development in planning:

*"A possible conclusion from planning practice is that sustainable development can be seen as a long-term political vision. For practical applications according to this vision, more specific and operational definitions need to be worked out carefully at the local level, ensuring:*

- that relevant aspects of, and perspectives on, the local situation are integrated in and related to the global situation; and*
- that they make sense to the local communities and promote coordinated action towards the long-term vision."*

Malbert (1998) points further towards innovative planning and operating procedures, in which amongst other participatory decision-making should be secured, summarising that this should secure *"the necessary technical, behavioural, or institutional changes in society"* (Malbert, 1998, p. 132). The issue is again the operationalisation of political visions.

This issue of operationalisation can be related to what is seen in Danish municipalities, with the development of sustainable development tools, by which the concept of sustainable development is translated into a tool and an approach to local planning.

This underlines the complexity of managing and planning for a sustainable urban development at a local level, as the urban planner has to consider and use different approaches simultaneously, while dealing with deep conflicting values and interests that goes beyond misunderstandings and personal preferences.

## 2 Challenges of Sustainable Urban Development Planning

Achieving sustainable development is a long-term challenge both globally, nationally, and locally, as presented in former sections. The Brundtland Report underline the challenge in facilitating and creating a society based on sustainable thinking:

*"The objective of sustainable development and the integrated nature of the global environment/development challenges pose problems for institutions, national and international, that were established on the basis of narrow preoccupations and compartmentalized concerns."* (World Commission on Environment and Development, 1987,in '4. The Institutional Gaps', part I, article 31, pdf p. 17)

The Brundtland Report points towards a challenge in developing institutions to accommodate the sustainable development, because they were built with point of departure in other values. If society want to accomplish the sustainable future, The Brundtland Report suggests a reform: *"This reorientation is one of the chief institutional challenges of the 1990s and beyond. Meeting it will require major institutional development and reform."* (World Commission on Environment and Development, 1987,in '4. The Institutional Gaps', part I, article 39, pdf p. 18) Sustainable development, has been, and still is, a major challenge in terms of institutions to accommodate the values and rationales of sustainability. This is also a challenge in relation to the field of sustainable urban planning. To underline the challenge and problem of sustainable urban planning Malbert (1998) again provides a statement, as he links the challenges of sustainable development with challenges to planning systems:

*"Taken seriously, the vision of sustainable development is a great challenge to human society which concerns the use and distribution of resources as well as human interrelations, locally and globally, in the near as well as distant future. It thus includes challenges to established public planning systems."* (Malbert, 1998, p. 10)

Cities play a major role in managing, facilitating, and creating the future needs in relation to both environmental-, economic-, and social development, as future generations increasingly will be concentrated in urban areas. Sustainable urban development calls for attention and action more than ever before. In relation to managing cities and facilitating a sustainable urban development planning urban planners arguably play a major role. Urban planners are facing a contemporary challenge in meeting the needs of the people and

the long-term political visions of sustainable development, through a sustainable urban planning practice, in cities today. As Healey (1997) sums:

*"This sets a new challenge for the design of institutional mechanisms through which local political communities can address their common problems about the management of environmental change in localities; that is, the design of planning systems and planning practices. It requires new ways of understanding with which to grasp the dynamics of urban and regional change and new ways of thinking about institutional design of governance"* (Healey, 1997, p. 5)

Further, urban planners arguably have to continuously secure their role in taking sustainable development action, which is done by adapting practice to accommodate the political objectives related to sustainable development, by which this research will explore:

**How are urban planners operationalising sustainable urban development through sustainability tools in urban planning practice?**

This introduction has set out that there are major challenges of urban planning to achieve sustainable development. Challenges that have been defined since The Brundtland Report in 1987, and continues to be a challenge in terms of designing and changing the institutions of urban planning practice. This challenge is thereby still present and arguably needed to be accommodated. These challenges as well as the tensions of accommodating the urban planning practice institutions in terms of sustainable development, influenced by the agents within the institutions, is thereby the focus of this thesis. In this research a focus is taken on the municipally designed sustainability tools (mentioned in section 1.2), as this is understood as an operationalisation of the concept sustainable development. The general scientific approach to the research topic and the results, will be discussed further in following section.

### 2.1 Scientific Approach and Assumptions

Based on the research question of this project, the world view takes point of departure in different underlying ontological and epistemological assumptions of the world.

The research question puts forward key aspects, which are considered in presenting the perspective of this research. Firstly, the *planners* are perceived as agents. Further, *planning practice* is underlined and understood as a social system. Thus, by questioning how the agents take action in relation to the social system, this research acknowledge a relation between agency and structure (drawing links to the structuration theory (Giddens, 1981, 1984)).

The focus on society and human agency prompts assumptions of the world associated with those of social constructivism. These mechanisms are described by Berger and Luckmann (1966), as knowledge is assumed to be socially constructed, as well as social systems as structures are considered to be socially constructed, or reproduced by agency. Here the perspective by Giddens (1981, 1984) again becomes relevant, and he provides a distinction between social systems and structures:

*"Social systems are composed of patterns of relationships between actors or*

*collectivities reproduced across time and space. Social systems are hence constituted of situated practices. Structures exist in time-space only as moments recursively involved in the production of social systems."* (Giddens, 1981, p. 26)

This research considers planning practice a situated practice, constituting a social system. The mutual influence between the urban planners and the planning practice is associated with structure.

Based on the structuration theory other approaches have been constructed, amongst other institutionalism. In this relation Healey (1997) provides useful assumptions of the world in an institutional approach, as she states that her research:

*"rejects the notion that the social world is constituted of autonomous individuals, each pursuing their own preferences in order to obtain material satisfaction (...). It is based on the conception of individual identities, as socially constructed. Ways of seeing and knowing the world, and ways of acting in it, are understood as constituted in social relations with others, and, through these relations, as embedded in particular social contexts. Through the particular geographies and histories of these contexts, attitudes and values are framed. It is in these relational contexts that frames of reference and systems of meaning are evolved."* (Healey, 1997, p. 55-56)

The autonomous individuality is rejected, and focus is moved towards collectives instead, as planners are seen as embedded in a certain social context, in which social systems, or the institution of practice, is institutionalised through social relations.

Berger and Luckmann (1966) connect social constructivism with the view on social systems, structures, and institutionalisation, and further with the notion of roles. Institutions, understood as products of social relations, e.g. urban planning practice, are seen as products of social relations in which actions are habitualised, through which a typification of roles occur, implying that *"one shares with others specific goals and interlocking phases of performance"* (Berger and Luckmann, 1966, p. 91). This is further described in the statement:

*"the construction of role typologies is a necessary correlate of the institutionalization of conduct. Institutions are embodied in individual experience by means of roles. The roles, objectified linguistically, are an essential ingredient of the objectively available world of any society. By playing roles, the individual participates in a social world. By internalizing these roles, the same world becomes subjectively real to him."* (Berger and Luckmann, 1966, p. 91)

Planning practice as a social system, or an institution, is understood as constituting specific embedded roles of urban planners. Berger and Luckmann (1966) couples roles with role-specific knowledge. Providing an understanding of planner roles in relation to the knowledge of urban planners. Roles in this research is further understood in relation to urban planning tasks, which planners have to perform.

With regards to the *operationalisation* aspect of the research question, assumptions can be linked to perspectives of critical realism. This is described by Archer et al. (Roy Bashkar

in 1998) acknowledging the world of experience, in relation to the worlds of mechanisms and events.

The notion of experience is relevant, as this research seeks to examine how planners have operationalised sustainable development in urban planning practice and its objectives. It is assumed that the way in which we can learn of the operationalisation is through examining the experiences of the planners, in working with- and developing the sustainable development planning tools, as a way to operationalise the concept. Thereby the acknowledgement of experience, is further related to phenomenology. As this implies that the phenomena can be learned of through consciousness and experience. In this research the phenomena is seen as the operationalisation of the concept sustainable development, and it is assumed that we can learn of this through the experiences of planners, in which the phenomena appears.

Described by Smith (2016), experiences are understood in broad, as amongst else: *"perception, imagination, thought, emotion, desire, volition, and action"*. These are only examples, and not a comprehensive understanding of experience, to which this research include the concept reflexivity.

Reflexivity is a concept and an approach which create a basis to learn about urban planning practice through the urban planners, in this thesis. Flyvbjerg (2006) argues that scientific research must take a reflexive approach in order to understand the mechanisms between the researched phenomena and its value rationality in which it is constituted, what he calls the phronetic approach, by stating:

*"Here the purpose of social science is not to develop epistemic theory, but to contribute to society's practical rationality by elucidating where we are, where we want to go, and what is desirable according to different sets of values and interests. The goal of the phronetic approach becomes contributing to society's capacity for value-rational deliberation and action."* (Flyvbjerg, 2006, p. 42)

This research acknowledge that urban planners define and constitute own practices, through constant reflexivity of own values. Both the agents and the phenomena that is researched are acknowledged as social and able to 'answer back', as described by Flyvbjerg (2001):

*"Regardless of how much we let mathematical and statistical modelling dominate the social sciences, they are unlikely to become scientific in the natural sciences sense. This is so because the phenomena modelled are social, and thus "answer back" in ways natural phenomena do not."* (Flyvbjerg, 2006, p. 39)

Taking point of departure in this approach, it is acknowledged, that it is important to take into consideration the planners' own interpretations in relation to the researched phenomena.

This thesis focus on agents and their constructed practice, and how these influence each other while also being influenced by desires of society. In sum this research has assumptions of the world in the sense that the agency (planners as a community) can influence, but is also influenced by, social systems, or institutions (urban planning practice). This relation is assumed to reconstitute the social system in a continuous process, by which



the actor roles embedded in the institution is also changing, reforming agents' behaviour and positions. It is, further, assumed that it is possible to learn of the operationalisation of sustainable development through the world view, experiences, and reflexivity of the agents, urban planners. This understanding functions as the point of departure for both the theoretical perspective and the methodology of this research.

## 2.2 Structure of Thesis

In continuation of the introduction, the following thesis is structured in three main parts: theoretical frame, methodology, and empirical analysis.

Part II presents the theoretical frame. A literature review explore gaps in knowledge in the literature of sustainable urban development planning. Theoretical perspectives are presented in order to understand institutional change- and redesign, reflexivity in urban planning, and institutional actors' role and position, in relation to sustainable urban planning. A theoretical frame combines the theoretical approaches to understand the concepts relation. Finally, the theoretical frame prepares the ground for defining the analytical frame and approach to empirical analysis, where analytical units, based on the theoretical approaches, are presented.

Part III present the methodology of this thesis. The research design presents empirical, conceptual, and methodological problems, as well as the research questions and connected themes. A combination of case study and practice stories are presented as main research method, in relation to how the practice cases are selected. Furthermore, the data generation methods are presented, describing how documents and interviews with urban planners are used as point of departure for the empirical analysis.

Part IV presents the empirical analysis of this thesis. First, contextual knowledge of the selected practice case municipalities are presented, in relation to their general visions and approach to sustainable development. Second, a document analysis synthesise the background, understanding, objectives, and subjects of the original institutional designs in the process of operationalising sustainable development, represented as sustainability tools developed by the case municipalities. Thirdly, the urban planners' stories shed light on their reflexivity of sustainable development understanding and challenges in society, as well as their relation and redesign of the sustainable urban planning practice. Fourthly, the urban planners stories comprehend the task and role of the urban planner in relation to sustainable development, leading to a tool-box, that synthesise the position of the urban planner in securing sustainable development in urban planning practice.

With point of departure in the empirical analysis, the thesis discusses the tensions of securing sustainable urban development influenced by different development agendas as well as the institutional change of the sustainable urban practice. Finally, a conclusion presents the empirical findings together with the implications and contributions of this thesis in relation to sustainable urban planning literature and theory.



## Part II

# Theoretical Frame

*This chapter introduces the state of the art of urban planning literature with focus on sustainability and sustainable development. The theoretical perspectives of institutions, institutional design, reflexivity, and the position and role of the urban planner are presented, as well as relevant perspectives, approaches, and analytic units. With point of departure in the literature of these approaches, the analytical framework of this research is compiled, defining a tension in which the urban planner is situated, along with a lens to examine this tension.*



### 3 Sustainable Development in Urban Planning Literature

Urban planning and urban planners are faced with the complexities of sustainable urban planning, which planning research needs to address (Ayik et al., 2017). There is a task of translating and transferring values and goals into practice and procedures to secure the management of sustainability in urban planning processes.

To understand the current situation, this section presents a review of urban planning literature with a focus on sustainable development and planning practice.

Koglin (2009), Yigitcanlar and Teriman (2015), and Bayulken and Huisinigh (2015) present the need for a more practical context in the sustainable urban planning literature. Koglin (2009) highlights that sustainability is interpreted in many different ways, which gives multiple ideas of how it should be applied in practice, creating conflicts between stakeholders with different interpretations of the goals and means of sustainable development. Bagheri and Hjorth (2006), Yigitcanlar and Teriman (2015), and Bayulken and Huisinigh (2015) underline the urgent need of a sustainable urban planning process and practice to operate the sustainable urban development concept. Bayulken and Huisinigh (2015) further emphasise the urgent need for approaches to operationalise sustainability goals, while considering multiple complexities, one of which is the policy levels. The literature argue the importance of all policy levels playing a role (see (Næss, 2001; Berke, 2002; Koglin, 2009; Yigitcanlar and Teriman, 2015; Bayulken and Huisinigh, 2015; Ayik et al., 2017)).

Bayulken and Huisinigh (2015) mention urban development models, and Bagheri and Hjorth (2006) highlights the importance of developing models, in operationalising the sustainable development concept. Koglin (2009) and Yigitcanlar and Teriman (2015), further, underline the importance of models when understanding the translation from theory to practice:

*"the use of visions and models for the sustainable city could present a way to create more sustainable cities, because those visions and models often bring the three dimensions of sustainability together and create a forum where different ideas can be discussed and analyzed."* (Koglin, 2009, p. 27)

Models, tools, strategies, and ideas are emphasised and recognised in the work with the goals of sustainable development. Although literature, e.g. Conroy and Berke (2004); Bagheri and Hjorth (2006), emphasise the importance of learning processes, few authors describe the actual practice of sustainable urban planning in regards to learning by

doing. The literature, further, address the planner in sustainable urban planning by discussing theories of planning, developing from the rational and incremental planners to the advocacy and communicative planners (see (Næss, 2001)).

The tension of transferring the broad sustainability understanding, objectives, and values to urban planning practice, and thereby how the concept can be operationalised, is also addressed in the literature.

A reoccurring issue is that the definition of sustainable development is comprehensive and broad, however, there is a consensus in the literature of what sustainability and sustainable development in general entails, building on the understanding brought forward by The Brundtland Report (see introduction, section 1.1). Neuman (2005), Gunder (2006), Koglin (2009), and Bayulken and Huisinigh (2015) all highlight that sustainable development is too broadly defined, while there is no actual agreement on how to use it in practice:

*"Sustainability is a broad, vague term that has many meanings. Its fuzziness and many facets contribute to its appeal. (...) there is no single accepted image of how to specify it exactly and put it to work ..."* (Neuman, 2005, p. 17)

*"... there are many different interpretations of what sustainability and sustainable development means and how it should be applied in a practical context in urban planning."* (Koglin, 2009, p. 27)

With the many interpretations and ideas of how to apply the concept, Næss (2001) emphasise, that there has been a gap in the scientific literature of translating goals to means of sustainable urban development.

In relation to operationalising the vague sustainability and sustainable development concept to something more practical and applicable in urban planning, Næss (2001), Berke (2002), and Conroy and Berke (2004) point towards that planners have a job in translating the understanding into workable practical means even though this is difficult. If the goal is to achieve a sustainable future for the cities, as Neuman and Churchill (2015) and Yigitcanlar and Teriman (2015) highlight, then the planners must try to communicate the objectives of sustainable development. Conroy and Berke (2004) emphasise learning-by-doing and learning from experiences as important in translating sustainability to practice:

*"Translation of sustainability ideals into planning processes as well as plan policies requires best-practice information, and sharing - both successes and failures."* (Conroy and Berke, 2004, p. 1394)

Næss (2001) agrees that urban planners have an essential role in providing this necessary knowledge in order to succeed with the sustainable urban development. He adds that it is a challenge to planners to translate the broad defined goals, visions, definitions etc. into something operational at the local urban level:

*"For planners, a great challenge lies in 'translating' and visualizing how our choices regarding housing types, location of development, transportation solutions and land use affect the possibilities to obtain a sustainable development."* (Næss, 2001, p. 519)

In order to translate the theory of sustainable development into practice, the literature

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suggest the need for developing measurements and indicators of urban sustainability, as well as general tools to support sustainable urban development (see (Rotmans et al., 2000; Koglin, 2009; Kennedy et al., 2010; Yigitcanlar and Teriman, 2015; Neuman and Churchill, 2015; Bayulken and Huisingh, 2015; Huang et al., 2015; Ayik et al., 2017)). Some literature points in the direction of measurability as a way to translate and operationalise sustainability. Developing applicable tools of sustainable development further plays a role, according to the literature, in relation to involving actors at all levels in developing sustainable cities. Despite the emphasis on planning tools to measure sustainability, the issue of measuring sustainability is, that the definition of sustainability as a concept is vague and is interpreted differently, meaning that all actors can critique the result based on their own understanding (Bagheri and Hjorth, 2006). It is also questionable if it is even possible to measure sustainable development and if it makes sense. Sustainable urban development depends on the given goal of the project, the specific context, definition etc. In this relation it is important that developed tools, measurement approaches, and indicators are created in relation to the specific context and urban planning practice. There is a great focus in literature on measurement- and indicator tools, however, the literature lacks focus on the process of achieving sustainable development (Bagheri and Hjorth, 2006). This is questionable, as it is difficult to measure something, before it is achieved.

Another point in the literature regarding sustainable urban planning, is the importance of involving stakeholders and creating dialogue as a part of the process of achieving the sustainability goals. Koglin (2009) emphasise the importance of securing democracy in sustainable development, and Næss (2001), Conroy and Berke (2004), Bagheri and Hjorth (2006), and Bayulken and Huisingh (2015), further, emphasise the importance of including the relevant actors in the process of planning and decision making. Næss (2001) and Bayulken and Huisingh (2015) underline the importance of including stakeholders, by building alliances as an urban planner through a multi-disciplinary approach to engage different types of expert knowledge in the decision making, and thereby achieving multi-stakeholder engagement in sustainability implementation. However, despite the emphasis on stakeholder inclusion neither Conroy and Berke (2004), Bagheri and Hjorth (2006), Koglin (2009), or Bayulken and Huisingh (2015) presents a model or method for stakeholder inclusion in sustainable urban development planning.

Næss (2001) has a critical perspective to stakeholder involvement, with special regards to the role of dialogue, as he states that dialogue cannot be expected to solve the global sustainability issues. Dialogue is rather useful in the stakeholder inclusion, in building alliances and education, according to Næss (2001). This points to, that other factors and aspects in the process are as well important to include. Stakeholder inclusion in the attempt to secure implementation of sustainable solutions is linked to planners initiating debates about values, sharing knowledge, as well as calling attention to the issues. However, the dialogue process is an important step in securing sustainability at the local level, which is a necessary step in achieving a sustainable world. In relation, Bayulken and Huisingh (2015) emphasise the importance of both the dialogue as education (shifting people's mindsets), as well as contributing to the operationalisation and implementation of sustainability at all levels.

A general agreement in the literature is the importance of securing sustainability at all policy levels, as well as implementing and developing processes for stakeholder inclusion and sustainable development at the urban and local levels. However, only a few authors, e.g. Yigitcanlar and Teriman (2015) and Bagheri and Hjorth (2006), actually discuss process models or tools to secure sustainability and sustainable development through dialogue with stakeholders. In the example of Yigitcanlar and Teriman (2015), the topic is the general planning process, rather than the actual dialogue, inclusion of stakeholders, and education. In the example of Bagheri and Hjorth (2006), the focus is on the sustainable planning- and learning process, with a focus on how planning should shift focus from goal- to process-oriented.

Berke (2002) provides a statement of the gap in literature of knowledge, and practice, with regards to the translation of the concept sustainable development, and the role of the planner in this relation:

*"If sustainability is to move beyond a vague idealism, the task ahead for planners and activists, especially at the local level where most authority to manage and control development is lodged, is to translate theory to practice."*  
(Berke, 2002, p. 34)

Bayulken and Huisinigh (2015) as well mention the need for developing workable and applicable approaches to sustainable development. By this they suggest to look towards Northwestern European countries like Sweden, Denmark, Germany, and the Netherlands as these countries are at the front edge of working with a multi-level governance system and collaborating with stakeholders.

A gap is identified as a gap in knowledge about urban planning practice, as much existing literature describes the need for translating sustainable development and how it should be done, rather than investigating the actual practice of operationalising sustainable development in urban planning. The identified gap in the existing literature calls for further investigation in the translation of sustainable development into urban planning practice.

Following chapters will present relevant theoretical perspectives and approaches to understand and analyse the topic of this research: the operationalisation of sustainable development through sustainability tools.



## 4 Theoretical Concepts and Approaches

To explore the translation and operationalisation of sustainable development in urban planning practice, theoretical perspectives of institutions and institutional design are presented, in relation to understanding urban planning practice as a social system. Reflexivity in urban planning and the role of the urban planner are presented in relation to understanding the actors of the institution, emphasising that actors, which in this research are the urban planners, plays a role in the development of practice and the operationalisation of concepts in their practice.

### 4.1 Institutional Approach

Several urban planning theorists emphasise an institutionalist approach in urban planning research (see (Bolan, 1991; Healey, 1997; Malbert, 1998; Alexander, 2005; Buitelaar et al., 2007)). Alexander (2006) highlights planning in connection to the institutionalist perspective, by emphasising that planning is about transforming ideas into action, with the goal of transforming society. Alexander (2006) presents two core reasons for the importance of institutional understanding in planning. First, planning happens in an institutional environment, with institutions able to influence the actions and behaviours of planners. Second, institutions influences society, which the planners seek to transform.

With the acknowledgement of the institutional perspective, an understanding of institutions becomes crucial. For this, Scott (2001, p. 48) provides a comprehensive list of the characteristics of institutions, in which he describes that institutions are social structures with high resilience; they are linked to stability, however, they are still subjects to change; institutions are continuously reinforced by carriers like symbolic- and relational systems, routines, and artefacts; institutions operate on multiple societal levels (from globally to interpersonally); and as social structures, institutions are linked to controlling agency, constraining or providing opportunities for behaviour and action.

To understanding institutions, Scott (2001) presents a differentiation between kinds of institutions, or pillars of institutions. The regulative, what agents have to do, acting as laws and rules; the normative, what actors ought to do, referring to norms and values of the social life; and cultural-cognitive, referring to tacit knowledge and values and cultural institutions.

With this view of institutions and agents, a relevant acknowledgement is the notion of the relation between agency and structure, described by Giddens (1984) with the theory of

structuration. This approach is also emphasised by other authors by e.g. Bolan (1991); Healey (1997); Scott (2001). Healey (1997) provides a view of planning in the context of the structuration theory:

*"In this context [structuration theory], local environment planning activity may be seen as providing a locale within which people act in constrained situations. They may merely play out well-established organizational routines. But they may seek to challenge them, shifting policies, or altering processes. In such situation, local planning activity becomes an effort in shaping or framing the webs of relations through which people give value and take action with respect to the spaces with which they have some relation. Such framing work is an effort to invent structure."* (Healey, 1997, p. 49, emphasis in original)

The view of Healey (1997) presents an acknowledgement that planners act in a form of organised routines, which can be connected to the concept of institutions and structures. Furthermore, planners are able to challenge and shape these routines or institutions. The urban planning practice, is perceived as an institution in this research, with the urban planners as the institutional agents. It is further understood that there is a structure of mutual influence between the agents in the institution (the urban planners), as described by Alexander (2006).

Viewed with the perspective of Scott (2001), on different types of institutions, it is acknowledged that urban planning practice of sustainable development is influenced by regulatory institutions (e.g. The Danish Planning Act and other global policies, e.g. Local Agenda 21, see chapter I). The regulative institutions are not a main focus, as the urban planners have less influence in shaping these. Instead the main focus is on the normative pillar, as this research seeks to examine the norms and values connected to sustainable development in urban planning. In this sense the institutions of, what norms are in play, what urban planners value, and what they ought to do to create a sustainable development, rather than what they have to do, defined by laws of the state. The cultural-cognitive institutions is as well relevant as this provides a view of what is taken for granted by the agents, thereby what is 'a given' and what is usually done in urban planning practice, when working with sustainable development.

In addition to the definitions of institutions, Scott (2001, p. 50) further states that *"although institutions function to provide stability and order, they themselves undergo change, both incremental and revolutionary"*. Understanding how planners are facing issues and objectives of sustainability, and how practice is modified to accommodate these objectives, it is relevant to acknowledge that an institution such as the planning practice is a subject of change.

### Institutionalisation and Institutional Design

To create a perspective of the dynamic of urban planners operationalising the theory and objectives of sustainable development in planning practice, it is relevant to consider how the urban planning practice, as an institution, is designed and changed. Perspectives of institutional change, development, and transition are brought forth in order to understand this mechanism. These approaches takes point of departure in the process

of institutionalisation, defined as *"a process in which fluid behaviour gradually solidifies into structures, which subsequently structure the behaviour of actors"* (Arts and Leroy, 2003, p. 31, translated by Buitelaar et al. (2007)). Alexander (2006) and Buitelaar et al. (2007) couples planning with institutions and describe the duality of planning as planning is both already institutionalised practices, while it is a process of institutionalisation.

Linking urban planning and institutionalisation, both Innes (1995), Healey (1998), and Alexander (2006) emphasise *institutional design*, as planning is a process of breaking institutional pathways to let agents unfold practices and adapt to changes.

Institutional design refers to actors having a deliberate influence in designing the institution and is contrasted with the notion of institutional evolution:

*"the wish of (collective) agents to 'get the institutions right' by attempting to strengthen their effectiveness, efficiency, resource base, and transparency, amongst other things"* (Buitelaar et al., 2007, p. 895)

*"the devising and realisation of rules and procedures, and organizational structures that will enable and constrain behaviour and action so as to accord held values, achieve desired objectives, or execute given tasks"* (Alexander, 2006, p. 4)

The quotes are useful in this research as it can be interpreted and used as a view of planners as agents improving the institutionalised urban planning practice, to strengthen the effectiveness of practice, including rules and procedures, with regards to sustainable development and the objectives of this.

Different institutionalist approaches are emphasised in the literature. De Jong (1999), Alexander (2005), and Buitelaar et al. (2007) highlight different perspectives on institutional development: the historic perspective, emphasising institutional pathways; the economic perspective, emphasising efficiency-based selection as point of departure for institutional development; and the sociological perspective, which emphasise power relations as point of departure for institutional change.

Institutional design has been contested with the notion of institutional evolution, however, these cannot necessarily be separated, as argued by the sociological perspective. Buitelaar et al. (2007) describe that agents actively are able to develop and change, produce or reproduce the institution, as well as institutions are able to evolve by themselves.

Alexander (2006) elaborates institutional design and states that *"design can be, and often is, dialogic"* (Alexander, 2006, p. 5), and thereby the result of interactions between a collection of actors. Alexander (2006) points that institutional evolution cannot be seen as separate from institutional design, as evolution of institutions happens through incremental institutional design by gradual adaptations by agents acting purposely. Furthermore institutional design is a form of framing institutions collectively, by which he connects institutional design to *discursive reflexivity*, as the agents of institutions are reflexive (Gualini (2001) in Alexander, 2006). In highlighting the collective sense making, it is relevant to underline the perspective of institutional design, not as an individual action or task. It is rather a question of collective action or reflexivity, as underlined by Healey (1997):

*"Habermas argues that it is through our communicative efforts that cultures and structures are formed and transformed."* (Healey, 1997, p. 53)

Alexander (2006) offers an analytic perspective, framing that the *institution-agent interaction* is the material of institutional design. Presenting two roles for the interactions: 1) the *subject*, or product of the institutional design, explained as elements of institutional design (e.g. laws and organisations), 2) the *object*, explained as the intended effects of institutional design (the change/affect on behaviour, through the subject, e.g. a law changing the action of e.g. a transaction). Alexander (2005, 2006) suggest looking at three levels in researching institutional design: governance, organisational, and agency. Especially the agency perspective is able to provide a view on the public institutions of creating sustainable development, and thereby possible inefficiencies, which urban planners are assumed to try to accommodate, to more effectively secure sustainable urban development through the inclusion of private actors in the planning process, through dialogue tools. It is understood by this research that the planners' institutional design arose as an answer to the inefficient practices of sustainable development in the public organisation.

In connection to perceiving institutional design and evolution as small incremental changes Alexander (2006) and Buitelaar et al. (2007) presents the concept of *institutional bricolage*, defined as: *"the patching together of institutional arrangements from the cultural resources available to people in response to changing conditions"* (Chase Smith et al., 2001, p. 42). This provides an understanding of the urban planners in designing the institution, as bound by their available resources.

