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FEKN90, Business Administration  
*Examensarbete på Civilekonomprogrammet*  
Spring 2014

## A Paradigm Shift in Sustainable City Development?

*- A Case Study of Curitiba and Malmö, and the Interaction Between  
Citizens and Institutions*

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## Foreword

We would like to express our sincere gratitude to everyone who helped us make this research possible. In particular, we would like to thank our supervisor, Matts Kärreman, for his invaluable support and precious pieces of advice. As well, we would like to thank Mr. Bernardo Gonçalves, Mr. José Milton Andriguetto Filho and Mr. Thomaz Ramalho for helping us getting into contact with focus group participants. We are also indebted to all students at the universities in Curitiba and Malmö for taking their time to participate during our interviews and contribute with their valuable opinions. We also want to thank all representatives from the institutions for helping us increase our understanding of their work within sustainability. Last but not least, we are extremely grateful to all our new friends in Curitiba for their hospitality. It has been a pleasure!

Thank you!

Lund, May 2014

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# Abstract

<b>Title</b>	A Paradigm Shift in Sustainable City Development? - A Case Study of Curitiba and Malmö, and the Interaction Between Citizens and Institutions.
<b>Seminar date</b>	2014-05-23.
<b>Course</b>	FEKN90 Masters Thesis in Science and Business Administration, 30 ECTS.
<b>Authors</b>	Märta Lagergren and Sandra Olsson.
<b>Supervisor</b>	Matts Kärreman.
<b>Key Words</b>	Sustainability, Sustainable City Development, Citizen Integration, Value Configuration, Malmö, Curitiba.
<b>Purpose</b>	Understand what role the interaction between citizens and institutions in sustainable cities plays and how value is created in sustainable city development.
<b>Methodology</b>	We have used a qualitative approach. We have conducted a multiple case study with semi-structured in-depth interviews and semi-structured focus group interviews.
<b>Theory</b>	The theory addresses the perspective of citizens and institutions in sustainable city development. Also, we add theory to address value creation in sustainable development.
<b>Empirical foundation</b>	The focus group interviews and in-depth interviews were conducted on institutions and citizens in the sustainable cities Curitiba in Brazil and Malmö in Sweden.
<b>Conclusion</b>	Findings indicate a need of change in the value configuration of sustainable city development, indicating a potential paradigm shift. We have developed a model, as a means to present a new process for value creation within sustainable cities to facilitate for institutions and citizens.

# Sammanfattning

<b>Titel</b>	Ett Paradigmskifte i Hållbar Stadsutveckling? En Fallstudie av Malmö och Curitiba och Interaktionen Mellan Medborgare och Institutioner.
<b>Seminariedatum</b>	2014-05-23.
<b>Kurs</b>	FEKN90 Examensarbete på Civilekonomprogrammet, 30 ECTS.
<b>Författare</b>	Märta Lagergren och Sandra Olsson.
<b>Handledare</b>	Matts Kärreman.
<b>Nyckelord</b>	Hållbarhet, Hållbar Stadsutveckling, Integrering av Medborgare, Värdekonfigurering, Malmö, Curitiba.
<b>Syfte</b>	Utforska vilken roll interaktionen mellan institutioner och medborgare spelar, och var värde skapas i hållbar stadsutveckling.
<b>Metod</b>	Uppsatsen utgår från en kvalitativ forskningsansats med induktiv teori. Vi har utfört en fallstudie med fokusgrupper och semistrukturerade intervjuer.
<b>Teori</b>	Teorin beskriver hållbar stadsutveckling från både ett institutionellt- och medborgarperspektiv. Vår teori beskriver även värdeskapandet i hållbar utveckling.
<b>Empiri</b>	Fokusgruppsintervjuer och djupintervjuer har genomförts på institutioner och medborgare i de två hållbara städerna Curitiba i Brasilien och Malmö i Sverige.
<b>Slutsats</b>	Vi har identifierat ett behov av en förändring i värdekonfigureringen i hållbar stadsutveckling, vilket indikerar ett potentiellt paradigmskifte. Med hjälp av vår utvecklade modell vill vi underlätta för institutioner och medborgare i hållbara städer att på ett nytt sätt skapa värde.

