



# **The Urban Natural: Urban Sustainable Planning in Stockholm**

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**The Urban Natural**

**Urban Sustainable Planning in Stockholm**

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## **Acknowledgments**

When you are training to become an anthropologist, you know from the beginning that one day you will enter the field as an anthropologist yourself. This idea at first seems really far away. Until one day, the moment is there and you have to put to practice all those things that you have been studying. And, even though you studied all those years, you still have no idea what you will encounter in the field.

We were excited, hopeful, a little bit scared and, to be honest, quite cold, when we first arrived in Stockholm last February. Still, our fieldwork turned out to be a great experience, to which a lot of people have contributed.

First of all, we would like to thank everyone in Stockholm who has helped us with our research. Some of you merely told us who else to contact, or directed us to places where we could find other people who might be able to help us. Special thanks goes out to all of those mentioned in this thesis. Thank you for inviting us into your offices, homes, or favourite coffee shops and sharing your experiences, opinions and expertise with us. We appreciate your enthusiasm and energy in meeting us; it enriched our fieldwork and made it fun.

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## Introduction

As tropical forests degrade, species become extinct and the climate significantly fluctuates, taking responsibility for our natural environment and the need for human action are at the core of contemporary societal debates. Nature with her ecological resources and beauty holds up a mirror: one that calls for change. Human development patterns have to be altered, so that they evolve into patterns in which the environment is merged in decision-making (Hopwood et. al. 2005, 40). One of the places to encounter this is Hammarby Sjöstad. Located in the southeast of Stockholm, this urban area has undergone profound transformation with the aim of realising sustainable development. The modern apartment blocks stand out against the skyline of the Old Town. Throughout all seasons of the year, the parks and green spaces are extensively used. Fathers with babies, well-dressed mothers, giggling children, strolling elderly, and even residents from the surroundings areas enjoy the seashore on a sunny day. With attention for environmental sustainability, future city life in Hammarby is constructed. The area opens up possibilities for experimental urban transformation, and with success. The district in Sweden receives international attention and the urban sustainable model of the area is now adopted globally. Hammarby Sjöstad shows that the primary human settlement, the city, serves par excellence as a context for innovative sustainable development, and gives opportunities for a new pattern of urban transformation that is desperately needed in today's world. Or at least - that is how the city of Stockholm likes to market the neighbourhood. The sustainable profile of Hammarby Sjöstad is exported as an international example for urban sustainability, but how sustainable is it really? What exactly is 'urban sustainability' and how is this concept put to practice?

With our research we look at these kinds of critical questions and explore Hammarby Sjöstad as a place of urban sustainability, in which people live their daily lives and interact with their surroundings. In anthropology, there has been an interest in the manner in which humans make their place in the natural world, as well as how they interact with, affect and are affected by nature (Lyle 1999, 15). As the majority of the world population now resides in urban areas (Swyngedouw 2006, 106), the process of urbanisation takes a central position in the way humans make their place in the world. Global urban growth is seen as a problem and a threat to nature (Braun 2005, 638). The relationship between humans and nature is

transforming; enormous amounts of people move to urban areas, there is rising economic growth, and forces of globalisation put pressure on natural resources. The balance between humans and nature is therefore vulnerable: the natural world is subject to enormous pressure produced by social processes (Mansfield & Doyle 2016, 22).

Knowing that urbanisation is an ongoing process, we explore the city as a solution rather than a problem. By looking at the city as a place where the relation between society and nature is constantly transformed and negotiated, we reconsider and reconceptualise the city as a place where sustainable growth is a real option and instrument in battling climate change (Yanarella & Levine 2011, 15). We depart from the knowledge that humans are active in producing a favourable environment to live in (Swyngedouw 2006, 116). When talking about environmental issues, and especially tackling these issues, the notions and perceptions of humans regarding this subject are important, as these determine the way humans act in their (urban) environment (Atran and Medin 2008). Therefore, in our research we pay attention to these subjective, culturally grounded, definitions of for example 'nature'. Other than that, policies and design formed the main focus in this empirical research, as both aspects contribute to the production and shaping of the city in multiple ways.

Within the city, policies are of great influence, as they form a foundation for sustainable projects. Whereas global action to tackle environmental problems is usually difficult to realise, the city offers a scale at which ecological projects can be institutionalised in a coherent and concrete form (Yanarella and Levine 2011, 15). In Stockholm, it seems that this institutionalisation has already taken place to some extent. Still, environmental considerations are not the only aspect of modern city life that have to be taken up in policies. Therefore, during our fieldwork we also looked at the political, social and economic, market-driven intentions of the sustainable project of Hammarby Sjöstad.

The other aspect of our empirical research is concerned with urban design, as the creation of urban form plays an important role in realising urban sustainability. In Stockholm, urban planning starts in the political domain by the municipal urban planning department. Architects and designers then work with this foundation and creatively put political ideas to practice. Considering design as a tool and establisher of sustainability (Næss 2001, 507), it can be seen as a means of achieving environmental goals. Also in design, there are more aspects of city life that need to be considered than environmental aspects. The empirical

research looked at cultural, social and economic considerations that architects, landscape architects and other urban designers took into account when creating Hammarby Sjöstad.

The central question in our research focuses on how different aspects of sustainability - economic, environmental and social - were negotiated in the policies and design for Hammarby Sjöstad, as well as how the area is perceived and experienced by residents. We explore how both policies on urban planning, and urban design projects help to shape and intervene in the transformative urban environment, with the aim of realising a liveable, sustainable urban future. Whereas most research projects on urban growth in relation to the environment have focused on the explosion of megacities in the Global South (Rademacher 2015), we add to the existing literature and ethnographic studies on the matter, by looking at a relatively smaller city in Western Europe. We have identified a region which is generally praised for its good practices in terms of sustainability and seen as a global example in this domain; Stockholm, Sweden. As a growing percentage of the world population resides in cities, it is important to maintain and improve the conditions in the city for both humans and nature. Our research contributes to this societal debate by providing an in-depth exploration of the practices in this area. The central question we attempt to answer is the following:

**How are notions of sustainability negotiated in policies and urban design projects to realise urban transformation in Hammarby Sjöstad and how does this affect the way in which residents relate to their urban environment?**

This thesis is outlined as follows. First, we offer a theoretical foundation. We start by introducing the theoretical lens through which we approach our literature and gathered data. This 'Urban Political Ecology' (UPE) is outlined as a theory that shows the interconnectedness of the social and the natural world. In recognising the interconnectedness between both human and natural processes it is important to look at the relationship between humans and nature. This relationship is explored in the second paragraph, as this relationship determines how humans perceive and define 'nature' and 'the urban'. In both sections, the key theme is the need to overcome the dichotomy between the 'social' and the 'natural' that has dominated literature. We then provide a reconsideration of the city and argue that it can be perceived as an opportunity, rather than a problem for promoting sustainability. We have included a critical exploration of the

concept 'sustainability'. Next, we introduce urban sustainable planning as a practical example of sustainability in the city, in which policies and design are highlighted as the main tools for urban sustainable planning. In Chapter 3 we introduce you to our field site and provide the context of Hammarby Sjöstad, in which policies and design projects are focus points. Chapter 4 describes the policies that were in place during the planning project of Hammarby Sjöstad, and how these policies were the outcome of negotiating different demands of city planning projects, while taking into account environmental sustainability. It aims to give insight to environmental sustainability as part of a larger web of demands, among which political ambition, economic growth, and social city life. Chapter 5 then zooms in at the perception of and relationship to nature, experienced by residents, which underlie practices of sustainability. It then explores urban design as one of these sustainability practices and gives insight to design as a means to create environmental awareness and as a tool for establishing sustainability. Again, different dimensions of sustainability are considered in this chapter. Chapter 6 entails a discussion concerning the data we found and how the collected data relates to each other and our theories. We then conclude our thesis by answering our research question, and summarising main findings on behalf of the themes and concepts in our research.

### *Research methods*

For a period of 10 weeks, we conducted fieldwork and gathered data in Hammarby Sjöstad, using anthropological research methods. Methods are about choice (Bernard & Gravlee 2015, 1): a choice of which approach you take and why. In the research proposal we made prior to our fieldwork, we chose participant observation as our main method. However, when we arrived to our field site, we found that participant observation was difficult to apply. We had carefully considered our research population and field site and possibilities to engage in participant observation. When we got to the field, reality was that we could not enter any of these places or institutions, and some of them were not actively working in Hammarby Sjöstad anymore. Moreover, our research population did not exist of one community as is usually the case in classic anthropological studies, but of different, unconnected individuals who were all involved in or related to our field site. As Shore and Wright (2003, 11) state in their book on the anthropology of policy: 'it is no longer a question of studying a local community or 'a people'; rather, the anthropologist is seeking a



method for analysing connections between levels and forms of social process and action, and exploring how these processes work in different sites – local, national and global.’ We stand behind this approach and think we have succeeded in mapping how our informants, from the municipality and design bureaus to people living in Hammarby Sjöstad, are connected and have contributed to the urban transformation.

So we made a choice: to let go of the idea of participant observation and focus instead on other methods. Participant observation is only one of many qualitative methods (Bernard & Gravlee 2015, 2), and we decided to fully focus on interviewing. The majority of our data stems from 25 semi-structured interviews, in all of which our informants were aware of our research purposes and expressed informed consent. Two of these interviews were a ‘walking interview’, where the walk is led mainly by the informant, who leads the researcher to spots that he or she considers important (Clark and Emmel 2010, 2). Additional methods as mapping and photography played supporting roles in understanding our field site. Moreover, some informants gave us additional data, such as power point presentations, research reports about Stockholm and sustainability, or folders with political programs. In order to keep in touch with our field site, we kept visiting the neighbourhood frequently, spoke to people in the streets, planned our interviews in the area and attended any events we could. Though there was no possibility to engage in regular participant observation, we still actively tried to familiarise ourselves with the area and its people.

## **Chapter 1: Theoretical foundation**

### **Urban Political Ecology (Eefje)**

We would like to introduce a theoretical lens through which we observe both the rest of our literature, as well as interpret the majority of our collected data. The theoretical lens we employ throughout this thesis is that of urban political ecology (Swyngedouw 1996; Rademacher 2015; Braun 2005; Swyngedouw & Heynen 2003). In the last decades we have seen a trend of major urbanization in the world. Urban areas are often seen as the opposite of nature and studies of urbanisation have been characterized by a conceptual dichotomy between 'society' and 'nature' (Swyngedouw 2006; Rademacher 2015). Urbanisation has generally been considered a process of 'society' rather than nature. The theory of Urban Political Ecology (UPE) argues that we need to overcome this conceptual dichotomy and instead focus on the manner in which social and natural processes interact in shaping the environment. It brings us beyond simplistic notions of nature and society as polar opposites and provides us with a more open theoretical approach to urbanisation. As notions of sustainability dominate discourses in the political life of the city, as well as global debates about climate change and environmental issues (Braun 2005; Næss 2001; Brand 2007), it becomes clear just how much the notions of the 'urban' and the 'natural' are intertwined and can no longer be separated (Rademacher 2015, 145).

UPE aims to bring together political economy and ecology. This means that urbanisation is reconceptualised as a socionatural, rather than a solely social process (Angelo and Wachsmuth 2015, 18). Nature is seen as 'an equal biophysical actor' (Castree 2007, 283). Urban socionatural transformation entails the production and transformation of the environment, which is a result of multiple interconnected economic, political, social and ecological processes (Swyngedouw & Heynen 2003, 899). These processes set about socio-environmental change, which results in the production of 'new natures', or 'new urban and environmental conditions' (Swyngedouw & Heynen 2003, 900). This approach to the production of the environment is a constructivist one (Swyngedouw & Heynen 2003, 901; Brand 2007, 617): the environment, both social and natural, is thought to be constructed, which is bound to social and historical context. Human's perception of nature is produced both discursively and materially and so nature becomes inscribed with political power and cultural meaning (Swyngedouw & Heynen 2003, 904). Brand (2007, 617) argues that 'the

environment thus needs to be seen as an integral part of the process of systemic social change', which in current times is neoliberalism. This means that UPE critically looks at the social processes that work to transform and produce a favourable environment for human life, as these processes are characterised by and embedded in power-political patterns. The political concern in this theoretical framework focuses on the unequal ability to act and react to socio-natural transformations and the production of 'socio-environmental injustice' (Swyngedouw 2006, 118). The intertwining of society and nature in this manner brought forward a new way to frame urban environmental problems in a broader social and political context and led to a belief that environmental problems in the city should be addressed by transforming the socio-political order in the city (Angelo & Wachsmuth 2015, 19).