### Rupture and Critical Moments

To shed light on the process of institutional design and development, the concept of *rupture* by Buitelaar et al. (2007) is highlighted as periods in the institutional path which are periods of instability. Rupture can both be externally- or internally triggered. It can be the result of pressure for change, brought forth by critical reflections of agents, in which proposals for a new institution or action are made. This pressure and new proposals for the institutional design are able to initiate incremental change in the institution. Important here is the understanding that institutional change can be influenced by both the internal agents and the external society creating a pressure, leading to a critical moment, in which change can occur. This is linked to the existing discursive hegemony, by Buitelaar et al. (2007), with reference to Hajer (2005), which is overhauled as the patterns of the institution are affected by pressures. Buitelaar et al. (2007) acknowledge that multiple streams need to concur for the institutional change to take place. It is not enough that actors want to change the institution, the pressure for change has to arise externally and internally in the institution.

The point of departure for an institutional change is defined by Buitelaar et al. (2007, p. 896) as an *"existing institutional arrangement, accompanied by a discursive hegemony"*. Here two main aspects influence the discursive hegemony 1) *institutional reflections*, which includes the bricoleurs that challenge the existing institution leading to alternative ideas and possible solutions from the institution itself and 2) *external societal developments*, which can be understood as those entities, which strains the existing institution from the

outside. This is illustrated in the model by Buitelaar et al. (2007), see figure 4.1.

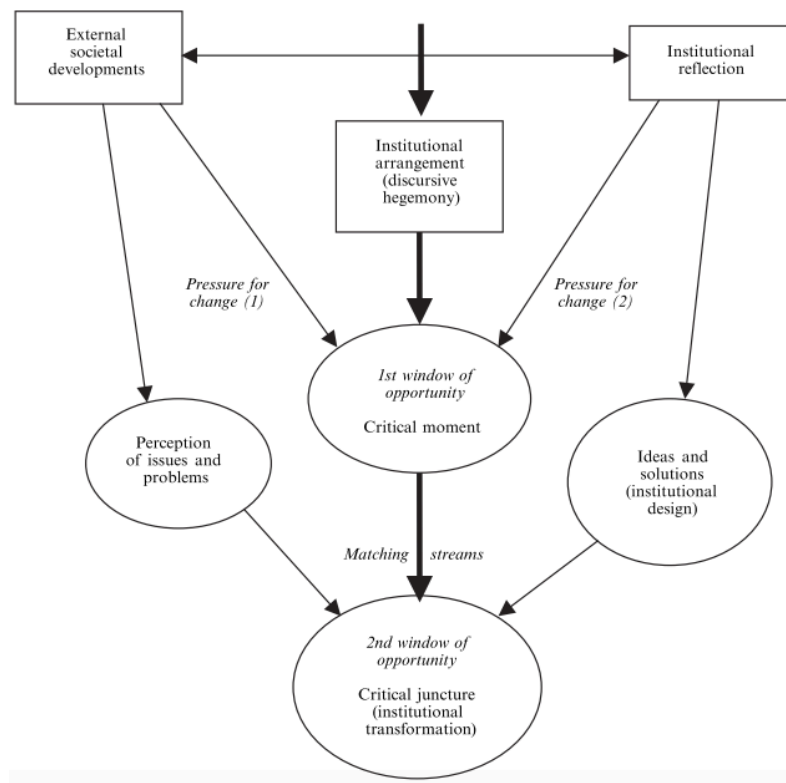


Figure 4.1: "A model of institutional change" (Figure 1 in Buitelaar et al., 2007, p. 897).

As illustrated, in figure 4.1, the first window of opportunity, *critical moment*, presents itself when one or both of the developments (society or institutional reflection) creates enough pressure to open the discursive arena, challenging the existing hegemonic discourse. This creates a moment for new ideas and alternative solutions to gain support, as the critical moment presents a period in which the institution is able to be challenged. It is not guaranteed to create an institutional development, for this to occur, the second window of opportunity, the *critical juncture* has to occur. The moment of critical juncture requires that alternative ideas and the perception of problems are aligned (Buitelaar et al., 2007).

In line with Buitelaar et al. (2007), this research focus on the institutional reflections and the design of alternatives. Urban planners are understood as constantly reassessing their own urban planning practice. They are agents reflecting and redesigning their institution, both to accommodate societal developments, as well as a reaction to the existing hegemonic discourse, which in this cases is sustainable urban development. Although the actors and their reflections are in focus in this research, it is still acknowledged that they cannot be understood without considerations of the external societal developments. The framework and approach by Buitelaar et al. (2007) creates a perspective in this research with focus on the institutional reflections and (re)design, with acknowledgements of the context of societal development.

The presented theoretical perspectives of institutions and institutional change and design, provides a view of the urban planning practice. The relevance of institutional theory and

institutional design as part of planning, is highlighted by (Alexander, 2005), as he relates institutional design with the issue of uncertainty:

*"The multi-party nature of institutional design, too, leaves an unavoidable residue of irreducible uncertainty and ignorance: institutional design problems are 'wicked' problems."* (Alexander, 2005, p. 217)

North (1990) and Buitelaar et al. (2007) also highlight the link between institutions and uncertainty:

*"The major role of institutions in a society is to reduce uncertainty by establishing a stable (but not necessarily efficient) structure to human interaction."* (North, 1990, p. 6)

A key aspect of the importance of institutions, and thereby institutional design in urban planning, is the issue of uncertainty, that urban planners work with daily.

In relation to institutional change and institutional design, Buitelaar et al. (2007) and Alexander (2005) stress the need for understanding, influencing, and connecting elements of the institution, to which they highlight the *institutional reflection* (Buitelaar et al., 2007) and the *reflexive-dialogic perspective on institutional design* (Alexander, 2005). The emphasis on reflection and reflexivity in institutional change and design can be seen in connection to the persisting issue of uncertainty. Alexander (2005, p. 211) connects reflexivity to institutional design in a *"planners' reflexive practice"*, emphasising the link between planners being reflexive in the process of institutional design. The link between institutions and institutional design, is a way of dealing with uncertainty, and in the process of institutional design, reflexivity is viewed as an answer to dealing with uncertainty through that. Urban planning and especially urban planning theory is thereby still searching for ways to cope with this uncertainty in planning.

## 4.2 Reflexivity in Urban Planning

In order to elaborate the institutionalist approach in relation to the concept of reflexivity, Healey (1997) offers a perspective on institutionalism and reflexivity underlining that structures shape agency and vice versa, as explained with the institutional design:

*"Thus the practice of planning, even in the details, involves delicate day-to-day choices about whether to 'follow the rules', or whether to change them, to transform the structure."* (Healey, 1997, p. 47)

These continuous choices, based on the planner's awareness on their own practice and actions, is described by Healey (1997, p. 47) as *"planners reflexively making such choices."* Developing the institutionalist approach, and connecting this to the concept of reflexivity, Healey (1997, p. 37) takes point of departure in the *"changing 'mood' of our times"*, and how society has developed:

*"we become increasingly aware of our cultural boundedness, our own biases and those of others. We recognise differences and differentiation in our systems of meaning, our ways of acting and our lifeworlds."* (Healey, 1997, p. 37)

Although Healey (1997) connects this change to post-modernity, another relevant perspective is the sociological theory, reflexive modernisation.

## Reflexive Modernisation

Reflexive modernisation theory was introduced and developed by Ulrich Beck, Anthony Giddens, and Scott Lash (see (Beck et al., 1994, 2003)). It is a master theory of society and serves as the authors' critique of the industrial modernity. It describes a new modernity in which society is emphasised as a risk society. The concept of risk is used because reflexive modernisation is the reflex to the issues and problems arising from the industrial modernity. In the reflexive modernisation society is no longer concerned with harnessing nature, but rather how to manage the risks (of e.g. climate change). An important point, by Beck et al. (1994), is that the current institutions of society are not able to manage the risks, meaning that there is a need for changing the institutions, as also argued in The Brundtland Report (World Commission on Environment and Development, 1987) (see introduction, section 1.1).

Reflexive modernisation is thereby understood as arguing for a transformation of the general social structures, as well as the change of thought in society: *"(...) we are living in the age of side-effects, and precisely this is what is to be decoded - and shaped - methodologically and theoretically, in everyday life or in politics."* (Beck et al., 1994, p. 175). The term of *side-effects*, which links to history, is essential in understanding changes in society. The term of *risk* is as well important, as this is what the reflexive modernity seeks to manage. Risks are in focus when understanding the society or institution, that is aimed to develop or (re)-design, in order to create the desired future. Reflexive modernisation acknowledges that we can reflect on the society at stake, to change society for the future problems to be tackled:

*"the more society is modernized, the more agents (subjects) acquire the ability to reflect on the social conditions of their existence and to change them in that way."* (Beck et al., 1994, p. 174)

*"The hypothesis of a 'reflexive' modernization of modern societies examines a fundamental societal transformation within modernity. (...) While crises, transformation and radical social change have always been part of modernity, the transition to a reflexive second modernity not only changes social structures but revolutionizes the very coordinates, categories and conceptions of change itself."* (Beck et al., 2003, p. 2)

Beck et al. (1994, p. 176) underline that *reflexivity* should not be confused with *reflection*. Reflection is linked to the notion '*I think, therefore I am*', associated with the individuals knowledge and intentions of elements of society in first modernity. Instead reflexivity is linked to the notion '*I am I*' that refers to the individuals as meta-reflective of one's own position in society. Reflexivity should thereby be understood as a form of reflection on reflection. Reflexivity goes beyond conscious knowledge and grasps the 'self' as an important factor in relation to society, as the self is a 'reflex' to society. It is understood as awareness of own existence in a given situation, understanding and questioning ones own influence, as always affected by own values, feelings and actions (Beck et al., 1994).

Beck et al. (2003) emphasises that the difference between reflection and reflexivity is also about the crises of institutions:

*"The subject relating to today's fragmented institutions instead has moved from a position of reflection to one of being reflexive (...) the type of knowledge at stake changes. It is itself precarious as distinct from certain, and what that knowledge is about is also uncertain - probabilistic (...)"* (Scott Lash (2001) in Beck et al., 2003, p. 23)

The reflexive approach predicts that the fundamental knowledge of the problem is established. Today it is rather a question of embracing the relations in which the knowledge is constituted and go beyond the problem itself.

Reflexive modernisation relate to the perspective of institutional change and design. Institutions needs to be redesigned if they cannot manage the risks, as *"side-effects disrupt the normal course of institutional decision-making, undercut its rationales and lead by such means in the direction of restructuring"* (Beck et al., 2003, p. 14). The existing institutions are under pressure, because they are not providing the right frame or rules to enhance the desired actions of the risk society.

Reflexivity provides a lens that acknowledges that there is no 'best' or 'right' way to operationalise a sustainable development in urban planning practice, it is rather dependent on context. The reflexive modernisation is useful in understanding society, context dependent actions, and learning experiences in which knowledge and practice is constantly changing. New institutions and practices needs to be designed in order to understand the complexities of the planning practice. In the past it has been acknowledged that crisis is a normal part society, 'a given'. However, from a reflexive modernisation perspective, the challenge is to understand the crises and side-effects of society. The given is substituted by a question of 'choice of action'. It is a choice made by society to strive for sustainable development, rather than taking the consequences of not.

### Reflexive Planning Theory

Connecting reflexive modernisation to urban planning, amongst others, Howe and Langdon (2002) argue for a reflexive planning theory. This introduce reflexivity in planning theory, inspired by Bourdieu's thoughts on habitus, capital, and field that represents *"the development of a social space to examine the processes of the production of the built environment"* (Howe and Langdon, 2002, p. 221). The reflexive planning theory seeks to understand the process of the built environment, in relation to actor interactions and mutual negotiations, and it is relevant in understanding how actors interpret the practices of urban planning in a system defined by struggles or crises.

With basis in Bourdieu's concepts, (Howe and Langdon, 2002,p. 213) summarise their understanding, *habitus*, *capital* and *field* in relation to planning:

- **Habitus:** *"a set of dispositions that incline agents to act and react in certain ways."* This concept is connected to planning processes, as it underlines agencies as affected in a certain context. Different agencies have different interests, and thereby different positions and values in a planning process.
- **Capital** (economic-, social- and cultural capital): *"the range of resources that can*



*be applied to given activities.*" Understood in relation to urban planning as e.g. the financial resources and the social relations the given actors have. Capital is perceived as the basis and power for negotiations in a planning process. In this research it is interesting to consider how planners' capital is constituted in practice and processes.

- **Field:** *"domains of activity within which actors engage and compete with one another to achieve their objectives."* The field is the arenas/forums in which capital (power is at stake) and where the struggle happens in urban planning processes.

Bourdieu and Wacquant (1992) describe the three concepts in terms of network and relations (field), powers that give access to profits in the field (capital), and social trajectory and dispositions (habitus).

Emphasising Bourdieu's concepts, the reflexive planning theory, gives a specified lens in which reflexivity and the urban planning practice can be understood in connection, as the concepts highlights the point of departure for the reflexivity of planners:

*"We argue that a Bourdieuan stance, with its greater emphasis on digesting and acknowledging the researched habitus, field and capital, will offer planning researchers new tools for understanding the nature and outcomes of planning practices. Furthermore, we contend that a Bourdieuan conceptual framework will highlight the durable and embodied nature of the intuitive practices of many actors in planning and development processes."* (Howe and Langdon, 2002, p. 209)

Understanding the practice in relation to the planner's capital, habitus, and field gives an approach to understand struggles of the planning practice as well as the challenges which the urban planners are facing.

## Reflexivity in Urban Planning Practice

Additional perspectives of reflexivity in connection to urban planning is provided by Widmer et al. (2009), Lissandrello and Grin (2011), and Berdoulay and Soubeyran (2012). According to Lissandrello and Grin (2011) reflexivity in planning is relevant in order to embrace the current situation of society structures that are met with new issues that requires evolutionary processes of practice:

*"reflexive planning entails a complex environment, not only because planning in high modernity must inevitably address various problems involving multiple actors, but also because the institutional planning context is now not merely a given that structures planning, but has itself become an object of planning."* (Lissandrello and Grin, 2011, p. 226)

Bringing reflexivity to urban planning practice is about embracing the crisis of the institution, undertaking the society under circumstances of reflexive modernisation. In practice, planning is becoming more complex, amongst else because the institutions are under pressure.

Lissandrello and Grin (2011) explores how reflexivity is utilised in planning practice by planners and emphasise the planners role in addressing urban planning issues from a reflexive approach.

Berdoulay and Soubeyran (2012) also emphasise the role of the planner as complex and as central to the utilisation of reflexive planning practice, because *"(...) due to situations of uncertainty in which planners work and the conflicts they face, they must constantly deliberate in order to adjust the goals and means defined by their actions"* (Berdoulay and Soubeyran, 2012, p. 169). Stating the issue of the urban planner's role in communicating the objectives of any given issue to accommodate, through the process of planning.

Widmer et al. (2009) provides a practical understanding of reflexivity, in which conflicts, knowledge, visions, and diversity, amongst else, are used or transformed to create innovation, creativity, and effectiveness in planning, as they define reflexivity as:

*"the extent to which group members overtly reflect upon, and communicate about the group's objectives, strategies (e.g., decision-making) and processes (e.g., communication), and adapt them to current or anticipated circumstances."*  
(West (2000, p. 296) quoted in Widmer et al., 2009, p. 2)

Widmer et al. (2009) further articulate that: *"reflexivity is thought of as an iterative process consisting of three components: reflection, planning and action / adaption"* (Widmer et al., 2009, p. 3).

They describe reflexivity as a means for planners to change their institutions as well as an approach to planning, and thereby underline the role of the planner in addressing urban planning issues from a reflexive approach.

Reflexivity in (re)designing or changing urban planning practice, is one way to meet the pressures that urban planners experience in society. It is an approach to explore the position of planners, as well as the interests of actors, in order to create the best possible practice, including all relevant aspects. Planning practice and the practitioner are interlinked, in this understanding, as they mutually influence or institutionalise each other (as acknowledged by Alexander (2005), see section 4.1). In acknowledging that reflexive modernity is the society at stake, and the institutions are challenged due to new complex problems, there is a need for developing and (re)designing institutions or practices of urban planning. Lissandrello and Grin (2011) express that planners have a role in developing this practice:

*"planners are currently positioned between different temporal situations: they are embedded within current institutions and structures that have coevolved with earlier, typically modern practices, and are yet surrounded by the pressures of new, complex, contemporary problems that require novel practices"*  
(Lissandrello and Grin, 2011, p. 226)

Berdoulay and Soubeyran (2012) adds that the development of new practices should prepare the ground for taking new actions of the desired accomplished objectives, such as sustainable development in urban planning. It is, further, important that practices are developed in a close connection with groups of society and the general elements of the global world. Reflexivity in sustainable urban planning is about creating a common ground for future urban planning challenges in practice to act towards the desired objectives. This also links to the 'side-effects' presented by Beck et al. (2003), which is argued to be the subject of the agency's, in this case the planner's, reflexivity.

The urban planner is always influenced by institutions, society and other people's decisions (e.g. politics/management). It is a continuous dynamic between the agency and the structures that constitutes them. Which underlines the link between the institutionalist and reflexive approach.

Urban planners both design their own practice and act in practice. Reflexive planning prepare the ground for actors to think long-term, because the dynamics are future- and imaginary focused (Lissandrello and Grin, 2011). In relation to sustainable urban planning the concept of reflexivity is important, as planners try to solve 'future' problems in 'present' time with basis in 'past' experiences. The reflexive approach acknowledges society in a situation where existing institutions are under pressure and new institutions must be developed, to accommodate future problems of sustainable development.

The choice of action is in this research understood as the urban planners consciously constituting and correcting the present urban planning practice towards a more sustainable urban planning practice, pressured by societal development. The approach, by Flyvbjerg (2006), of reflexive analysis, connects the notion of reflexivity to values and interests of groups in society, indicating that reflexivity should be understood and used in exploring how actors consciously consider their values and interests in processes of "*public deliberation, participation, and decision making*" (Flyvbjerg, 2006, p. 39). Urban planners can be understood as affected by their values and interests, which then influence their institutional design. Using their reflexivity of own values and practice, to understand the institution and its aim, creates a possibility to give a practical insight to find and explore input for their own practice. This links to how this research understands reflexivity of the urban planners working with securing sustainable urban development, because it takes into account that we are situated in a risk society. With the reflexivity approach this research acknowledge the role of the urban planner as an important source in the position of understanding the operationalisation of sustainability.

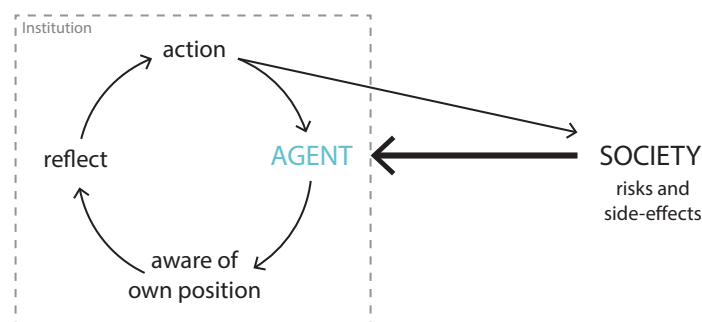


Figure 4.2: The understanding of reflexivity in this research, emphasising that side-effects of society are influencing reflexivity of the agent in the institution.

From these perspectives this research understands reflexivity as an awareness of one's own position in society and one's own abilities to influence e.g. as illustrated in figure 4.2. Further it relates to reflecting on situations and conditions in the world and in society, e.g. climate change, and taking action, with point of departure in one's own values and interests. Reflexivity provides a lens to explore how urban planners consider societal developments and risks, are aware of their role and position, and take action to make a change to manage the perceived risks.

### 4.3 Institutional Actors' Positions and Roles

With the view on institutions and institutional design coupled with the concept of reflexivity, the agency is highlighted as an important aspects of this research. To take a focus on how the agency relates to the institution through reflexivity the position of the urban planner in the institutionalisation and redesign of the urban planning practice is explored. Bourdieu and Wacquant (1992, p. 99) provide perspective on the concept of position in relation to fields as the relative force and strategic orientation of the actor toward the field. This understanding is used in this research to consider the urban planners' relatives forces and how they strategically orient themselves i relation to institutions of planning. Position is explored in relation to urban planners' roles, tasks, and tools.

Berger and Luckmann (1966) present a link between the role of actors and institutions, and how the roles are typified in the institution through actions and knowledge. To understand the mechanisms of the institution, it is relevant to understand the actors that constitute and redesign the institution continuously, because *"the roles represents the institutional order"* (Berger and Luckmann, 1966, p. 92). Thereby, the actors of the institution both constitute and represent the institution:

*"Institutions are embodied in individual experience by means of roles. The roles, objectified linguistically, are an essential ingredient of the objectively available world of any society."* (Berger and Luckmann, 1966, p. 91)

Berger and Luckmann (1966) highlight that by exploring the roles in the institution, it is possible to understand the institution and its order.

To explore the perspective of roles, Malbert (1998) provides a perspective. Malbert (1998, p. 159) questions the tasks and roles of urban planners in relation to sustainable development, calling them: *process facilitators*, which provides an interesting notion in this research as the subject of operationalisation and adapting practice is also about designing processes. It is underlined as urban planners in today's complex society and with today's complex planning problems need to create an innovative planning practice (Malbert, 1998).

Malbert (1998) elaborates the roles of the planners in relation to tasks and tools. He argues that the task of the process facilitators is to create a bond between themselves and relevant stakeholders that needs to be involved in the planning processes of these complex problems. The task of the process facilitators is moreover to bring the relevant knowledge and different planners to the process at the right moment of decision-making. These tasks are related to the emerging need for at more communicative approach in planning practice, also advocated by Healey (1997). In perspective of Malbert (1998), the tasks of the urban planners is amongst else to:

- facilitate dialogue,
- design urban planning processes including several stakeholders,
- coordinate decisions and actions in the planning process,
- manage conflicts of planning processes, and
- manage complexities/uncertainties of society.

These tasks are relevant as perspectives or analytic units to understand the operationalisation, as they present a focus on the importance of dialogue, in relation to the developed dialogue tools; how planners are coping with uncertainties, complexities and conflicts, related to how the planners are reflexive of the risk society; and how the planners have operationalised and thereby designed urban planning processes to accommodate the global sustainability agenda. Malbert (1998), however, also argues that the planner must not only have one role or one task. They need to have both technical instrumental techniques and communicative techniques for decision-making and negotiation.

Sandercock (2012) also argue the need for several roles of the urban planner, as she calls for a paradigm shift in preparing the urban planner for the 21st century:

*"There are, and will continue to be, multiple roles for planners, including the role of facilitating global economic integration through spatial planning, but if we want to address issues of social, cultural and environmental justice in the cities and regions that are being shaped by these larger forces of economic and demographic mobility, then what we need is no less than a paradigm shift."*  
(Sandercock, 2012, p. 285)

Thereby does Sandercock (2012) provide a perspective on planner roles in relation to the broad understanding of sustainability. She argues, that if the planners are to address these issues of the social, environmental, and economic dimension, a paradigm shift is needed. Sandercock (2012), further, argues that the planning domain has been expanded to address urbanisation, cultural differentiation and change, transforming nature, economic growth, city-building, urban politics and empowerment. This requires that the abilities, roles, skills, and knowledge of the planner relate to following literacies:

- Technical
- Analytical
- Multicultural
- Ecological
- Design

As listed with *the planner TAMED*, Sandercock (2012, p. 285) argues that she is *"...appropriately suggesting a frame of mind more humble, open, and collaborative than that of the heroic modernist planner."* The five aspects presents thereby a perspective to understand the planners work with sustainable development.

Malbert (1998) also emphasises that the urban planner is situated in a difficult situation. This difficult situation can be perceived as a tension in which the planners are located: the planners have to solve difficult tasks of society while being able to create best possible process and tackle every critical situation, he is calling for more knowledge and education:

*"the choice and adaptation of methods and tools to the specific situations of learning and consensus-building in planning processes are, however, a demanding challenge for process facilitators. Even if people can become process facilitators guided by tacit knowledge from practical experience, a large and well-equipped 'tool-box' is most helpful to meet this challenge."* (Malbert, 1998, p. 160)

This quote presents an elaboration of the planner position and roles by Malbert (1998), as he introduces the notion of tools, which is especially interesting as this research seeks to explore the operationalisation of sustainable development through dialogue tools. Malbert (1998) describes the need for a more well-equipped tool-box in relation to meet the challenge of sustainable development, and he brings the examples of education as well as wider knowledge from practice. This research will use the approach and concept of the tool-box, in relation to how the urban planner can be more equipped to meet these challenges. Furthermore the tool-box concept is relevant as it presents an analytic focus to gain more knowledge of the planners position in society in relation to secure sustainable urban development, and how to actually achieve that in urban planning practice.

From these theoretical perspectives on the position of urban planners as institutional agents, it is possible to explore position and roles of urban planners in relation to the planning practice and sustainability tools. The position of the urban planner in facilitating sustainable urban development should not only be explored in relation to technical skills, but also in relation to the dialogue focused communicative position of planners. The position of urban planners can thereby be explored by questioning and unfolding the tasks of the planners in relation to them as process facilitators, as well as the different aspects of planning and their tool-box as planners, which can help them achieve sustainable urban development planning.

In this research it is relevant to explore these roles of the institutional agents, as it can provide an additional perspective to understanding how sustainable development is operationalised by planners, and how planning practice is changing with the process of operationalising the sustainability concept.

### 4.4 Linking Institutional Change and Design, Reflexivity, and the Role of the Urban Planner in a Theoretical Framework

The presentation of the theoretical approaches can be summed in three approaches: institutionalist approach, reflexivity approach, and position of the actor approach.

The institutionalist approach, presented in this thesis, takes point of departure in the work by Buitelaar et al. (2007) on institutional change, as well as Alexander (2005, 2006) on institutional design. From these approaches it is acknowledged that planners interact with the institutions of urban planning, and they have a role in designing and transforming these institutions. Using Buitelaar et al. (2007) it is acknowledged that with correlating societal developments, discourse developments, as well as institutional actor reflections an institution can be changed through critical moments. From Alexander (2005, 2006) it is understood that institutional design can be performed deliberately by the actors of the institution, and that this process is often dialogic.

Based on the exploration of institutional design it is argued that actors' reflections, dialogic-reflexivity, and in general reflexivity plays a role in the institutional design process. Perspectives of reflexivity is provided by Healey (1997), Bourdieu and Wacquant (1992) Howe and Langdon (2002), Lissandrello and Grin (2011), Widmer et al. (2009), and Flyvbjerg (2006). From these perspectives reflexivity is coupled to planning, and argued

as an important aspect of planning and being a planner, especially when interacting with institutions. Further reflexivity was explored as a way for actors to reflect, consider, and take action. To fully understand the concept Beck et al. (1994, 2003) on reflexive modernity was also introduced. From their approach it is understood that reflexivity is also about a fundamental relation between the actor and the current society. From Bourdieu and Wacquant (1992) and Howe and Langdon (2002) reflexivity is coupled to habitus, Flyvbjerg (2006), Bourdieu and Wacquant (1992), and Howe and Langdon (2002) provides perspectives on the reflexivity of urban planners related to their practice and position.

By the institutionalist approach, the reflexivity approach, and the link between these, it is argued that the actors within have a role. In this thesis the actors in focus are urban planners, and the urban planner position, roles, tasks, and tools are explored in relation to Berger and Luckmann (1966), Sandercock (2012), and Malbert (1998). Berger and Luckmann (1966) emphasise the actor roles in relation to the institutionalist perspective in a context of social constructivism. Using Sandercock (2012) and Malbert (1998) it is acknowledged that the urban planner roles are in a state of change, as well as how the urban planner roles can be perceived and understood. In this relation Malbert (1998) gives an approach towards their role in working with sustainability.

The connection between the process of institutional change and design; and reflexivity; and the actors position in this is illustrated in figure 4.3. The structure of the framework draws inspiration from the institutional change model by Buitelaar et al. (2007) (see figure 4.1).

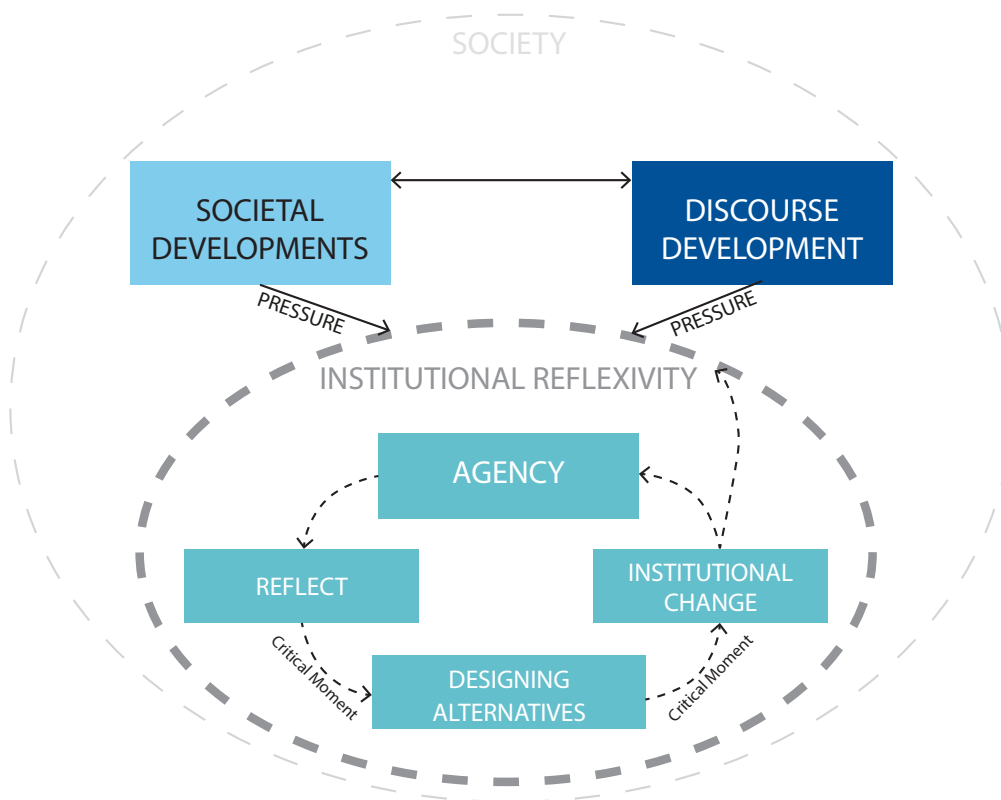


Figure 4.3: The general theoretical framework and understanding of this research. Developed with inspiration from Buitelaar et al.'s 2007 model of institutional change.