## Abbreviations and Acronyms

Consumption & Lifestyle	The Unit for Consumption & Lifestyle in Malmö
IMAP	Municipal Public Management Institute
IPPUC	Institute for Research and Urban Planning of Curitiba
Malmö Commission	The Commission for a Socially Sustainable Malmö
PUCPR	Pontifícia Universidade Católica do Paraná
SMMA	Secretariat of Environment of Curitiba
UFPR	Universidade Federal do Paraná
UN	United Nations
USEPA	The United States Environmental Protection Agency
UTP	Universidade Tuiuti do Paraná
WCED	World Commission on Environment and Development
WWF	The World Wide Fund for Nature

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# 1 Introduction

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*The introductory chapter begins with a background to the rise of sustainable cities and the roles of citizens and institutions in sustainable city development. It is followed by a discussion of the problem in question and the purpose of our study. Lastly, an outline is presented to clarify our work.*

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## 1.1 Sustainability and the Rise of Sustainable Cities

Sustainability is currently one of the most important global issues, including challenges of how to minimize the ecological footprint of humanity and how to promote citizens' well being. Yet, the movement towards a sustainable world has proven to be a great challenge. Countless attempts have been made in order to solve the issues, where all attempts differ from one another (WWF, 2012; WWF 2013).

The concept of sustainability is somewhat complex, making the movement even more challenging. Although the definition of sustainability varies, it is commonly divided into three dimensions; social, environmental and economical. Previous research in the field highlights the difficulties in treating all dimensions equally and the complexity in creating a perfect balance. One of the most commonly used definitions was made by World Commission on Environment and Development (WCED) in 1987 explaining sustainable development as "*a development that meets the needs of the present without compromising the ability of future generations to meet their own needs*" (WCED, 1987, p.15). Thus, sustainable development is about maintaining healthy ecosystems and reducing negative human impact by balancing present and forward thinking in a social, economical and environmental manner (WCED, 1987).

Another global trend is the growing urbanization. With half of humanity living in cities, they have become growth centers of consumption, resource use and waste. Cities currently account for more than 70% of all global carbon emissions and energy consumption, giving them a great potential to reduce humanity's ecological footprint (Sustainable Cities, 2012). Lately, cities with an ambition of being developed sustainably have started to emerge. Although the efforts to render cities environmentally and socially sustainable are not new, the efforts have more or less culminated in a new

phenomenon - the so-called eco-cities (Joss, Tomozeiu & Cowley, 2011). In the emergence of these sustainable cities, we have identified two cities, Curitiba in Brazil and Malmö in Sweden, to be prominent in their sustainable city development (Joss, 2010). Curitiba belongs to the first wave of practical eco-city initiatives, initiated in the 1970s under the then leadership of Mayor Jaime Lerner. Curitiba's reputation is mainly built on an integrated bus system, a food-for-recyclables exchange system and public education. Malmö, on the other hand, started to reinvent itself into a sustainable city in the 1990s, after a rapid economic decline and a shift towards a knowledge and innovation city. Today, Malmö aims to be carbon-neutral by 2020 and to be run on solely renewable energy by 2030 (Joss et al., 2011). Although the cities differ in their sustainable development, they are currently in the implementation phase of their eco-city projects, use technological innovation as their implementation focus and are categorized as retrofit cities, i.e. already existing cities with the aim to be developed sustainably (Joss, 2010; Sustainable Cities Institute, 2013).