A concrete example of such a transformation within the socio-political order, we argue, is a global focus on 'sustainability' and 'sustainable development' (Yanarella and Levine 2011, 3; Næss 2001; Wheeler 2004). Social processes in highly and densely populated areas impact ecological processes in such a way that it is felt a necessity to control this impact of human processes. The socio-political order is thus (partly) transformed because a sense of responsibility for nature and natural degradation has come into the equation and sustainability seems to have been introduced as a way to take this responsibility (Hopwood et. al. 2005). It is important to bear in mind that sustainability is not a neutral concept, but rather an ambiguous, contested concept (Yanarella and Levine 2011, xx). The concept will be explored more in-depth in the section on urban sustainable planning.

As a critical note to UPE, Rademacher (2015) states that there has been too much focus on politics in UPE and not enough on lived human experience and local human relationships to both the city and nature. The socio-natural experience of life in urban environments involves citizen's ideas and perceptions of city life, citizenship and nature. Rademacher calls for ethnographic research in UPE, which can offer more complete accounts of why people undertake specific forms of action and to 'explore the social life of environmental knowledge, perception and problem definition in cities' (Rademacher 2015, 139).

Ethnographic urban political ecology opens up space to look at both the combination of social, political, economical and natural processes that underlie the socio-natural transformation, as well as how the people occupying the transforming spaces make sense of their surroundings and its transformation. This includes exploring culturally constructed

imaginaries of nature, ideas and knowledge about environmental change, forms of socio-political environmental action and changing conceptions of urban civility and citizenship (Rademacher 2015, 143).

### **Humans and nature (Britt)**

Urban political ecology concerns the socionatural processes that occur within cities, as we actively produce the urban environment we wish to live in. Socionatural processes inherently involve both human and natural processes, and it is therefore important to look at the relationship between humans and nature. We approach urban political ecology with a focus on the relation between human and nature, building on the idea that mankind has a long-lived experience with nature (Lyle 1999, 15).

Since human beings walk on this earth, they have cultivated, transformed, interacted with and learned from nature (Lyle 1999, 15). It is not surprising that nature has been one of the central concerns of study within anthropology. The nature-society dichotomy, in which society and nature were conceptualized as different and opposed entities (Descola & Pálsson 1996, 4; Braun 2005, 635), has been subject to debate in anthropology for many years. Nowadays the dualistic notion of nature versus society is seen as a hinder for understanding the relationship between humans and nature, as social and natural processes interact in shaping the environment (Rademacher 2015, 138; Mansfield & 2017, 22). In overcoming the dualist approach to nature-society, ecological relativism takes a leading position. This means local conceptions of the environment are important for understanding the way humans give meaning to their surroundings (Descola & Pálsson 1996, 4). This tells us how humans and nature relate, as local conceptions of nature are contextually informed.

By overcoming the dichotomy between nature and society, it is acknowledged that there exists a reciprocal relationship between humans and nature (Comberti et. al. 2015, 248; Geist & Galatowitsch 1999, 973; Rademacher 2015, 143). Therefore, we do not define nature as separate entity from human beings. Historically the construction of nature involved placing nature outside of the city. Rather, humans making their place in nature is a natural process in itself (Swyngedouw 2006, 109). For this reason, urbanisation could be perceived as a natural process. In our research we look at the relationship between humans and nature in the urban context. On the one hand, humans contribute to the maintenance and enhancement of nature and its systems by transforming and cultivating the surroundings,

and nature offers great benefits that fit human needs (Descola & Pálsson 1996, 3). On the other hand, humans cause deprivation of natural systems, resulting in for example climate change and natural degradation. In our research on urban sustainable planning we define the relationship between humans and nature in this reciprocal way since it provides a viewpoint that goes beyond the simplistic notion of the one-way relationship, that is often captured by people when they think of the relationship between humans and nature (Comberty et. al. 2015, 248). This is in line with the UPE viewpoint we take, which assumes that humans actively produce their socionatural environment.

When talking about the production of the urban environment, it is also important to look at what humans perceive to be nature and what not. A common mindset in contemporary times is that the world is characterised by human-led processes. This anthropocentric mindset stands for the fact that humans produce their urban environment according to their needs, in which nature, amongst others, fulfils physical and emotional human needs (Kellert et. al. 2011). Consequently, there is a growing concern in social debate on humanity's profound role in changing the environment (Mansfield & Doyle 2016, 22; Moore 2015, 515). This realisation of our impact on nature results in practices, perceptions, and ideas of nature in everyday, lived social life in the city (Rademacher 2015, 144). Concepts of nature and the urban, and the politics that attend them, take in core positions in this mindset (Rademacher 2015, 138). However, we agree with Colebrook (2012) that a critical stance towards the anthropocentric mindset is needed: our mindset will always be a human perspective on nature. Therefore, we will never be able to think *for* nature or *as* nature (Colebrook 2012, 187). In order to create an environment in which both humans and nature flourish, we have to be aware of our anthropocentric perspective on nature (Descola & Pálsson 1996, 3). This anthropocentric mindset in practice results in what Macnaghten & Urry (1995, 213) call 'consumerism organised around a culture of nature', or in other words the commodification of nature. As the consumption of goods and services lies at the structural basis of Western society, people develop into citizens with the right to consume (Macnaghten & Urry 1995, 213). One such consumer right is environmental right, which is linked to conceptions of nature as spectacle and recreational (Macnaghten & Urry 1995, 213). Hence, nature is turned into an artefact of consumer choice, whereby the cultural focus upon nature can be presented as presupposing a certain kind of consumerism (Macnaghten & Urry 1995, 213). We can thus shed a critical light on the anthropocentric mindset.

Next to the anthropocentric mindset, the creation of meaning plays an important role in shaping what humans perceive to be nature and what not, which in turn results in how they produce their urban environment. When embracing the interconnectedness between humans and nature, we embrace not only the world of anthropos but also that part of the world with which humans interact (Descola & Pálsson 1996, 4). This interaction with the rest of the world is a way for humans to create meaning as they actively engage with their surroundings (Djajadiningrat 2004, 286). In doing so, the surroundings become a carrier of meaning through sensory richness and action potential (Djajadiningrat 2004, 286). These meanings are produced by social processes, knowing that humans have the agency to undertake social and political action in order to shape their surroundings (Rademacher 2015, 142). In this way, nature can be seen as an aspect of the surroundings that becomes meaningful through the active production of the urban environment. This production of meaning in the city is visible in clear practices of humans trying to incorporate nature in their daily lives. A good example of incorporating nature in urban life is that of sustainable development. With future generations at the heart of attention, urban development has an innovative focus on sustainability. In this way, sustainability can be seen as a framework through which the human being interprets, shapes, manipulates and contests its surroundings (Djajadiningrat 2004, 286). Such a sustainable approach is a way of interacting with, and producing the urban environment. In doing so, humans go beyond the dichotomy between society and nature, as they incorporate and value nature in their surroundings.

### **Urban Sustainable Planning (Eefje)**

We would like to introduce urban sustainable planning as an example of a socionatural project central to UPE, which transforms the environment. In this paragraph, we provide a definition for the different concepts which make up urban sustainable planning. The first section conceptualises the 'urban', the second critically looks at the concept of 'sustainability' and we then provide a definition of urban sustainable planning.

Employing the theoretical lens of UPE, we theorize the city as a process of socio-ecological change and perceive the urban environment as a result of human and natural processes which aim to produce an environment that fits the needs of those inhabiting the city (Swyngedouw 2006, 116). To include the ethnographic focus Rademacher calls for, we argue that the city should be regarded as both this productive process, as well as a place (Wheeler

2004). Ongoing urbanisation has been perceived as a problem, as increasing urban growth puts pressure on natural resources and the cities surrounding areas, as well as impacts the global climate (Braun 2005, 638). Seeing the city as a socionatural process opens up space to think of the city as a vehicle for promoting sustainable development. As UPE talks about transforming the socio-political order to tackle environmental problems, we argue that the city is the most logical place to bring about durable change in the socio-political order. Instead of aiming at a global solution to environmental change, Yanarella and Levine (2011, 13) argue it is necessary to determine a minimal scale at which ecological balance seeking projects can become part of an ongoing process. It is at the scale of the city that sustainability can be 'institutionalised in a coherent and concrete form' (Yanarella and Levine 2011, 15).

As a critical note to this analytical focus on the city, we argue that it is essential to remain alert to the broader process in which the city is situated: that of global urbanisation. In that sense, the city is also the outcome of a process, and effects of processes within the city are not limited to the scale of the city (Angelo and Wachsmuth 2015, 21). In the context of global concerns about the environment it is important to keep this in mind, as climate change is not bound to any human-made scales or boundaries (Gustavson et. al. 2009, 59; Braun 2005).

In conceptualising the urban, it is important to also consider the city as a place, rather than only taking a processual approach (Wheeler 2004). Considering the city as a 'site of everyday practice provides valuable insights into the linkages of macro-processes with the texture and fabric of human experience' (Low 1996, 384). Anthropological research in the city as a place and field, where certain processes take place, rather than a process in itself, provides a scale at which to investigate local ideas, experiences, and political decision-making regarding nature and sustainable development.

Sustainability is a problematic term, as it has been used in so many different contexts and with many different meanings (Gregory et. al. 2011, 737; Yanarella and Levine 2011, xx). Sustainability is often defined by looking at three dimensions: the economic, the social and the environmental (Yanarella and Levine 2011, xxii; Ahern 2013, 1205; Gregory et. al. 2011, 738) This three-dimensional definition starts from the idea that taking care of the environment should not interfere with human interest and development, which lays bare

the inherent tension in the concept. Sustainability as a concept is a social construct made up to protect human needs: the anthropocentric mindset is clearly visible (Hopwood 2005, 39). This follows from the fact that two of the three dimensions are about optimising and maintaining economic and social sustainability – both human interests. Economic sustainability covers the idea of human development. The idea of sustainability recognises that former patterns of economic growth have created environmental degradation, and calls for a new pattern of development which merges ‘environment and economics in decision making’ (Hopwood et al 2005, 39). Though unlimited economic growth has caused the problem to which sustainability is supposed to offer a solution, the concept still puts a strong focus on economic development in capitalist system (Hopwood 2005, 40). Social sustainability encompasses two dimensions: social equity and sustainability of community (Dempsey et. al. 2011, 292). Environmental sustainability is mostly framed in terms of ‘the need to protect natural ecosystems and biological resources’ (Næss 2001, 506) and the need to prevent further damage to save natural processes ‘vital to human existence such as the ozone layer, photosynthesis or the water cycle’ (Hopwood et. al. 2005, 40). From the above, it follows that the promotion of environmental sustainability is an inherently political and social process (Swyngedouw 2006, 118).

Bearing in mind environmental sustainability in the efforts we make for social and economic sustainability and the recognition that natural processes are vital to human existence, are examples of a realisation of how social and natural processes impact each other and how different needs are negotiated. Though these negotiations are not necessarily in balance, sustainability defined in this three dimensional way overcomes the dichotomy between the social and the natural.

One of the efforts to realise sustainability in the urban context is urban sustainable planning. A definition of urban or regional planning is given by Gregory et. al. (2011, 783), stating that planning is ‘the design and institution of specific policies and laws to guide land-use in metropolitan areas (or sub-areas), usually by or at the direction of governments’. Rather than focusing only on policies, we argue, following Ahern (2013, 1204), that in the process of urban sustainable planning which has as its main objective the long-term health of human and ecological systems, design is another aspect that must be taken into consideration. Wheeler (2004, 69) argues that when the design of urban places reflects local climates and



ecosystems and materials for instance, environmental goals of sustainability will be met easier as it helps humans integrate with the local natural landscape and creates awareness. Næss (2001, 507) confirms this, saying that ‘to experience nature has also been pointed out as a pedagogical means to create environmental awareness.’ Bringing nature back into urban form via design is thus seen as a measure to increase environmental awareness, as well as an awareness of the relationship between humans and nature.