The model of Buitelaar et al. (2007) illustrates the acknowledged connection between institution and society. It does, however, not create a focus on roles of the actors, and link between institutional actors and institution, which is added in the illustration of the theoretical understanding of this research.

Figure 4.3 illustrates how this research takes point of departure in the same starting point for institutional change as Buitelaar et al. (2007). This means that external societal developments are acknowledged, along with a hegemonic discourse and institutional reflections. This is incorporated in connection to the acknowledgement of the actors understood as institutional actors that cannot themselves cannot change the institution alone, they are dependent and influenced by external factors.

The *institutional reflections* aspect of institutional change by Buitelaar et al. (2007) is substituted with an illustration of how the institutional agents reflect on the institution (illustrated with the institution circle). The illustration of the institution - institutional actors relation, substituting institutional reflections, is by this research defined as *reflexivity in institutions*.

The concept of reflexivity in institutions, in this framework is understood with regards to reflexivity of the external, e.g. societal developments and side-effects (Beck et al., 1994, 2003), and the internal, e.g. processes in practice (Howe and Langdon, 2002).

With point of departure in the general theoretical understanding, this research focus on the institution and actor interaction, illustrated in figure 4.4. The figure shows the focus on the agency which is reflexive and take action through institutional design, to change the institution in which they are part of.

The theoretical approaches provide a perspective of the urban planners in a tension, in which they should consider societal developments and pressures for sustainable development, as well as they should correct the current urban planning institutions. Institutional design is a way to reduce uncertainty, which is why it becomes especially important for planners to work with and acknowledge institutions and change them, in wanting to accommodate societal developments and correct the institutions.

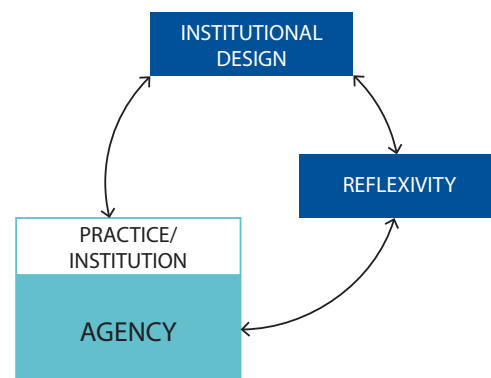


Figure 4.4: Temporary illustrative figure of the redesigned Sustainability Flower. The actual new tool will not look exactly like this, explained by the planner from Aalborg Municipality. This illustrates the synergy arrow and new sustainability dimensions based on the DGNB-system.

The following, chapter 5 will explore this theoretical focus and elaborate how this is used as point of departure for developing an analytical framework.



## 5 Analytical Framework

With point of departure in the general theoretical understanding achieved in chapter 4, as well as the focus on agency, institutional design, and reflexivity, an analytical framework is developed to prepare the ground for analysing the empirical data. The analytical framework presents the theoretical understanding, in relation to the analytical units of each approach, and elaborate how the analytical framework is operationalised and used in the analysis, part IV.

This research seeks to understand how urban planners operationalise the theory and ideal of sustainable development into urban planning practice. This research is thereby exploring the tension between: the planners and their practice; and the theory and ideal of sustainability. The tensions are understood as the difficulty in operationalising the concept and that it is problematic and tense to move from theory, ideals, and values to something applicable in practice. The planners are thereby understood as situated in a tension field in which they have to secure that the theory of sustainability (ideals and values) are accommodated and achieved in urban planning practice.

The analytical framework presented in figure 5.1, illustrates the tension as the topic of this research with an arrow between the urban practice and the sustainable theory and ideal, with the planner situated in between. The theoretical perspective to explore and understand how the planners work in this tension, is added to the framework, providing a theoretical lens to the topic.

This theoretical perspective combines a perspective on the agency, the planners and their position, the institutional design (considered in relation to the development of sustainability tools), and the reflexivity of the planners (seen in relation to redesigning the sustainability tools).

Firstly, the institutional design of the sustainability operationalisation is explored. In this it is acknowledged that the planners have a background or reason for the institutional design, based on societal and municipal developments and focuses. The institutional design is explored in relation to the analytic units objects and subjects of institutional design. The institutional design is supplemented with the analytic unit *sustainability understanding*, as it is understood that the way sustainability is understood and interpreted have an influence in the institutional design.

Reflexive institutional design is explored with the theoretical approach of reflexivity. It is understood that societal developments amongst else influences the reflexivity of the planners. Reflexivity is explored in relation to the planners' reflexivity of developments, risks, and side-effects of society. This is coupled with the planners' reflexivity of

developments regarding the sustainability concept, as it is acknowledged that a changing view on the concept sustainability or sustainable development influences the action taken by the planners. Reflexivity is as well unfolded in relation to practice, which includes the institutional redesign of the sustainability practice by the planners. This is understood through the analytic units of habitus, capital, and field. The analytical focus of this theoretical approach is specifically how planners are reflexive and redesign the institution based on this reflexivity.

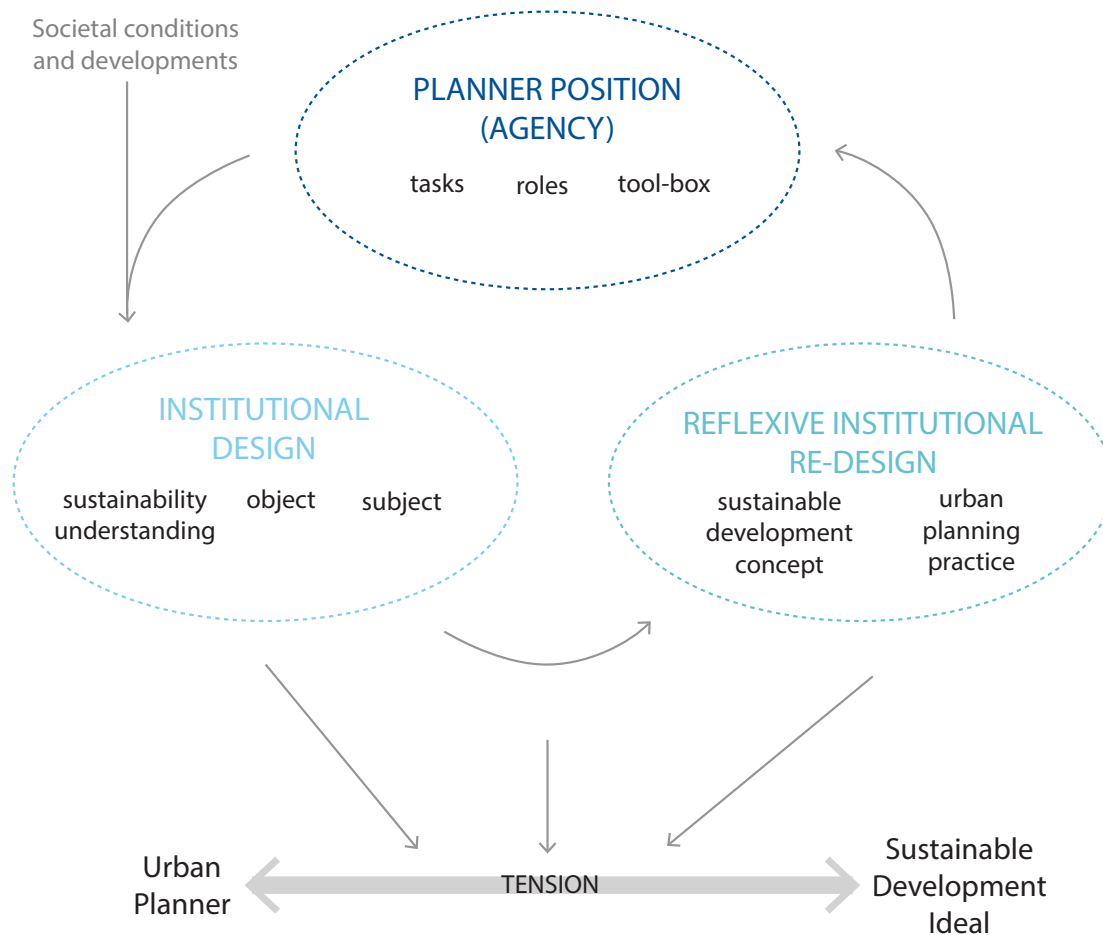


Figure 5.1: The analytic frame of this thesis.

The last part of the illustrative analytical framework, is agency. This is connected to the position of the agents, urban planners, in the operationalisation of the sustainability concept through institutional design and reflexivity. This is unfolded using the analytical units: tasks, roles, and tools, by which the positions of the urban planners in relation to sustainable planning is explored.

The analytical framework illustrates how the operationalisation of sustainability into urban planning practice is perceived to be a continuous process of the position of the planners, their institutional design and their reflexivity prompting an institutional redesign, which again influences the planners position.

The presented analytic units are operationalised in order to be used as point of departure to structure the data for the analysis.

The analytical units, associated with institutional design, are used to structure the first

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analysis. The unit, object, is used in relation to what actions/agency are sought changed through the sustainability tools. The unit, subject, is used in relation to find data of the considerations of design of the sustainability tools, both of the visual model and the actual planning practice around the tool. It is chosen to add the units of the background for developing, to firstly establish the original aim and intentions for developing the tool; and the unit of the sustainability understanding. The analytic units for the first analysis are structured as illustrated in table 5.1, to create an overview of the researched phenomena across all cases, the table was used in the data management in the document analysis.

	Copenhagen	Odense	Aalborg
<b>Background</b>			
<b>Sustainability Understanding</b>			
<b>Object</b>			
<b>Subject</b>			

Table 5.1: Analytic units used in first analysis to structure a document analysis.

Second analysis take point of departure in the analytic units related to reflexivity. The structure of this analysis takes point of departure in the stories of the planners, after which the stories are connected to the theoretical approaches. The planners' reflexivity of the sustainability concept is in relation to what it means to them and how they relate to it and the connected societal developments, agendas and discourses in society, and risks and side-effects of the industrial modernisation. The planners reflexivity is also analysed in relation to the sustainable urban planning practice and the redesign of sustainability tools and practice. Thereby how the planners are reflexive of their planning processes, the domain of activity in which they can change and do things, and their capital and resources. The capital unit is understood with regards to the resources of the planner in securing sustainable development with the tool, thereby what they can use when they are in the domain of action, related to what the planner is able to do in sustainable planning processes. The field unit is used in the analysis in order to understand through which domain the planners are securing sustainable development. The habitus unit is related to the planners routines in practice of sustainable urban planning, the issues in working with the tools and how the tool fits with the habits and routines of planners.

Third analysis takes point of departure in the analytic units defined in relation to the planners position. The analytic unit, tasks, is related to the specific job tasks that the planners have to do when securing sustainable development. The analytic unit, roles is here used in relation to analyse what roles the planner take in using the tool and securing sustainable development in general society. Finally the tool-box and skills unit is understood in relation to what the planners need of resources and tools to secure sustainable development in practice.

This analytical framework along with the methodological approach, presented in the following part III, present the approach to the empirical analysis.



## Part III

# Methodology

*This part unfolds the methodological considerations in this thesis. Firstly, the design of the research is presented to give an insight to the empirical-, methodological- and conceptual problems of the research as well as the themes and theory related to the research question and sub-questions. Secondly, the practice case study method is presented together with the selection of cases to this thesis. Thirdly, the data generation methods are presented, where documents and interviews with professionals working in relation to sustainability tools are the main data sources.*



## 6 Research Design

The research design of this thesis is formed through an iterative process, based on posing questions and questioning elements of the research, throughout the entire research period, as illustrated in figure 6.1 by Farthing (2016). The research design is based on the scientific approach of this research, thereby the ontology and epistemology (see section 2), as well as the explored theoretical perspectives (see part II).

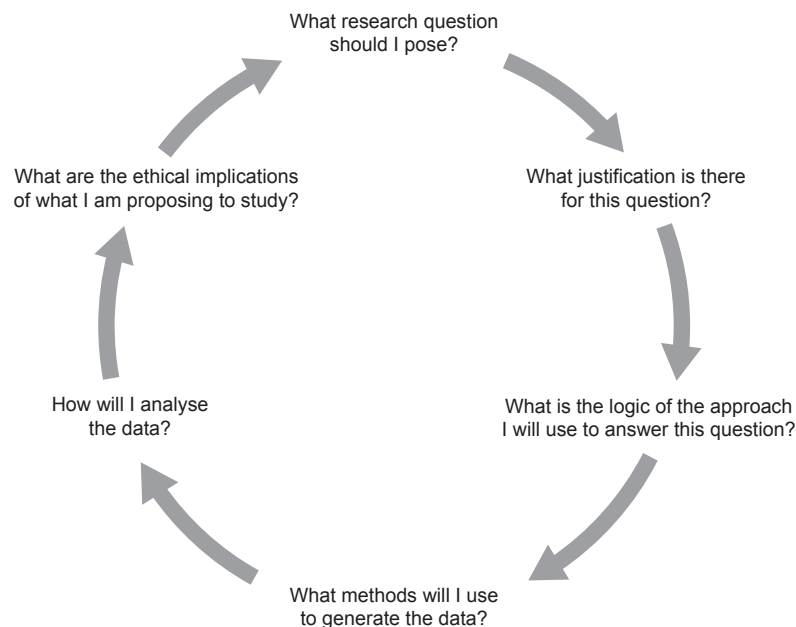


Figure 6.1: The cycle of research design (Farthing, 2016, p. 5).

The empirical problem of this research is defined as urbanisation and environmental stress pressuring the world to take action, and argued globally, this should be done by facilitating a sustainable development (see chapter I). Further, an empirical problem is argued in the literature, that current institutions are not equipped to handle these issues of environmental stress. Urban planning literature show a need for operationalising sustainable development in urban planning practice, however, a gap in knowledge, of the actual practice of this, provide the argument for the focus of this research (see chapter 3). This prompts a conceptual problem of how urban planning practice and sustainable urban development can be understood in connection. This questions how it is possible to understand the urban planners, and how they in practice operationalise the concept and thereby shape their own practice. Based on the theoretical perspectives (see chapter 4), the methodological problem of this research is, how the institutional design of planners can be

empirically researched, and the reflexivity of urban planners, in shaping the institutions, can be examined.

These problems constitute the approach to this research, in which the main research question is asked:

*How are urban planners operationalising sustainable urban development through sustainability tools in urban planning practice?*

To unfold the main research question additional sub-questions are asked, in order to frame the empirical and analytic work. Answering the three sub-questions presents the approach to discuss the main research question. The first sub-question is framed as a descriptive what-question (Farthing, 2016). Question two and three are framed more exploratory, related to the notion of interventionist questions by Farthing (2016), as these are how-questions. The sub-questions are:

1. What is the institutional designs of the sustainability tools developed by urban planners?
2. How are the urban planners reflexive of the sustainable concept in relation to urban planning practice?
3. How is the position of urban planners changing in relation to securing sustainable urban development?

The research design is based on different types of research questions and the methodological explanations and considerations of Farthing (2016). However, it further relates to the theoretical approach of this project. With basis in Alexander (2005) on institutional design and reflexivity, the research is further considered with regards to a descriptive-, explanatory- and a more exploratory element. Alexander (2005, p. 211) differentiates between: 1) positive institutional transformation: *"enabling more effective action in institutional contexts, means descriptive- explanatory knowledge based on reflexive experience, empirical observation and analysis"*; and 2) normative institutional transformation: *"knowing how to effect intentional change. Deliberately creating and changing institutions, and affecting institutions, institutional structures and practices is institutional design"*. The normative perspective is related to the exploratory element in this project, as this revolves around the role of the urban planners in the institutional design and with regards to sustainable urban development.

The sub-questions are closely related to the theoretical perspectives and analytical framework (see part II). **First sub-question** prompts a descriptive analysis based on the theoretical approach: institutional design. This entails the view on the tools as alternative institutional designs to accommodate the objectives of sustainable development. Thereby it covers the themes: *design, tools, and planning approaches (participatory, communicative)*. **Second sub-question** is connected to understanding and practice related to the sustainability tools. This is analysed with reflexivity as the theoretical approach, by understanding that the planners are reflexive of their institutionalised practice, and this reflexivity shapes the alternative institutional design. This question covers the themes: *reflexivity, planning rationales, and values of the urban planner*. **Third sub-question** explore positions of the urban planners as part of the institutionalised practice. The question is based on the theoretical approach of position



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of the actor. The question covers the themes: *planner roles*, *tasks*, and *tools*.

This research takes an empirical exploratory approach, based on the epistemological assumption that these questions can be explored through the life worlds, experiences, and perspectives of the actors: the local urban planners, who develop and work with sustainable development and the sustainability tools.

The general research method, practice case study, is chosen to provide in-depth and contextual knowledge of the planners working with sustainable development dialogue tools (see chapter 7). Several cases will provide different views on the process of operationalising sustainable urban development in urban planning practice.

With the established epistemology, interview is the primary data generation method (see section 8.2). Interviews as data generation is primarily related to the second and third research sub-question. The first research sub-question is instead connected to the data generation for document analysis (see section 8.1). Thereby the analysis is based on data from both documents and interviews, giving insight to perspectives of planners and the municipality in general.

Based on the theory, method, and sub-research questions, the analysis is divided in three respective parts (see chapters 10, 11, and 12): 1) The institutional design of the original sustainability tools; 2) The reflexivity of urban planners of the sustainability concept and their own practice in relation; 3) planners position, roles, tasks and tools in sustainable urban development practice. The analysis create a basis for a discussion of the main research question (see chapter 13). The discussion concerns the tension in which the planners are situated.



## 7 Practice Case Study as Research Method

Case study is chosen as the research method, as case studies allow for gathering in-depth- and context dependent knowledge. Through case study the research follows the phenomena: operationalising sustainable development. It is highlighted that this is neither a comparative case study or an in-depth single case study.

The case study method of this research will take point of departure in practical case studies (Forester, 1999). The approach by Forester (1999) is adopted in the sense that *practice stories* of practitioners are considered a window to understand the world of urban planning. With this approach the operationalisation of sustainable development through sustainability tools are examined through the stories of the local urban planners. In this sense this research is neither an assessment or evaluation of practice or the tools. It is instead exploratory, and seeks to present examples of how it has been done in practice, in order to provide valuable knowledge and lessons from the practical cases. Practice stories are primarily used in the second and third analysis, as a more traditional case study approach is taken in the first analysis.

This research focus on Copenhagen-, Odense-, Aalborg Municipality and their respective urban planners' stories and the sustainability tools, as cases for analysis.

Case study is an important method in securing knowledge, skills, and expertise in researching phenomena in relation to time and space, according to Flyvbjerg (2001) and Yin (2009). It is especially advocated as a research method in social sciences: e.g. sociology, political science, and community- and urban planning (see (Flyvbjerg, 2001; Yin, 2009; Farthing, 2016)), however, through time the case study method as a research method has been misunderstood and criticised. One misunderstanding is, that science should only be developed and created through context-independent knowledge, e.g. universal theories. However, the argument for case studies is that knowledge should also be created through context-dependent real life cases, creating valuable knowledge of the social world:

*"[Case study research] is essential for the development of social science; for example, in understanding the degree to which certain phenomena are present in a given group or how they vary across cases."* (Flyvbjerg, 2001, p. 87)

The case study research method provide an approach to to collect practical contextual knowledge of the local urban planners' operationalisation of sustainable development through developing dialogue tools.

Yin (2009) emphasises case study as a method in exploratory researches. This underlines

the choice of case study in this research, as this is an exploratory research, seeking to understand mechanisms of operationalising sustainable urban development and developing tools and practice as a phenomenon.

Other misunderstandings of doing case study, according to Flyvbjerg (2001, pp. 66-67), are that case studies do not provide basis for generalisation; it is only relevant for hypothesis testing; it contains bias for verification; and it does not provide a base for developing general propositions or theories. This research does, however, not aim to generalise or make general universal summarises. Instead, the aim is to shed light on a part of the urban planning field, by examining sustainable urban development planning practice and tools in context. The intention of this research is related to the arguments by Forester (1999) of learning through practice stories:

*"these practice stories help us to identify the personal challenges of deliberative planning and policy analysis. We can learn from these planners' accounts about hope and discovery, about surprise and coming to see our problems anew. (...) These stories can teach us about a critical pragmatism, about risk taking, searching and innovating, about resisting the cynicism of putting aside our ideals, about the willingness to do hard work in messy circumstances to repair the world, today and tomorrow."* (Forester, 1999, pp. 13-14)

The aim of this case study is thereby to create new practical and theoretical knowledge, in order to understand the mechanisms between the practised and the theorised, in order to understand how urban planners, in the selected cases, operationalise theoretical concepts and objectives.

Forester (1999) argues for using practice stories as method for planners and policy analysts to learn from each other and practice in order to distribute knowledge of good planning. The stories of planners are in this research used to shed light on the defined phenomenon, meaning that the stories are used in connection to the theoretical perspectives.

In this research the practice stories are connected to selected cases, to provide different perspectives and different contexts of the researched phenomena.

To the question of whether or not stories are all about linguistics, Forester (1999) argues that stories are more than just words:

*"So our ears hear sounds. A tape recorder records what is said. Children might identify the words. But the challenge we face, as planners and policy analysts more broadly, is to do more: to listen carefully to the practice stories we hear and to understand who is attempting what, why and how, in what situation and what really matters, what is valuable, in all that. That challenge is not just about words, but about our abilities to go on, our real opportunities and our actions, our own practice, what we really can, and what we should, do now."* (Forester, 1999, p. 38)

The challenges posed by Forester (1999) describes the approach of this research. The stories are perceived as practical cases of the operationalisation of sustainable urban development. The approach of this research is thereby to listen to the stories of the urban planners, and seek to understand these through the analysis based on the developed theoretical and analytical framework.

## 7.1 Selection- and Type of Cases

The cases, and thereby the practical stories by urban planners, are selected based on the research subject: operationalisation of sustainable development through planning tools. A definition of the tools is provided, and used as criteria for selection, to seek links between the practice stories of the urban planners, in an attempt to secure linked examples of the phenomena.

Sustainability tools, that are developed in order to work towards creating a sustainable urban development are, in this case, understood as:

- tools used in relation to planning,
- tools that advocates and secures objectives of sustainable development in an urban planning process,
- tools developed by urban planners (or other professionals that work with urban planning) in the municipality in which it is used,
- tools that are process oriented,
- tools that create a dialogue of sustainable urban development between several actors, both internal and external in respect to the municipality,
- and tools that have a visual/graphic design.

This understanding of the sustainable development tools provide the base for the selection of cases, to secure relevant and useful knowledge. Another criteria is, that the tool and related practice has been a part of the urban planning practice for several years, making it possible to examine.

The cases of this research should not be understood as the municipalities, although they can be referenced as such. The cases are rather perceived as the practical stories of the urban planners and the sustainable urban development dialogue tool of the respective municipality.

The chosen cases are Copenhagen-, Odense-, and Aalborg Municipality. The criteria secure that selected case-tools have similarities in their purpose and function, securing coherence in the knowledge. It is not the aim to compare the tools, or the general cases, as such, it is rather to understand the phenomena in different contexts. Copenhagen-, Odense-, and Aalborg Municipality are highlighted by the Ministry of Environment, as the three municipalities which has developed a holistic-focused sustainability tool (Miljøministeriet, Naturstyrelsen, 2012a,b). These municipalities have used the tools to secure sustainable urban development in planning in the last 6-9 years, and they are all in the process of redesigning or reconsidering their tools or approach to sustainability (at the time of writing). These cases are therefore interesting in this time, as this process can provide further knowledge and reflections on subject.

Related to the sampling of cases Flyvbjerg (2001) describes that different types of cases produce different kinds of knowledge. This research does not only take point of departure in the understanding of cases by Flyvbjerg (2001), and thereby are these cases not considered in relation to his specific case types. However, his notion of paradigmatic cases can be related to the topic of this research, as both Wheeler (1996) and Bagheri and Hjorth (2006) pointed towards a paradigmatic shift happening in planning practice towards a focus on process and the development of a sustainable urban development planning practice.

Thereby is it relevant to take a 'panoptic' view in this research, which also underlines the choice of multiple cases. It is possible for the practice cases of this research to provide knowledge of this change in planning practice.

Thereby is the general method and approach to researching the operationalisation of sustainable development through sustainability tools an exploration of the planners' stories and experiences, in designing institutional alternatives and operationalising the concept of sustainable development. This method is primarily used in the second and third analysis as the first sub-question takes a more historical approach to explore the original institutional designs of the sustainability dialogue tools.

## 8 Data Generation-, Processing-, and Analysis Methods

The data generation methods of this research are document analysis and interviews. These are presented in regards to how the data was generated through these methods, how the data was processed, and further how the data is used in the empirical analysis in the following.

### 8.1 Document Collection

In this research, one of the used data generation and analysis methods, is documents. Documents are used for both practical and methodological reasons, inspired by the arguments by Farthing (2016). Practical reasons relate to the fact that the tools in the chosen cases were developed between 6 and 9 years ago. Without knowledge or security that the planners, whom developed the original tools, are still employed in the municipalities, and reachable, the documents provide knowledge of some of the original thoughts and objectives of the sustainable development tools. A methodological argument is the assumption that the documents provide insight to world views of the urban planners, whom developed the sustainability tools, and thus how sustainable development is interpreted.

Documents are, as in Farthing (2016), understood as documents we can read or interpret, which provide knowledge of the social world. Mainly text-based documents or illustrative documents are collected and used in this analysis. The illustrative work covers e.g. visual presentations of the tools. All documents are associated with the tools and the policy of planning for sustainable development in the respective municipalities.

The search for the relevant documents was performed with a range of search words connected to the respective case municipality and sustainability tool. The search words are presented in their original language, Danish, as the search was conducted in Danish (see appendix report, Appendix 14.1, for table of search words).

In addition to the word search, the search of the documents, further, included a look through the respective municipalities' public summaries of meetings in the city council or the political committee for the relevant administration, this search primarily provided examples of the use of the tools in Aalborg-, Odense-, and Copenhagen Municipality. A last step in the document search was, through the contact to the interviewees, to ask them to provide the most recent documents related to the sustainable development tools,

which amongst else provided new documents of the redesigned Sustainability Flower from Aalborg Municipality.

The search was as well supplemented with the search of general sustainability strategies in the municipality, as these are used as contextual knowledge in the case description.

The amount of documents was restricted to secure that the amount was manageable and in agreement with the importance and the emphasis put on the document analysis in this project, as it is not used as the primary data generation method. The document analysis primarily provide background and general knowledge of the tools, their development, and use. The document search provided a lot of literature in each respective case, which were restricted in relation to how many examples are included. Here the restriction was set to be maximum three examples. Proposed local plans were discarded.

The relevant documents are processed in the coding programme, Nvivo. Each document is read through and coded according to prescribed nodes (categories) defined according to the theoretical framework, as illustrated with figure 8.1.

The coding is completed to give an easily accessible overview of the documents, what they entail, as well as what they indicate. This makes the many documents usable in relation to the document analysis, as it is easy to draw on the useful data in relation to the specific topic, or category. Through the coding of the documents several nodes were added. A group of general notions about the different municipalities' understanding of sustainability was added, with the purpose of getting an overview of this, in relation to the specific understandings related to the tools. These are not used and presented in the analysis, but the coding provided additional knowledge of the context, in which the planners are designing the tool and sustainability practice. Furthermore, the nodes: *Background*, about the general sustainability initiatives of the municipality; and *Other Interesting Points* were added, to provide nodes to manage contextual knowledge of the sustainable planning tool and practice.

Sub-nodes to *Additional Sustainability Understandings* were added to code specific and separately for those additional understandings that where found through the process, e.g. *Nature*, an additional understanding in Aalborg Municipality's tool. The nodes in focus was limited to scope the analysis towards the institutional design of the tool and practice of using the tools, rather than including the general approach to sustainability for the whole municipality.



Figure 8.1: The nodes in focus for the document analysis in chapter 10. The blue text presents the specification of the additional understandings, which was found in the process.