## 1.2 Citizens and Institutions

In the process of sustainable city development, citizens have become an important factor. Not only as a result of democracy, but also in order to understand what the city needs to become sustainable. Without engaging citizens in the sustainable development, cities risk being developed into something that not necessarily is required by the citizens (WWF, 2013). Citizen participation is therefore needed, as all decisions made by them, directly or indirectly, impact the city. Since their behaviour is key to the impact that the society has on the environment, a main focus today is on behavioural patterns at the level of individuals (Jackson 2005; Berglund & Matti, 2006). Citizens can to some extent be driven to certain behaviour by regulations. However, as they constitute a massive power when it comes to determining pace and direction of the transformation towards a sustainable society (Institute of Economic Research, 2014), it can be argued that decision-makers of sustainable cities design their tools and strategies by adapting after the citizens.

In addition, institutions of a city also constitute massive power in sustainable city development. As there exists several definitions of institutions, we will explain how we define them in this study. According to Miller (2012), institutions can be explained as a

structure or mechanism of social order that exists to govern behaviour of a set of individuals of a community. Examples are political organizations, universities or other public organizations. Another explanation is found within theory of new institutional economics, describing institutions as restrictions people put up for human interactions (North & Thomas, 1973; Klein, 1999). In order to examine sustainable city development from an institutional perspective, we will use the first mentioned definition and thus see institutions more as organizations of government and public services, rather than mechanisms of social order. Institutions in sustainable cities are important, as they need to think about how to encourage and motivate citizens in the process of sustainable development. At the same time their roles are to reduce uncertainty associated with decision-making in the everyday life and facilitate cooperation and division of labour in the society (Bergström et al., 2000).

### 1.3 Problem Discussion

Citizens and institutions seem to be two key elements in sustainable city development, making it highly interesting to examine the perspective from both sides. Institutions struggle with the complexity of managing uncertainty, cooperation and division of labour while dealing with the challenging task of sustainable development (Bergström, 2000). Citizens should be engaged in the process as all decisions made by them, directly or indirectly, impact the city and thus their attitudes and behaviour highly matter (Institute of Economic Research, 2014).

While some researchers examine sustainable city development from an institutional level and highlight the importance for policy-makers to use the right incentives in the promotion of sustainable behaviour (Berghlund & Matti, 2006), others aim to understand sustainable behaviour from either a citizen or consumer perspective (Hines, Hungerford & Tomera, 1986-87). Although we find these perspectives to be highly interesting, we argue that the key factor to success lies in well-working interaction between them. Hence, to get a comprehensive view of the process of sustainable city development, we will conduct our study by including both perspectives.

The interaction between institutions and citizens has been discussed and lately it has been debated whether a technology can change this interaction. Technological

development has given citizens access to huge amounts of information and there are beliefs that this access to data will transform the essential theory about how institutions create value in the society (Evans, 2013). Although this is not theoretical proved, there are signs that institutions of cities try to engage more with the citizens. A way of doing this is by opening up data to the public in order to give them power to change how they live (The Information Daily, 2014). If these trends are true and cities start opening up information to the public, we are approaching a paradigm shift in sustainable city development, which most likely have consequences on sustainable city development.

A change in the interaction, e.g. earlier integration of citizens, would possibly impact the way institutions create value. Institutions outline a set of interdependent activities to profitably deliver value (Stabell & Fjeldstad, 1998), and when there is changes in these activities it most likely impact the entire procedure. Hence, we want to examine the institutions' value creation and what consequences potential changes could have.

#### 1.4 Purpose

The purpose with our study is to increase the knowledge of sustainable city development and what role the interaction between citizens and institutions in sustainable cities plays, in the process of sustainable development. In particular, we want to examine how value, specifically for institutions and citizens, is created in the development of sustainable cities.

## 1.5 Outline

We have intended to structure the study in a clear and well-structured manner. Therefore, we will begin with chapters 3-5, where we describe the subject in general terms with definitions and theory. We continue by presenting our empirical findings, where each case is presented separately. This is followed by an analysis, where each case first is analysed separately and ends with a comprehensive analysis, aiming to highlight similarities and dissimilarities between the cases and other general findings. The study ends with a conclusion including suggestion for further research.

### *Chapter 1 Introduction*

This chapter begins with a background to the rise of sustainable cities and the roles of citizens and institutions in sustainable city development. It is followed by a discussion of the problem in question and the purpose of our study. Lastly, an outline is presented to clarify our work.