### **Policies in urban sustainable planning (Eefje)**

Swyngedouw (2006, 118) has defined the city as a product of different overlapping social, economic, political and environmental processes and argues that ‘any political project must, of necessity, also be an environmental project’. In our research we investigate policies concerning urban sustainable planning, as these policies are one of the means to produce an urban sustainable environment. What is important to recognize here is that local problems creating environmental problems do not stay local and essentially, environmental problems are global problems (Gustavson et. al. 2009, 61). Another crucial thing to recognize in the governing of climate change is that it is not only shaped by governmental institutions, but should be approached as a multi-actor and multi-level issue of governance, in which different actors and stake-holders in different positions work together to shape policies (Jordan 2008, 21; Gustavson et. al. 2009, 59; Bulkeley and Bistell 2013, 137). Rather than looking at urban policies aimed at increasing sustainable development in an isolated manner, we should pay attention to the political, social and economic processes on global, national and local scales that work to shape these urban policies, as well as the resonance of these urban policies on these scales (Bulkeley and Bestill 2013, 144; Næss 2001, 507).

The Brundtland Commission’s Report (1987) and the adoption of “Agenda 21” at the global climate change conference in Rio de Janeiro (1992) placed the implementation of sustainable development at the centre of the global policy making agenda (Jordan 2008, 18; Næss 2001, 503) and has ever since been a guideline in policy making at all levels of government. Environmental policy integration has at its normative core the prioritizing of environmental objectives (Jordan and Lenschow 2009, 8). The international basis for sustainable development guidelines has adopted no rigid definition of sustainable development, which allows national governments to interpret and translate the concept in ways suiting their own needs (Jordan and Lenschow 2009, 9).

If we focus on urban and regional levels of governance concerning sustainable development, we see that special attention was paid to the role of cities and municipalities in governing environmental change in the Brundtland Report and Agenda 21 as adopted at the Rio summit (Næss 2001, 503; Lafferty 2001). This has resulted in many countries in a local adoption of Agenda 21 (Lafferty 2001), in many of which the domain of urban sustainable planning was taken up. There has been much differentiation in how this was approached, conceptualised and implemented in urban regions across the world. Examples are the ideas of the 'compact city', the 'eco city', or the 'urban village' (Jabareen 2006, 48). For our research it is especially relevant to look at the city as a place in which these kind of political processes focussed on sustainability shape and transform the urban environment, as well as impact people's perceptions of sustainability and their changing urban setting.

### **Design in urban sustainable planning: connecting humans and nature (Britt)**

Besides policies, design plays a crucial role in urban sustainable planning and constructs the primary living space of human beings: the city. As humans interact with their human and non-human surroundings, they interpret, construct and value these. In the anthropology of design, the relationship between people and materials is important (Murphy 2015). The concept of materialities defines this interaction as the constitutive relationship between humans and the material world (Overholtzer & Robin 2015, 1). Since the natural world is part of the surroundings, nature is constantly interpreted and valued. As a result, the reciprocal relationship between humans and nature is one such relationship that is constituted. One of the ways in which the interaction between humans and materials is constituted is design. For our research purposes we define design as the complex and dynamic creative practices of designers. Furthermore, design encompasses aesthetic features such as patterns, geometries and shapes, that influence the users of designed space (Murphy 2015). Since we view the urban as a socionatural production, design is capable of mediating the inextricable relationship between humans and nature in the city. In mediating this socionatural world, there is a possibility of enhancing urban sustainability. An example is 'biophilic design', which stresses the necessity to maintain, enhance, and restore the beneficial experience of nature into the built environment (Kellert et. al. 2011; Beatley 2011, xv). Biophilic design is not about greening buildings or placing a shrub here and there, but about humanity's place in nature, and nature's place in society (Kellert et. al. 2011). This

form of design serves as an example of how the relationship between humans and nature is interwoven in and mediated by means of design.

As Tim Ingold stresses, design is a process and not an end point: it is about flexibility, foresight and imagination (Donovan & Gunn 2012, 1). Flexibility means we can be responsive to fluctuations in the environment. Foresight ensures we are able to be responsive to changing conditions. The flexible and responsive character of design make it a useful tool in establishing a sustainable urban form, as it shows awareness of the need to adapt to changing socionatural conditions. Imagination is about the interconnectedness between the dreams and imaginings of designers, and the practices of the users of space (Donovan & Gunn 2012, 2). Shaping meaning in the appearance of and interaction with physical objects is an essential task for designers (Djajadiningrat 2004, 287). An important aspect is to engage with the users of space. This means the designer imagines himself in the world of the user. By doing this, a closer relationship is built between the imaginations of the designer and that of the user (Donovan & Gunn 2012, 2). In our research we highly value the consideration within design for the actual users of design: people actively intervene and configure their material world (Donovan & Gunn 2012, 2). The emphasis on the users of space is really important in Swedish design, as designers pay attention to the interpretation, behaviour, and wishes of inhabitants of the city (Murphy 2015). Sustainable design as a creative practice is capable of mediating the inextricable relationship between humans and nature by paying attention to both social and environmental processes.

## **Hoofdstuk 2: Context (Britt)**

The district of Hammarby Sjöstad in Stockholm is an interesting place to encounter Swedish design and policies. Hammarby was intentionally created from a political objective (Iverot and Brandt 2011, 1045), in which environmental goals have determined the outcome of the urban area. The 'Hammarby Model' aims to integrate disconnected infrastructure systems into a closed-loop, by adopting a holistic approach in which there is attention for water management, recycling modes, energy efficient use and social sustainable uses of the city like fast traffic (Gaffney et. al. 2007, 10). Hammarby is constructed as an extension of the inner city of Stockholm, where residents can live in a sustainable urban environment (Iverot and Brandt 2011, 1051). We now give an overview of the existing policies and design projects in Sweden, and in particular Hammarby Sjöstad.

### **Existing policies regarding urban sustainable planning in Sweden (Eefje)**

Sweden has been and still is largely regarded as one of the pioneers in promoting overall sustainable development (Rowe and Fudge 2003, 128; Granberg and Elander 2007, 539; Eckerberg 2001, 15). It was the first country ever to establish national Environment Protection Agency in 1969 and ever since has been a frontrunner in establishing and implementing policies regarding protection of the environment (Granberg and Elander 2007, 539). Since the 90's, the Swedish government has paid heightened attention to the link between urbanisation and climate change, leading to a series of acts and policies on sustainable urban development in the municipalities (Rowe and Fudge 2003, 129; Eckerberg 2001, 17). What is central to the institutionalisation of environmentalism in Sweden is the relationship between the central government and the local municipality governments, which followed the general trend of decentralisation of government in Sweden (Rowe and Fudge 2003, 127; Granberg and Elander 2007, 539). The national government has formulated a perspective on sustainable development, and works to facilitate municipalities as much as possible in realising and improving sustainable growth (Persson 2013, 303). Rather than centralising policy making in this domain, the national government takes on a more guiding role. This is expressed in the Swedish Environmental Code, which calls upon different actors in society and promotes certain norms and values that should be upheld in the making and implementation of policies (Granberg and Elander 2007, 540). This leaves the municipalities

with both responsibility and the freedom to realise sustainable growth in their own, local and contextually shaped way (Granberg and Elander 2007, 540; Rowe and Fudge 2003). In addition to that, and specifically relevant to our research, there is no national formal institute to control spatial planning, which means that the domain of spatial planning is led principally by the municipalities (Persson 2013, 303). Every municipality has a comprehensive plan regarding sustainable spatial planning, which entails their own interpretation and operationalisation of the national idea of sustainability (Persson 2013, 303). In his comparison of the comprehensive plans of more than 50 Swedish municipalities, Persson has found that even though many of these plans do not make the effort to conceptualise the concept of sustainability, most of them share similar aspects concerning spatial planning that are thought to lead to sustainable development (Persson 2013, 311). The concept of sustainability thus seems to have been internalised in spatial planning projects (Persson 2013, 311).

The idea of constructing an environmentally sustainable city district in Stockholm was initially motivated by the wish to host the Olympic Games (Ying, Olsson and Håkansson 2015, 80; Mahzouni 2015, 291). Even though they did not end up hosting the Olympics, plans for the construction of Hammarby Sjöstad continued and it was seen as a 'pilot for experimenting with environmentally friendly planning and construction for residential areas' (Ying, Olsson and Håkansson 2015, 80). The Hammarby Sjöstad Environmental Program was a product of the cooperation between different city administrations for real estate, planning, environment and health protection, and public infrastructure companies of energy, water and waste recycling (Ying, Olsson and Håkansson 2015, 80; Mahzouni 2015, 291). Environmental issues were handled in the 'environmental program' and architectural issues in the 'quality program', which sometimes led to conflict as there were different ideas and interpretations of the objectives of the project (Mahzouni 2015, 296). The fact that the construction of the neighbourhood was a top-down political project by the city authorities in Stockholm meant that there was a modification of the plan almost every time there was a shift in political power, resulting in an inconsistent policy mix over time (Mahzouni 2015, 292). In addition to that, the top down approach meant that there were some conflicts between the aims of those who made the policies and those who had to implement these policies (Mahzouni 2015). This has recently led to the establishment of a bottom-up platform by the residents of Hammarby Sjöstad, meant to increase citizen participation and

correct past policy errors (Mahzouni 2015, 292). As there have been conflicts in the project as a result of the top-down approach, it is relevant in our research to look at the way in which policy makers of the city authorities, the planners, designers and the users of the space interacted and interpreted the environmental objectives as described in the policies.

### **Design in Sweden (Britt)**

Scandinavian design is well known for its simplicity and practicality. The use of materials as steel, wood and wool form the basic elements of Scandinavian design. Sweden takes a leading position in Scandinavian design and is highly positioned in the field of design in Europe (Metzger & Olsson 2013, 10). Typical for the Swedes is the concern for sustainable design. What makes Sweden stand out among other European countries, is that the Swedes get education in Scandinavian design history early in school, where they learn in detail about the contributions of key designers to modern Swedish culture (Murphy 2015). Besides this educational aspect, design awareness also seeps into the collective consciousness through direct interaction with the carefully planned intimate atmospheres in which daily life is lived (Murphy 2015). Home and workplaces are bright and open spaces that provide users with comfort and are created and decorated with sustainable materials (Murphy 2015). In Swedish design it is not about spaces that facilitate certain activities, rather it is about the people that inhabit and use these spaces (Murphy 2015). In this way, there is great attention for the aspect of social sustainability in design as well. Remarkable for Sweden is the influence that politics has on design (Iverot & Brandt 2011, 1051). As a series of policies regarding sustainable urban development are implemented (Rowe & Fudge 2003, 129), these have its influence on the design of urban areas. As a result, design is not considered socially and politically neutral but is described by citizens, scholars and critics as 'responsible', 'democratic' and 'ethical' (Murphy 2015). Because Swedish society knows a high morality when it comes to form and function of design, top-down institutional forces consciously manipulate the political valence of design (Murphy 2015). Just as the social democratic welfare state of Sweden is organized to take care of people, so is Swedish design supposed to 'take care' of its users (Murphy 2015). Design is an imaginative creative practice, in which there is attention for the users of space and the aesthetics of design. Common objects like furniture are seen as experience-near means to manage people's psychological, physical, and material well-being (Murphy 2015). In this way, a mechanism is created between

institutional (top-down) and interactional (bottom-up) forces. Swedish design is a politics of social life: a careful observation of the world as it is, and a commitment to transforming it for the better in a sustainable way (Iverot & Brandt 2011, 1051; Murphy 2015).

In Hammarby Sjöstad, these traditional Swedish values and aesthetics of design are visible. Careful thought is given to measurements of the streets, the size of the bricks, height of the buildings and the overall proportions of the area: all with the goal to promote social and environmental sustainability (Beatley 2011, xvi). The traditional city structure of Stockholm has been adopted and combined with a new architectural style that responds to its specific waterside context, promotes the best of contemporary sustainability technology and follows modern architectural principles of maximizing light and open view toward the water and green spaces (Gaffney et. al. 2007, 51).

#### **Chapter 4: Hammarby Sjöstad as a political project (Eefje)**

In his office in the *Tekniska Nämndhuset* – Technical Agency – in the centre of Stockholm, the manager of the Environmental and Health Department is just completing his story on the history of Hammarby Sjöstad, one of the first big urban planning projects undertaken by the City of Stockholm. Gunnar Söderholm tells me that all the executive departments of Stockholm Stad housed in this building are “working together here to create the most sustainable city in the world, to really be a frontline”. I know: I have been in this building before to visit informants from different departments – the receptionist makes the same joke every time I am waiting for one of them to pick me up.