## 8.2 Interview

This research collects practice stories as data through interviews with local urban planners or professionals, working with or in connection to the respective sustainability tools, which are developed to secure sustainable urban development. Conducting qualitative interviews gives the possibility to investigate the phenomena from the urban planners' own perspective, and allows their subjective position to be point of departure for the second and third part of the empirical analysis. Kvale (2009) explains how the interview method can be used to explore such phenomena:

*"The qualitative interview is a key venue for exploring the ways in which subjects experience and understand their world. It provides a unique access to the lived world of the subjects, who in their own words describe their activities, experiences and opinions."* (Kvale, 2009, p. 10)

Central to this thesis is to obtain knowledge of the urban planners' experiences with operationalising and working with sustainable urban development through tools. Related to the scientific approach of this research, it is essential to compile the planners' subjective interpretations, knowledge, and understanding of sustainable urban development, the operationalisation of it, the urban planning practice, and their relation to the tools.

It is important to acknowledge that there are both epistemological and ethical concerns of doing interviews as research method, according to Kvale (2009). Interviews are conducted in a specific situation and place. The setting affects both the interviewer, interviewee, and thereby the output of the interview. It is therefore essential to consider the interview subject, design and structure. Ethical issues revolves around the complexity in understanding, analysing, and processing the data of the life world of the interviewee. The epistemological concerns entails the complexity of exploring the actual life world of the interviewee. The generated data is the stories expressed by the interviewees through the interviews: how they portray the phenomena in question, and in the specific situation.

### Sampling

Sampling of interviewees are made with point of departure in the selected cases. The interviewees are from Copenhagen-, Odense-, and Aalborg Municipality. The specific urban planners and professionals are selected with basis in their knowledge and work in connection to the operationalisation of sustainable urban development through sustainability tools. It is essential that the interviewees have a relation to the phenomena which is researched, and they are selected based on their specific relation to the sustainability tools. The interviewees are presented in table 8.1. In Copenhagen Municipality the interview was conducted with both interviewees together, as the interviewees are working together on the redesign of the sustainability tool. The other interviewees from Odense- and Aalborg Municipality were interviewed individually. The interviewees are presented with an alias, as they are representatives of the sustainability tools and how the municipalities work with- and operationalise sustainable development, as well as it is not the aim to present their personal state of mind.

Municipality	Alias	Background and relevance in inquiry
Copenhagen	"Anne"	Urban Planner, working as an environmental coordinator and specialist in local planning, in the centre of Urban Planning. Currently working in the team of redesigning Copenhagen Municipality's sustainability tool.
	"Peter"	Geographer with speciality in cultures, working as an environmental planner. Participated in the development of Copenhagen Municipality's original sustainability tool, and is also a part of the team that redesigns the tool.
Odense	"Laura"	Architect, working with holistic urban planning. Have used Odense Municipality's sustainability tool in practice in relation to an urban planning project.
	"Lars"	Marine biologist, working with sustainability in general projects in Odense Municipality, in the The Secretariat for Sustainability. Creator and contact person of Odense Municipality's sustainability tool.
Aalborg	"Jens"	Architect, working with sustainable development in urban planning in a wide range of projects, both in a local and holistic perspective. Is one of the main actors in redesigning the Aalborg Municipality's sustainability tool.

Table 8.1: The interviewees presented with regards to the municipality they are representing, their respective alias used in the analysis, as well as their background and relevance in this project.

## Structure of the Interview Inquiry

Planning an interview includes considerations of seven stages, according to Kvale (2009, pp. 35-36): *thematizing, designing, interviewing, transcribing, analysing, verifying, and reporting*. The following outline the considerations for each stage in order to create a comprehensive and methodological basis for a coherent data generation procedure.

The *thematizing* of the interview inquiry is based on the research questions (see section 6). To create an understanding of this, the aim is to gather knowledge of the background for developing this practice; to create an understanding of the use of the tool in practice; to investigate the development of the tool and urban planning practice in connection; and to investigate the relation between the sustainable urban planning practice and the urban planner.

*Designing* an interview inquiry both involves technicalities, practical preparation before the interview as well as considerations to the type of interview (Kvale, 2009). To prepare the interviewees they are informed about the general aim of the thesis and interview, as well as the interviewers have collected general basis knowledge of interviewee, municipality and tools.

This thesis has an exploratory approach and an open-ended research question, because there are still gaps in the literature in relation to the sustainable urban planning practice (see section 3). Semi-structured interviews compliments the open-ended structured thesis, because it makes it possible to follow a prepared guide, as well as it gives the possibility to explore themes and statements further with follow-up questions Farthing (2016).

One general interview guide is prepared with questions and themes for all interviews, in order to secure that the intended knowledge is gathered (see appendix report, Appendix 14.1, for interview guide table). The interview guide is shaped by the three research sub-questions, related themes and related theoretical concepts, in order to secure that we

gather the knowledge that is needed to answer the research questions. Interview questions have been formulated broad in order to create room for the interviewees to formulate as freely as possible and to encourage them telling their stories. Questions are specifically formulated to secure that they cannot be answered with yes or no. Finally there have been formulated follow up questions to be used if necessary.

The *interviewing* is performed in person and takes point of departure in the interview design. As a starting point the interviewees are asked whether or not the interview can be recorded. The thesis and interview are described to the interviewees, as well as they are asked to introduce themselves.

Both researchers attended all interviews, however, with different roles. One as interviewer. The other as supporting interviewer, taking notes, recording, securing that all intended questions are asked.

*Transcribing* the interviews is essential in preparing the data for analysis (Kvale, 2009). All interviews are recorded and transcribed, for the purpose of coding the data in the data management program Nvivo (see appendix report, Appendix 14.1, for interview guide table). Before presenting the transcriptions in appendix and coding, the interviewees were anonymised with an alias name. The transcriptions have been structured by a general template, which is made with inspiration from Kvale (2009, p. 96):

- (.): A gap or noticeable thinking pause between utterances is indicated with a dot in parentheses.
- (): An empty parenthesis is used when the transcriber could not decipher what was said during the interview.
- (()): Double parentheses are used to show the transcriber's analytic notes, descriptions or explanations in the transcription.
- ...: The dots are used to indicate interruptions and continuation of sentences in the transcriptions (not to be confused with the reporting style in this thesis).

The *analysis* of the interviewees statements are based on a coding of the transcriptions. Coding the data makes it more manageable, and it makes it easy to get an overview of the data in relation to specific categories of focus and interpretation, which are used in the analysis. The coding nodes used in Nvivo, presented in figure 8.2, are the analytical units from the analytical framework. The nodes *Reflexivity*- and *Planner Position* nodes were the primary used nodes in the second and third analysis.

It is important to acknowledge that the coding is links and interpretations of the researchers. Although the data was categorised to provide an overview, the analysis takes point of departure in the stories of the planners.

Due to an ethical question, of how much influence the interviewees should have on how the

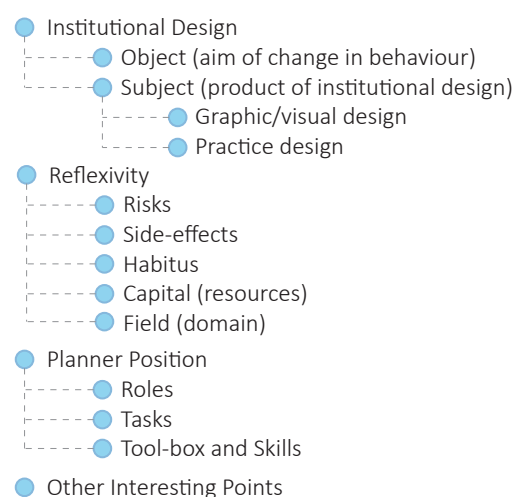


Figure 8.2: The nodes used to code the transcripts from the interviews, based on the analytical framework.

data is reported, the interviewees are asked whether they are interested in approving the statements which are to be used in the analysis. This resulted in some phrases being blacked out in the transcriptions, as these entailed compromising details of projects or persons.

*Verification* of the interview inquiry is first and foremost secured by developing comprehensive methodology structure. Another ethical obligation is to secure that the analysis and reporting of the interviewees statements are verified (Farthing, 2016). The data is verified by collecting several interviews, and thereby several perspectives that supports the statements and conclusions. It is also verified by securing that the interviewees had knowledge of the theme and subject, as well as they got the opportunity to approve their own stories.

The verification of the data supports the validity and reliability of the empirical data. The research does not aim to generalise, therefore is the verification not concerned with this issue.

*Reporting* the analysed data entails how the results, found through the interview inquiry, is communicated (Farthing, 2016). By coding the interviews, they are prepared for analysis, by which they are reported. However, as the interviews are conducted in Danish there is a methodological and ethical concern in translating the interviewees statements into English for reporting. All statements have been translated, by the researchers of this thesis, with regards to maintaining the meaning of words and statements. In reporting of the statements there have been removed grammatical in-corrections, unreadable words or phrases, and speaking language, such as 'mhh' and 'øh'. In reporting the stories following marks are used:

- ...: starting/ending the statement within a sentence (not to be confused with interruptions as in transcriptions).
- (...): a sentence or part is removed from the statement.
- [editor's note]: explanation from researcher to understand statement or explain elements.

The interview data, thereby the practice stories of planners and professionals, is primarily reported in the second and third part of the analysis (see chapter 11 and 12).

## Part IV

# Practice Case Study

*This parts presents the empirical work of this thesis. First, contextual knowledge of the different cases is presented. Chapter 10 presents a document analysis of how the three sustainability tools originally were designed. Including the background, sustainability understanding, visual- and practice design. Chapter 11 presents an analysis of the planners' reflexivity of societal developments in relation to sustainable development, as well as reflexivity of the sustainability tools in relation to urban planning practice. Chapter 12 provides and analysis of the tasks, roles and tool-box of the urban planner, in relation to their position in securing sustainable urban planning and development.*



## 9 Contextual Knowledge of the Practice Case Municipalities

The practice cases, Copenhagen-, Odense-, and Aalborg Municipality, as illustrated in figure 9.1, are introduced in the following as the cases of analysis. This chapter will provide contextual knowledge of the operationalisation of sustainable development from each case.

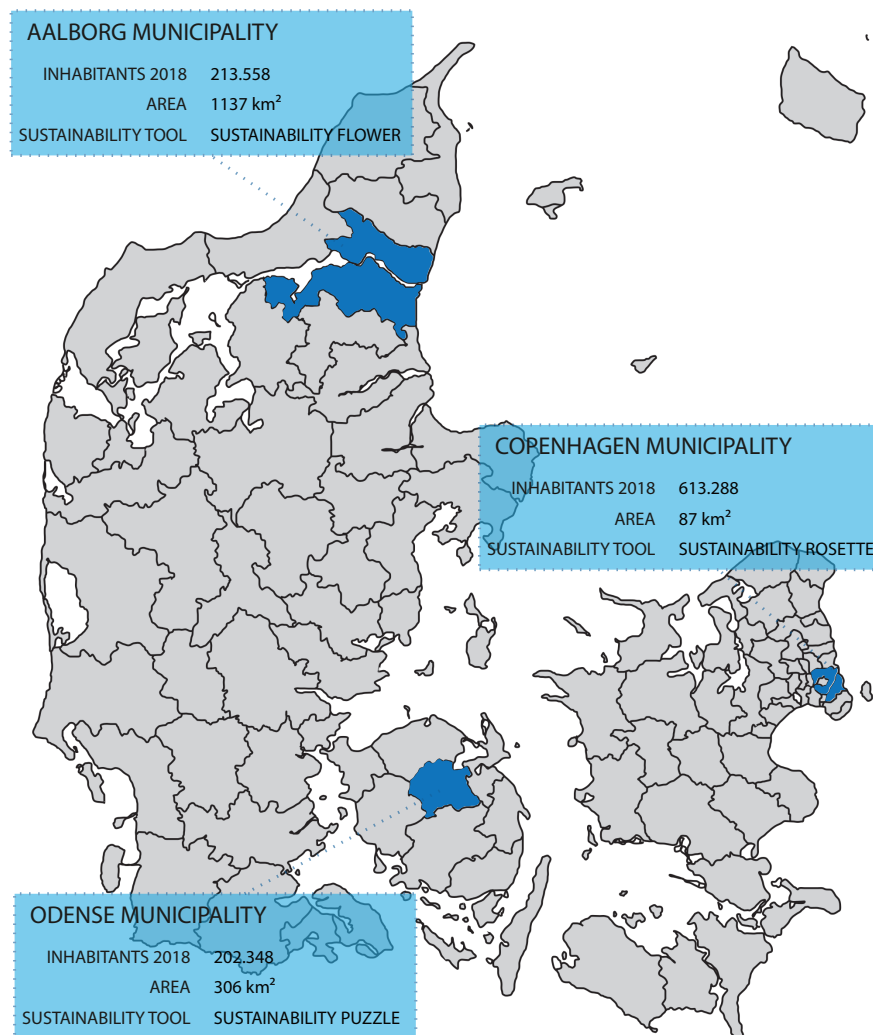


Figure 9.1: Overview and facts about the practice case municipalities of this research.

### Copenhagen Municipality

Copenhagen is the capital of Denmark with a total of 613.288 inhabitants (Statistikbanken, 2018a) and covers an area of 87 km<sup>2</sup> (Statistikbanken, 2018b). Copenhagen Municipality is a population growth centre, with an increase of 20 % inhabitants in last 12 years, with an expectation of 113.000 more inhabitants before 2030 (Københavns Kommune, 2018). This signify the need for action to densify and develop the city to include more residents in the future.

Copenhagen Municipality describe, in the municipal plan of 2009, that they want to develop as a leading environment metropolis, in which sustainable solutions and development is a part of every new development project (Københavns Kommune, 2009). Sustainability and sustainable development is as well highlighted in Copenhagen Municipality's Agenda 21 strategy, called 'Sustainable Connections' (Københavns Kommune, 2016, own translation), highlighting the focus areas of collaboration, partnerships, and involving the citizens when working with sustainable development:

*"We need to combine development and increased quality of life with CO<sub>2</sub> reductions and economic soundness. We need to reuse and recycle our resources with the greatest circumspection. (...) We must be a city that prioritises green lungs, nature in the city, and we must secure that Copenhagen can endure the climate changes while creating a basis for a good life." (Technique- and Environmental Mayor, Morten Kabell in Københavns Kommune, 2016, p. 3, own translation)*

Copenhagen Municipality in general focus on sustainable development as quality of life as well as green and environmental concerns, while connecting this to development and economy. In relation to urban planning Copenhagen Municipality work further with creating a sustainable city, amongst others, through the **Sustainability Rosette** tool (further explored in chapter 10). The first steps in working with sustainable development in urban planning, was presented in municipal strategy of 2007 (Københavns Kommune, 2007). The final sustainability tool was then presented as a part of municipal plan of 2009 (Københavns Kommune, 2009). The Sustainability Rosette was originally devised and designed in the Economics Administration, which amongst else is works with urban development, strategic-, and municipal planning (Miljøministeriet, Naturstyrelsen, 2012a). Now the tool is, however, moved and associated with the Technical- and Environmental Administration, which works continuously with the spatial development and use, as well as services of the municipality through local planning. A team in the Technique- and Environment Administration is in the process of developing the tool, with a focus on including and implementing it more into the planning practice, by implementing it in a guide for the urban planner's work (knowledge achieved through empirical data generation).

### Odense Municipality

Odense Municipality contains 202.348 inhabitants (Statistikbanken, 2018a) and covers an area of 306 km<sup>2</sup> (Statistikbanken, 2018b). The municipality contains the third largest city of Denmark, Odense.



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Sustainable development became part of Odense Municipality's vision when they joined the Aalborg Commitments in 2008 (European local governments united in the European Sustainable Cities & Towns Campaign, 2004). Based on this commitment, the municipality developed an environmental policy called 'Sustainable Together', with focus on different initiatives to sustainability (Odense Kommune, 2012a, own translation). This policy focus mainly on environmental sustainability, and Odense Municipality has two more policies with primary focus respectively on economic- and social sustainability. The general vision of their environmental policy is presented as:

*"Odense must be a sustainable big city - both environmentally, economically and socially." (Odense Kommune, 2012a, p. 5, own translation)*

In order to create a sustainable development Odense Municipality developed a tool for sustainable development, the **Sustainability Puzzle** (further explored in chapter 10). The sustainability tool was developed by The Secretariat for Sustainability in Odense Municipality, and presented in the environmental policy plan in 2012. (Odense Kommune, 2012a, 2015b). The tool is a general sustainability tool to all initiatives, and have been used in relation to Odense Municipality's sustainability award. Thereby, the tool is not created solely for the purpose of sustainable urban development planning. The tool has further been translated into amongst else German, English, and Japanese and the municipality encourage a broad use in many types of projects (Odense Kommune, 2015b).

Odense Municipality explained are in a process of implementing the UN 17 sustainability goals into their approach to sustainability. The sustainability tool is not being redesigned, however, they are reconsidering their approach and practice (knowledge achieved through empirical data generation).

## Aalborg Municipality

Aalborg Municipality has a total of 213.558 inhabitants (Statistikbanken, 2018a) and covers an area of 1137 km<sup>2</sup> area (Statistikbanken, 2018b). The largest city in Aalborg Municipality is Aalborg, the fourth largest city in Denmark.

Aalborg city was the host for the Aalborg Commitments in 2008, by which Aalborg Municipality committed to working with sustainability. Working with sustainability and sustainable development, Aalborg Municipality has devised a sustainability strategy, called 'Together We Create a *Green and Strong* Aalborg, where People *Thrive*' (Aalborg Kommune, 2016e, own translation, emphasis in original):

*"The title of the strategy: "Together we create a green and strong Aalborg, where people thrive" covers the broad definition of sustainability, namely the environmental, the social, and the economic. The sustainability strategy takes point of departure in the environmental, green transition and involve social- and environmental perspectives, which can create economic green growth and social development in the municipality, amongst else in education, employment, and health advancement." (Aalborg Kommune, 2016e, p. 3, own translation, emphasis in original)*

The general approach to sustainability is thereby defined by considering the three dimensions of sustainability: economic, social, and environmental. The sustainability strategy

is supplemented with an action plan of sustainability (Aalborg Kommune, 2017a). Aalborg Municipality have, through the sustainability tool, **The Sustainability Flower** (further explored in chapter 10), worked with sustainability in urban planning and development since 2011. It is the City- and Landscape Administration that manage and secure that the tool is integrated in urban planning processes. As Copenhagen Municipality, Aalborg Municipality are currently redefining their approach to sustainable urban development and redesigning the Sustainability Flower and connected planning process.

The presentation of contextual knowledge of the practice cases, show that all cases work with strategies, plans, and policies for sustainable development, which is also a statutory requirement in Denmark. Additionally all three municipalities have developed sustainability tools. These sustainability tools are explored further in the following (see chapter 10). Through the empirical work (interviews, document analysis, and other contact with interviewees) it became clear that all the municipalities are either redesigning their sustainability tools or reconsidering their approach to sustainable development.

# 10 Institutional Designs of Sustainable Urban Development

This chapter explores the institutional design of the sustainable urban development planning, expressed through sustainability tools developed by urban planners, in Copenhagen-, Odense-, and Aalborg Municipality. The analysis focus solely on published documents, and will therefore not explore practice. The document analysis focus on the background for the development of the sustainability tool in each municipality; the understanding of sustainability and sustainable development related to the sustainability tools, and thereby which values are included in the tools; and the *object* (effect on behaviour) and *subject* (product) of the tools.

## 10.1 Background for Developing Sustainability Tools

Common for each of the institutional designs is that they seek to provide a way to work with sustainability in the given municipality. It is about securing that sustainability is on the municipal agenda and becomes a part of the daily work. The institutional designs thereby seeks to provide a way to work with sustainable development.

Copenhagen Municipality initiated the development of a tool to secure sustainable development in urban planning in the municipal strategy from 2007 (Københavns Kommune, 2007). The goal was to develop a concept of environmental assessment to use in large development projects, to secure a comprehensive and holistic approach in urban planning. The actual concept was defined as a sustainability tool in the municipal plan of 2009:

*"A sustainability tool is developed which ensures that sustainability is brought to the agenda and becomes a natural part of every urban development project."*  
(Københavns Kommune, 2009, p. 8, own translation)

The tool was originally developed in relation to be used only in local planning projects with a total of more than 50.000 floor metres (Københavns Kommune, 2009). Thereby only development projects of a certain large scale.

In Odense Municipality the background for developing a sustainability tool was to secure that the sustainability discourse was placed on the overall municipal agenda. The vision originated when Odense Municipality signed up for the Aalborg Commitments and established The Secretariat for Sustainability in 2010, to create focus and work with

a sustainable development (Odense Kommune, 2012a). The Sustainability Secretariat developed the Sustainability Puzzle to simplify and operationalise the broad sustainability message, in order to be included in all efforts and issues:

*"The puzzle can be used as a help in the work with the sustainable dimensions of an initiative"* (Odense Kommune, 2015b)

Developing the Sustainability Puzzle was further a way to make CSR tangible and work with sustainability in a broad perspective in dialogue with actors (Ellis, n.d.).

As well as Odense Municipality, Aalborg Municipality developed a tool to secure sustainable development, because they were obligated to work towards a sustainable future by signing up for Aalborg Commitments (Aalborg Kommune, 2014a). According to Aalborg Municipality urban planning is about creating the right choices in relation to sustainability and prioritise these decisions together:

*"In all projects and at all levels - from plan strategy, municipal plan, and local plan to management of construction projects and support-projects management - we must respond to the overall "palet". This necessitates prioritisation and weighting of goals and means from project to project."* (Aalborg Kommune, 2011, p. 3, own translation)

The sustainability tool in Aalborg Municipality was thereby also developed to create genuine dialogue with all participants in the urban planning process, at all levels. The tool is a simplified way of communicating the prioritisation made in the planning process.

The tools were all developed as a way to secure sustainability as a focus in the work in the municipality, and specifically in Aalborg and Copenhagen in relation to urban planning. Thereby the backgrounds for development can be seen as a need for legitimising this focus and perspective, as well as the work they want to do with sustainability. Considering the background of Odense- and Aalborg Municipality, which highlight the Aalborg Commitments, the backgrounds and reasons for the institutional designs are contributed to societal developments (Buitelaar et al., 2007). This is further underlined, as the different sustainability understandings all take point of departure in The Brundtland Report, as elaborated in the following section.

## 10.2 Understandings of Sustainable Development

Copenhagen-, Odense-, and Aalborg Municipality have all included the three sustainability concerns economic, social, and environmental, in their developed sustainability tools, which are all specified by sub-themes.

Both Copenhagen- and Odense Municipality take point of departure in the exact three sustainability dimensions that stem from The Brundtland Report:

*"(...) sustainability is included in all large urban development projects in Copenhagen, as it makes them robust both economically, socially, and environmentally."* (Københavns Kommune, 2009, p. 3, own translation)

*"Sustainability both has an environmental, an economic, and a social/cultural*

*dimension. Sustainable development therefore implies that we ensure our common future in terms of a good environment, healthy economy and high quality of life.*" (COWI and Odense Kommune, 2009, p. 4, own translation)

The general dimensions are further, in both Odense- and Copenhagen Municipality specified in sub-themes. In Copenhagen Municipality as 14 concerns, and in Odense Municipality as 30 puzzle pieces. Aalborg Municipality have as well taken point of departure in the three dimensions deriving from the thoughts of The Brundtland Report, but have developed this understanding with additional sustainability dimensions, as well as acknowledging that sustainability is a process.

Both Odense- and Aalborg Municipality emphasise an understanding of sustainability as a process:

*"Sustainability is reflection, evaluation and prioritisation of the exact actions, which makes the most sense i relation to the 3 sustainability dimensions (...)"* (Odense Kommune, 2015a, p. 171, own translation)

*"... sustainable development of an urban area is a development based on deliberative balancing of environmental, economic, and social considerations as well as considerations to the nature and local values. (...) Sustainability is fundamentally common sense - everything is not necessary equally important everywhere."* (Aalborg Kommunes By- og Landskabsforvaltning, 2012, p. 2, own translation)

The quote from Aalborg Municipality show, that their understanding of the sustainability dimensions take point of departure in the thoughts from The Brundtland Report, with additional two dimensions: nature and local values.

Although the general themes of sustainability all have a clear connection to the Brundtland Report, the interpretation of the different sustainability themes differ between the institutional designs of the sustainability tools.

## Interpretations of Sustainability Dimensions

The following explore the understandings of each dimension of sustainable development, as embedded in the sustainability tools. This is based on the respective municipality's own explanation of their respective sustainability tool (see (Københavns Kommune, n.d.b; Odense Kommune, 2013c; Aalborg Kommune, 2011)).

The interpretations and understandings of economic sustainability all relate to a long-term durability and perspectives of projects related to *securing* the future in relation to e.g. livability, infrastructure, climate adaptation. They further understand economic sustainability as related to occupation, service, and the conditions for businesses and industries. Each also relate economic sustainability to either education, or attracting and creating knowledge, or both. A clear difference between the tools is Copenhagen Municipality's emphasis on municipal economy and investments; Odense Municipality's emphasis on CSR and corporation; and Aalborg Municipality's broad perspective on securing the most environmental concerns for the price.

Regarding environmental sustainability, the different institutional designs by the municipalities have as well similarities in the sustainability understanding. They all have the sub-themes (or variations thereof): transport (biking highlighted as sustainable transport by Aalborg- and Copenhagen Municipality), rainwater management and water consumption, resource use and management (e.g. life-cycle focus). Both Odense- and Aalborg Municipality highlight pollution as a theme, and both Aalborg- and Copenhagen Municipality highlight energy consumption. The institutional designs differ as Copenhagen Municipality highlight land-use with focus on securing density, and Odense Municipality specify the environmental sustainability further with: biodiversity, climate adaptation, nature, environmental management, and specify resources with life-cycle, shopping, and  $CO_2$ -reduction as sub-themes. Aalborg Municipality highlight the creation of better local environments, and they have added the dimension nature, which resembles the environmental understanding of Odense Municipality, and their sub-theme nature.

The understandings of the social dimension of sustainability embedded in the institutional designs also have similarities, however, the specified sub-themes differ more than the economic and environmental sustainability understanding. The institutional designs are similar with regards to diversity in population. Copenhagen Municipality focus on the urban areas with urban spaces, city life, identity and architecture. Aalborg Municipality differ, as they have added the dimension local values. Both Odense- and Aalborg Municipality emphasise the consideration of disabled people, as well as inclusion and democracy in social sustainability, which points to a process-oriented understanding of sustainability. Odense Municipality have, further, specified their view with the sub-themes: integration, equality and social inequality, and volunteerism, as well as culture, which resembles identity from Copenhagen Municipality and local values from Aalborg Municipality. Further, Odense Municipality have specified the sub-themes health and safety, which resonates with underlying concerns of Aalborg- and Copenhagen Municipality about securing public health and safety, quality of life and possibilities for experiences and physical activities. Copenhagen Municipality, further, specify green and blue areas as a sub-theme for social sustainability.

As mentioned, Aalborg Municipality have two additional dimensions of sustainability in their institutional design. These underline the different interpretations of sustainability in the different institutional designs. Local values relates to the social sub-themes of Odense Municipality: culture, and Copenhagen Municipality: identity and architecture.

The nature dimension in Aalborg Municipality concerns, amongst else, biodiversity and climate adaptation, which relates to the environmental sustainability understanding in Odense Municipality. The most interesting concern is, however, those of green and blue structures. This term is used in all three institutional designs. Odense Municipality have defined it as an environmental concern; Copenhagen Municipality have defined it as a social concern; and Aalborg Municipality have defined it in the dimension: nature. This shows that thoughts from The Brundtland Report are interpreted differently. It, further, suggests the difficulty in differentiating between the three dimensions, when using a holistic perspective.

## 10.3 Institutional Objects of the Institutional Design

With the background of the sustainability tools cleared, in Copenhagen-, Odense-, and Aalborg Municipality, as well as their understanding of sustainable development, the following will explore the sought effect: the behaviours that are sought to be changed with the subject (the sustainability tools).

### The Objective to Change the Sustainability Understanding

The sustainability tools are developed independently in each of the municipalities. There is, however, similarities in the behaviours which the designed institution should affect. One of these are the desire to include the broad sustainability understanding as a natural part of the urban planning process and practice in Aalborg- and Copenhagen Municipality:

*"The sustainability tool must ensure that sustainability is consistently included in the entire planning process from beginning to end."* (Københavns Kommune, 2009, p. 33, own translation)

The tool provides a security in Copenhagen Municipality with regards to sustainability continuously being a part and a recurring theme in the work with a local plan. The sustainability concerns are included to accommodate the visions of becoming a sustainable municipality. Aalborg Municipality also see the Sustainability Flower as a security to change the behaviour in the urban planning practice to be an integrated part:

*"working with the sustainability-profile as an integrated part of the overall urban development process."* (Aalborg Kommunes By- og Landskabsforvaltning, 2012, p. 3, own translation)

In Odense Municipality the sustainability tool is developed in relation to all projects, not only related to urban planning. The objective of their tool thereby have a more general use and approach, explained as:

*"The Sustainability Puzzle helps you to see an "effort" in a holistic perspective and thereby generate ideas to make it more sustainable."* (The Secretariat for Sustainability, Odense Municipality, 2014, pdf p. 1)

Odense Municipality also focus on creating new sustainable ideas, while using the tool in process. To incite innovation is thereby also the object of their tool, to create sustainable solutions from these ideas, rather than just creating focus on sustainable solutions.