### *Chapter 2 Method*

This chapter presents our research strategy and design. We clarify our case selection and explain how we have analysed our data. The chapter ends with reflection of chosen method and defines the process behind our choice of theory.

### *Chapter 3 The Concept of Sustainability and Sustainable Cities*

In this chapter, we present the concepts of sustainability and sustainable cities. These concepts are commonly found to be complex and thus in need of a clarification.

### *Chapter 4 Institutions in Sustainable Cities*

This chapter presents theory about the role of institutions. The following section explains theories of how history matters in institutional decisions and end with theory of value configuration.

## *Chapter 5 Citizens in Sustainable Cities*

This chapter presents theory about the role of citizens. We continue by explaining potential differences between citizens and consumers and apply theory of consumer behaviour.

## *Chapter 6 Empirical Findings*

This chapter presents our empirical findings in Malmö and Curitiba. The cases are presented separately. Interview sections are divided into four identified themes; the view of sustainability, collaboration, investments and future challenges.

## *Chapter 7 Analysis*

This chapter analyses our findings by following the same structure as our presented theory chapters. We begin by examining whether the cases are sustainable, followed by an analysis from both an institutional and a citizen perspective. We continue by analysing the value configuration in the cities and ends with a discussion of general findings and sustainable responsibility.

## *Chapter 8 Conclusion*

In our conclusion, we present a model including a number of key factors found to be of great necessity during sustainable city development. Further, we present our findings of a potential paradigm shift within the interaction between citizens and institutions, continued by recommendations to decision-makers, theoretical and practical contribution and implications. We end by presenting a proposal for future research.

## 2 Method

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*This chapter presents our research strategy, including research design and scientific approach. Our case selection is clarified and the procedures of data collection and data analysis are explained. The chapter ends with reflection of chosen method and defines the process behind our choice of theory.*

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### 2.1 Research Strategy and Design

To study citizens and institutions in sustainable cities we have used a qualitative approach. Since trying to capture individuals' perceptions are highly complex, a quantitative approach was not considered to increase our knowledge to the same extent. In addition, as our ambition is to understand rather than explicitly explain the problem in question, we found a qualitative approach appropriate (Bryman & Bell, 2013). We collected information directly from our interviewees in their natural environment and investigate the problem more in depth rather than in width, which supports our choice of method (Holme & Solvang, 1997). The basic idea behind a qualitative approach is that the more unstructured a stimulus is, the more subjects can project the needs, attitudes and values of the citizen. (Kumar, Aaker & Day, 1999). Thus, this method was most suitable.

When designing our research, we wanted to ensure that all pieces fit together, which has been an iterative process through the entire study. The area of our research is rather unknown and when there is little prior knowledge on which to build, the research often uses an exploratory method. This method is highly flexible, unstructured and qualitative (Kumar et al., 1999).

To get a deep understanding we conducted a multiple case study with cross-sectional. A case study is appropriate when studying a phenomenon in its actual context. This method is relevant when the boundaries between the context and the phenomenon are blurred (Yin, 2009). However, as citizens are complex phenomenon, we chose multiple cases to get an even deeper understanding. A multiple case study with cross-sectional design aims to generate general results, rather than conducting a comparison between

the cases and thus we found this method more appropriate in accordance to our research questions (Bryman & Bell, 2013).

## 2.2 Scientific Approach

With the aim to contribute to existing theory we utilized methods representing a combination of grounded theory and case studies, with an inductive approach. An inductive approach is commonly used in combination with a qualitative approach of research strategy. This approach allowed for description of observations from results where the observations are developed through chosen underlying theories. In other words, results from the executed research are evaluated and compared with existing theories. A deductive approach was not considered appropriate, as it is more suitable when an identified number of hypotheses are grounded on already existing theory (Bryman & Bell, 2013).