I have already heard some parts the story Söderholm is telling me from my other informants. It was an old brown field industrial area, which was known as a part of Stockholm which might be better to avoid: “you wouldn’t want to take a walk there at night”, he says. When Stockholm made a bid to host the Olympic Games in 2004, the area was finally headed in a more positive direction – towards one of the first eco-districts in the world. From a deprived, degraded industrial area, to Stockholm’s first eco district and one of the most popular areas to live.

Hammarby Sjöstad is the result of an intensive urban development project which transformed the area. Urban transformation as described in UPE ascribes agency to both society and nature, meaning that urban transformation is not merely a result of human action, but a result of multiple interconnected economic, political, social and ecological processes (Swyngedouw & Heynen 2003, 899). The project to create a sustainable district in Stockholm was politically motivated and was initially meant to distinguish Stockholm from the other candidates in the race for hosting the Olympics in 2004. When they lost the bid, their efforts had already developed to such an extent that they felt it would be a shame to completely stop the project. Instead the new goal became to develop a residential area with a sustainable profile. These developments point to the political and economic motivations and processes that contributed to the urban transformation.

At the same time, the geographical location of Hammarby Sjöstad and its local natural surroundings and ecological processes partly shaped the eventual outcome of the new urban form. This is visible in the striking position of the lake in the middle of the area and the connection to local natural spaces such as the Nacka reserve. Hammarby Sjöstad thus



serves as an example of an intensive urban transformation as outlined in the theory of urban political ecology.

In our theoretical framework, we have identified three core aspects of sustainability, namely environmental, social and economic. During our fieldwork, I looked at how notions of sustainability are given shape by people working for the City of Stockholm, as well as for the people who are now residents in Hammarby Sjöstad. It is useful to know with which notions of sustainability the City is working, as they are in charge of the political and economic processes underpinning the urban transformative process. At the same time, I interviewed people who are now living in the area to see how they relate to their urban socio-natural surroundings and in what way they feel involved in the urban transformative process. In this chapter I will focus on both these groups of social agents and see how they shaped the socio-political urban planning project.

### **Environmental sustainability as a political project**

Urban political ecology critically looks at those who are in the capacity to make decisions meant to transform the urban environment (Swyngedouw 2006, 118). Martin Skillbäck tells me about the “unique position” Swedish municipalities have in city planning projects. Skillbäck was in charge of the project team which was put together for carrying out the planning project for Hammarby Sjöstad. The unique position he speaks of is the relative independence of the city in Sweden compared to many other European countries, as they have a “planning monopoly in a way, or at least very little restrictions from higher levels of governments, and they are able to finance their own projects”.

The project team consisted of representatives from different executive departments of Stockholm City. Björn Cederquist, the social planner in the project team, tells me this is not how city planning projects used to be carried out; it was a new method of working within the municipality. The project team made the initial plans for the neighbourhood and then moved on to involve other actors to help them optimise these plans. This meant that they worked together with local contractors, developers, water and energy companies, traffic experts and public transport companies and numerous architect firms. The planning process was characterised by intensive discussion, collaboration and negotiation, as all actors who were involved had different interests and ways of working. In addition, national Swedish legislation is important as it states that every urban planning process has to be an inclusive,

democratic process. Plans and policies therefore have to be communicated clearly to the public. Skillbäck jokingly calls this process a very “Swedish method – Sweden is very good at making everybody happy”. He talks about the endless discussions that sometimes preceded decision making on even the tiniest details. The planning process seems to have a democratic character, which is interesting since the political objective of urban political ecology is to enhance the democratic content of socioenvironmental construction (Swyngedouw & Heynen 2003, 914). If we approach urban planning as part of socioenvironmental construction, it seems that Sweden is making an effort to achieve as much democracy and transparency as possible. Still, as is continuously emphasised by numerous informants, the final decision is a political decision made by the City Council. The social planner of the project team, Björn Cederquist, summarises it clearly: “Yes it is quite democratic, but I mean the powers are completely different. If the city wants to do something and did not want to listen that is possible too.” In this case, it is thus the City of Stockholm who is in power of the urban planning project, which is one of the socio-political processes underpinning urban transformation. We can therefore approach Hammarby Sjöstad as a political project.

As noted in the theoretical section, ‘any political project must of necessity, also be an environmental project’ (Swyngedouw 2006, 118). This seems to be the case in Stockholm. Several informants mention how there is a political consensus on the need for sustainability. The explicit focus of the City of Stockholm on sustainability and innovation points to the integration of environmental and political objectives, and an institutionalisation of sustainability in a concrete form (Yanarella and Levine 2011, 15). Urban political ecology brings together political economy and ecology and explores how ecology is affected by decisions made in the political and economic realm, as well as how political and economical decisions are influenced or altered by the necessity to take into account ecological processes (Castree 2007, 283). In the case study of Hammarby Sjöstad, this becomes concrete. The fact that it is the City of Stockholm who was the main driver and decision-maker in the planning process means that there were several political considerations that motivated decision making. One of them was putting Stockholm on the international map and entering in a global competition to attract high-skilled, educated people. Related to the first stages of the project of Hammarby Sjöstad, Söderholm mentions:

“Well, we were creating the ‘Green Olympics’. And from that point – that was after the financial crisis in the early 1990’s - the City gathered around the very clear objective and the project that could get over the political middle from right to the left wings in the City. All to really put Stockholm on the map. And we did by the campaign for running for the Olympics. And from that point we developed the green areas and the eco district.”

The head of the Climate Unit of Stockholm City, Björn Hugosson, elaborates on the objective to put Sweden on the international radar through its environmental objectives. Hugosson tells me that the high ambitions on sustainable development and climate combat are a way of attracting people and businesses, but even more so, “it’s also like a brand, the Stockholm brand, our voice in the world. That is more of a political feeling, being something important.” There is a pressing need for the City to develop new residential areas, and they try to do this in the most sustainable way possible. The focus on environmental sustainability has to do with distinguishing Stockholm from other, similar cities in the West, by trying to create an environment that is ‘liveable’. Söderholm explains: “There is no proper Swedish word for *liveability*, but I think that is a key word for people where they want to live.”

This means that for the City of Stockholm, the environmental objectives were the main concern in the development project of Hammarby Sjöstad, as realising these objectives would help fulfil political aspirations. In the policies set up for the project for Hammarby Sjöstad the attention seems to have been mostly on the environmental aspect of sustainability, rather than social or economic sustainability. In practice, this meant focussing on bringing down carbon dioxide emission, reducing waste and creating sustainable energy provision. The most important and very specific aspect of the environmental policies for Hammarby Sjöstad appears to have been the set energy consumption goals – a topic which comes up in conversations with informants from the City, the project team and residents. Erling Magnusson was involved in the beginning of the project as a consultant, but eventually stayed on as the head of implementation in the project team. As Magnusson puts it, the “mantra” from the beginning of the project was “double as good”. This meant that the entire energy profile of the Hammarby Sjöstad neighbourhood was supposed to be double as good as the national standards for energy consumption, and in general double as good as what existed at the time. Again we see the competitive attitude of Stockholm City in its

sustainability efforts. This resulted in an initial set goal of 100 kwh/m<sup>2</sup>, which was at the time double as good as the national standard of the end of the 90's. To reach this target, certain regulations for heating systems, material use and insulation were taken up in the policies.

The cutting down of the energy consumption recurs in many conversations as the main point in the environmental policies. Malin Klavus, an urban planner who was involved in one of the later phases of the project, adds that the environmental program entailed more than just that:

“For Hammarby Sjöstad there were guidelines, for example how much outdoor space for every area should be per apartment and how big the gardens should be per apartment and how much daylight the common gardens should have per day. Those kinds of regulations. That was for what we called the environmental program.”

These kinds of details seem to be in place to add to the living experience of residents in the area, and all relate to their accessibility to perks of nature, such as sunlight and outdoor space. Such considerations in policy making are indicative of the manners in which the social and the natural encounter one another in urban spaces. The fact that these kinds of aspects are taken up in the *environmental* program clearly shows an anthropocentric mindset (Hopwood et. al. 2005, 39): humans produce their natural environment in such a way that they benefit from it on different levels, even if they frame it as a measure undertaken to help the environment.

At the same time there is great attention in Stockholm for the natural ecological processes at play in the region and they make careful efforts not to interfere with or damage these processes when they conduct development projects. There is an awareness of the impact these kinds of development projects have on local ecosystems and responsibility for this impact is taken in formulating regulations and guidelines. Klavus roughly translates one of the ideas as “let nature do the job”– meaning to interfere as little as possible. Gunnar Söderholm adds to this, saying that the City of Stockholm tries to leave existing green spaces intact, but if they are somehow forced to use green space, they “try to do as little damage as we could and to really carefully investigate if it's necessary to locate the new building in this green land”. The considerations of ecological processes by the City of Stockholm

demonstrate how nature figures as a biophysical actor, rather than merely a neutral ‘backdrop’, and how ‘nature can be shown to alter the workings and outcomes of neoliberal governance ideas, rules and mechanisms’ (Castree 2007, 283).

Still, also here the conversation takes a turn back to human interest, when Söderholm adds:

“And then if we do [use green space], we compensate that with some other qualities. There are a lot more green areas that is not used by everyone. For example after the big roads, you have a green grass areas, but no one is using them.”

Söderholm refers to green space as a “quality”; a quality for human living conditions. Moreover, he goes on about how green spaces need to have a multifunctional concept, in which it serves human needs, such as recreation and climate adaptation, and maintains local ecosystems and biodiversity at the same time. Here we encounter the mutual interdependence between humans and nature (Descola and Pálsson 1996) in a local urban space and how this relationship implicitly influences policy making.

The consensus within the City of Stockholm on the need to develop Stockholm in a sustainable matter indicates that the political project is simultaneously an environmental project and that there is considerable awareness of the impact of human productivity on natural processes. An anthropocentric mindset dominates the politico-environmental project, as sustainable development is used as a tool to distinguish Stockholm in the international field and environmental policy making is based more on human than ecological interests.

### **Economic ‘sustainability’ – milieu or market?**

Environmental policies should always be seen in relation to other policies established to meet other – political, social and economic - demands or motivations of city planning projects. Environmental policy integration has at its normative core the prioritising of environmental objectives (Jordan and Lenschow 2009, 8). In the project for Hammarby Sjostad, environmental objectives were also at the core. Still, the goals that were formulated at the start of the project were not all met.

The collaborative nature of the project means that many different interests and considerations had to be negotiated. The environmental objectives were made clear to

every actor in the beginning, but were subject to individual interpretation. Erling Magnusson tells me that the developers were well aware of the “double as good” environmental objective, but “had considerable freedom in how to do their own objects, their own projects”. The environmental objectives were written down as “guidelines” or “ambitions”, instead of a requirement in the agreements. This meant that developers or architect firms could, for example, prioritize their own profits, rather than invest to live up to the environmental guidelines laid out by the city. He explains it simply:

**“EM:** You have to build thicker walls, and more insulation, and you have to build recycling systems for the waste water and for the air, etc. And it costs money and it reduces the area you can sell. So it costs money to build systems for the waste water and for the air, etc. And it costs money and it reduces the area you can sell. So it costs money.

**Me:** It was too expensive for them to keep the environmental guidelines?

**EM:** Not too expensive, they wanted to have it as a profit instead. I think that’s the final truth. They thought more about their profit than this energy consumption.”

In addition to these kinds of private economical goals, there was also the consideration of the market; what do people want? This is manifested for example in the design of the apartments, which are modern looking and generally have very big windows. This is attractive for potential buyers, but does not aid the environmental objective.

The housing market in Stockholm is a regular competitive market of supply and demand; the developers supplied according to the demands of the market. Magnusson thinks that at the time the project started, demands were not yet pressing for environmental solutions, so the developers were not pushed commercially to change the way of constructing and designing. This does not mean that none of the developers felt committed to the environmental plans; it fluctuated per company. The enormous difference in energy consumption per building, which differed from 55 to 185 kwh/m<sup>2</sup> according to research conducted by the local citizen initiative, is one example of the fact that the environmental guidelines were adopted very differently by different developers and architect firms. Sustainability was in that sense still an individual choice, which differed per company, and was partly (de-)motivated by market concerns.