Common for all three sustainability tools is that they seek to change the practice of urban planning process or general projects in the municipality. Both to secure and create a holistic development process in which the understanding of sustainability is included as a natural understanding of the development. This high focus on securing sustainability throughout the process indicates a need for the municipalities to change the way in which the planners (or other employees) think of sustainability. The institutional designs have a clear common objective to change behaviour and routines of interpretation about sustainability, and by the institutional design the holistic and broad sustainability perspective is highly emphasised.

## Facilitating Dialogue

The facilitation of dialogue is identified as an important object of the institutional design. All three tools are developed to provide dialogue of the sustainable development of either an urban planning project or any relevant project, in the case of Odense Municipality. Especially Copenhagen- and Aalborg Municipality explicitly explain the objective of the tools as securing and creating dialogue between a wide range of actors in planning decisions:

*"sustainability must be an important theme in the dialogue with developers from first idea to a new urban area is finished. The sustainability tool must be used early in the process."* (Københavns Kommune, 2010, p. 18, own translation)

Copenhagen Municipality highlight that to create a good planning process the tool must be included from the beginning of the process. It is important to take point of departure in the dialogue tool, before the development plans and thoughts have been made, to be able to incorporate the most sustainable solutions as a natural part of the development. Aalborg Municipality also highlight the tools as an object of facilitating dialogue together with prioritisation, where *"the starting point is the broad sustainability definition and the objective is a qualified dialogue about what is important and less important."* (Aalborg Kommune, 2011, p. 2, own translation). As well as Copenhagen Municipality, Aalborg Municipality describe that to be able to use the dialogue as a constructive basis for urban development it has to be included in the very start:

*"(...) we often use the constructive dialogue and negotiation with external stakeholders, developers, owners etc. - to create results. An early start of the dialogue in the project support the quality and secure better and more solid solutions."* (Aalborg Kommune, 2011, p. 14, own translation)

Aalborg Municipality highlight quality and results as outcomes of dialogue at an early stage of a sustainability process. When the solutions are considered both in terms of economic-, social-, and environmental considerations, amongst several actors from the beginning, it creates a greater basis for a durable development.

The sustainability tools from Aalborg- and Copenhagen Municipality emphasise dialogue as an internal process in the municipality, as well as an external process with other actors, as Copenhagen Municipality emphasise, that local planners should use the tool to prepare dialogue with stakeholders (Thomsen, n.d.). The tool is able to create internal dialogue, both between different local planners involved, as well as with other administrations that have a role in the given project.

The objective is then to affect the norms and routines of dialogue in planning processes, with a focus on sustainability dialogue. The institutional designs have the objective of securing that the broad perspective is considered in the dialogue, and that the dialogue is facilitated with relevant stakeholders. This objective further relates to the affect on the way to think and talk about sustainability. The specific focus on sustainability dialogue can be related to legitimisation as well, legitimising the process by involving stakeholders. This is seen as influenced by societal development in planning and planning theory, as



an increasing focus on communicative planning emphasise the role and importance of dialogue (Healey, 1997).

## Prioritising Decisions

An objective found in relation to all three tools is the intention of creating a basis for prioritisation in decision making processes. According to Aalborg Municipality prioritising decisions, is one of the most important aspects of planning. It is mentioned several times that the Sustainability Flower provides and communicates the decisions and choices, made both with internal and external actors, in a simple and understandable way:

*"Planning is about conscious add-ons and opt-outs. Also in relation to sustainability. The flower gives possibility, in a simple and easy understandable way, to communicate the choices that have been made, by adjusting the petals of the flower."* (Aalborg Kommune, 2011, p. 6, own translation)

Odense Municipality also describe an object their tool as providing prioritisation, which they mention is essential in relation to creating sustainable solutions and development. It is further relevant in relation to developing a project with value:

*"Sustainable solutions must be specific and measurable. Thereby it is substantial to prioritise and select those exact focus areas of sustainability, that generates the greatest value in the project."* (Odense Kommune, 2015a, p. 171, own translation)

According to Odense Municipality it is also an important object of the tool that it creates specific and measurable solutions, to make the ideas affordable and interesting for investments. Copenhagen Municipality also find it positive if the sustainable solutions are measurable, to be more concrete in relation to long-time profit of making the sustainable solutions, rather than not incorporating these. The prioritisation is, however, also important for Copenhagen Municipality, as one of the objectives of the tool is to *"be a helping-instrument in area-specific prioritisation of sustainability considerations."* (Egetoft, n.d., p. X, own translation).

This emphasis on designing institutions that support a sustainable prioritisation suggests a wanted affect on the routines and habits of prioritising sustainable decisions. By the institutional designs the sustainable concerns are made concrete and connected in a holistic perspective to help in the prioritisation, securing that each concern is considered, and that some of the concerns in the broad understanding of sustainability is prioritised. As the former, this need or want to affect the routines of sustainability can be seen in relation to legitimisation. In terms of legitimising the decisions of the prioritisation by communicating them, but further to legitimise the work of the municipality in relation to the societal developments, by which sustainability has become a crucial consideration. As Næss (2001, p. 518) also describes, if nature and environment values are not priorities *"urban development will quickly lose its legitimacy. In a sustainability perspective, it is therefore highly desirable with planning processes that can contribute to a higher environmental awareness and responsibility."*

## 10.4 Institutional Subjects of the Institutional Design

This section explores the subjects of the institutional designs. Here understood as the product of the institutional design, which in these cases are the graphic visualisations and connected processes of the sustainability tools

Copenhagen Municipality represent their tool by a rosette, with different degrees of sustainability dependent on the evaluation of sustainability in the given project. Aalborg Municipality illustrate their tool as a flower with five petals, each representing a dimension of sustainability. The size of each petal represent the prioritisation of the given dimension in three levels. Odense Municipality's tool is a physical puzzle, where each puzzle piece represent a relevant sustainability topic to be considered in any project.

**The Sustainability Rosette** developed by Copenhagen Municipality, is a circular visualisation of the their sustainability concerns, with a grading system, that visualise to which degree the aspect is relevant or considered in the specific local plan project. According to Copenhagen Municipality the formal practice of the tool is to provide three main functions in the planning process, as illustrated in figure 10.1 (Københavns Kommune, 2009).

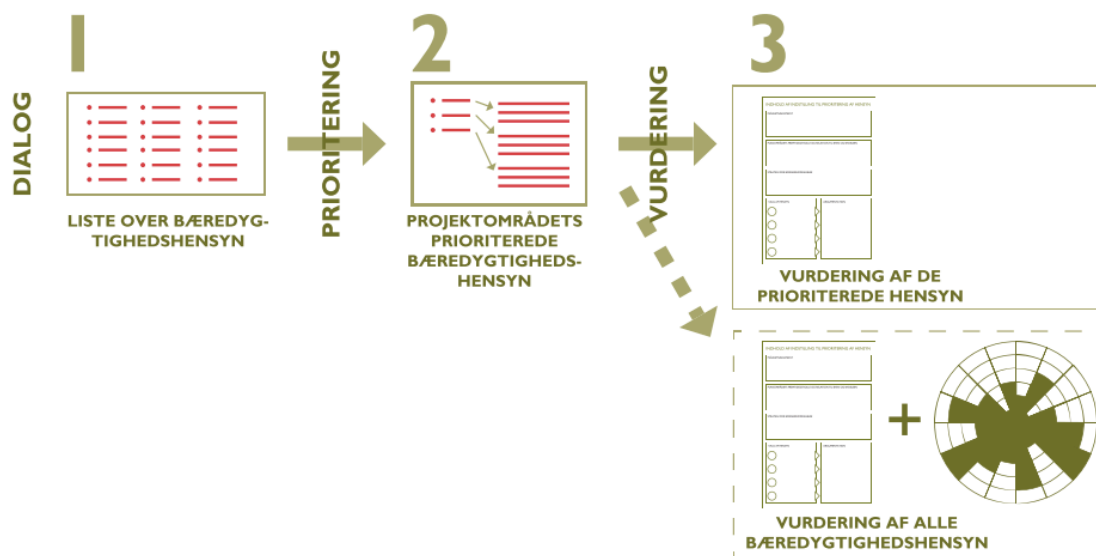


Figure 10.1: Practice and intended process of the sustainability tool in Copenhagen Municipality, (Københavns Kommune, 2009, p. 33).

First facilitating dialogue in the start of the process, going through the list of the 14 sustainability considerations. Second, help to prioritise the different considerations in the given project. In this prioritisation the aim is to select 3-5 elements as the focus in the given project. Third, to evaluate the prioritised sustainability considerations, which then is represented by the weighted themes in the rosette. The evaluation and rating assure the quality of the given project, and that the project contributes to the sustainable urban development of Copenhagen Municipality. This evaluation happens both by checking a designed scheme (see figure 10.2), by which each sustainability element is described in relation to how it is relevant, and how it is considered. Further the graphic model is used

to visualise the grading of the sustainability, by colouring the slices which represent each aspect to a certain degree, on a scale from 1-5. These steps should then be included in the urban planning process in Copenhagen Municipality (Københavns Kommune, 2009). Figure 10.3 shows how the sustainability evaluation of a given project can be visualised in the rosette (Københavns Kommune, 2012). The higher the score, the more innovative and sustainable the project is evaluated to be.

The rosette has been used in local plans, amongst others: Postgrunden, Enghave Brygge, and Århusgadekvarteret. In these local plans the rosette is included to visualise the sustainability concerns.

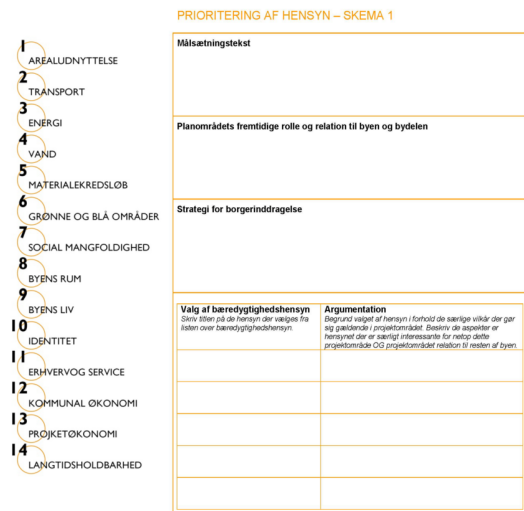


Figure 10.2: The scheme developed as part of the sustainability tool in Copenhagen Municipality. In this the chosen considered sustainability concerns should be described (Thomsen, n.d., p. 11).

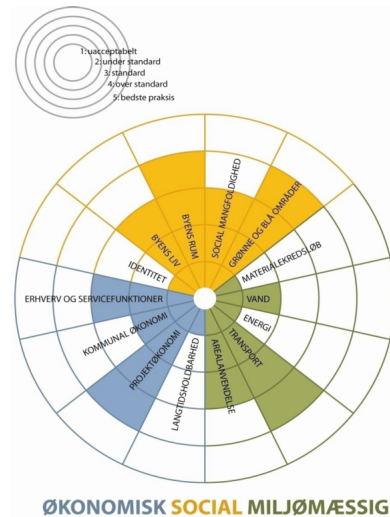


Figure 10.3: The Sustainability Rosette developed by Copenhagen Municipality. It visualises the prioritisation of sustainability concerns, by colouring each slice of the rosette according to the rating (Thomsen, n.d., p. 12).

**The Sustainability Puzzle** developed by Odense Municipality "... is a circle with pieces in three colours, illustrating social (red), economic (blue) and environmental (green) sustainability. Each individual piece is a sub-theme of the three dimensions of sustainability" (The Secretariat for Sustainability, Odense Municipality, 2014, p. 1). The graphics, see figure 10.4, illustrate that all pieces of the puzzle must be considered and discussed in a project, to create a sustainable solution (Odense Kommune, 2012a).

Each puzzle piece has a theme written on it, as well as a supporting question to consider. One aspect, to be highlighted of the visual model, of the Sustainability Puzzle, is that it is clear that environmental sustainability is prioritised from the start, as this dimension has more puzzle pieces and take up a larger part of the circle than the other two sustainability dimensions.

The process designed with the visual model is made as a way to *play the game*. The process of playing the game is to place all pieces with the colour upwards, then one player picks up a piece which is then discussed. Then if the effort of the piece already is included or relevant in relation to the given project the piece is left facing upwards. If it is deemed not relevant the piece is left faced down. This is continued until the whole circle is formed (The Secretariat for Sustainability, Odense Municipality, 2014; Odense Kommune, 2013c). The process of the Sustainability Puzzle is thereby focused on dialogue. This is visible

through the product of the institutional design, as it was not explained as the object of the institutional design. It is emphasised that different stakeholders and professions are crucial for a good sustainability dialogue.



Figure 10.4: Sustainability Puzzle developed by Odense Municipality (Odense Kommune, 2013c).

This Sustainability Puzzle can be used by everyone on relation to all projects to create new and innovative ideas which creates increased value for the given project as well as the society. It is the intention of the municipality that all the administrations of the municipality should work with sustainability, which they describe as a learning process which is started by the Sustainability Puzzle (Odense Kommune, 2013a).

The puzzle has been used in different urban planning projects e.g. the project of Bellinge and the project of Thomas B. Thriges Gade. These are structural/holistic plans, in which the puzzle has been used to create dialogue and a broad focus on sustainability. The project group of the Bellinge project explained that the use of the sustainability puzzle gave them a greater focus on the social sustainability (Odense Kommune, 2013a).

**The Sustainability Flower** is developed by Aalborg Municipality, where *"the flower petals represent the overall sustainability themes - nature, economy, environment, local values, and the social. For each theme are attached concrete goals and instruments."* (Aalborg Kommune, 2011, p. 4, own translation).

The prioritisation and dialogue, amongst actors in an urban planning project, is the basis for using the flower tool, and illustrating the sustainability concerns by different sizes of the petals, as illustrated in figure 10.5. The adjustment of the petals create a simple overview of the prioritisation in the given project that everyone easily are able to

understand (Aalborg Kommune, 2011). Each sustainability dimension is valued 'high', 'middle' or 'low' in prioritisation, as a result of the dialogue.

In practice the Sustainability Flower was developed into the urban planning practice as a new practice of integrating sustainability at all planning levels, see figure 10.6. Figure 10.6 shows that the Sustainability Flower should be considered in the starting phase, of strategy, by an analysis and evaluation of sustainability concerns in relation to the specific place.

The first step of using the sustainability tool in a planning process is in the strategy phase. This first step is called a place based analysis (Aalborg Kommunes By- og Landskabsforvaltning, 2012). This analysis focus first on the 'helicopter perspective' where the sustainability of the urban planning project is discussed in relation to its contributions to the planning at the strategic- and municipal level. Second, the 'city level perspective' focus on the sustainable contributions of the local area or part of the city the discussed project is developed in relation to. Finally the analysis focus on the 'place perspective' and how the different sustainability dimensions can be included in that.

The next phase of the planning process, planning, the tool should be considered is in the phase of *program/goals, supplementing analyses, and plan proposals* in which the tool should be used in the dialogue with stakeholders. Next step is including the tool when devising the plan, which should communicate sustainability goals and means.

The last phase of the planning process with the sustainability tool is the phase of management of construction projects, in which the tools should be used in the dialogue with applicant and in an evaluation of built projects.

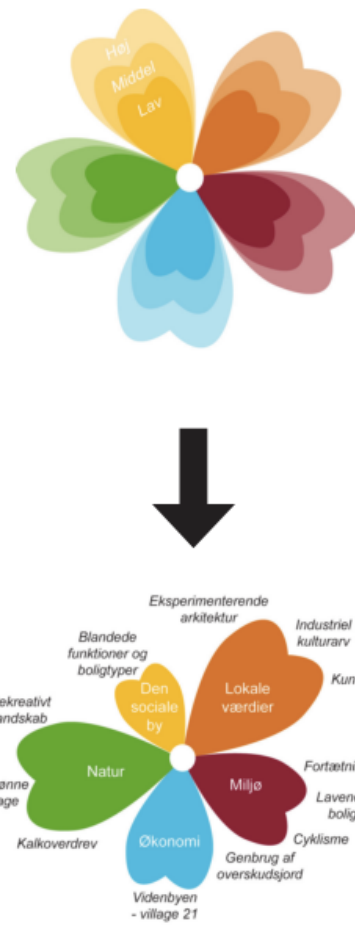


Figure 10.5: Example of prioritisation in a given urban planning project, using the flower (Aalborg Kommune, 2011, p. 6).



Figure 10.6: Practice and intended process from strategy to plan to project of the Sustainability Flower tool in Aalborg Municipality (Aalborg Kommunes By- og Landskabsforvaltning, 2012, p. 2-3).

Aalborg Kommune (2014a,b, 2016a) are all published examples of how the Sustainability Flower has been used in local planning. These are local planning sustainability accounts in which the flower has been used with brief notions of how each petal or subject of sustainability is relevant in the certain local plan. This has been the primary use of the flower which is documented in published plans.

The illustrations shows that the subject of the institutional designs in each municipality includes a graphic and colourful model to show the sustainability concerns in order to provide a quick and easily understandable overview of sustainability in a given project. The graphic design differ somewhat in relation to what they visualise. The models by Copenhagen- and Aalborg Municipality show the prioritisation, whereas the model by Odense Municipality visualise the relevant versus not relevant aspects.

The institutional designs differ primarily in the process or practice, which has been designed in connection to the visual model. Thereby are the tools, which are the subjects of the institutional design different. The tool in the case of Copenhagen Municipality is steps in the local planning process, which should secure a certain way of considering sustainability, and especially the 14 defined concerns. The tool in Odense Municipality is more related to the graphic model in connection to dialogue, as the process is the way to play the game. The tool in Aalborg Municipality has further been connected to the visual model of a flower, however, also the place based analysis, and the practice is described as a continuous use and consideration of the themes presented with the flower, which should recur in different phases of planning, from strategic planning to local planning to management of construction projects.

### 10.5 Sub-conclusion: Sustainability Tools as Institutional Designs of Sustainable Development

Considering the three different cases, table 10.1 on page 79 represents an overview of the main empirical findings. The table presents the specific themes uncovered in each case in relation to each analytic unit. Through the analysis and overview of the outcome it is clear that the cases have similar point of departures, however, the illustrations and descriptions of their tools, background, and sustainability understandings represent how the municipalities and planners have interpreted it in different ways.

Exploring the different tools and municipalities, it is concluded that there are similarities in the background for the institutional design. These relate to societal developments and discourses which underline the need and focus on sustainability and sustainable development. These where amongst others identified as Aalborg Commitments and The Brundtland Report, which also provided the grounds for the sustainability understandings in the institutional designs.

The behaviours which were to be changed through the institutional designs were, first of all, the way to interpret sustainability both internally in the municipalities, between planners and other employees, and with external actors. An object were also about emphasising and promoting dialogue in planning through the institutional designs, by providing a tool and a place in the process for at dialogue about sustainability. The

promotion of dialogue is connected to developments in urban planning and planning theory, in which a communicative turn emphasise dialogue and inclusion of stakeholders in decision-making, explaining to a degree the focus and emphasis put on creating and designing holistic dialogue planning tools (Healey, 1992; Innes, 1995, 1996; Healey, 1997). A last object identified is the prioritisation of decisions: the way concerns are prioritised, related to how decisions are legitimised.

	<b>Copenhagen</b>	<b>Odense</b>	<b>Aalborg</b>
<b>Background</b>	Legitimising a holistic view of sustainability on the agenda, by integrating a way to 'check' it in urban planning projects.	Make sustainability tangible in relation to all efforts and projects.	Simplification of sustainability prioritisation in urban planning projects at all levels.
<b>Sustainable Development Understanding</b>	Economic, Social, Environmental.	Economic, Social, Environmental.	Economic, Social, Environmental, Nature, Local Values.
<b>Object</b>	Include sustainability as a natural part of urban planning practice, help create area-specific prioritisation and promote intern/external dialogue.	Create sustainable innovative ideas, prioritise decisions and create focus points in relation to all projects.	Prioritise planning decisions at all levels, create broad dialogue of sustainable solutions as basis for quality.
<b>Subject</b>	A rosette as visual model connected to process of dialogue, prioritisation, and evaluation of each concern on a scale from 1-5.	A physical puzzle connected to a game process of dialogue, discussion, and evaluation based on relevant or not relevant.	A flower as visual model with five petals of sustainability concerns, connected to a process of dialogue and prioritisation visualised by the size of petals (low, medium, high).

Table 10.1: Overview of the main themes associated with each analytic unit. This presents the main findings of document analysis.

The defined institutional designs all entail a visual model which in two cases show both the themes as well as an evaluation or prioritisation, whereas the Sustainability Puzzle visualise the relevant versus not relevant themes. In connection to each visual model there is designed a process or practice of how it should be used and when. These designed uses emphasise the intention that sustainability should be considered throughout the planning process, however, there are specific times in the planning process in which e.g. the dialogue should happen. The institutional designs thereby entails both visual models, described processes, as well as supplementing elements, like the scheme from Copenhagen Municipality.

Despite similarities in the background and objects of the institutional designs, they differ in visual models and processes. Although they reference some of the same dimensions or themes of sustainable development, they have differing interpretations of these.





# 11 Reflexivity of Urban Planners as Point of Departure for the Institutional Redesign

This research argue, through introduction (see chapter I) and theory (see part II), that there is a tension between the urban planner and their urban planning practice and the ideals of achieving sustainable urban development. To explore this tension, from the planners own perspective, their stories are brought fourth. From the stories of the interviewed urban planners it is explored how they are reflexive. Firstly, of external factors, developments in society and of the theory, values, and ideals of sustainability and sustainable development. Secondly, it is explored from the planners' stories how their practice is changing, thereby how they are redesigning the sustainability tools, adapting their practice, or perceiving challenges in practice.

## 11.1 Understandings and Challenges of Sustainable Development

This section explore the planners' stories with regard to their understanding of the sustainability concept: what it entails and how it is developed in society. The understanding of sustainability also creates a focus on how the planners are able to work with this, in their planning practice. Further this section explores the planners' perspectives to the societal challenges in working with- and achieving sustainable development. This is to create a focus on how the societal developments creates pressure for sustainable development, through urban planning practice. In relation this section explores how the operationalisation of sustainable development is founded in values and ideals, as well as how it is challenged by society.

### Evolution of Sustainability Understanding

The broad sustainability concept and sustainable development approach has gained emphasis since the introduction of The Brundtland Report. This research focus on sustainability understanding, and through interviews the planners were asked how they understand sustainability; how they see it has evolved; and how they see the broad sustainability understanding gaining influence and prioritisation in society and in urban planning practice.

Jens, the planner from Aalborg Municipality explained that their understanding of sustainability take points of departure in the original broad thoughts from The Brundtland Report, even though the focus on sustainability was very narrow at the beginning in the municipality:

Jens: [The tool] was really, maybe, also the start of it all. It was like, how do we secure that we get all the way around, and get it all talked through, that they do not just focus on that, and that, and that, and the rest runs out with the bathwater. That was a really important incentive for us here. (...) It really often ended with that [sustainability only being about energy]. In our projects great sustainability [were] when we had put a certain number of centimetres rock wool in, or it was down to a certain low energy-class, and well that is great, but what about surface water, what about the green, good rinsing areas, good living quality, and so on.

Interviewer: How did all these things [sustainability dimensions] get included then?

Jens: Well, it is originally from Brundtland (...) with only three criteria. And then there is also actually made this thing named, Aalborg Commitments, back in 1994, which builds on Brundtland, and there was a large sustainability meeting back then in Aalborg, and then there was a whole lot, far above 100, I think, almost 1000 cities which signed this Aalborg Commitments.

Jens emphasise that the general understanding of sustainability has been very concentrated on technical solutions. A challenge for the planners has been to unfold the understanding to the developers and the public, because the municipality want to work from the broad understanding. This has been a motivation to create the tool and to inform more about the general thoughts and other solutions of sustainable development than just the technical. Anne, the urban planner in Copenhagen Municipality, share a view that the sustainability understanding in society has been very narrow and focused on technical solutions:

Anne: Yes well, what can you say, now it is like, it has changed socially. (...) Eight years ago it was very hip to just have a solar cell on your roof, right, and then you had almost saved the world if you just included that from the start, and maybe had a green facade, then you were at the top, and had complied to all the environmental goals there could be in the municipality. So, I mean, in that way the visions of the municipality changes, but also like socially, to that all the time, well, there is always a greater and greater [surface] you need to cover, if you should be viewed as sustainable ...

The planners in Copenhagen- and Aalborg Municipality explain this evolution from a very narrow focus on sustainability to one that is more broad. Anne's story also tells that it is still developing in a direction where more and more factors needs be considered in relation to sustainability and sustainable development.

The understanding of sustainability is in general perceived as changing, as seen in Anne's story. It is becoming more comprehensive and complex. The sustainability responsible from Odense Municipality, Lars, share the same point of view, as he explained that society is going in the right direction, when it comes to understanding sustainable development in the broad sense. On the other hand Lars also experience that some still have a narrow perspective on sustainability:

Lars: Well, I think it is going in the right direction. I think so. But well, the world is. There is many people you meet. So we still have that idea that sustainability is about the green.

The planners' stories all point in the direction of a evolution in society in relation to the sustainability understanding. Exemplified by Lars, it is not only about planning, but it can also be connected to the development of the world and society in the right direction. Also according to Jens, society is moving more away from the narrow focus, which creates a greater understanding of the broader direction:

Interviewer: So there is maybe a greater pressure to secure sustainability (...) or possibility?

Jens: You could say that. I think maybe also that there is a greater appreciation of sustainability (...) That is, I think, you have actually left this stupid discussion that it is only about green low-energy, to have a much broader spectrum, which has sort of gotten rooted, that is, it is like everybody understands it now. That sustainability is about really a lot of things, it is not about how much to turn the heat up or down in your house. And I think that is joyful.

The planners' stories emphasise that, society today to a higher degree understands sustainability in a holistic perspective, and that the sustainable development dimensions entails more than just technical solutions. This creates an opening for the holistic sustainability understanding, which the planners all want to unfold in urban planning, and thereby embed in planning and society. They also emphasise that, they see that society is changing in terms of understanding. The sustainability understanding has evolved, with the pressure from external societal developments. From the stories, it is understood as the general societal understanding of sustainability is developing in more positive direction, according to the interviewees. Meaning that it is becoming increasingly easier to explain and use both economic-, social-, and environmental concerns.

There is, however, still a need to broaden the understanding of sustainability, because different people and professions perceive sustainability differently. Anne exemplified a challenge in the sustainability understanding:

Anne: Well so they think: "well but okay, if my material is reused material, then it is sustainable".

Reused material is sustainable, and creates a focus on circular economy. However, as Anne highlight here, there is still some that perceive sustainability from the narrow perspective, which makes it difficult to communicate in terms of the holistic perspective.

The holistic perspective is also challenging in terms of the different professionals, having different perceptions of sustainability:

Jens: We have had a few discussions about that, with our park and nature people, who thinks that green is good. Period. (...) I also think green, well it does not have to be bad, but it can be kind of uninteresting and not that meaningful. Well just a green cut lawn, or some boring shrubbery, there is no biodiversity in it or any particular quality in it. So you need to do something spatially, or experiential, and integrate some functionality in it that gives it something more than just being green, you know, and something with nature content and so on (...). It is both about resources and economy, and it is also about that the elements support each other, and make each other better. (...) And then it is sustainable as well, both economically, but also because the initiatives we take often makes the solutions sustainable. Generally you can say that society goes in the direction of more sustainability all the time.

From Jens' story it is highlighted that this issue of the different understandings is an issue in creating a focus on the broad perspective. People from different professions will have different approaches to sustainability. It is important to acknowledge that there are different world views and understandings. That is also why it is important to have many different professionals in the process of creating sustainable solutions and visions, to secure all aspects and consider all consequences.

Working with sustainable development thereby entails framing the concept, making it tangible, concrete, and possible to communicate, with both the broad perspective and with the specific view. According to Laura, this also entails that planning accommodate the needs from society and the different understandings of sustainability:

Laura: I think that it is the time and all the trends, and that all these influence both from society, the profession, and all that about being able to certify or not certify, which has made people aware of it [the holistic sustainability perspective].

The focus on measurable solutions is also a part of developing the understanding of sustainability. This serves as contributions to demands from developers, because it can be easier to communicate specific numbers to sustainability.

Sustainability and sustainable development values, is also a reoccurring topic in the stories of the planners. Sustainable development connected to physical development impact the general development of society. Jens and Laura explain how they see sustainability connected to development and how the general sustainability thoughts are embedded relation to urban development:

Jens: But it is also about protecting what there is, well if we think there is something important and valuable. Well, Nibe could be an example. There is a fine little market town, [so] there should not suddenly be torn down eight houses and built a high rise with twenty floors. That would not make any sense. Not at all. So it is of course also about protecting the important natural areas or landscape characteristics (...) and secure that is is maintained and that, what is build is in a reasonable good quality and connection.

Laura: So I think there are really a lot to cherish in the city, that is a small piece in all this sustainability.