Bryman and Bell (2013) state that, when focusing a research on human experiences, the difference in the interpretation of social and natural science need to be considered. Further, when studying the social reality, the research process needs to have a well-reasoned logic. Thus, be able to successfully mirror what is special for humans when disregard the natural science perspective. Therefore, as we want to interpret the human behaviour and experience, we chose to take a hermeneutic science approach on our research project; this approach is also well compatible with our chosen qualitative approach. Further we chose a social constructionist perspective in our ontological stand, which implicate that the social attributes is the result of the interaction between individuals in the society (Bryman & Bell, 2013).

## 2.3 Case Selection

To understand the complexity of sustainable city development and interactions between citizens and institutions, we wanted to point out cases, which could help us to understand this complexity. We began by identifying various interesting cases where all of them were so-called retrofit cities, i.e. already existing cities with the aim to be developed sustainably (Sustainable Cities Institute, 2013).



To portray the complexity and richness of our purpose, we found it natural to choose a fewer number of cases and as stated by (Yin, 2009), situations characterized with low need of statistical certainty straightforward theory, two or three cases are found to be sufficient. As a result of these factors, we have examined two cases, as that made it possible to examine the cases in a structured and methodical way. Access to information clearly influenced the number of cases, as it is important with an acceptable level of reliability and validity (Yin, 2009).

The cases we have chosen to study is as mentioned in the background the two retrofit cities; Malmö in Sweden and Curitiba in Brazil. The cities were mainly chosen because of their prominence within sustainable development. The interest of Malmö has over the years been great and the city has received a number of awards and prizes. The same holds for Curitiba and no later than 2010, Curitiba was awarded the Globe Sustainable City Award. (Joss et al., 2011).

## 2.4 Data Collection

In our data collection we utilized both primary and secondary sources to get as deep and rich understanding as possible. According to the criteria of dependency (Berggren, 2008), primary sources should be considered over secondary sources. Our attention will therefore focus on the origin of the information gained, resulting in a reliable and realistic result. Our primary sources, i.e. raw material objects (Bryman & Bell, 2013), are constituted by focus group interviews and semi-structured interviews. Our secondary sources, i.e. something written about a primary source (Bryman & Bell, 2013), are constituted by scientific articles, books, academic journals and websites. The secondary sources are mainly applied in our theory chapters and the presentation of our cases. When selecting relevant secondary sources, we have applied a strict source criticism, i.e. the theory chapters are based on literature and articles where the content is verified by several authors within the field. We believe this contribute to validity throughout our entire study. However, when relying on commonly used definitions and views we have also been aware of the risk to overlook uncommonly used aspects that yet might be relevant for our study.

### 2.4.1 Focus Group Interviews

To investigate our field of study in depth, an interview design that brought out thoughts from citizens that they necessarily had not thought of before, was required. Thus focus groups as interview design was selected (Kumar et al., 1999). The goal with the discussion in a focus group is to create a free dialogue, where the participants are independent of the moderators (Wibeck, 2010), which also give the participants more stimulation than individual interviews (Kumar et al., 1999). In each of the defined focus groups, we chose to include four to five participants. This number of participants was chosen to give each individual room to express their personal thoughts in the subject. The number of participants was sufficiently small to keep the sense of belonging for each participant, yet big enough to contribute with a good number of personal thoughts (Wibeck, 2010).

A test group enabled us to execute an as comprehensive and successful focus group discussions as possible. The test group gave us the opportunity to practice a focus group interview in a realistic situation, before we executed the focus groups identified for our research. Also, it helped us to do a trial of our chosen focus group structure, stimulus material and evaluate our techniques as moderators. (Wibeck, 2010).

#### *2.4.1.1 Interview Procedure*

In our identification of focus groups we chose to limit our scope to young citizens, in the ages between 20-35. We believe this is a reasonable limitation since this gives us an explicit segment that is fairly easy to identify and through this focus of segment we can also minimize the variance of attributes within the segment. Further, as it is undesirable to combine participants from different stages in the life cycle, because of differences in their perceptions and experiences, it resulting in our choice of studying solely young citizens (Kumar et al., 1999). Lastly, as research has found that younger individuals are more engaged in responsible behaviour, meaning that they possibly care more about sustainability, this support our choice of young citizens (Aytülkasapoglu & Ecevit, 2002). As young citizens are found on universities we tried to identify them there. Although we are aware that not all citizen study at university level, we still found it to be a reasonable limitation given the time limits. Still, we believed that they could

provide us with a comprehensive view of their attitudes and behaviour towards sustainability.