At the same time, even though the considerable freedom for the developers, designers and architects meant that the environmental guidelines were not adopted as seriously by some as by others, this freedom helped to achieve another city development goal: the idea to create an extension of the city centre. Martin Skillbäck explains that the idea behind this is that the process is meant to create urban areas, but not suburbs. If they work with only one developer or designer, they end up with suburban areas, where they have huge building blocks and a monotonous design. Instead, they work with various designers and developers, so that they create more variety in the landscape. This, they hope, gives more of a city centre kind of feeling. Aesthetic considerations to improve living quality and thereby improve attractiveness in the area played a role in the way the area and its buildings were designed, and sometimes compromised the environmental objectives.

In the theoretical framework, we have explored the concept of sustainability and its inherent tensions. The three pillars of sustainability, environmental, economical and social, in effect are still tied to the maintenance of economic growth (Gregory et. al. 2011, 738). Considerations of economic market dynamics cannot be ignored in sustainability projects. From the above one might conclude that economic considerations to some extent troubled the environmental objectives of the project, which could be seen as a negative result of pursuing environmental politics in a capitalist system (Hopwood et. al. 2005, 40) .

At the same time, the market is now working to improve the environmental profile of the area. When I ask Björn Hugosson about his opinion on the eventual outcome of Hammarby Sjöstad he answers:

“I think that it has become a trademark, for a sustainable district, which has become well-known. So I have tried to advocate here that we should really take care of this brand, the Hammarby brand, to receive all these study groups and experts who want to come here and see it – to exploit that, more really. [...] We noticed that if you are a sustainable city it’s easier to attract companies and professionals working here, because people, educated people, they want to live in a sustainable city. That is quite evident. So there is no contrast between sustainability and economic growth. It goes together.”

He mentions sustainability as one of the features that make people want to visit Stockholm, and Hammarby Sjöstad in particular. The fact that the Hammarby Sjöstad area has been such an international success thus makes for the continued efforts in the region to uphold and improve its status as an example of a sustainable city district. This is especially visible in the citizen initiative, to which I will return shortly. In that sense, the market incentives and opportunities work to improve sustainability. In mapping out different approaches to sustainable development, Hopwood et. al. (2005, 43) pay attention to the 'reform approach'. Those who take this approach assume that change in society is necessary to realise sustainability, but that this change can be realised over time within existing social and economic structures (Hopwood et. al. 2005, 43). An example is a focus on new technologies which can help in protecting the environment, and at the same time offer market opportunities for businesses (Hopwood et. al. 2005, 44). This seems to be exactly what is happening in Hammarby Sjöstad: the innovative sustainable model of the area attracts business and investments and is replicated, which helps to improve and sustain environmental sustainability. Here the capitalist system seems to work in favour, rather than against the objective of environmental sustainability.

### **Social sustainability - 'Hammarby Sjöstad: middle class hell'**

As we have seen, the environmental aspect of sustainability exposed the interconnectedness of socio-political and ecological processes, as described in UPE. The economic aspect of sustainability has demonstrated the ambiguous relationship between capitalist logic and sustainability. The third pillar of sustainability is social sustainability. Dempsey et. al. (2011, 292) define social equity and the sustainability of community as the overarching dimensions at the core of the notion of urban social sustainability. The dimension of social equity is also at the core of the theory of urban political ecology, which is concerned with socio-natural injustice (Swyngedouw 2006, 118).

Hammarby Sjöstad was supposed to be a mixed income neighbourhood; a place where people of all classes and places could settle and integrate. This is not at all how it turned out. One thing that is mentioned by several informants as a cause for this is the fact that the ratio of rental houses and bought houses was initially set to be 50/50, but in reality turned out as 30/70. It is explained by different informants as a result of a shift in the political majority from social democrats to the conservatives. Whatever the cause is – reality is that



Hammarby Sjöstad has become a very expensive area and is not at all accessible to people with lower incomes. Magnusson paints a vivid picture:

“I saw some graffiti there once, “Hammarby Sjöstad, middle class hell!!” or something like that. It has become very expensive indeed. I would say it is a market success; it is popular so the prices go up.”

Arian Mahzouni, a researcher who has conducted intensive research in the area, puts this into a more regional perspective: in all his time living in Stockholm, he has not encountered any neighbourhood with a social mix. Multiple informants explain to me that the social housing system in Sweden is quite different from the systems in other European countries and, as a result, social segregation is a real problem. The inaccessibility to the new neighbourhood is a problem that the City of Stockholm encounters in almost every new residential area. Björn Cederquist explains that there are national rules and legislations concerning which building materials to use and certain designs, that means prices in new areas automatically go up. Several residents point to current processes at play in the neighbourhood that maintain the socio-economic border that appears to be in place. Anna refers to Hammarby Sjöstad as some sort of a “gated community”. The people are rich people who do not want people from ‘outside’. Another resident, Lotta, echoes this sentiment:

“You know, most of the buildings in the area are owned, you buy them and they are really expensive. And they got even more expensive over the years. So there are people with a lot of money, who are acting like ‘no we don’t want *those* people in here’. Some blocks have even started to build gates to the inner yard [...].”

Social exclusion seems to prevent social equity and thereby the first conditional dimension of social sustainability is not fully met. Still, though the dimension of social equity has to do with accessibility, this does not only comprise of long-term, such as housing. It also captures accessibility to certain facilities in the neighbourhood and access to public green and recreational spaces (Dempsey et. al. 2011, 293). Anders Göransson, a local politician from the social-democrats, fills me in on these aspects of social sustainability. He tells me that in

the beginning, there was little attention for creating the necessary social meeting places and facilities for the public. The focus on environmental sustainability meant that other aspects of city life were not planned out in detail. At the same time, Göransson praises the way the city planners and designers handled the public and green spaces in the area, especially the lake – “the way that was planned made the water into everybody’s.”

The focus on social sustainability within these new neighbourhoods is not so much on creating a ‘mixed’ neighbourhood, but on creating equal access to facilities and spaces for all people within the area and making sure that the planned environment allows for social interaction. This leads us to the second dimension, sustainability of community, which is definitely in place in Hammarby Sjöstad. Sustainability of community relates to collective aspects of social life and is captured in five dimensions by Dempsey et. al. (2011, 294): social interaction/social networks in the community, participation in collective groups and networks in the community, community stability, pride/sense of place and safety and security.

The neighbourhood seems to display all of these five dimensions. Selene Samuelsson, a resident of the area for more than seven years, says she enjoys living here, partly because “it’s a small community, it is isolated, but not isolated.” The geographical location of Hammarby Sjöstad means that people living there are located on a small island, which adds to the closeness of the community and the sense of coming home. Again, this is an example of the interconnectedness of ecology and society. Selene tells me this also helps to keep the many local initiatives running; it is clear where the borders are and who is involved. In addition, people keep each other up to date and look after the area, whether this is on one of their closed Facebook groups or via one of the associations in the neighbourhood. When asked about motivations to move to Hammarby Sjöstad several people I spoke to mention reasons like “it is close to the city centre” and “it is a safe area to raise your children.” Another reason they mention is the fact that it is nice in this area because it is so close to nature; the big lake and the Nacka Reserve.

There thus seems to be a collective awareness and sense of place and community, which is also partly related to the idea of ‘living in an eco-district’. This strong social cohesion might add to the socio-economic border which is already in place, by creating a symbolic border. Dempsey et. al. (2011, 291) state there are negative dimensions of social cohesion, which surface when ‘communities become insular and exclusive in their membership.’ Accessibility

to the area, both in terms of actual physical access to housing, as well as joining into the community as an outsider seems to be quite difficult. In terms of socio-natural equity as taken up in UPE, these kinds of urban planning projects and the difficult accessibility to its physical and symbolic outcomes means that the socio-political order has not been transformed quite enough.

At the same time, the strong sustainability of community leads to a sense of pride, ownership and responsibility for the area and in this way contributes to the improvement of the environmental sustainable profile.

### **Sustainable sustainability: residents renewing the city**

The project of Hammarby Sjöstad started more than 20 years ago. This has some implications for the current measures of sustainability, as techniques have developed in the mean time and notions of sustainability have shifted. Anders Göransson mentions:

“There was a focus on building rather than sustain the sustainability, if you get my point. In a sense that you should build the city with a technique that is sustainable, but rather, when you build the area one key element - if you should have a full sustainability - is the fact that the sustainability should continue when you live here as well.”

Gunnar Söderholm reinforces this opinion, by stating that the City of Stockholm is very good at developing new areas, but “when the area is completed, they move on to the next project.” There seems to be a project bound view on these kinds of sustainable areas – once it is completed there is little attention to managing and improving the qualities of the neighbourhood. Söderholm even calls for a new City organisation “to maintain and continuously improve the qualities of residential district, that not any more is developing”. Göransson agrees: “You should continue to view this an environmental part of the town. Because if you are talking sustainability then you have to have a long term perspective, rather than shifting to every new area all the time.”

Since the City of Stockholm appears to have ‘let go’ of Hammarby Sjöstad, citizens have stepped in and started an initiative to keep improving and renewing their neighbourhood. It is quite clear that the City of Stockholm was the political motor behind the project of

Hammarby Sjöstad. Still, the governing of climate change is not necessarily only shaped by governmental institutions, but should be approached as a multi-actor and multi-level issue of governance, in which different actors and stake-holders in different positions work together to shape policies (Jordan 2008, 21; Gustavsson et. al. 2009, 59; Bulkeley and Bistell 2013, 137). Ethnographic urban political ecology includes exploring socio-political environmental action and changing conceptions of urban civility (Rademacher 2015, 143). Both of these phenomena are visible in Hammarby Sjöstad.

Though there seems to be a group of people to whom the sustainable profile of the neighbourhood is not so important, there is also a big group of residents who do care fundamentally about the sustainable character of the neighbourhood and engage in several efforts to uphold and improve this profile. A sense of ownership, engagement and entrepreneurship has resulted in efforts to renew the neighbourhood and still reach the set energy consumption goals. It started as a group of “ten people around a kitchen table discussing how things can be better”, one of the board members, Allan Larsson, explains. Now, they have grown into an economic association, working with the City authorities and major companies. The goal is to show how to translate the global Paris climate accord into a local, practical initiatives and implementation and to keep renewing the neighbourhood. As Larsson tells me, at first the City was not too keen to work with them:

“They see it as a criticism to what they have done. You come here and criticise what we are doing. We have built the best in the world, and you are not happy. You are just criticising it. I can understand it. If you have worked hard, and I am coming to say look you have failed on energy, 20 % too much! That is not nice to hear.”

But, they have turned around and have joined this initiative by becoming a partner – one of many. The association is supported by a number of partners, some of which renowned businesses, and is trying to “export Hammarby Sjöstad”, to make business of the area. In the end, Larsson concludes, sustainability seems to profit most from “a mix of top down and grassroots activities”.

The City is now happy to work with them and tries to support it, Hugosson, head of the Climate Unit of the City, states, but also to remain a balance. What is quite striking is the fact that this kind of citizen initiative is unique in Stockholm; there is nothing like it in any other

neighbourhood. Hugosson connects this to the identity of Hammarby Sjöstad as an eco-district:

“If you have an eco-district, it says something about... There is a certain pride among the citizens there, they are proud of their neighbourhood and want to do something special.”

The identity of people living in Hammarby Sjöstad is a recurring topic among my informants, both in conversations with City representatives and residents. The sustainable profile seems to have become an integrated part of the identity of people living in Hammarby Sjöstad. Residents have created a unique and very strong ownership of their area and are actively engaged in creating their urban living space. Living in an ‘eco-district’ seems to trigger a change in the conception of urban civility and citizenship, such as Rademacher (2015, 143) describes, to ‘a new and often exclusive definition of citizenship’.

## Chapter 5: Sustainable design

This chapter explores the role of design in an urban sustainable development project. In realising such a project, design is used as a tool and establisher of sustainability. Design is a way of actively producing the urban environment, and on the other hand offers a framework for investigating urban transformation. The relationship between humans and nature is our point of departure for looking at sustainable design in the city district of Hammarby.

As the metro takes a turn and glides down the main road, we enter a special part of Stockholm city. Residents of Hammarby Sjöstad are on their way to work, as the vague sun creeps through the clouds. With everyone wrapped in big scarves and crispy snow on the ground, a regular Swedish working day is about to start. We depart at the second stop and are welcomed by a strong Nordic wind. My informant Björn takes me on a walk to inform me on the design of the neighbourhood. After serving the municipality for 15 years as a social planner, Björn now dedicates his time to inform people about Hammarby and its sustainable model. While enjoying his retirement, he can be found in the area multiple times a week. He is responsible for presentations in the Glass House, a cubical glass building that serves as an information centre for promoting and stimulating sustainable Hammarby. Although Björn sarcastically mentions his 70-year old memory, he vividly explains about the design of the area. As we walk towards the water, he tells me: “Hammarby is the result of thinking about building; new ideas about design. It is a very special place with modern buildings. First the most romantic part of Hammarby was built: small villas on top of each other with green space in between. The waterfront and the green parks are all part of this design. Later in the project the area became denser and the buildings higher.”