The values that their stories underline is specifically related to preservation in cities: the architectural, landscape features, and protecting nature. These considerations are values that both urban planning and sustainable development hope to achieve. It is both about zooming out to the bigger picture, as well as zooming in where concrete solutions make a difference. These values also correspond with the values embedded in The Danish Planning Act, aiming to secure sustainable development of society (see introduction, section 1.2). According to Lars, the values and understanding of sustainable development can also be understood, very simplified:

Lars: Well it is pretty simple. It is what is outlined here [in the sustainability puzzle]. That is a sustainable development. Well it is a development where, in principle, these things are weighted into it, so the development is headed in a direction where it can [be sustainable]. Actually if it was not named sustainability, but it was named durability [Danish: holdbarhed], then it would have been a lot easier. Something that can endure, that is something that does not overturn. (...) If one would have said,

durable, people would understand it a lot better. It should be durable, "Aah okay, it should endure". If we have to find solutions that can endure for a long time, I think, actually, that is pretty trivial.

Lars' story emphasise that the sustainability concept is difficult to relate to, which can also be related to that the concept is not self-explanatory and entails many complex issues. It is very simple in its original approach, however, as highlighted by Lars, the presentation is what is confusing and what makes values and goals more complex to communicate and achieve.

The planners' stories have given a perspective on how they are all working with the broad sustainable development understanding with basis in The Brundtland Report. The focus and understanding in society has been focused on narrow technical solutions, but the understanding has evolved in society through time, according to the planners stories. The planners in general emphasise creating more focus on the holistic perspective of sustainability and sustainable development, working with concreting sustainability, making it understandable, and in some cases measurable. This constant development of methods and explanations to understanding, also exemplifies the planners reflexivity of own values being adapted in the unfolding of the sustainable development dimensions. From this research view, it also relates to the fact that society is constantly developing, searching for answers, adapting methods and gathering information in a reflexive society. Information about current situation and consequences to enlighten peoples' understandings of sustainable development, and create emphasis on the sustainability concept and ideal. This again creates demands to broaden and create new methods related to the sustainable development dimensions.

In relation to the emphasis on the holistic perspective, Peter and Anne highlight a reflection in which they argue that the understanding of sustainable development, deriving from the thoughts from The Brundtland Report, should be understood in relation to the additional dimensions: 1) time, and 2) degree of sustainability in solutions or in total. Lars as well highlight sustainability as a concept in itself is difficult for all to comprehend. These stories and arguments further adds to the complexity of understanding the broad sustainability ideal and that the planners are constantly developing their understanding and being reflexive of their own values and understandings of how to achieve the goals. The societal understanding is developing in relation to general societal developments pressuring the institution of sustainable development in urban planning. These are also seen as influencing the planners' reflexivity with regards to their understanding of sustainability, sustainability tools, and the operationalisation of sustainability. This relates to the theoretical concept of bricoleurs, as emphasised by Buitelaar et al. (2007), in which the institutional designs connect and compile available approaches and understandings in their own alternative institution.

## Challenges in Working with Sustainable Development

The understanding of sustainability is constantly changing and developing, both because of societal developments, that creates a more broad perspective as well as the planners constant development of the understanding. The following will explore how these

understandings of sustainability challenge the work with sustainable development in the municipalities. In this relation, the urban planners were asked about the greatest issues of facilitating sustainable development today.

When asked about challenges in working with the concept of sustainability, Peter, from Copenhagen Municipality, outlines that there is an existential challenge in achieving sustainable development, due to contradicting development rationales in society:

Peter: Well as a start, this ecological modernisation, but, well, our culture is dependent on an ecological modernisation, because we have not even, what can you say, tried to correct this the biggest marked failure in history: the CO<sub>2</sub> emission. We have not even put a proper price on the resources, you know by acknowledging in the prices this externality which it is to emit CO<sub>2</sub> into the atmosphere. It would move a lot of things if we did that. But in that way, we have not even made our economy sustainable, and thereby we are living with some sort of freak or a kind of monster, which, what can you say, disrupts sustainability all the time, I would say. So you can have all sorts of plans and intentions from here and that sort of stuff, but you do not have the national or municipal instruments to follow through.

Peter: We might [secure sustainability], or attempt to, in a system which fundamentally is one of the most unsustainable we have constructed. You know, like climate change, which a behavioural scientist have said might be the worst problem imaginable, which nature could construct for us humans to solve. Because our brains and the systems which we have constructed are hopeless in managing and working with it. (...) I think that is why we try and construct some things here, about how we can make the system we have created sustainable, without touching the foundation, which is really what we should take a showdown with, or find out something new to really construct something that is sustainable.

Peter's story highlight the issue, also highlighted with The Brundtland Report (World Commission on Environment and Development, 1987), that institutions have been constructed with basis in values and structures that does not support the sustainability ideals. It shows a reflection of the fundamentals in working with sustainability as a planner. It indicates that the systems and existing institutions are a barrier for sustainability and the work with sustainable development.

Lars, as well, point to the challenge of institutional structures and relate it to the organisational structures and how municipalities are organised:

Lars: I think more that it is a challenge, understood in the sense that it takes a lot of collaboration across five administrations. It is, well in that way you can say, that the way we have organised such a municipality, with five fields, that is directly conflicting with this [the Sustainability Puzzle] basically. You should be sitting in one house. (...) And then you work together, and then this [sustainability] would happen naturally together every single time.

Lars thereby argue that the municipal organisation, which is divided in several administration located in different areas, does not support sustainable development. Instead each administration should include professionals from each division, both securing the environmental-, social-, and economic sustainability dimensions. Peter emphasised these conditions as part of why they are trying to create and develop institutions or alternative institutional designs to accommodate the pressure for sustainability in

the existing systems and in connection to the existing institutions, which the planners themselves cannot change. This poses the point of departure for the redesigns conducted in relation to reflexivity of how to communicate sustainable development.

According to Jens' story there are as well concerns to the fact that society were not constructed on sustainable values and ideals:

Jens: Well you can also say that society in general moves in a direction of becoming more sustainable. (...) That is one side of it, but at the same time the growth also means that we use an enormous amount of fossil fuel, so it is a bit like, all these sustainability initiatives that happen all the time, with the legislation getting tighter and tighter, the houses are more and more insulated so we use less and less energy, but because there is growth the real numbers does not really drop as much as they should, even though things are becoming more and more sustainable.

The good intentions and initiatives does not really move us anywhere in the bigger picture, because of higher production and consumption, according to Jens. It is positive that there are good initiatives based on sustainable values, however, it is difficult to achieve in times of economic growth. Anne also relate to this issue, explaining that there is a massive pressure for development in Copenhagen Municipality that challenges the work with sustainable development:

Anne: ... well I also believe that this, there is also such a great pressure on Copenhagen and well on the planning in Copenhagen, which also means that you do not plan according to what would be the optimal way of planning a city. It is not like we make local plans because we want to plan an area, but you would wish it was like that. But because, yes again as we say, the resources are a great issue, and when there are a lot of investors, and developers, and lot owners standing there, who wants to have a local plan devised. Well then it is, the way to do it, right?

Anne's story here highlights that a huge challenge is the pressure for everything to develop fast in Copenhagen Municipality, and that the lack of resources, economically and time wise, often raises issues in the process of planning for sustainability.

Both Anne and Peter from Copenhagen Municipality, as well as Jens from Aalborg Municipality points that the focus on growth is as a challenge in working with sustainability in urban planning. In general the planners' stories of challenges highlight that there is both an institutional challenge and a development pressure challenge, in working with securing sustainable development values and ideals. Another challenge is the discrepancies between sustainability and the western way of life and welfare. This relates to the dependency on growth, which does not necessarily support the concept of sustainability at all dimensions. Challenges in working with sustainable development is thereby also linked to the current state of society and the societal developments influence the approach to sustainable urban planning.

With the broad sustainability understanding, economy is emphasised alongside with the social and environmental dimensions. From The Brundtland Report from the 1980s until now, economy has as played a large role in sustainable development. The political agenda in Denmark emphasises economic growth and pressures municipalities to achieve this (cf. (Olesen and Carter, 2017)). A critical perspective is thereby that an increased focus on the economic growth risk that the economic dimension of sustainability will take prominence

over the other dimensions in planning for sustainable development. A highlighted challenge in working with sustainable development, is thereby especially the growth-focused-society. A society that emphasise, and prioritise growth, sometimes higher than sustainability. This can as well be underlined by the modernisation of The Danish Planning Act, in which the government has emphasised growth and value. The growth agenda, as well as the neoliberal tendencies are as well argued in literature (cf. Næss (2001); Olesen and Richardson (2012); Galland (2012); Enemark (2016); Olesen and Carter (2017)). This highlight an effect and influence of political agenda and discourse on planning for sustainable development.

The planners stories, of the fact that the sustainability understanding is changing as well as that sustainable development is disrupted by growth discourse in society, show a tension in achieving the ideals and values of sustainable development.

The sustainable development understanding is changing in a direction of becoming more holistic, by which the planners have the ability to create focus on both social-, environmental-, and economic dimensions. It is, however, still a challenge that there are many perceptions and understandings of sustainability, which still relate to only technical solutions. It is argued by this research that the societal developments pressure and influence the urban planners to be reflexive about the understanding and challenges of sustainability and sustainable development in urban planning. Highlighted by Beck et al. (1994) reflexivity is about a reflex to side-effects of society, however, environmental stress issues were not emphasised as problematic by the planners, whom instead focused on the issues of growth and inabilities of current institutions to support sustainability.



## 11.2 Sustainable Urban Planning Practice

From the former section it was understood that the planners see a development in the concept and the use of sustainability and sustainable development, where the holistic approach and synergies are being increasingly emphasised. To unfold this, in relation to urban planning practice, the planners were asked to elaborate and explain their work and experiences with sustainability and sustainable development.

The stories of the planners provided different perspectives and themes of their experiences, practice, and redesign of the sustainability tools.

### A Holistic Approach to Sustainable Urban Development

The planners all saw developments in the emphasis on the holistic approach to sustainability. The holistic understanding was already implemented in the original sustainability tools, and with the increasing emphasis, the planners explained the impact it had on their daily work, in which there are a lot of elements in relation to sustainability, which the planners want to secure and plan for. Jens from Aalborg Municipality explained how he works with sustainability down to the details in local planning:

Jens: Well, it is important, it is very. It takes a lot. I try to work with all directions all the time. We have just had a talk about of a tiny strip of parking on Strandvejen: "how can we make it a bit more green, and how can we, with the use of our parking strategy move some parking spaces into some multi storey car parks, to make some more room to just plant?". You see, it is often just very very small things, right? It is just about making two parking spaces, but if they could be green, there could be planted a single tree, or some grass instead. (...) But that is often how we work. It is often some very very small things, and in themselves they are close to nothing, but together then ...

Jens explains that sustainable urban planning practice is not only about the overall perspective, because in combination they have to consider the small scale. This shows the everyday work, but also points to some of the challenges in planning for sustainability, as it is about fighting the small battles and creating very concrete, and sometimes small scale solutions, which all contribute to the overall sustainable development.

In relation to securing solutions which can contribute to sustainability both Jens from Aalborg Municipality and Laura from Odense Municipality emphasise how planning practice of sustainable development is about getting as much value for the money, creating synergies and solutions which contribute to several or all sustainability dimensions. Jens elaborated this, as he explained a reflection of the original tool and one of the main changes made in the redesign of the Sustainability Flower (see figure 11.1):



Figure 11.1: Illustration of the redesigned Sustainability Flower, with the synergy arrow and new sustainability dimensions based on the DGNB-system. Explained by the planner from Aalborg Municipality, this will not be the final appearance.

Jens: That is for an example, that when you create a lot of green in an area, then the green petal of the flower grows in principal [illustrated in the graphic model of the Sustainability Flower], or the nature content, but that can actually also rub off on the social sustainability, because you get some better outdoor areas, so it can create more well-being and such. And then that can actually also have some societal consequences, that for an example value increase of a residential area, so in that way it all connects and push each other both negatively and positively. So we have also made this arrow, which goes around, which illustrate that there are some derived effects and some links, some synergies, both positive and negative, which you also have to keep an eye out for.

Interviewer: Was it not considered in the old [tool]?

Jens: No, not in the same way. (...) That is something we have become aware of.

Laura elaborated their focus on creating synergies, connecting this as well to the creation of urban nature, mobility, and social meeting places, while managing rainwater and climate adaptation. She explained this with an example of starting a holistic plan for a water centre project:

Laura: And instead of having them just go down and dig up the soil and maybe put down a larger pipe, and that it should only be a water centre project, how could you think, in reality lift [succeed in] this sustainability [task], where you think climate adaptation and urban space, and so on, at the same time. (...) [This holistic plan] then manage both rainwater management, climate adaptation, and what we call increased value [Danish: *merværdi*], and that can be all from urban nature, mobility to increased social initiatives [like meeting places]...

As the story by Laura highlights, sustainability is about creating the solutions and plans contributing to the overall holistic planning. This points towards the increasing complexity of sustainable urban planning, in thinking all dimensions and elements together, and to some degree thereby the broad knowledge that is needed to secure that solutions and plans are holistic.

Peter and Anne from Copenhagen Municipality also consider the importance of thinking of the sustainability dimensions in connection, and securing that solutions and plans contribute holistically, as Anne explained:

Anne: ... it has been about thematising the environmental goals, and finding out what we have legal authority to do and where it can be made concrete in the local plan enactments. So it ended with five themes (...) and again under everyone of these there are some designated helping questions, which are based on what we can actually require through local plans, and what it actually means for an [urban] planner.

The planners in Copenhagen Municipality are in a process of merging the sustainability dimensions into new themes which shows how synergies between the dimensions are important, as they are in a process of redesigning the sustainability tool, where each new theme to a higher degree should contribute to all sustainability dimensions.

With the focus on the holistic sustainable development approach creating synergies and increased value, securing the best affordable solutions, to secure the best use of resources, a main reflection from both the planner in Odense- and Aalborg Municipality is that the sustainability tools are more relevant and easier to use in holistic planning compared to local planning. From the planners stories, it is understood that their sustainable urban

planning practice is increasingly adapting to the focus on the holistic sustainable approach and it is implemented into the redesign of the sustainability tools.

## Sustainability Tools Implemented in Existing Planning Processes

As the planners told their stories, of experiences with sustainable urban development planning, they gave reflections on how the sustainability tools connected to the existing processes and practices, as well as the barriers for linking these. Jens explained their experiences of the original Sustainability Flower as best used in holistic planning, he elaborated on their experiences with the tool in relation to local planning:

Interviewer: So it has been used very differently?

Jens: Yes, that you can say. At that time [of the original tool] it was wide-spread, it was also put into the evaluation-part in local plans, years ago. Since that we have trimmed our local plans, and also because of the environmental assessments has been implemented, we have said, well, that is the legally required and that connects entirely close to the local plan. We now see the flower as a tool in the dialogue process. Because, you know, there is the statutory demands, which is the environmental assessment and thereof environmental reports, and so on. And it is clear, we do that, when we have to, and we have to do it in a local plan, and then we follow the statutory method. We have a scheme, which we fill out. In collaboration with the other administrations we go in and assess the environmental effects of a given project, traffic, the green, and what else there is of different general themes.

Jens further mentioned that they quite early after the development of the original flower realised that the expected use in relation to construction management did not make sense. This use was too narrow and too late in the process to create or secure any holistic sustainable development considerations. In relation to local planning, Jens, in his story, explained how the introduction of environmental assessments replaced the use of the Sustainability Flower in the local plans, as it felt more like doing double work. This also resembles Anne's story, as she told how they have experienced the tool in connection with existing urban planning processes, which was also why they chose to redesign the tool:

Anne: ... there is a part of our work procedures which kind of has been overhauled, well, where the sustainability tool has been overtaken by our work procedures. For example, you always conduct what is called a uniformity analysis, when you are out looking at a local plan area, which is a very architectural analysis of the area. So in that way, already there, the old consideration which concerns identity in the city is overtaken by something which in reality is a more in-depth architectural analysis of the area as a whole. Therefore is the old consideration of identity, not something that is worked further with as such, even though it is really about the urban space, and the city too, and some more cultural and social considerations. But it is already managed in our processes, so some things are disregarded because they are already part of what we do.

Anne: ... I hope, at least, that the way we do it now, that we try to implement it into a part of the work procedure, so it won't be a tool of which the planner will think: "oh no, another thing I have to fit into my time schedule". (...) It will be some elements which you already get around in the planning...

Anne explains that their original sustainability tool did not fit with the existing planning practice and other urban planning tools. She further emphasises that the implementation of the sustainability tool into planning processes is also a lot about resources, securing that there is no unnecessary duplication and that the process is effective and flexible, as Jens also emphasised. This exemplifies the importance of designing and having an effective and well suited urban planning process, where sustainability considerations are included where they have the greatest influence. On the other hand it was experienced that it did not work if included explicitly in the narrow and specific processes, because it creates both double work and that the sustainability considerations are considered too late at that point in the process.

### Resources and the Legal Framework

As mentioned by both Anne and Jens, resources are a concern of the planners. Anne explained how time and money had an impact on the way the original tool was used, and that this resource concern was part of why the tool needed to be reconsidered, as well as it had to fit with all their new strategies and policies:

Anne: You could say that it all started with an update of the old tool, and then it gradually connected to the process of simplifying local plans, which is also about creating a flexible process in reality, and that you do not have a tool which is some kind of independent process, which might cost more resources than is actually necessary, so maybe it will save resources in the end. It has kind of led to the attempt to implement it [the sustainability tool] into what we already have as tools, and not its own.

The challenges in limited resources was as well explained by Jens and Laura:

Jens: ... the planners just do what, why it is, you see, the one who pays who decides what they should be concerned about. And if we for example demand that they make a flower, then they make a flower, but it has to be fast, and [the developer's consultants] are told by the developer that it cannot have any costs. And that you can notice, then you get something, a four page document, and then that is done, then [the applicant] does not want to talk anymore.

Laura: It is an exercise in discussing it all through, and then sit down and see what is relevant. Because it is clear, we do not have unlimited resources.

Jens gives the perspective that it is often the external resources, which determine the sustainability concerns, and Laura provided a view on the internal municipal resources, which can also act as a barrier. She, further, emphasised that with the limited amount of resources the prioritisation of sustainability concerns becomes crucial. This was also highlighted by Anne, as she explained that they are limited in what they can require:

Anne: ... we have not really been allowed to push it all the way up to its limit, regarding sustainability. We can, for example, not write that there should be room for electric cars. There is a lot of things which we cannot write in a local plan.

The planners' stories show that the planners believe that sustainability could be promoted and secured even more, however, with the current legal framework it is difficult to secure sustainability, to the desired degree.

## Flexible Urban Planning Processes to Accommodate Challenges

Anne mentioned in relation to the tool in connection to practice, and the issue of limited resources, that they want to create a flexible planning process. It is as well mentioned by Jens:

Jens: ... but that was also what we found out, and that is probably just how it is, I think, that this is a tool and you use it as it fits. So in some projects you [use] it, and in some projects you use another. But, it is very important, that it is, the idea is that this is a dialogue tool, and it should create some common ownership of the project ...

From Jens' story it is clear that the planners in Aalborg Municipality are not worried about uniformity in the planning process, compared to the urban planners in Copenhagen Municipality, wanting to secure a more uniform way of handling sustainability throughout the planning processes. This difference can be understood with a view on the different situations which Aalborg- and Copenhagen Municipality is in. As Copenhagen is the capital of Denmark it can be assumed that they experience a higher demand and pressure for development, as also highlighted by Anne, which creates pressure to make the process uniform.

Although the planners in Copenhagen Municipality emphasised both the legal framework and dialogue in the process, Jens emphasised dialogue, informal conversations and consensus, a common language, and a common frame of reference as a way to handle the challenges in planning for sustainable development. He explained the importance of this in a collaborative decision making process, and that the tool with this in mind could be used in multiple ways:

Jens: That means, we have this flower, and there are these criteria for every one of those [dimensions], you know, sub-criteria. Then you can use these in a dialogue, you place it on the middle of the table and say: "listen here dear friends, we are working with [this project] and now we have to discuss how we work with sustainability in this project". Then you go through these different themes and kind of answers them, and then you get this scheme. If you think that is a little superficial, if you need to get more into the discussion you can use this checklist, which I talked about before, with DNGB's 144 [criteria]. If you then think that is too mechanic, then we have made this game. In principal it is the same, it is all these titles and help questions, but made as cards. Thereby, well there are really no right and strict rules, but there is a process guide, which we think makes good sense to follow. This makes it so [the tool] can be used by many different people.

From this it is understood how Aalborg Municipality have focus on creating a flexible process and practice around the sustainability tool, to secure that it is possible to use in many different processes (see figure 11.2, on page 94, of playing card of the Sustainability Flower Game). The planners have developed an illustration of how to implement and use the tool in urban planning practice (see 11.3, on page 94).

The flexible use and practice of the sustainability tool is shared by Odense Municipality. Laura underlines the emphasis on flexibility, as she described how she, or any other planner, should choose how to use tools in urban planning processes:

Laura: Well, my personal opinion is that it is great as it is, and i think that it fits

perfectly with a workshop, and then you can collect things from it. But I would probably, you know, [use it] with a lot of other tools, which we did not invent, but I do not think that everybody needs to reinvent the wheel either. I think that things like the ecosystems services and PLASK calculations [socio-economic calculation of climate adaptation] are great to include as well, also because it is this about saying, of course it is always an estimate, but, you know: "what does it cost?", and that you of course can show [it]. I just think that sometimes it is an easier way of communicating. (...) I see it a bit like a big palet [of tools], and then you use the one you think makes sense, because it depends on which project it is, and how much time you have, and yes a lot of parameters.



Figure 11.2: Playing card developed for the sustainability game based on the new Sustainability Flower. An example from the social dimension, focusing on meeting places. The help questions are about how to create places for natural meetings and design urban spaces to incite people to stay.

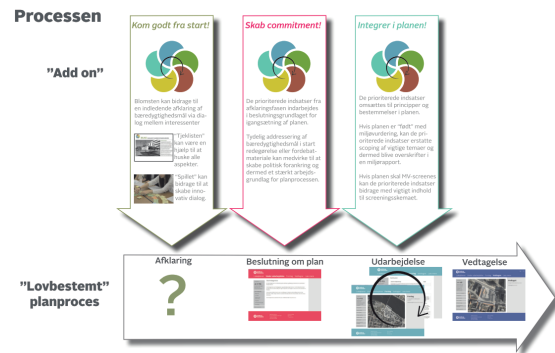


Figure 11.3: The new flower and the connected process are developed to be used to create dialogue in the clarification process; the prioritisation of efforts should be used in the decision making process; and the lastly should the prioritisation be implemented as principles in the plan.

From the stories it is apparent that flexibility is considered important in redesigning the urban planning practice to accommodate sustainability and sustainable development. Both in relation to having an effective process, having a flexible tool to accommodate different processes, but also in relation to being able to choose the right tools in a given process.

Although Laura's story provides a critical perspective to the tool, the tool is still described as a great tool, however, mostly as a process tool in relation to dialogue and workshops. She, however, emphasise the importance of picking and choosing, which relates to the concept of bricolage by Buitelaar et al. (2007). This connects to Jens' emphasis on the tool as a dialogue tools. Both stories indicate the emphasis and importance of dialogue, and the sustainability tools functioning as a dialogue tool.

## Courses of Action to Secure Sustainability in Urban Plans

As the planners were asked to explain the issues they experienced in working with sustainable development and implementing this into plans, Anne explained:

Anne: ... I think that there are good intentions, definitely, the question is just how to concrete these and create a common understanding of sustainability, which also relates to what we think as a municipality on a general level. So it is really the link that has to be consistent ...

Through the interviews with the planners it became clear that the sustainability tools

was part of the process where the planners sought to go from *good intentions* to actually *securing and implementing the sustainability concerns into plans*. This underlines the general issue of operationalising and concreting sustainability concerns in planning.

In describing how they work and struggle with moving from the good intentions to actually securing of sustainability in urban planning, Jens describe how they approach it:

Jens: So in principle, in the first round, before you actually get to the local plan, already in a clarification process, (...) you see, it is about creating some direction for the sustainability initiatives, and like, a consensus between us and the applicant about which sustainability goals we have in a given project.

Jens: It is dialogue and this about ownership, that we get a shared picture, of what we as an authority and they as developers and applicant [can agree on with regards to:] "that this theme is the most important and this is not as important" ...

Jens is explicit of the importance of dialogue. His experience in relation to the tool, and of securing sustainability, is from his point of view, through dialogue. Laura from Odense Municipality further emphasises the common language in relation to securing sustainable development in relation to the tool:

Laura: ... and that, I think actually, is the great idea of this Sustainability Puzzle, that it is really a good point of departure. (...) I think that this about collaboration and making plans, it is insanely a lot about understanding each other and having a frame of reference.

Laura: So I think this about the common language and that you want to reach the same goals are important.

According to the planners' stories dialogue, a common frame of reference, and a common language are perceived as important approaches to be able to secure sustainability in Odense- and Aalborg Municipality, as also highlighted as an objective and goal of the original design of the Sustainability Flower (see chapter 10). The explanation of dialogue and a common language as a way to secure that good intentions become realised also relate to the emphasis on the sustainability tools serving as dialogue tools.

Peter and Anne also highlight dialogue and common language as ways to secure sustainable considerations in practice. In combination to the common language with external actors, they emphasised the common language as also about the internal language in the planning department in Copenhagen Municipality:

Interviewer: So, it is also a way of creating a common language, you know, for all of you?

Anne: Yes, definitely!

Interviewer: Internally as well as externally?

Peter: Yes.

Anne: Yes, you know, there is all this, yes again, all these policies, visions, strategies, and plans, which are located in [Peter's] centre, they should preferably become the same local plan enactments in the end, so they should become the same law in reality, when we make local plans.

This shows their redesign of the Sustainability Rosette into an internal tool implemented in the planners guide and every-day practice. The same focus on the internal language

was shared by Laura. She highlighted the use of the sustainability tool as a good dialogue tool between experts, internal municipal actors, or with specific relevant actor groups. Although the sustainability tool is emphasised as a dialogue tool, to secure a common language, through which agreements and decisions can be made, Laura's story show how it sometimes is difficult to communicate:

Laura: Well, you can see that in this holistic plan we have also used what is called a PLASK model from the Ministry of Environment. (...) and those kinds of models are also being developed further. And we have used something called ecosystems services (...) Well, because this [Sustainability Puzzle] is a good talk, but it is not measurable. So I see this a lot as a dialogue tool, and not as much as, well, I think the stronger tools are the ones that you can actually, in some way, communicate.

From Laura's story the view on measurability and the communication of concrete results or outcomes are important in a dialogue. This also relates to the different understandings of sustainability and sustainable development, highlighted in former chapter, where planners sometimes experienced difficulties in communicating and creating a dialogue with actors with a narrow understanding of sustainability. It was to this that Laura emphasised the importance of using different ways to communicate sustainability to create a common language, understanding, and a basis for decisions.

In explaining their vision and objective of moving from good intentions to actual sustainability concerns included in urban plans, Anne explained that their redesign of the tool is also about finding their legal authority:

Anne: ... you do not want to write everything into the local plans which in reality is just good intentions or good objectives. You will to a certain degree. (...) But a lot is about what we can, what do we have the legal authority, from the planning act, to determine in our local plan? And there is this in the planning act, you know, called the local plan catalogue. And [the redesign of the tool] has simply been an exercise in sitting down and saying: 'well, which policies and visions and so on is anchored in the local plan catalogue, and how much can we, and how much do we have legal authority to write? (...) But the whole thing has been an exercise in how far you can go in deciding what should actually be used in a local plan [e.g. reused materials], and that is why the dialogue is so important, because if you have not talked it through beforehand, and [then] write [something in] a local plan, you know, there is a great amount of latitude in a local plan in reality, so if you have no agreements with the developer beforehand, then it can go in all sorts of directions in reality.

Anne's story connects the courses of action in going from good intentions to secured sustainability: legal authority; and dialogue and common language, as she acknowledges both as important. Jens stated that they as well acknowledge that the common language and dialogue is very important, however, it is not always prioritised in relation to sustainability, it is more often about the right to build or parking spaces, which developers and investors are more interested in. This exemplifies the importance of the use of both dialogue and legal authority by the planners to secure sustainable development, of which Jens told a story of the planners' possible means:

Jens: Yes, well there is this, you know, there is carrot and then there is stick [Danish: pisk eller gulerod]. And we also have some 'stick' possibilities, we have our building regulations, which says something about how you should insulate your building and



management of energy, and there should be access for everybody, and there should be an open space, and so on, and so on. So there are a lot of things bound by the building regulations, which are just legislated, period. And that just has to be complied with. And our planning act, there is as well some things that you have to attend to. I actually think that it is in paragraph one, that it has to be sustainable, that you have to secure sustainable development or something. (...) And of course you can use that, when it is written in paragraphs, then you can also use it as a rod to beat people with [Danish: *banke folk i hovedet*], and say: "you have to do this, and this, and this", and that we have legal authority to write it in a local plan, based on the legislation, that the building should be sustainable in one way or another way. Or at least we can write some things, but there is also a lot of things that we cannot write. We can write low-energy for example. We can write sustainable urban drainage systems projects. But of course we also think, when we sit down and talk about the things, that it is not necessarily something that will cost a lot or make things really complicated. It can be that you sometimes design things, it could be green areas which are designed in a bit different way, with a little more permeable surfaces, well, then you can actually receive the rainwater without having to implement a lot of large pipes and stuff. And it might not cost more in reality, and it functions well in the daily life. There is a lot of examples of this, you know, you might be able to open eyes for such initiatives.