The outcome of this design is based on a long process of urban planning, which reflects the goal to realise a sustainable living environment that encompasses all aspect of modern city life. With a ski slope around the corner, green parks, ferries, a shoreline, and the metro connection to the inner city, Hammarby has a lot to offer. Or as architect Tomas Saxgård says, “the area shows what life is about”: Hammarby Sjöstad is a place of pleasant and modern urban life.

## Perceiving and defining nature

We argue that ecological relativism is vital for understanding the perception that people have of nature, as local conceptions of nature inform us how humans and nature relate (Descola & Pálsson 1996, 4). The following explanation of architect Göran Engquist highlights his perception of nature. “I think water is nature, and water is all over the place. Then there is the Hammarbybacken, a hill where you can go skiing. Behind that hill there is a huge area called Nackareservatet, which is a forest. You have everything!”

As noted by Djajadiningrat (2004), interaction with the rest of the world is a way for humans to create meaning. As residents and designers actively shape and interpret their surroundings, the urban environment of Hammarby becomes a carrier of meaning. My informants point out that, since nature in Hammarby is all around and part of the surroundings, residents interact with nature daily while attending activities as going to work, playing sports or taking a walk. This shaping and interacting with nature results in different local, subjective meanings that are given to nature (Cronon 1996, 12). Then how do my informants define nature in Hammarby? As put beautifully to words by landscape architect and designer Gunilla Bandolin, “even if it is just a man-made park, people think and feel about it as nature, so it is always relative”. This relative aspect in perceiving nature has the result that both designers and residents define nature by using different labels, respectively *nature*, *real nature*, and *man-made nature*. These labels are based on the amount of human interference in the surroundings. In this way, informants refer to nature when talking about the sea-lake, bushes, sewages, green parks and trees in Hammarby. However, when compared to for example the Nacka Reserve, informants reformulate their definition of nature. This is where the relative perception of nature comes to light, as now the elements in Hammarby are seen as *nature*, whereas the Nacka Reserve is defined as *real nature*. Also within Hammarby, this relativity in the perception and definition of nature is visible. A designed park is by both residents as designers seen as *man-made nature*, whereas, as stated by resident Simon Egelius, “the sea-lake, the air and the sun” are seen as *real nature*. It thus becomes clear that different labels are given to nature, according to the meaning these different natures have for residents and designers in Hammarby. The more nature is touched by man, the less *real nature* it is. Dependent on the context in which nature is discussed, people revise and reformulate their definition of nature, which shows that meaning ascribed to nature is local and subjective, and thereby culturally constructed (Atran

& Medin 2008; Cronon 1996, 12).

### **Nature in the city**

As stated by Cronon (1996, 22), man is a biological being that is part of nature, and is inextricably tied to the ecological systems that sustain life. Bengt Isling, landscape architect for the Hammarby project, picks up on this by saying that “man is also part of nature, so there is no straight border between man and nature”. This shows that the dichotomy between nature and society is destabilised, and the reciprocal relationship between humans and nature is acknowledged (Comberti et. al. 2015, 248). This is opposed to placing nature outside of the city as was historically done (Swyngedouw 2006, 106). However, what happens when nature is drawn into the sphere of the city? In Hammarby, it becomes clear that the anthropocentric mindset takes in a core position in society, as both residents and architects state that nature offers benefits that fit human needs (Lyle 1999, 15; Descola & Pálsson 1996, 4; Kellert et. al. 2011). This mindset will always be a human perspective on nature (Colebrook 2012, 187), and results in the production of the urban environment as corresponding to human needs. Landscape architect Ingbritt Liljevisk refers to this by saying that a project like Hammarby is developed to fulfil human needs. Liljevisk explains: “This is city, not real nature. It is marked by the people who go there and determine what it looks like”. Also architect Tomas Saxgård highlights this human centred perspective as well:

“There are a lot of people who believe that Hammarby is in balance with nature. But this is not the case! Nature changes all the time. It never stands still, it moves. Could that be a balance?’ Humans manage nature, and this is important: we use nature in our own way.”

Residents state they physically and mentally benefit from natural features in their living space and “this is one of the main reasons for people to move to this part of Stockholm”, according to Göran Engquist. Engquist explains that by walking along the water, enjoying the trees and the parks, the presence of nature in the city is seen as needed for pleasant city life. He goes on by saying that leisure activities are highly valued in Hammarby, which corresponds to what Macnaghten and Urry (1995, 213) call ‘consumerism organised around a culture of nature’, or in other words the commodification of nature. As the consumption of



goods and services lies at the structural basis of Western society, people develop into citizens with the right to consume, among which the right to consume nature as spectacle and recreational (Macnaghten & Urry 1995, 213). The high value that is given to the consumerism of nature in Hammarby is proved by the fact that residents from other areas visit Hammarby to enjoy nature. It becomes clear that Hammarby is a project in which the reciprocal relationship between humans and nature is acknowledged (Comberti et. al. 2015, 248), and is put to practice in an urban development project. This is not to be mistaken that such a reciprocal relationship is in balance, as it is the anthropocentric mindset that dominates our actions (Colebrook 2012, 187), which results in the production of an urban environment that fits human needs.

Still, it is worthwhile to mention that there is awareness of the human impact on nature (Sörlin 2013, 6), that results in practices, perceptions, and ideas of nature in everyday, lived social life in the city (Rademacher 2015, 144). In interviews, both architects and residents showed their awareness on environmental issues as climate change and natural deprivation by bringing these topics to discussion on their own initiative, which proves that informants have attention for subjects concerning the human impact on nature. This in turn is visible in the project of Hammarby, as the sustainable design of the area shows residents that by transforming the surroundings, humans have the possibility to maintain and possibly even enhance nature (Descola & Pálsson, 1996, 4).

Now that is clear how, in the local context of Hammarby, nature is perceived, defined and drawn into the sphere of the city, it is valuable to consider how the social and the natural world are mediated by means of design.

### **Sustainable urban design**

#### *The production of nature in the city*

By adopting the theoretical viewpoint of urban political ecology we reconceptualise the process of urbanisation as a socionatural, rather than purely a social process (Angelo & Wachsmuth 2015, 18). This socionatural process aims at producing an environment that fits the need and interest of inhabitants of the city (Kellert et. al. 2011; Swyngedouw 2006, 116), which again highlights the anthropocentric mindset that dominates society (Rademacher 2015, 138). In this constructivist approach of the environment, both the social and the natural environment are constructed. Put differently, 'nature' is produced (Brand 2007, 628).

Since design is a way of actively producing the environment, design is a means of establishing the natural world in the city (Kellert et. al. 2011). This is visible in the project of Hammarby, as the natural world is incorporated in the design of the area. As said by Ingbritt Liljevisk, landscape architect:

“I do not think there is much *real nature* here. There is a big ski-hill, but it is made from city pieces. All the nature in Hammarby was rolled out from a roll. It is as if you can buy nature and you can roll it out. So this is city, not really nature. We *created a man-made nature*: we created something that was not there before.”

This reveals that although architects and designers use natural sources and elements, they view their work as an aspect of the urban. Nature is produced, as nature is created as something that was not there before. The fact that architects and designers see their work as man-made, created and produced, shows that nature is part of the production of the urban environment (Castree 2007, 238; Brand 2007, 628).

As said by Mats Egelius, architect of White, “I pay attention to the people who are going to live in my creation”. Egelius reveals that in the practice of design, the anthropocentric mindset dominates (Sörlin 2013, 6). All of the interviewed architects note that their design is mostly focused on humans. This means that Hammarby is created according to human interests, in which nature fulfils physical and emotional needs in city life (Kellert et. al. 2011). In this way, design transforms the production of nature into a process based on exchange values (Ekers & Loftus 2012, 236). By incorporating the natural world in the environment of the city, nature gives value to the lives of the residents by maintaining, enhancing, and restoring the beneficial experience of nature into the built environment (Kellert et. al. 2011). Ingbritt Liljevisk explains this value of nature by the “green places and parks” that contribute to the living experience of the residents and transform the urban area into a nice living environment. Thus, the production of exchange values in Hammarby beholds that, stemming from an anthropocentric mindset, nature gives value to society that corresponds to human needs and interests. Nature in this way becomes a commodity and a marketable value of Hammarby. On the basis of exchange values (Smith 2010, 49), design is an important practice through which the socionatural world is produced.

### *Sustainable design in Hammarby*

In attending a walking tour with social planner Björn Cederquist, a lot of valuable information came to light. While pointing to the different styles of the apartments, Cederquist explains:

“When we started implementing buildings in 2001, they were already quite modernistic in style compared to the inner city. The later apartment blocks are even more modernistic: less decoration, straight corners and straight walls. Not only the design changed, but also the ratio of green. Later built apartment blocks are higher and denser, with small green areas.”

This outcome reflects the process of design, as Hammarby was divided in 14 districts that were all created by different architects and developers. The result is that none of the apartments blocks look the same. As Sweden takes a leading position in Scandinavian design and is highly positioned in the field of design in Europe (Metzger & Olsson 2013, 10), the project of Hammarby was expected to be an innovative one with attention for quality. Architect Tomas Saxgård says that the head planner of the project assigned all involved architects to create the most modern designs in Hammarby. This was stimulated by organizing study trips to cities as Amsterdam, Berlin and Paris with city planners, architects and developers. Nowadays, the modern look of Hammarby with its high, concrete buildings stands out against the skyline of the Old City of Stockholm. Saxgård mentions that, although Hammarby is drastically modernistic in style, the inner city of Stockholm was of importance in deciding what values to implement in the design to assure residential interest. This combination of inner city values with modern design caused endless democratic discussion and negotiation, as “no party had freedom of decision”, recalls architect Göran Lundquist. All details of the design were discussed, ranging from the size and the height of the apartments to the colour and the materials. The best plans were assembled and made final in a Detailed Plan. It becomes clear that, as Swedish society knows a high morality when it comes to form and function of design, top-down institutional forces consciously manipulate the political valence of design (Murphy 2015). In this way a mechanism is created between institutional top-down and interactional bottom-up forces. Now the creative practice of design started: architects and designers had the freedom to draw in their own way, keeping in mind the

goal of the municipality to realise an urban sustainable living environment. In achieving this goal there was attention for the three different dimensions of sustainability, respectively the environmental, social and economical. Below follows a detailed understanding of these three dimensions and their interrelated characters by elaborating on the design of Hammarby.

As a sense of responsibility for nature and natural degradation is felt (Hopwood et. al. 2005, 38), the environmental dimension of sustainability is introduced as a way to take this responsibility. Chan and Lee (2008, 357) argue that sustainable development objectives can be achieved effectively by means of urban design. For the project of Hammarby it becomes clear that sustainable design, with a focus on environmental aspects, is capable of constituting the relationship between humans and nature. Design is used as a tool to establish sustainability, whereby designed space is realised in which there are few other options than to adopt environmental-friendly ways of living. The waste-recycling system serves as the most prominent example. By the position and design of the waste bins, residents are obliged to separate their waste and take care of it in a sustainable way. Every category of waste, 'organic', 'plastic' and 'paper' has its own tube and allows only small garbage bags, with the result that waste cannot be thrown away all together. The tubes are located near all apartment blocks, and are one of the main sustainable features to present to international delegations that visit Hammarby. Another example is the bio-gas bus that drives around the whole area. Most roads in Hammarby are only meant for the bus and the metro, with the aim of reducing the use of cars. For the residents that drive a car, electrical poles are placed in the area to promote electrical cars. However, as noted by Donovan and Gunn (2012), people actively intervene and configure their material world. We see that the behaviour of the residents in Hammarby, to a certain extent, stems from the interaction with the designed sustainable environment. Regardless, as noted by resident Göran Engquist, "in the end you yourself decide if you throw away your waste in one big pile, or you separate it and contribute to the area". This reveals how the design of Hammarby is only partly capable of ensuring environmentally sustainable behaviour, as residents actively interact, configure and intervene the surrounding environment.

Besides that design is used as a tool to encourage and realise urban sustainable city life, to experience nature has also been pointed out as a pedagogical means to create

environmental awareness (Næss 2011, 507). As meaning is shaped in interaction with physical objects, this is an essential task for designers (Djajadiningrat 2004, 287). Since the natural world is part of the surroundings and is constantly interpreted and valued (Overholtzer & Robin 2015, 1), the reciprocal relationship between humans and nature is one such relationship that is constituted. Bringing nature back into urban form by means of design is thus seen as a measure to increase environmental awareness, as well as an awareness of the relationship between humans and nature (Næss, 2001, 507). In the project of Hammarby, this was done by making sustainability visible. In the interview with landscape architect Tomas Saxgård, this came to light. Saxgård gave an explanation of the water channel in the Green Belt, a rectangular park in the heart of Hammarby.

“The channel was to take care of the water from the roofs, streets and surroundings. The main focus was to create a system for transporting surface water. We had to show people: how do you take care of water? How do you transport the water from the channel to the lake? Instead of taking it down with pipes, it was about showing how the water was taken care of. We used nature and natural processes for cleaning the water: we made it visible.”

According to architect Göran Lundquist, this stems from the perception that design is a way to make residents conscious and aware of sustainable ways of living. All different steps in the process of water filtering are shown in order to create environmental awareness among residents. Lundquist says this in turn leads to “a more responsible feeling towards their own behaviour”. It becomes clear that design in Hammarby is highly concerned with the environmental dimension of sustainability, in which there is a need to establish sustainable city life and create environmental awareness through direct interaction with the urban environment. It is important to bear in mind, as residents of Hammarby actively interpret and configure their surroundings, design is only partly capable of ensuring sustainable behaviour and mediating the relationship between humans and nature.

The second dimension of sustainability, the social, had considerable impact on the design of Hammarby. As argued by Dempsey et. al. (2011), social sustainability is a wide-ranging multi-dimensional concept, with the underlying question: ‘what are the social goals of

sustainable development?’ In Swedish design it is not about spaces that facilitate certain activities, rather it is about the people that inhabit these spaces (Murphy 2015). Here the social dimension of sustainability comes to light, as design is seen as an experience-near means to manage people’s psychological, physical, and material well-being (Murphy 2015). The attention for social sustainability in design is revealed by Gunilla Bandolin. Bandolin created an outstanding designer piece: a round, wooden sculpture that extends in the sea-lake of Hammarby. Her work is internationally known and my informants point to her sculpture and the surrounding reed as the most beautiful place in the area. Bandolin clarifies:

“I absolutely try to make my design a place of contact between people. I want people to have the choice to be in contact with other people or not. This is why I choose a round shape, so you can sit and relax while you enjoy the water and the sun, without seeing other people. I want people to use my design”.

This shows that architects and designers want their work to be a place of encounters and experiences (Donovan & Gunn 2012, 4), whereby the interaction with design is an experience-near means of managing people’s well-being (Murphy 2015).

As stressed by Donovan and Gunn (2012, 1), design is about imagination: the interconnectedness between the dreams and imaginings of designers, and the practices of the users of space. Gunilla Bandolin says that “in the creative process of designing, imagining yourself in the world of your own creation is incredibly important for the outcome of the work”. By approaching design in this way, the outcome fits the needs and expectations of the residents. As humans have the need to affiliate with nature, this human need expresses itself in the design of buildings, landscapes, neighbourhoods and cities (Kellert et. al. 2011). This also became clear from the designer piece of Bandolin: “I designed it so you can really feel the sea when standing on my design, enjoy a sunny day and feel relaxed looking at the water”. This highlights that the design of Hammarby is based on the perception that people should be able to mentally and physically enjoy nature. The built form of Hammarby adopted the traditional city structure of Stockholm combined with a new architectural style (Gaffney et. al. 2007). This style responds to the specific waterside context of Hammarby, promotes the best of sustainability technology and follows modern architectural principles

of maximizing light, open view toward the water and green spaces (Gaffney et. al. 2007, 51). In interviews, architects and designers point out that maximal physical and emotional connection to the natural elements in Hammarby was of most importance in their work. This was managed by bringing the social and natural world together by using the water, the sun and the air as main inspiration for the design. Architect Mats Egelius further explains this during a walking tour. Apartments blocks are designed with a big opening in the middle of, which allows an open view toward the water. The result is that residents are able to enjoy maximum hours of sunlight and at the same time experience a spacious feeling. As became clear in interviews, residents were mostly drawn to Hammarby because the area offers 'good city life'. Architect Ingbritt Liljevisk says: "The people of Hammarby think it is cool to live there. That was the task really, to make it modern and attractive. Now the 'cool citizen' lives here". What attracts residents to Hammarby can be explained by its "close location to the inner city, while having the feeling of being outside of the city", as said by resident Simon Egelius. Hammarby offers a modern lifestyle, where there are good facilities and travelling time to the rest of the city and to work is short.

It becomes clear that the social dimension of sustainability is taken into account in the design of the area: residents of Hammarby and their experience of urban space is a profound interest in the design of the area, which has the aim of facilitating psychological, physical and material well-being.

The last dimension of sustainability, the economic, was decisive in the design of Hammarby, as houses with a good view and lots of sunlight appeal to buyers and renters. As pointed out by Hopwood (2005, 40), unlimited economic growth has caused environmental problems to which sustainability is supposed to offer a solution. Despite, we see that the concept of sustainability is highly concerned with the economic dimension, which can be traced to our capitalist system (Hopwood 2005, 40). Considerations in urban design are often based on sustaining the local economy (Chan & Lee 2008, 358). This capitalist approach to sustainable development is clearly visible in the Hammarby project. Keeping in mind the environmental and social dimensions of sustainability, it seems desirable to incorporate lots of green spaces and parks in the area. Regardless, architect Guillermo Stecchino highlights that this is of little interest to the developers and the municipality: they are keen on earning their

investments back and make profit. This is realised by making sure the area is occupied by a certain amount of apartments to ensure profit. Stecchino continues:

“The project of Hammarby is presented beautifully, but sustainability is not the starting point. This is market-driven development, focused on making the highest profit and on earning money. There is too much market pressure. In the figures it all looks good and we can call ourselves the forerunners in sustainability. In practice: the system starts to show more and more cracks because of market pressure.”

The critical stance of Stecchino is justified, as the project of Hammarby uses sustainability as a marketing-tool with the goal to gain high profits. By promoting Hammarby as a forerunner in sustainability, representing modern city life, international prestige is obtained. It goes without saying that this drives up the costs of the project, with the result that the area knows an interesting residential profile: inhabitants are wealthy, well-educated, middle-class citizens who are able to afford living in Hammarby. After all, it seems like the economic dimension has the consequence that only the wealthy of society are able to live a sustainable and modern city life; Hammarby has become a segregated area.

Architect Ingbritt Liljevisk points to another interesting fact. She explains that by adding sustainable elements to the design of the apartments, sustainability goals are easily met, without apartments actually being environmentally friendly. The logic behind this comes from the fact that building sustainably is more expensive and thus more of an investment for the developers and the municipality. Moreover, the national system that is used to calculate the sustainability ratio is easily undermined. The result is that apartments can be non-sustainable, yet by adding solar panels or the like, enough sustainability points are obtained according to the national counting system. The above highlights the dual intentions of the Hammarby project, whereby the environmental dimension of sustainability is partly diminished by the economical dimension of market-oriented goals and international prestige. Although it is recognised that former economic growth has caused environmental problems, the continuation of economic growth still has major effect in sustainable development (Chan & Lee 2008, 357).

It becomes clear how design simultaneously meets the environmental, social and economic dimensions of sustainability (Chan & Lee 2008, 357). In the project of Hammarby, the three



different dimensions of sustainability interrelate and form an understanding of sustainability and how this is represented in the design of Hammarby. The project is clearly based on presenting sustainability as a lifestyle, in which residents are encouraged to adopt more environmentally friendly behaviour. This sustainability goal is encouraged by means of design, by bringing the social and natural world together in the city district of Hammarby. As shown, economic interest of gaining profit and achieving international prestige play a decisive role in the design of the area. Although architects, the municipality and residents all agree that living sustainable and developing a sustainable city is vital for pleasant city life and the future, it depends on the individual if to act sustainable or not.

## Chapter 6: Discussion and Conclusion

In our introduction we have attempted to introduce the societal need to look at the issue at hand; more and more people are living in urban areas, and urban areas continue to grow and develop (Swyngedouw 2016, 106). This puts pressure on natural resources. As urbanisation is an ongoing process, there is a necessity to drastically change the way this process takes place by taking into account the way the natural environment is impacted (Braun 2005, 637). As an example of an urban area where this change has already taken place to some extent, we have introduced our field site: Hammarby Sjöstad, a residential district in the southeast of Stockholm. This extension of the city centre of Stockholm was built with the idea to be one of the most environmentally sustainable city districts in the world (Gaffney et. al. 2007).

Lately, there has been a realisation of the impact human processes have on natural processes, and vice versa (Hopwood et. al 2005, 39). We have used the theory of urban political ecology to overcome the dichotomy between humans and nature that is often perpetuated, as this theory starts from the assumption that the environment is a result of multiple interconnected productive processes: economic, political, social and ecological (Swyngedouw & Heynen 2003, 899). Therefore environmental problems are also a socio-political issue. By altering the human-led processes, responsibility is taken for how these processes negatively impact the natural environment (Hopwood et. al. 2005, 39). Local perceptions of nature and natural problems greatly influence how this responsibility is given content and put to practice (Rademacher 2015, 145). Sustainable development is an example of such a practice (Hopwood et. al. 2005).

In our research, we have looked at how the policies and design used for the development of Hammarby Sjöstad have dealt with sustainability issues. We approached both policies and design projects as two aspects which are part of the human-led processes that help produce the socionatural environment. Though both sub-aspects of our research might appear far apart, they relate to each other quite closely; they are mutually interdependent. Designers had to follow certain policies and guidelines laid out by the municipality, while the municipality had to trust the designers to put their ideas to practice and create an attractive, sustainable and dynamic residential area. In addition, we included the residents of the area

to provide a more bottom-up, lived experience perspective on the area. Sustainability is one way humans have taken responsibility for the impact we have on the natural environment. The understanding and interpretation of this concept depends on local perceptions of nature, the relationship between humans and nature and natural problems. This is why these perceptions have taken up a central role in the chapter on sustainable design.

### **Main findings**

We have identified similar trends in our data, related to how different notions of sustainability are interpreted, valued, and negotiated in the process of this urban planning project. We start with presenting our gathered data on perceptions of nature and nature in the city, and use this as a starting point for discussing the way sustainability is handled in Stockholm.

As meaning of nature is culturally constructed (Atran & Medin 2008), local and subjective perceptions and definitions help us conceptualise what people in Hammarby understand by the term nature. Though the way individuals describe their relationship to nature differs, it becomes clear that all our informants relate to nature. This relatedness is described by the feeling that man is also part of nature and there is no straight border between humans and nature. Cronon (1996, 22) also sees humans as biological beings that are part of nature, and are inextricably linked to the ecological systems that sustain life. In that sense nature fulfils basic human needs and interests (Kellert et. al. 2011).

Based on the meaning that nature has for people in Hammarby, different labels are given to nature. There is not one single definition of nature: a distinction is made between nature, real nature and man-made nature. These different labels for different 'natures' show that the experience of nature is all relative. Dependent on the context in which nature is discussed, people in Hammarby revise and reformulate their definition of nature.

What becomes clear from the perceptions and labels people give to nature, is an anthropocentric viewpoint toward nature. Nature is seen as something from which humans benefit, as it fulfils physical and emotional human needs (Kellert et. al. 2011). From our interviews within both research groups it follows that a relationship to nature and a recognition of the value of nature in human life underpins the cultural construction of nature. Recognizing the cultural construction of nature is important, as the meaning that is

ascribed to these natures results in practices towards, and shaping of, the socionatural world (Atran & Medin 2008).

Practices related to the shaping of the socionatural environment are linked to these perceptions of nature (Rademacher 2015, 145). From our data we can conclude that there is a general impression that these practices ought to be sustainable, and we here focus on the practice of sustainable urban development. This practice is thus partly related to the perception of nature as something to which people feel related and value in their immediate environment, and something of which we should take care.