In this story Jens both highlight the use of legal authority, as well as the dialogue in which they can identify possible solutions and open eyes for some more sustainable solutions without necessarily impacting the economy of a project.

Although it, from the stories of the planners from Copenhagen Municipality, seemed as they emphasised the legal authority over the common language as a course of action in securing sustainability, Anne also expressed:

Anne: You can say, that although the law is the minimum requirement, this [the redesigned tool and its outcome] should preferably protrude that.

The tool should preferably secure that even though legal authority is used, it is not the only way to secure sustainability. The statement can further be linked to a perspective on the planners' values as resembling those of the sustainable development ideal, as they seek to protrude legal requirements of sustainability. This emphasises that both collaboration and use of legislation are important when the planners want to go from good intentions to secure sustainability and sustainable development. However, as stated by Anne, if there is no dialogue, common language, consensus, or general agreements of the sustainability goals in a plan, the actual plan enactments leave room for much interpretation by the developer, which will not secure sustainability in the construction phase.

Both approaches to securing sustainable development was described as very important. Legal enactments has to be used to secure that agreements are respected, however, the issue with the legal framework is that the level of sustainability which is desired by planners and to some degree developers and politicians are not prioritised in e.g. The Danish Planning Act.

With the planners stories of sustainable urban planning practice, the following explore the highlighted themes in relation to the theoretical approach of this research. This shows the planners reflexivity of their own practice in going from good intentions of sustainability to secured sustainability in planning practice.

Related to planning practice, the planners stories show that they are reflexive in the way they all take action and consider their own position in either the redesign of the institution of the tool or in the way they adapt their practice to the tool or the tool to their practice, based on their experiences and observations of the original tool and societal developments.

The planners stories has shed light on the two domains through which the planner can take action: 1) collaboration, dialogue, and common language and 2) legal authority and plan enactments. It further showed that capital such as time- and economic resources often becomes a barrier or a challenge in the work, as well as capital such as tools and models becomes a resource and a help in working with sustainable development. The courses of action to secure sustainable development, identified in the planners' stories, are visualised in figure 11.4, which as well illustrates different resources and instruments, which the planner can use in the domains.

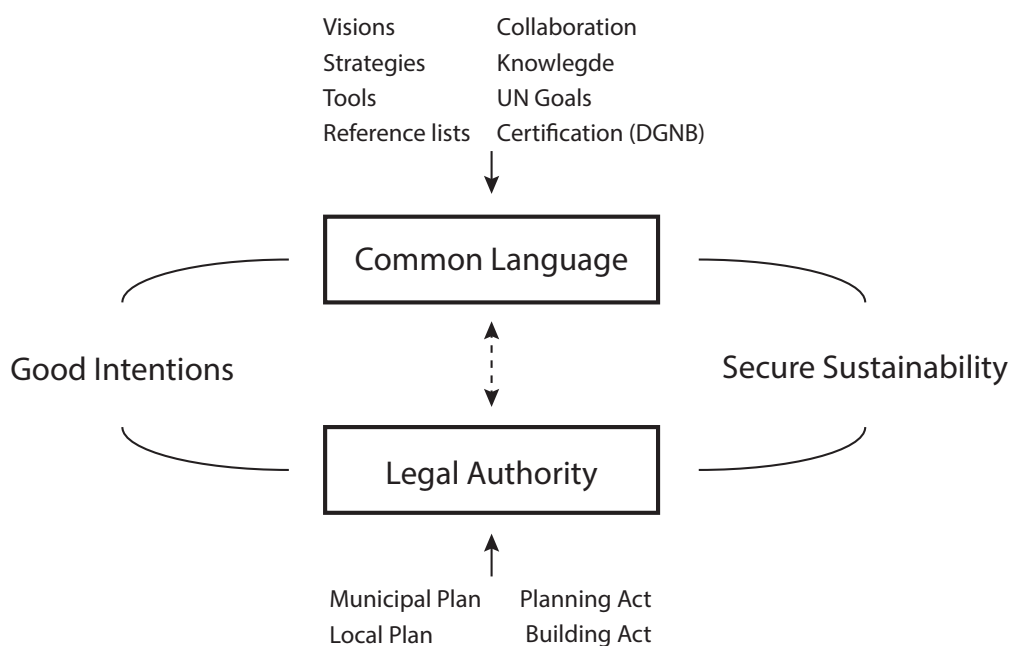


Figure 11.4: Illustration of the two primary fields, in the planners work with going from good intentions to secured sustainability in urban planning. The resources are illustrated with arrows to the fields, as the resources are what the planners can utilise in the field.

The stories further shed light on the planners' reflexivity of their habitus and processes, and thereby urban planning practice. The reflexivity links to societal developments, and was expressed through the stories of redesigning and reconsidering the sustainability tools and urban planning practice. The redesign of the tools seen in relation to the reflexivity of the planners, in regards to current institutions and available resources and possibilities, relates again the operationalisation of sustainable development to the concept of bricolage as presented in theory with reference to Buitelaar et al. (2007) (see section 4.1).

The stories underlined the development of the sustainability understanding towards a more holistic approach, as the planners explained their work with synergies and increased value solutions, as well as they unfolded the challenges in using the sustainability tools with or in other processes, which relates to the redesign and reconsideration of the tools.

In Aalborg Municipality the tool and practice are in a process of being redesigned with

point of departure in the DGNB-system to provide better grounds for developing a common language and common objectives between the municipality and planners and the developers. This is rooted in reflexivity of both societal developments of pressure towards sustainability, and especially something that can be measured or in other ways become visual, like with a DGNB-certificate. It is further rooted in reflexivity of the field, as the planner underline the tool as a communication and dialogue tool to secure a common language, a shared frame of reference and a shared sustainability goals for an urban planning project.

In Copenhagen Municipality the tool is as well in a process of being redesigned. Here the planners' reflexivity is, however, primarily grounded in how the original tool did not fit in with the existing planning processes and other tools, and that they want to be able to use the field of legal authority more in relation to securing sustainable development. This creates the basis for redesigning the tool and practice as part of a 'planners guide'.

Odense Municipality are not in the process of graphically redesigning their Sustainability Puzzle, but they are in a process of adapting the municipal approach to sustainable development with point of departure in the 17 UN goals, perceived as a societal development. An underlined reflexivity of the use of the tool is related to the planner's statement that one should choose the most comprehensive tool in the given situation. The practice in Odense Municipality is thereby flexible with regards to the use of different sustainability tools in securing sustainable development. Further is the tool, through the reflexivity of the planner, underlined as a possible tool to secure sustainable development in the field of common language, as the planner explained that she has used the tool to secure such a common language and frame of reference between a project group associated with a plan project.

## 11.3 Sub-Conclusion: Reflexivity of Societal Developments and Sustainable Urban Development Planning Practice

Societal developments are increasingly pressuring the understanding and approach to sustainability, in a more holistic perspective. These societal developments and the general situation in society, including the political agendas, creates pressure for the planners to be reflexive of own sustainable urban planning practice and the sustainable development concept. The planners highlight challenges of working with sustainability related to a political focus on growth and development in the Danish society and towards institutional issues. An existential challenge is highlighted as institutions not being suited for sustainable development. It indicates that the system, organisation, and existing institutions are a barrier for creating focus on sustainability and sustainable development, as well as embedding the values of these into the existing institutions.

Based on the urban planners' reflexivity, the urban planners are currently in a process of redesigning the sustainability tools to fit with the societal development. This also means to adapt the existing institution of urban planning practice to increasingly include sustainability tools and considerations. In Aalborg- and Copenhagen Municipality they are designing a new process and graphics of the sustainability tool. Whereas Odense Municipality are reconsidering the approach behind the tool, towards societal

developments. Looking at their reflexivity: how they have seen external developments and reacted to these, it is apparent that the planners emphasise dialogue, implement different approaches to securing sustainability, and implement aspects, like certification, into their approach, as they experienced societal developments creating emphasis on this. The planners embrace the holistic approach, however, it is still acknowledged that concrete, defined, and preferably measurable sustainability understanding as well are important to work with, especially in communicating sustainability. This creates need for different methods and approaches to adapt to the different understandings and needs in society, which is also exemplified by the sustainability tools adapting to certain methods and goals (UN SDG and DGNB).

Related to the sustainability tools' function in urban planning practice, the common language, as the domain in which sustainability action can be taken, is emphasised by the planners as a way to secure sustainability in urban planning practice. The planners underlined the dialogue and use of sustainability tool in working with developers, or other professionals in the planning process. However, as both Jens and Anne explained, the legal authority is also important to secure that the sustainability efforts in plans and negotiations. This reflex based on the planners' experiences are especially showed in how planners in Copenhagen Municipality are working with securing legal authority in their redesign of their sustainability tool.

As argued, the urban planner is perceived as situated in a tension between their urban planning practice and the ideals and theory of achieving sustainable urban development. In this research this tension is, first, exemplified with the tension between the different understandings of sustainability and the challenges of working with sustainable development in existing institutions and in a growth focused society. This tension is the difficulty in being able to communicate and agree on sustainability initiatives, if the understandings and agendas are different. Second, the tension is exemplified with redesigning or reconsidering the sustainability tools to co-relate to current ideals of sustainability and demands in society. The planners manoeuvring in this tension is seen, as they seek to find and establish ways to secure sustainable development, both through dialogue, to which they need a tool to structure and secure the communication and specific themes; and through working with legislation trying to clarify their legal authority.

The tension, in which the planner is situated, creates a pressure and also possibilities for working with and adapting the urban planning practice, and thereby operationalise of sustainability through redesigning the sustainability tools. Urban planners are thereby understood as being reflexive of both external factors as well as internal factors, to adapt the institution to operationalise sustainable development in urban planning.

# 12 Position of Urban Planners in Relation to Sustainable Development

This chapter explores the roles and tasks of the urban planners and how these have been affected in relation to the agenda of securing sustainable urban development. The chapter takes point of departure in the stories and experiences expressed by the planners in the case municipalities, but couples what is expressed through the stories with theory and literature about the planners position, roles, tasks, and tools. Through the interview inquiry the planners have been asked how they relate, as professionals, to the society in which sustainable development is on the urban planning agenda.

Because of the pressures to secure a sustainable development, practices are redesigned in continuous processes of reflexivity, as expressed in chapter 11. It is argued that the process of redesign is related to the agent's reflexivity of own practice and the sustainability pressures. These pressures influence urban planner, which must place themselves in new positions in today's society, as also argued by Malbert (1998) and Sandercock (2012).

## 12.1 Tasks of the Urban Planner

The following explores the urban planner's tasks in society today, with the pressure for securing sustainable urban development.

### Inform and Enforce Sustainability and Sustainable Urban Development

A reoccurring theme for the urban planners stories is the task of informing and communicating knowledge about what sustainability is and how it can be achieved through solutions in urban planning. According to Jens from Aalborg Municipality, the urban planner should facilitate communication and discussion of sustainability with developers. In this relation the sustainability tools provide an opportunity for discussion, where the planners have something that they can refer to, or give examples of sustainability with. One task for the planner is to advocate and secure that the discussion circles around the themes within sustainability, as mentioned in chapter 11.

Anne, however, highlighted that there is an issue for the planners in communicating, with others, about what sustainability is, and how it can be integrated in a planning project. It is about being on the same page in the discussion about sustainability with others and

why it is important to have a shared frame of reference:

Anne: It complicates it quite a lot actually, because many stick to their original perception of sustainability (...) So if you work with a developer that is stuck with an understanding of sustainability in the year of 2010, well, then you do not have a common language when you talk to him now 8 years later. So, that is difficult to keep up with, I think.

The broad definition and the constant development of the sustainability concept again show that the urban planner has an important task in informing what sustainability entails, mean, and what it could mean in a specific project. As highlighted in section 11.1, the concept of sustainability is constantly changing and elaborated. This underlines the role of the planner in this process, as it becomes important for them to define the concept in relation to who they collaborate with. The task is thereby both to secure the municipality's visions in practice and that the communication is informing and gives the actors a basis for being on same page to be able to agree on decisions.

The task of communicating and informing about sustainability relates to the task of the planner to secure sustainable development in general. According to Laura, this means to enforce the visions and standards of the municipality in development projects. These visions and standards of the municipalities have been defined to secure the sustainable development and amongst others to secure people's right in the city. A task for the planner is thereby to provide the community's viewpoint to the development processes:

Laura: I think that it is super important that we as authority, well, secure that people have access to these green areas, and then they can go further, in reality, and get out in these large green corridors.

Laura further underline in the story, that the urban planner have a task in being an authority and secure important features of the city:

Laura: ... if you give one permission, to actually take up an open space. And that is actually some general demands we have made, that if you build this much, then you need to have this much open space (...). Well then we open a huge Pandora's box.

The planners' task is thereby to enforce the rules, standards, and visions that have been made in the municipality. That also relate to the field of legal authority, that the planner is positioned in, as mentioned in section 11.2. Jens' story in section 11.2 also referred to the importance of the planner's task as legal authority, by enforcing The Danish Planning Act's objectives. The act is an important instrument in securing a general sustainable development in Denmark. The Danish Planning Act is created with the foundation of securing that all development happens on a sustainable foundation (Erhvervsministeriet, 2018), which the planners must enforce. In this relation, Jens also expressed, that the main task for urban planners, is to create a society that is working in practice:

Jens: ... that is the main task for us, well you could say that completely overall that planning is about designing the society spatially in an appropriate way, so that things function ...

Thereby one of the urban planner's main tasks, is to secure that all spatial development happens with point of departure in a sustainable foundation. Due to the complexity and

challenges of planning for sustainable development this is, however, not an easy task for the urban planner, as emphasised by Malbert (1998).

## Foster Dialogue, Co-operation, Democracy, and Secure the Good Planning Process

According to the urban planners' stories, a reoccurring theme is, however also, the urban planner's task in facilitating dialogue when securing sustainable development. According to Laura it is an important factor from the very beginning of a project, as planner to facilitate the dialogue:

Laura: And of course you cannot satisfy everyone, that is not possible, you will never be able to do that. But again I think that this dialogue, and communication, and being open about it. That you win a lot, if you do this from the beginning.

It has been established that dialogue is a huge part of the planning process of creating sustainable urban planning development and solutions. Dialogue facilitation is, however, a task that is very much dependent on the urban planners, as they are the ones who must initiate and secure that it happens with all the right actors. The dialogue creates the foundation for the development planning and getting everyone on the same page and therefore the planners must create a broad and constructive dialogue. This relates correspond to the domain of action, the common language, through which the planner is able to act and secure sustainable development, as mentioned in section 11.2. Although dialogue is not able to solve every tension or problem in a planning process, as also argued by Næss (2001), it creates an opportunity for the participants to understand each other, and different visions.

Jens' story also support that dialogue is an important task for the urban planner. The urban planner also has to be good at facilitating dialogue, as it is central to urban planning processes:

Jens: And then you have to be damn good at dialogue. Those processes are bloody important to be good at too, and to be able to guide things in a direction and that. We are pushed all the time in one direction, and another direction, and politicians wants one thing and the applicant wants another, and our own strategies, they push as well in a certain direction. So it is this huge manoeuvre field, that you have to work within, and that is also what is super fun, right? And it is, actually, from time to time, that it is in that very occasional time where it happens to succeed, to get it all to interact, then it is dammit, you know, it is when you say: "yes!".

A challenging task in facilitating dialogue with project developers and politicians, is when actors are not interested in participating or have different interests. As whether or not a project becomes a success depends on the project benefiting all the stakeholders, according to Jens. Anne also acknowledged that the task for the urban planner is to secure the dialogue from the very beginning of the project. It also creates a better basis for the planner to include other visions or intentions in the project. The important thing is to do it from the very start, as it is difficult to bring in different demands late in the process. The task for the planners is therefore also to be good at assessing the process and knowing when and where the dialogue is important:

Anne: ... well you have to say that the overall decisions are those that are carried throughout in a project, and it is a bit difficult to come with demands afterwards, and have some wishes, or visions, or some really good intentions and potentials with this plan, if you have not talked about it initially, before you actually start drawing the project ...

Related to the task of facilitating dialogue, a reoccurring task for the urban planner is to integrate and delegate tasks to other professionals in the planning process. This is linked to dialogue with the other actors and professionals in the planning process. Due to the fact that urban planning development covers a lot of sectors and administrations, the task for the urban planner is to find professionals or specialists for the specific tasks. Laura told that an important part of her tasks is to delegate tasks to others:

Laura: There are insanely many aspects that are placed in all sorts of other departments than in just precisely our department. So there are simply a lot that we have to cover and there are a lot of stakeholders that we must go out and talk to. (...) And then it is important that the responsibility is also distributed to the different [actors]. So that, of course, as a project manager, you are in charge of the progress, but it is not you, yourself, that has to do everything. It must be delegated and lie out by the different [professionals or specialists]. So I think that it is important, that it is seeds that has to be sowed, [and they] must be planted out and about. You know, people should get a good idea when they sit and do something with mobility and urban spaces, and think: this could be something which we could try to think integrated, when we have to do something with traffic regulation anyway.

Delegating and bringing the right competences to the sustainable urban planning process, is a task that the urban planner have to do to secure that every aspect is covered by the best knowledge.

The task is to create an inclusive planning process that integrate actors at all levels and places of the process. This also relates to creating a transparent planning process. Transparency is important because it is a civil right in Denmark to be included in planning processes, through hearings. It is the planners' task to secure that citizens are able to follow the planning process, so they are aware of what happens in their neighbourhood, as highlighted by Jens:

Jens: ... we must ensure a certain transparency in the administration, so that all citizens always have the possibility to monitor them and also are able to have an impact through hearings and so on, so there is a democratic function in that ...

The task of the urban planners is thereby to secure democracy in the planning process. According to Laura, this is also an important task. It is however just as important to know when to include them:

Laura: So i think this with involving people at the right times, and also include them in the parameters that they can have an impact on. (...) But, you know, make it super clear and say: "this you cannot have an impact on, but this you can". So you direct their energy to the things that they can actually have an influence on. (...) So the planning, you know, there is a lot of footwork.

The tasks for the urban planner is thereby to know when and how to include the citizens and actors so they have an actual chance of influencing the the process.



With point of departure in the urban planners' stories, the task for the urban planner, in securing sustainable urban development is, first of all to inform and communicate the aim of sustainable urban development. A notion also especially highlighted by Næss (2001) and Malbert (1998), emphasising that the urban planner must be the one communicating and translating sustainability to others. This is in this case exemplified with the use of the sustainability tools and municipal visions, creating a common language to communicate from, in the municipality. The urban planner's task is to bring knowledge to the decision making process, and why the communicative techniques, Malbert (1998) mention, are essential for negotiation in a sustainable urban development planning process. It is, however, difficult without enforcing the legislative resources, as the planners' stories highlight. The urban planner's task is thereby also to enforce the legislation, together with the visions made by the municipality.

Another task for the urban planner is to facilitate dialogue. The dialogue is essential to create the domain of common language. Here the sustainability tools serve as basis for creating the specific sustainability dialogue, which is also an object of the original designs of the tools, as argued in the document analysis in chapter 10. The planners stories emphasise dialogue as essential in the communication and prioritisation. It is through the dialogue that the prioritisation is made. Dialogue is also essential in the domain of legal authority, because the legislation can be interpreted and used differently and thereby challenged by making other agreements through dialogue. The task of the urban planner is further to delegate tasks in the planning process, to secure that the right knowledge is used in relation to each element. Furthermore, an important task, highlighted by the urban planners stories, is to create an inclusive and transparent planning process, to secure democracy in planning.

## 12.2 Roles of Public Authority and Sustainable Urban Development Facilitator

The former section established that there are several tasks for the urban planner in the institutional pressure of securing sustainable urban development. According to Sandercock (2012) there are also several roles to accommodate as an urban planner in the 21<sup>st</sup> century (see section 4.3). This section will with point of departure in the several tasks of the urban planner explore the roles of the urban planners in relation to their own stories and experiences in practising sustainable urban planning.

In the planners stories a common understanding was the development of the general role as an urban planner in society. All the planners highlighted, in their stories, that the change of the planning practice in society is changing their tasks and roles as urban planners. Jens' understand that the role of the urban planner has changed. Especially related to the tasks, which he had when he started working as a professional architect, in comparison with the tasks that he have today as a planner:

Jens: Back when I was newly educated, back in the nineties, (...) [it was] the traditional public authority role, with emphasis on authority, that you control the paragraphs and abide by these. This was our task back then, and it has sort of shrunk, on the other hand the facilitation has grown tremendously. (...) it is this

about the public sector as a service agency, almost, as those who support society's mode of operation you could say. We are a part of the the welfare society, and of course we have some controlling tasks, we must abide by the law and control that the law is obeyed, but we are also facilitation ...

Jens: And the facilitation, well, always pushing the process and continuously pushing the development, considering where it is most appropriate [in the municipality] (...). And the holistic perspective, in a bit more, where we are more on the front edge than, in the sense that we are not as such controlling, we are more dynamic and pushes the development.

The role of the urban planner, from Jens' story tells us that the authority role of the urban planner has changed towards a facilitator role. Urban planning today is not just about obeying the law and formal rules within the institution. Today it is also the planner's role to advocate and push for the appropriate urban development. The role of the urban planner today is more dynamic and is moreover to serve the public and the welfare state society in Denmark. Thereby securing a more strong society and a development that is build on an appropriate basis rather than just enforcing the law.

The urban planner must be the one controlling the process when necessary, and then dialogue has become one of the most important aspects of being an urban planner according to Laura. The dialogue is the element constituting the role of the planner in today's society:

Laura: Yes, but, well, I think that back in the 50s and 60s, and long before that, where you thought that one city architect sat and drew something and then it was that. Today everything is about dialogue. There is also nothing that is possible if you do not understand each other and have a proper dialogue.

Jens and Laura both highlight that there has been a change in the role of the urban planner. The multiple and changing roles of the planner, emphasised by Sandercock (2012), highlight that the trends in planning are being gradually embedded in the role of the planner, which today entails much more than just the analytic and technical literacy. The importance of dialogue and communication is according to Malbert (1998) increasingly important in relation to urban planning, because the process is becoming more and more complex in relation to facilitating sustainable urban development. Sandercock (2012) also argue that the urban planner's role in the 21st century is to make decisions based on a more communicative and holistic approach (cf. (Healey, 1992; Innes, 1995)) arguing for the communicative turn in urban planning), in relation to the ecological literacy of the planner. The importance of facilitating dialogue as an urban planner, further, links to the multicultural literacy of the planner, which emphasise the need for understanding and accepting different points of views and world views in urban planning, according to Sandercock (2012).

The role of the planner in securing sustainable urban development also relates to having the holistic overview, according to Peter:

Peter: It is that again with thinking sustainability as a strategic planner competence ...

According to Laura the urban planner also needs to be a mediator role rather than the more disconnected authority role, thinking the big thoughts by themselves. A part from

being the one having the overall holistic view an important role for the urban planner in securing sustainable urban development is the mediator role. Meaning that the planners should mediate the municipality's development visions and negotiate with the stakeholders in all processes as a neutral role.

Laura: ... so I think that today you are, as a project manager, also very much a mediator in reality, and see to that you talk to the right people and hear what is good in this relation.

According to the stories of the urban planners, it is argued that the general role of the urban planner have changed and will continue to change. This is also argued in the planning theory and happens with regard to the developments in planning theory and planning practice. With point of departure in the planners stories, it is further argued that the role of the planner also changes with the societal development, responding to society. Such as advocating and actively choosing to secure sustainable urban development, as argued by Beck et al. (2003).

Malbert (1998) also questions the role of the planner in society when they have to secure and enforce sustainable development. He would rather call them 'process facilitators' because they work in this complex environment, and both having the technical instrumental techniques as well as the communicative techniques in negotiation and decision making, that also relate to the domain of legal authority and common language. As the urban planners, by these stories, tell, they do not only have the authority and law enforcing role. They are facilitators and mediators of the sustainable urban planning process and development in society. As well as Sandercock (2012) this analysis also show trends that the role of the urban planner is many faced. This analysis argue that the role of the urban planner, with point of departure in the interviewed planners own stories, both have to be a public authority role but more over in today's society has to be a facilitator and mediator of sustainable urban development. The role of the planner today is more dynamic and should provide many roles in order to secure sustainable urban planning. Sustainable development entails both technical considerations as well as facilitating a good planning process. This requires that the urban planner has the ability to provide several tasks and roles, to secure that. As argued, the different roles of the planner are crucial. Especially the task and role of facilitating dialogue are important, because of the complexity of understanding the broad definition of sustainable development. However, if the urban planner does use their legal authority role, it can be difficult to enforce sustainability in all urban planning projects, as some believe it to be too expensive and resource demanding.

## 12.3 Tool-box of the Urban Planner in Securing Sustainable Development

Based on the many multi-faceted tasks that the sustainable urban development planner has, as well as the crucial role of being a process facilitator in connection to being a public authority, the following explores the tool-box of the urban planner, in relation to securing sustainable development. To this Jens started by explaining:

Jens: ... you must of course have a certain basic knowledge.

First of all the sustainable urban planner tool-box must include technical skills, as highlighted by Jens. In this instance it can be related to knowledge of sustainable solutions and in general about sustainability. Which is also understood as an important resource for the urban planner in securing sustainable urban development. If the basic knowledge of sustainability is not present, it can be difficult to convince developers or citizens to develop with point of departure in that concept. Other than the basic knowledge that the planners are able to use from their tool-box, the stories of the urban planners highlighted, that an important element of the tool-box is the legislation, which gives the possibility to create demands to the developers. The urban planners are in many ways bound by the legislation and how they are able to manoeuvre within it's limits. Legislation, that gives the possibility to make requirements related to sustainable development, is a resource that the urban planner can use actively, without making informal agreements and without the need for developers to take initiative themselves. As an example Peter highlighted that, they in Copenhagen Municipality, have had great use of requirements of low energy buildings in local plans. This legal authority resource is, however, not present anymore, in this instance as he highlights:

Peter: But you have lost, because The Government have focused on growth, that possibility, in the local plan catalogue, of low energy buildings in the local plan area, which was used quite a lot in Copenhagen. (...) Well, that the actual requirements should be lowest energy class, but you cannot use that anymore as a legal possibility ...

There are other legal authority resources that the urban planners can utilise. However, in this example, it has been removed from the legislation, and the planners are in need of other tools or ways to convince the developers to make these sustainable solutions. This pose a difficulty as developers does not necessarily think that low energy, or any other form of sustainable solution, is a good idea if they are not aware of these, and their total long-term economic durability.

It is further argued that the tool-box should include that the urban planner have these intern reference lists, that they can use for decision-making and negotiations. As an example the reference list in Odense Municipality defines requirements in sustainable urban development to secure that all planners in the municipality covers all elements, as highlighted by Laura:

Laura: ... then we have a long reference list, where we have checked, or where you need to check. Well, that is everything from building scale, of course placement, parking lot number, so we have a lot of requirements. (...) Demands in relation to the green, how much open space there needs to be, for rain water management and climate adaptation, and then we have a lot of check forms that we go through, [and] that we get our colleagues in the Nature and Environment Department to look through for us.

As these reference- or checklists relates to municipal requirements, the lists are seen as tools which can be utilised, through the course of action legal authority, to secure sustainable development.

The sustainability tools are also resources to act in the domain of the common language

and to secure that they actually have a common language to sustainability. An essential part of the tool-box is thereby the dialogue- and communication tools e.g. the sustainability tools. The sustainability tools are able to secure that the internal and external clarification when talking to developers and thereby secure a more contextual discussion.

Jens highlighted that the tool is an important part of his practice because it brings the sustainability discussion:

Jens: ... in that case the [Sustainability] Flower process forced discussions, and then it makes sense, then it is good. So there it does what it is supposed to, right, like putting tings on the table and getting them discussed.

The tools are an important part of securing and creating the common language of sustainability in a municipality. However, Laura from Odense emphasised that they rather use different external tools as basis for the sustainable urban discussion:

Laura: ... so there are a lot of tools, and it might in reality be that, that you are a bit flooded in these tools, and that people then uses what makes sense for them in the given situation.

A part of the tool-box is therefore also seen as the urban planners ability to choose the right tools and instruments for a project, in relation to also using it at the right moment. Anne also highlighted that the inclusion of sustainability should be a natural part of being a planner to facilitate, with or without sustainability tools:

Anne: Yes, well it ought to be a part of the planner's DNA from the very beginning, right? Well it ought to, in our society, be something that you think about, no matter if it is written in a guide or not. You think of the most sustainable solution in relation to all items, but that is just not how reality is, which is why we have to operationalise it, in this exception, a guide, so all planners think in the same way.

Even though it is not how reality is constructed from the experience in Copenhagen Municipality, which is their argument for redesigning the sustainability tool as a part of the planner's guide. It could be a future desire for the urban planners, that they do not need these guides or sustainability tools, to secure that they work with sustainability in urban planning. In addition to the tool-box of the urban planner, it is thereby also important for the planner to have sustainable development as a value, a natural part of their work or procedure. Peter and Anne underlined that this point is where they want to arrive in Copenhagen Municipality, also because that would create a more fluent process of integrating the sustainable solutions. The tool, as Peter and Anne underlined, risks being disconnected from the planning process:

Peter: If it is something that is like separated from, and is a separate part of being a planner rather than something that is well integrated in the way you usually and normally work, right? So we arrive at that place were it fits in the existing work routine and in the way of thinking planning, it is better.