Within the municipality of Stockholm, there is a general consensus that sustainability is a key feature in developing the city. This practice is also adopted by architects and designers by incorporating more sustainable ways and forms of urban design. However, we can see the inherent tension in the concept 'sustainability' (Hopwood et. al. 2005, 40), and its three dimensions: environmental, social and economic.

In Hammarby Sjöstad, the environmental aspect of sustainability was key to the sustainable profile. The focus was mainly on cutting down energy consumptions, dealing with waste and recycling, and discouraging private transport by focusing on a strong public transport network (Gaffney et. al. 2007, 15). These environmental objectives were documented in the environmental profile, with a general aim to be 'twice as good' as any other city in Sweden. As a result, the main focus in designing Hammarby was to make sustainability visible. Here we see the relationship between our two research population groups and how our data sets interact. The design of the area partly determines how nature is experienced, and this experience is seen as a pedagogical means to create environmental awareness (Naess 2001, 507). In addition, design can be seen as an establisher of sustainability. This is visible in the fact that the area is created in such a way that it is easy for residents to apply relatively environmentally friendly ways of living.

However, the intention of the design is not always equal to the way residents actually use the designed space. Though the design of the area had the intention of promoting and realising sustainable city life, we see that this only applies to certain aspects of life. As people interact with and interpret their urban environment themselves, they use designed space on behalf of their own interpretation (Donovan and Gunn 2012, 69). It follows that design is only partly able to predict the behaviour of the residents in Hammarby.

Of the above becomes clear that both of our datasets reveal there was a major concern for the environmental goals and environmental awareness: these goals were stated by the municipality and had its influence on the creative practice of designing and the outcome of the Hammarby area. The ambitious goals stated in the environmental program were communicated to all involved parties, but they were not achieved. This we believe is a result of the manner in which the different dimensions of sustainability were negotiated. As environmental sustainability is only one of the three aspects of sustainability (Gregory et. al. 2011, 738), environmental considerations should always be seen in relation to other demands of sustainable city planning projects. The anthropocentric mindset in sustainability (Hopwood et. al. 2005, 39) here comes to the surface: environmental goals of Hammarby Sjöstad were partly diminished because of socio-economic human interests. Our data shows a difference concerning the implementation and putting to practice of the environmental goals. Whereas for the municipality this was imagined as a non-negotiable aspect of the project, designers shaped their creations according to their own interpretations. This is partly a result of the fact that the municipality failed to document these goals as requirements, but instead took them up as ambitions and guidelines in the agreements they made with implementers. This made the environmental part of the sustainable profile subject to negotiation.

Part of the environmental guidelines formulated by the city was attention for the ratio of outdoor space to apartments, the amount of daylight entering apartments and access to public spaces such as the lake and parks. Additionally, we see that the incorporation of 'real nature' inspired design in Hammarby Sjöstad. This focus stems from the considerable attention for human experience and benefits of nature in the direct surroundings (Murphy 2015). The incorporation of this value in the environmental program formulated by the City at once shows the anthropocentric mindset that dominates the production of the urban and natural environment (Descola & Pálsson 1996), and the intrinsic relationship between humans and nature (Comberti et. al. 2015, 248).

The focus on liveability and human experience of the neighbourhood brings us to the second dimension of sustainability: social sustainability. We see that both of our data overlaps when it comes to social sustainability: for both architects and designers, and the municipality, making Hammarby a socially sustainable place was a main point. Architects and

designers strive to make their work a place of encounters and experiences, whereby the interaction with design is a way of achieving this. For the municipality, social sustainability is also a key feature in urban planning. This means providing meeting places and enabling social interaction within neighbourhoods. For this, the municipality greatly relies on designers and (landscape) architects. In our research, we followed the definition of Dempsey et. al. (2011) in which the core aspects of social sustainability are sustainability of community and social equity.

There is a strong sustainability of community in Hammarby Sjöstad. Designers have created the area in such a way that it promotes social interaction and an overall pleasant experience of the area that adds to the well-being of the residents. The community of Hammarby Sjöstad displays a sense of place, and pride of this place, and appears to have incorporated the sustainable profile of the neighbourhood into their local identities. The incorporation of the sustainable profile in the community's sense of common identity, suggests the formation of specific ideas of urban civility related to environmental issues (Rademacher 2015, 145). In the case of Hammarby Sjöstad, this also seems to be leading to 'new and often exclusive definitions of citizenship' (Rademacher 2015, 145).

This brings us to the second core aspect of social sustainability, social equity. Hammarby Sjöstad has become a residential area which is inaccessible to people from lower income classes. The costs of new urban planning projects mean that the final prices for long-term access to the area go up. It looks as if these kinds of expensive planning projects add to the unequal social geography in the city, where only part of the population has access to certain neighbourhoods that advocate sustainability and closeness to nature. In terms of social equity, which in UPE is defined as urban socionatural justice (Swyngedouw 2006, 118), the socio-political order in Stockholm has not transformed enough.

The last dimension of sustainability is the economic dimension. There is an ambiguous relationship between economy and sustainability and there are different approaches to the idea of sustainable development (Hopwood et. al. 2005). Some say the existing economic structures have to be altered in order to be sustainable, others say a change can be engendered within the existing economic structures (Hopwood et. al. 2005) In Hammarby Sjöstad, we see how the existing market structures both work against and in favour of the realisation of environmental sustainability.

Economic interests are visible in the design of Hammarby, as houses with a good view and lots of sunlight are attractive for buyers and renters. Certain houses were designed to maximise living experience without taking into account environmental aspects, by for example creating big windows. Additionally, the incorporation of green places and parks adds to the attractiveness of the area. Still, in the end much space in the area was taken up by new apartments as a means to earn back investments made by the city and developers. In general, it looks like at times economic considerations weighed more important than the environmental objectives. The relative freedom for designers and developers as a result of the 'guiding' rather than 'requiring' character of the environmental regulations, led to different interpretations of these environmental guidelines: some architects and developers chose to enhance their profit rather than invest to realise the suggested energy consumption goals. Following from the above, one could argue that the existing economic structures upholds environmental problems, because they are not concerned enough with environmental sustainability (Hopwood et. al. 2005, 45).

At the same time, the environmental profile of Hammarby Sjöstad is used to distinguish Stockholm from other cities by marketing its liveability. Stockholm aspires to be a frontrunner in the domain of sustainable city planning, which results in formulating a 'brand' for Stockholm and attracting educated workers. Also, in the local citizen initiative, residents are trying to cleverly use the market in order to achieve the energy consumption goals and renew the area. They are trying to make a model example of their neighbourhood which they can 'export' and try to work with different major businesses to sustain and improve the sustainable character of their area. Here we can see another approach (Hopwood et. al. 2005, 43), in which the existing economic structures are aiding the environmental sustainability objectives by making a profitable market of the innovative technological model of Hammarby Sjöstad.

The ambiguous relationship between economics and sustainability can be seen clearly in Hammarby Sjöstad. From both our data sets it follows that economic considerations played an important part in certain decisions that were made in the project, sometimes at the expense of environmental considerations. At the same time, the market now promotes environmental sustainability.

In this discussion, we have demonstrated in what way our two data sets overlap and where differences can be found. In addition, we have shown how these data sets relate to central theoretical notions in our research. Though we believe that we have made a useful contribution to existing research on urban sustainability, we recognise several limitations to our research.

Our central theory, urban political ecology, looks at multiple interconnected economic, political, social and ecological processes (Swyngedouw & Heynen 2003, 899). In our research, we focused on only two projects constitutive of these larger processes, policy making and urban designing. As a result of our relatively short time in the field, we were not able to look more closely at other projects or processes at play in our field site. Further research might include more projects and processes interacting at a similar scale.

Moreover, for further research it might be interesting to look at how people who do not have access to eco-districts such as Hammarby Sjöstad, act and react to socio-natural transformations. In our research, we have only been able to represent residents living in Hammarby Sjöstad and explore the concepts of social equity and socio-natural justice from the perspective of those in a relatively privileged position. The way people see and relate to nature, their urban environment and issues of sustainability is contextually informed and it would therefore be interesting to see how people in marginalised city districts experience these topics, in order to further explore 'socio-natural injustice' as described in UPE (Swyngedouw 2006, 118).

## **Conclusion**

In this conclusion, we turn to the central question of our research: How are notions of sustainability negotiated in policies and urban design projects to realise urban transformation in Hammarby Sjöstad and how does this affect the way in which residents relate to their urban environment?

We approached this question by looking at the relationship between humans and nature. We see that different definitions are given to nature, based on the meaning that is attached to these 'natures' (Cronon 1996, 12). These ascribed meanings and definitions in turn result in practices and ideas of nature in the city (Rademacher 2015, 145). A realisation of people's relationship to nature, in combination with a realisation of the impact people have on natural processes informs practices in Stockholm, resulting in a focus on sustainability.



We have categorised the different dimensions of sustainability as environmental, social and economic (Gregory et. al 2011, 738). Environmental sustainability was the main aspect of the sustainable profile of Hammarby Sjöstad, which was set up with the intention to be one of the 'greenest' residential areas in the world and a leading example when it comes to sustainable urban planning. For this, policies were set up which comprised of certain energy consumption goals, material use, and handling of waste and recycling. The design of the area was intended to be a facilitator and establisher of this environmental sustainability, and served as a pedagogical means to create environmental awareness (Næss 2001, 507). However, in urban planning projects, the eventual outcome of the project must be a high quality residential area. This means that environmental sustainability could not be the only aspect taken into consideration in constructing the neighbourhood. The social and economic aspects of sustainability were also important.

Social sustainability has at its core sustainability of community and social equity (Dempsey et. al. 2011, 292), and is involved with collective aspects of social life, such as social interaction and networks in the community. Attention for social sustainability is a key aspect of urban planning for the municipality, and designers incorporate this in their design. Sustainability of community is strong in Hammarby Sjöstad. The community is characterised by a strong social cohesion and this has led to a sense of pride, ownership and responsibility for the area. The way residents relate to their environment has been affected by the sustainable profile of the area, as people have incorporated the sustainable profile into their local identities, leading to a new form of urban civility (Rademacher 2015, 145). Social sustainability played an important role in negotiating different needs for the area, as it was intended to attract a diverse residential profile. Despite, the outcome of the project revealed that Hammarby developed into a segregated area. The area is only accessible to the wealthier part of the population of Stockholm, so in terms of social equity the planning project has not fully succeeded. The expensiveness of the area has been explained by some informants as a result of the market success. The economic exclusion is reinforced by the difficulty in entering the community of Hammarby Sjöstad, which has become rather exclusive in membership.

Lastly, the economic dimension of sustainability ensures that consideration of environmental aspects does not interfere with economic development (Gregory et. al. 2011, 738). In the project of Hammarby Sjöstad, this was most visible in the need to earn back

investments that were made in the project and facilitate the needs of consumers in the city. In practice, this resulted in high quality, well selling apartments that are not necessarily environmentally friendly, and the development of more and more apartment blocks. In this process, environmental objectives were at times overlooked or considered less important. At the same time, the commodification and exportation of Hammarby Sjöstad as an international example of urban sustainable planning has helped to improve environmental sustainability in the neighbourhood.

We approached our main question by looking at the relationship between humans and nature. This revealed that the relationship people experience with nature, and the value they attribute to nature as a part of life and in their direct surroundings (Descola & Pálsson 1996), partly informs their notions of sustainability. By this we mean that sustainable development is considered a necessity in order to relieve the natural world of the strains we have put on it so far. As nature is seen as vital for human life (Hopwood et. al. 2005, 40), it is important to maintain the relationship we have with it. Still, the anthropocentric mindset largely informs most of our action (Descola & Pálsson 1996). This means that taking care of nature should not interfere with social interaction and economic development. Therefore, our central theory of urban political ecology argues that environmental problems should be addressed by transforming the socio-political order in the city (Angelo and Wachsmuth 2015, 19). We explored the project of Hammarby Sjöstad, by looking at the role of policies and design projects in realising urban sustainability. Though the socio-political order in Stockholm has been transformed to some extent, existing political economic structures still result in both the prioritising of economic profit over environmental objectives, as well as socionatural injustice. The way in which the different notions of sustainability have been negotiated in the project of Hammarby Sjöstad show us that the anthropocentric mindset is still dominant and the socio-political order in Stockholm has not transformed to its fullest potential. Though the negotiations between the three different dimensions of sustainability were not completely in balance, the heightened attention to the environmental aspect in the project shows the beginning of a transformation of the socio-political order, in which responsibility for the natural environment has become institutionalised and normalised.

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