Anne: So, in that way, you should reach across as planner, to know what needs to be done for things to be sustainable, so it becomes an integrated part of being a planner, instead of using a tool that actually risks being disconnected from the entire process.

It is important that the urban planner's tool-box is provided with a general perception

that sustainability should be included as part of the planning process and not only by the sustainability tools. It at least risk not being an actual part of the process, and more an add on that risk not having a real positive influence on the sustainable urban development.

Another element that has been prominent as an important part of the urban planner tool-box, in securing sustainable urban development, is the part of thinking innovative and creating solutions that are able to create increased value, both economically, socially, and environmentally. The urban planner's tool-box should include multi-functionality and innovative thinking. In other words they must also be aware of the value that sustainable solution are able to create as well as following the societal developments as a part of their tool-box. This was also highlighted by Widmer et al. (2009) and Malbert (1998), that the reflexive urban planner must secure innovation in urban planning. As an example, Jens highlighted, that this is an element that they in Aalborg try to reach in every planning process because it benefits a lot in the process and outcome:

Jens: ... I almost actually think that the newer mantras, it is a lot about this, what we called integrated solutions in our former plan strategy, you know, if you can make some plus with plus and with plus on top of that, right? Like if you can make a mobility centre which is more green than it was, some parking removed, and so on, and so on. Well, these Kinder-Surprise-solutions where you can more than one thing. We actually chase that a lot.

Anne also highlighted, that it is important for the urban planner to look beyond the legal authority resources. Both because the legislative frame does not correspond to the goals of the municipality, and because the urban planners are able to push development by making agreements with the developers through qualified informative dialogue. This can also be coupled with the fact that the urban planners have to be innovative and creative if they want to push to the sustainable urban development. It is more than just being able to go beyond the legislation. It is about reaching the visions and goals of the municipality that have been defined, and in this process the urban planner must try to influence the development. As highlighted by Anne, the planner should be able to use their professional skills to push the general development of a sustainable city.

Anne: ... but this about reaching beyond the legislation and look at where you are actually able push for a development.

In the tool-box of the urban planner to secure sustainable urban development, it is thereby important that the planner try to push further than the actual requirements if the municipality wants to secure the sustainable desires.

With the presented tool-box elements of the urban planner in creating sustainable urban development, figure 12.1, present an overview of the different elements, that is argued as a part of the urban planner tool-box to secure sustainable urban development. These elements are argued with point of departure in the urban planners stories. It is important to acknowledge that several tools, roles and resources are needed for the urban planner in securing sustainable urban development, because of the complexity in securing this with many actors and interest.

With point of departure in the urban planners stories, we argue that the tool-box include:

- **Legislation** that for instance refers to The Danish Planning Act, The Building Act and environmental restrictions. With the legislative request the planners are able to create sustainable demands to developers, to the extend that the law authorise.
- **Technical knowledge** that includes professional knowledge of sustainable development and of sustainable urban solutions. This knowledge is the basis for communicating the desires and pressures of the sustainable urban planning practice institution.
- **Dialogue- and communication tools** refers to the instruments defined by the municipality in creating a common perception and goal of the sustainable urban development, that is both represented in for instance the sustainability tools and check-lists.
- **Innovation** which is linked to creating innovative solutions that are multi-functional in practice and thereby are able to create more value.

Other than the physical and tangible elements of the sustainable urban planner tool-box, there is a value based dimension that needs to be highlighted. The planner's values, towards securing sustainable development in urban planning, should be a natural procedure of their job and role as an urban planner, which is why the urban planner must have these considerations as a part of their DNA, as Anne mentioned.

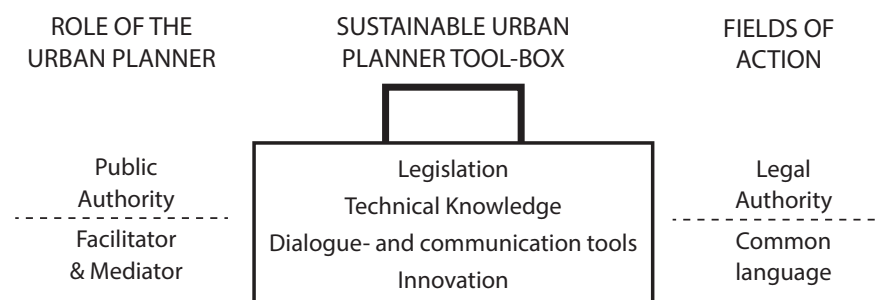


Figure 12.1: The sustainable urban planner tool-box and its relation to the role of the urban planner as well as the courses of action.

Other than the tool-box elements, figure 12.1 also represent the tool-box' relation to the role of the urban planner, on the left side hand. This tool-box can also be understood as a point of departure in coupling the role of the urban planner and the former discussed tasks that the urban planner must facilitate in creating sustainable urban development. The different tools relate to the different highlighted roles of the urban planner: the public authority role and the facilitator role. This research acknowledge that there are other roles of the urban planner, however, these are the most present in this case. The public authority role is argued as present in relation to legislation and in the technical knowledge. On the other hand the facilitator and mediator role is argued as present in the elements of facilitating dialogue as well as creating innovative multi-functional solutions in practice. On the other hand the tool-box is also linked to the fields of action. Where the legislation and knowledge are linked to the legal authority resource and the technical resources. The dialogue, sustainability tools, and innovation are linked to the common language that the planners are able to use as a course of action to secure sustainable urban development.

## 12.4 Sub-Conclusion: Urban Planners Securing Sustainable Urban Development

There are multiple roles for the urban planner in securing sustainable urban development in today's society. These relate to different tasks for the urban planner, defined through the urban planners' stories:

- Communicate information about sustainable urban development
- Enforce legal restrictions and municipal requirements
- Foster dialogue to secure a common language and a frame of reference
- Delegate professional competences
- Include and secure the public interest and transparency

This research argue, with point of departure in the planners stories and the theoretical perspectives, that the role of the urban planner has, and is still changing, from a being mainly the public authority role to becoming a more facilitating and mediating role. It is however argued that both roles are crucial in relation to secure sustainable urban development, because they support each other. The authority and facilitator role are both important because they are able to secure agreements, both formal and informal, and requirements of different kinds and levels in the process. The planners also have an identity and a social world which is represented in their role of advocating for a sustainable urban future. They do not only have to obey the legal framework. They also constitute their own practice, in which the facilitation of the good planning process, which serves the pressures of creating it on a sustainable foundation. It is a resource demanding and complex process, to manoeuvre between the different courses of actions in securing sustainable development, with developers that have different understandings and world views.

It is argued that in order to plan for sustainable development the urban planner needs different tools in practice to secure actual agreements and sustainable solutions. These are exemplified and illustrated by a general tool-box, created with point of departure in the stories of the urban planners. The needed tool-box include legislation, technical knowledge, dialogue and communication tools, and innovation in creating multi-functional solutions which can benefit multiple actors. Further is it important for the planner to have an approach in which sustainable development values are naturally implemented in planning processes. These elements are resources for the planners to use when navigating the courses of action, through which they can secure sustainability initiatives in urban planning.



# 13 Tensions of Operationalising Sustainable Urban Development

Urban planners are situated in a tension of operationalising the theory and ideal of sustainability and sustainable development, in their urban planning practice. This chapter will discuss this issue, with point of departure in the results of the analysis as well as new inputs from literature and current debates.

Through the stories of the planners three tensions in operationalising development were identified, 1) The tension of working within current ill-equipped institutions, as seen through the current debate of sustainability, to which the stories of the planners can contribute. 2) The tension in the work of the planners, with different interests, agendas and sustainability initiatives. 3) The tension related to the communicative turn in planning, with focus on dialogue as course of action in sustainable urban development planning.

## Strained and Ill-equipped Institutions

From the introduction (see part I) and the literature review (see section 3) it was apparent that sustainable urban development planning practice has been a subject of debate and research. Already in the 1980s did The Brundtland Report highlight institutions as ill-equipped to cope with ideals of sustainable development. This issue was again emphasised in 2016, by Loorbach and Wittmayer, showing that this problem is not yet solved:

*"In spite of decades of attention to sustainability, human development is locked into an inherently unsustainable pathway."* (Loorbach and Wittmayer, 2016, p. 4)

Loorbach and Wittmayer (2016) provide a critical perspective, stating that societal developments are locked in a pathway, which does not support sustainability ideals, but support development which is only less unsustainable. The issue of ill-equipped institutions was also experienced by the planners, in the design and redesign of sustainability tools, in operationalising sustainable development. The urban planners expressed the difficulty, in constructing a sustainable practice, is related to other institutions and discourses, not supporting the sustainable development agenda (e.g law and political).

The issue of unsustainability is underlined in a article, signed by 301 researchers from Denmark, criticising the Danish political agenda, stating that: *"the consideration of economic growth must give way for a more ambitious climate policy"* (Politiken, 2018, subtitle, own translation), if we are to achieve the climate goals from the Paris agreement.

The researchers are concerned about the unsustainable way of life, society, and political agenda, which was as well part of the planners' reflexivity in their operationalisation of sustainable development. Both from literature and the planners, the difficulty, which strains the operationalising of sustainability, thereby entails coupling the ideals and visionary goals of sustainability with current institutions and agendas, which are ill-equipped or unable to cope with the sustainable development ideals. This is especially important in planning, as the urban planners has to abide by political agendas as expressed through visions and legislation. However, these different agendas of either sustainability or economic growth are difficult to combine (Loorbach and Wittmayer, 2016; Politiken, 2018). What can be highlighted as an important perspective to this issue, as explained by the planners, is the issue of resources, as the literature exclaims is that economic growth should be put aside, and the stories of the planners as well suggested the importance of thinking of sustainability as an investment in the long-term perspective. As the planners explained, the sustainable development initiatives are not necessarily more expensive. This provides an important perspective in the debate between economic growth, sustainability, or both, as it gave a perspective to how development initiatives are prioritised, related to the tension of the work of planners in balancing and prioritising initiatives.

Through the planners' stories, the planners indicate the importance of working with both agendas: the sustainability ideal agenda, and the economic growth agenda, as the agendas does not always exclude one another. The 17 new sustainability goals from UN support this, highlighting sustainability and economic growth in connection as a task:

*"The 17 world goals of UN entail 169 subsidiary goals. The goals obligate the 193 member states of the UN to eliminate poverty and hunger, limit inequality, secure education and health, decent jobs and a sustainable economic growth"* (Ritzau, 2017, own translation)

Another perspective in the debate is provided by the Minister of Energy, Utilities, and Climate in Denmark, as an answer to the critical contribution made by the 301 researchers:

*"For the Government it is not about a choice between economic growth or an ambitious climate policy. Economic growth is a requisite to be able to prioritise an ambitious and green transition"* (Lars Christian Lilleholt in Ritzau, 2018, own translation)

An important perspective from this research, is a new perspective to the link between economic growth and sustainable development. The stories of the planners suggest that the two agendas does not have to exclude each other, that sustainability initiatives can be economically viable, and that it is thereby possible to secure sustainable economic growth through sustainability initiatives. Whereas the quote from Ritzau (2017) states economic growth as a prerequisite for being able to take sustainable initiatives, and thereby that sustainability should be secured through economic growth. To this the stories of the planners contribute to the debate of economic growth versus sustainability, with a new argument and course of action for prioritising sustainability initiatives to achieve sustainable economic growth.

With the perspective on working with different agendas, and combining these, the tension of operationalising the sustainability ideals again rises, as the tension must include work

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with this combination, prioritisation, or weighting of different concerns, defining for a given project, which are to take prominence.

The tension of translating and operationalising sustainability goals is thereby strained, made more complex, and difficult for the planners by the different pressures and agendas present in society. It is understood that planners, in their process of operationalising sustainable development, attempts to institutionalise a sustainable urban planning practice. However, to the operationalisation, Loorbach and Wittmayer (2016) provides a critical perspective:

*"We are still locked into an unsustainability pathway, even after three decades of research, policy, and debate seeking to define, operationalise, and implement sustainable development. It can therefore be argued that sustainable development in its current institutionalised forms has become part of sustaining systemic unsustainability."* (Loorbach and Wittmayer, 2016, p. 6)

This perspective can also be seen through the stories of the planners, as they themselves presented their sustainable urban development planning practices in terms of the difficulty in securing sustainability to the degree they desired. Especially from the planners in Copenhagen Municipality it as well became apparent that sustainable urban development planning was not an institutionalised uniform practice between the planners, as they sought to provide more uniformity i planning for sustainable development, as the planners themselves interpreted and worked differently with sustainability.

The tension of working within and with strained and ill-equipped institutions is illustrated with both the debate, and what the stories of the planners can contribute to in the debate. In this contribution it came evident that another tension is the work of the planner, especially with regards to balancing and prioritising different sustainability dimensions, initiatives, and agendas.

## Balancing Conflicting Interests

In balancing sustainability dimensions, and working with sustainability conflicts, the planners highlighted the difficulty in working with different understandings of sustainability. They do not only work with translating the sustainability concept into practice, but also into a common language and understanding in dialogue with e.g. developers or politicians, in which the planners described how it is their job to communicate how sustainability can be viable economically.

This complexity, in differing understandings, interpretations, and agendas pose a difficulty for the planners to unite sustainability with an economic growth agenda, is also highlighted by Loorbach and Wittmayer (2016):

*"Sustainability is too often considered as a separate domain of secondary policy concern, mainly because it is dominantly perceived in the realm of short-term economic calculus. Thus, its advance is perceived as very costly and uncertain. (...) Still, the transition perspective suggests that no matter the high costs and level of uncertainty, the costs of inaction are in the longer run always higher."* (Loorbach and Wittmayer, 2016, p. 6)

Loorbach and Wittmayer (2016) connects the issue of working with different sustainability understandings to the issue of working with uncertainty. Uncertainty was also underlined by Alexander (2005), as the reason for why institutional design and reflexivity is important, as it constitutes an approach to cope with uncertainty (see section 4.1). The institutional design is thereby underlined as a means to operationalise sustainability and sustainable development in planning practice, in accordance to struggling agendas in politics and society. As it is a struggle for the planners to combine the agendas, and not only accommodate the visionary goals of sustainability while working for economic development, both in the sense of general economic growth in society, and with regards to a developer concerned with the economy of a project.

The issue of balancing agendas, can be related to the notion of sustainability conflicts in planning, as described by Campbell (1996), who emphasise three conflicts in balancing economic-, social-, and environmental sustainability.

- *The property conflict* (balancing social and economic sustainability), relates to the planners tasks of securing economic growth and viable economic solutions, while attending to the public's needs and rights to the city. An example of this was highlighted by the urban planner in Odense Municipality, describing how they work in the conflict of wanting to secure urban spaces rather than letting developers use public parking spaces (highlighted in chapter 12).
- *The resource conflict* (balancing economic and environmental sustainability), relates to the planners work with communicating that sustainable solutions might also be economically viable, as well as it relates to the issues of the unsustainable welfare society in which consumption is still increasing.
- *The development conflict* (balancing the social and environmental sustainability), relates to securing the sustainability goals, of both the environmental dimensions and the social dimension at the same time, while struggling with an economic agenda. Campbell (1996) describes this conflict as the greatest conundrum, as he argues that solving this might be at the expense of the economic growth. An example of attempting to work with this is seen in the analysis, as the urban planners chase multi-functional solutions and synergies, which are both economically viable, contribute to the social-, and environmental sustainability.

By these highlighted conflicts the tensions of balancing sustainability initiatives can be understood. Knowledge from the planners' stories and the analyses as well suggests that this tension relates to issues of limited resources. An important aspect is seen as their tool-box, as this becomes especially crucial when the planners has to argue and communicate firstly sustainability as a concept, the balancing and prioritisation, and lastly the decisions made in the sustainable urban development planning process. This research as well showed the sustainability tools as an initiative to work in this tension, to provide a communication opportunity and help, as not only the conflicts between the sustainability dimensions are problematic in the work of the planner. It is not only about translating theory to practice, but about translating and communicating the concept of sustainability as well as the synergies and possibilities in the holistic approach to sustainable development. This point of communication with other actors in planning relates to the tension of dialogue versus legal authority as a course of action in sustainable urban development planning.

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## Dialogue as a Course of Action

The operationalisation of sustainable development is seen in relation to the development of sustainability tools with focus on creating dialogue. Looking beyond the visual tools and sustainability understanding, the tools represent values, which the planners relate to sustainable urban development planning. In this relation dialogue was emphasised by the planners stories, although they had different approaches to this. However, according to Næss (2001), dialogue cannot solve the problems of sustainable development, specific goals must be defined. The planners stories emphasise that dialogue is resource demanding, and that it is impossible to talk to everyone in an urban planning process.

The stories highlighted that the tools especially serve as instruments for facilitating dialogue, with developers, other experts, or invited groups of actors, in order to take action in relation to sustainable development. The sustainability dialogue tools represent the need for collaboration and coordination amongst different actors, because sustainable development, which is a broad and comprehensive ideal, requires a wide range of knowledge and professions in order to be achieved.

With the development and emphasis on dialogue tools, the planners emphasised an inclusive planning process. They highlighted that decisions of sustainability often takes place at an early stage of the urban planning process. However, in relation the planners explained that it in this phase is difficult for the citizens to attend. As described by the planner from Odense, it is difficult to manage citizen participation from a blank paper. This issue can be seen in terms of democracy and thereby becomes crucial. Democracy and inclusion of citizens serves as one of the basis elements in the Danish planning system (The Ministry of Environment, 2007). If the citizens are not included, how can the planners secure the public interest i the urban planning. The planners, however, highlight the difficulty in including them in the technical and specialised processes. They should rather be included when they are able to relate to the process and at the more holistic general level. Here the planners point towards the importance of the graphic visualisation, games etc. to represent what they mean about the different sustainability values and dimensions.

The issue of understanding sustainability together with the lack of resources, raise the question of to which degree these good intentions of facilitating the good planning process from a communicative planning approach is even possible in practice. The planners stories underline that sustainable urban development planning processes are resource demanding and the lack of resources often results in sustainability being disregarded.

A crucial point is then, that the tools mainly work as a facilitator of the dialogue of sustainable development. Here a critical perspective can be highlighted, as the tools do not in itself solve the problems of unsustainability, only by creating dialogue. The dialogue is not legally binding, suggesting that the legal framework is as well important, while the dialogue is important in securing a common frame of reference and agreements, to secure that plan enactments are not loosely interpreted, as this was a highlighted scenario in the stories of the planners. The sustainability tools cannot solve the complex problems of the urban planning institution, but it can contribute to reduce the tension of uncertainty in the urban planning practice, by amongst else facilitate dialogue and broaden the holistic perspective, relating the tension of communication and dialogue, to that of the work of the planner in balancing different interests.

These issues are also a part of why the case municipalities are in a process of developing

and redesigning their sustainable urban planning practice. Copenhagen Municipality especially focus on creating a sustainability process closer to the existing practice, looking at ways to link it with the legal framework of planning, to secure that they can translate good intentions of sustainable development to enactments. The planners in Copenhagen Municipality are redesigning the tool to be closer connected to the internal practice. Thereby is there less emphasis on the sustainability tool as a tool to secure dialogue with external actors. Contrary to Copenhagen Municipality, Aalborg Municipality are in a process of developing a practice more based on the demands of the developers grounding their redesign of the Sustainability Flower. They are designing a process, emphasising the values of dialogue, as they are including a process dimension to their new sustainability tool. Odense Municipality are also reconsidering their approach to sustainable development. The stories from Odense Municipality highlighted both an internal and an external perspective. The urban planner emphasised the tool as an instrument for internal- and expert dialogue; while the professional emphasised the implementation of the UN goals to provide possibilities for international dialogue about sustainability.

The emphasis on values of democracy, inclusion, and dialogue is linked to the communicative turn in planning theory and practice (Healey, 1997). As the planners explained, they are going increasingly towards a role as a process facilitator, focusing on a process in line with the values and ideals of the communicative planning approach: dialogue, consensus, and agreements. However, what became apparent through the stories of the planners was the tensions in going towards this approach, while still using and depending on their legal authority. Thereby, the planners work with sustainable development in a tension between different approaches and courses of action in planning, in which they must balance between taking different roles, to both secure sustainability in plans, but also that enactments are interpreted as intended and going beyond what can be done through legal authority.

Considering the three tensions in relation, it must be acknowledged, that according to the planners stories, the urban planning practice institution is not fully supporting the ideal of sustainable development. It is an ongoing process to secure sustainable development as a general and continuous focus of every single planning issue and project.

In that way it is understood that the sustainable development is not yet institutionalised in the general urban planning practice to its full extend. Likewise, sustainable development is a long-term process and fight, as it is clear, that the planners see that there are good intentions in society and politics. The planners themselves, as well, have good intentions, however, they find it difficult to realise these good intentions, suggesting that there is a need for more political will, support, and legal opportunities for the urban planners to be able to utilise their legal authority.

The tools and the development of these, cannot solve the institutional, environmental, and societal problems by themselves. Institutions and organisations has to develop based on sustainable foundations and further societal developments have to evolve in order to implement and work with sustainable development as a natural ideal. However, the tools present an action in a direction towards a greater focus on sustainability in the urban planning practice, and indicates the values of dialogue and collaboration as important in planning for sustainable development, and developing the urban planning practice, as well as society in a direction of sustainable development.

## 14 Concluding Remarks

This research argues that urban planners are situated in tensions of operationalising the concept, theory, and ideals of sustainable development in a continuous process of being reflexive of societal developments, own experiences and observations, and thereby their own urban planning practice.

The institutional design of sustainable urban development is, amongst others, represented by sustainability tools developed by urban planners and professionals. The practice cases, Copenhagen-, Odense-, and Aalborg Municipality, show that the objectives of the sustainability tools seek to change the behaviour of the interpretation and understanding of sustainability to create a more broad and holistic understanding; to facilitate dialogue of sustainability in urban development processes; and to prioritise decisions in relation to consider both economic-, environmental-, and social dimensions. The subjects of the institutional design are graphic models and designed processes, of how they should be used and implemented in planning practice. These show that the concept of sustainability is interpreted differently.

A main lesson from exploring these three sustainability tools, is that the tools represent a way to legitimise decisions and processes and to develop a tangible sustainability understanding in relation to urban planning. The tools are working mainly as dialogue tools, taking point of departure in a structured dialogue to legitimise decisions, securing sustainable development initiatives in an urban planning context. This knowledge provides the basis and possibility for further exploration of the operationalisation of sustainable development through other institutional designs that seek to secure sustainable development, e.g. by creating dialogue to legitimise decisions. This could, as well as this research does, prepare the ground for planners learning from others' experiences and practice lessons of sustainability tools.

Across the practice cases, the urban planners' stories show that reflexivity of the urban planning practice as well as of societal developments are influencing the institutional redesigns of sustainable urban development planning practices. The pressure is reflected in the redesign of the sustainability tools in Copenhagen- and Aalborg Municipality, while Odense Municipality are reconsidering their approach to the tool. First of all, the reflexivity of the planners shows emphasis of the societal change in the understanding of sustainable development, from a technical narrow focus to a more holistic focus. This influences the planners' reflexivity of their own practice, leading to a greater focus on synergies and multi-functional solutions. The planners are reflexive of their practice, as they consider demands of certification and easy communication through e.g. measurable elements. Exemplified by Aalborg- and Odense Municipality implementing this in their

sustainability tool and practice. Further, the planners are reflexive of the societal reality and political support for sustainable development. Exemplified by the planners in Copenhagen Municipality, considering the legal framework, as they are in a process of connecting this to their sustainability tool, to utilise their legal authority. The redesign and operationalisation of sustainable development in urban planning practice, exemplified by the sustainability tools, is thereby both directed towards external factors and societal developments, as well as at own experiences in practice.

A main struggle of planning for sustainable urban development is that current institutions in society are not supporting the sustainable development ideal to its full extend. To accommodate this, the urban planners' reflexivity point at two possible approaches: 1) dialogue and 2) legal authority. Both are crucial in the process of transferring good intentions to secured sustainable development initiatives in urban planning, as dialogue does not secure sustainable action by itself, as well as possible legal enactments are too vague to secure the desired sustainable action. Research should thereby pay attention to the urban planners' legal authority role and course of action, as well as tools available in practice, in a search for a more comprehensive approach of how urban planners are able to secure sustainable development through the legislative frame.

The importance of the dialogue, found in this research, can further be explored in relation to how the sustainability considerations to a higher degree can be implemented at local level in collaboration with citizens, which the urban planners experience as a challenging task in practice. It thereby urges research to explore the limits of the sustainable urban planning fields, in relation to the boundaries for securing sustainable development in both the common language field and the legal authority field.

The position of the urban planners in the tension of operationalising, securing, and planning for sustainable development is argued to be an advocate and facilitator of sustainable development in urban planning practice.

Urban planners need to perform the tasks: communicate, inform, and spread the holistic understanding of sustainable development, while facilitating a good processes including dialogue, co-operation, and participation, to secure sustainable development. Taking point of departure in the ideal of sustainable development, the urban planners experience a change of the urban planner role in society. Understood in this thesis as going from mainly being a legal authority to also being a process facilitator. This change of focus is underlined by the development of dialogue tools, even though the legal authority is still highly important.

Taking into account the complex situation, in which the urban planner is situated, this research illustrates the tool-box of the sustainable urban development planner. It contains the elements that the urban planner is able to use in attempting to move from good intentions to sustainable outcomes.

The position of the urban planner in relation to securing sustainable development is essential, as they are understood as advocates with power to enforce and create the dialogue with actors and citizens about the sustainable development ideal. This lesson urge research to question how the power of the urban planner can be strengthened in relation to securing sustainable development in urban planning practice.

The urban planners are operationalising the sustainable development concept into their planning practice, through continuous redesign of their local sustainability tools, as well



as through their urban planning practice. The urban planners are further operationalising sustainable development by designing alternative institutions which emphasise the urban planners' values with point of departure in the communicative approach and dialogue. The sustainable development concept increasingly connects to complexities and uncertainty, which experiences by the urban planners, required that the urban planners work as the facilitator role as well as a legal authority. They however still struggle with the current institutions, not supporting sustainable development to its full extend, as well as being complex and difficult to utilise when situated in the tension of operationalising sustainable development.

Urban planners need to be continuous reflexive of societal developments, and of their own urban planning practice to develop a comprehensive sustainable urban development planning practice. Continuous institutional redesign is important in order to adapt the urban planning practice institution to the ideals of sustainable development. A main lesson from this research is thereby the knowledge of the discovered tensions in operationalising sustainable development between the planners as legal authority and facilitators. This research has prepared the ground for further exploration of the operationalisation, as it was seen that sustainable urban development planning practice is still not fully institutionalised, as it is in a continuous process of incremental change towards being more sustainable. A possibility for further research is the redesigned tools of Aalborg- and Copenhagen Municipality, and how these will be implemented in planning practice.

## 14.1 Reflections

This thesis has provided an insight into the operationalisation of sustainable urban planning practice, through sustainability focused tools. It is explored through local urban planners' stories, as they are understood as being reflexive of their own practice. On basis of continuous development of knowledge and insight in sustainable urban development, the urban planners are understood as developing new practices to accommodate their values in sustainable urban planning. The approach of this thesis provides a broad perspective to the urban planners' role in society and in securing sustainable urban development.

This research provides knowledge and perspectives which contributes to the identified gap in literature, of operationalising sustainable development in urban planning practice, which further can contribute to practice lessons for urban planners. This can contribute to new operationalisation of sustainable development, e.g. in other municipalities, or further development of existing sustainability tools.

The reflexive approach in this thesis provides the perspective, that the knowledge that society and the urban planners have currently, reflects the current planning practice and what is done in society in relation to sustainable development. Knowledge and thereby urban planning practice is constantly changing, as a result of the changing society. It will continue to change, as continuous reflexivity reflect the current situation: society develops and becomes more aware of the circumstances of the world. Reflexivity, as seen through urban planners' practice stories, provide insight to the understanding of contemporary issues at the local level perspective of facilitating and accommodating sustainable development. The research of this, provides knowledge of how urban planners' reflexivity is constrained by current institutions, which are ill-equipped to support

sustainable development. This presents a perspective on the importance for planners to develop their reflexive capacities, to be able to develop a sustainable urban development planning practice, although institutional constraints pose difficulties for the urban planners to be reflexive in the sense of taking action.

A reflexive approach in this thesis has, further, given the opportunity to explore how ideals and trends are being embedded in urban planning practice, as well as what roles and resources are available to the planners to influence the development of practice. Knowledge of how society and planners perceive sustainable development and how that is embedded in practice, contributes to both theory and practice of sustainable urban planning. Urban planning practice and research should pay attention to sustainable urban development and solutions, and research should, further, pay attention to the connection between the ideals of sustainable development, and how these can be applied in urban planning practice, in order to be achieved.

From this point, the next step of this thesis would be to explore the operationalisation of sustainable development in relation to the redesigned sustainability tools or other cases.

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