When we recruited focus group participants, we wanted to combine participants with different backgrounds and especially citizens with different relations to sustainability, as this opens up for discussions. Since it is also necessary to provide for both similarity and contrast within a group, we combined the groups to create a good balance (Kumar et al., 1999). When establishing contact with the citizens, we e-mailed all universities in both cities and posted invitations to our group interviews at all Facebook pages of the universities. This resulted in contact with three of the four biggest universities of Curitiba; Universidade Federal do Paraná (UFPR), Pontifícia Universidade Católica do Paraná (PUCPR) and Universidade Tuiuti do Paraná (UTP). In Curitiba, we identified students from both public and private universities, as there might be differences in social class or income level between students from different universities. Hence, we got assistance from representatives from each of our three identified universities, who helped us assemble groups with students from different backgrounds. Participants within the groups lived in different areas of the city, had different fields of study and were of similar age. In Malmö, we got in contact with students at Malmö Högskola through our invitations on Facebook. We combined groups with students of different backgrounds and fields of study to create as comprehensive group discussions as possible. An overview of executed focus group interviews can be found in appendix 1.

In prior to the interview session, a stimulus material formed as a short introduction of our research project was sent to all participants (further explained in section 2.4.3). The aim with this stimulus was to make the participants prepared for the interview and we also believe this created anticipation made them more comfortable of the upcoming interview. To further create a comfortable environment and also create the sense of belonging among the participants, we started off the interview session by place the participants around a table. We continued with a presentation of ourselves and our research project, followed up by giving all the participants time to present themselves (Wibeck, 2010). We believe this worked as an icebreaker, as it made the participants relaxed and encouraged to a committed discussion. Throughout the approximately one hour lasting interview we had our interview guide (appendix 2) in mind and also used a

stimulus material to keep the discussion going (further explained in section 2.4.3). However, these tools were only used as guidelines, as our aim was to promote participants own thoughts of the subject (Wibeck, 2010). During the focus group interviews we both recorded the discussion and took notes.

As moderators to unstructured focus groups, we firstly introduced the participants to the subject, thereafter listened carefully and observed the group discussion. If needed we worked as support to keep the discussion going and made sure that everyone were able to speak up and get their opinions heard. As moderators we aimed to have a neutral approach throughout the interview and keep a passive role in the discussion, yet active listeners. We believe our behaviour brought out the participants personal thoughts about the discussed subject. (Wibeck, 2010).

#### 2.4.2 Semi-structured Interviews

The focus group interviews were complemented with semi-structured interviews with relevant actors at municipality level. This type of interview was chosen to ensure that unexpected information and attitudes could be pursued easily. Semi-structured interviews are demanding and much depends on the interviewer's skills, but because of the complexity of our research we still found it to be most appropriate (Kumar et al., 1999). Further as the themes, context and questions somewhat varied between our interviews, depending on the interviewee's represented expertise, we found semi-structured interviews to be most efficient (Saunders, Lewis & Thornhill, 2009).

##### *2.4.2.1 Interview Procedure*

The interviews were conducted to provide us with knowledge from an institutional perspective. In our recruitment, we aimed to contact people that have insight in sustainable development of Curitiba and Malmö. Our ambition was to identify people from different institutions representing different dimensions of sustainability and with knowledge about citizen integration.

To establish contact we e-mailed relevant actors in both cities. As the cities have different on-going projects and differ in both history and structure, relevant interviewees differ between the cities. In addition the dissimilarities of interviewees

between the cities is partly a result of difficulties in establishing certain contacts in the cities. Prior to all interviews, a stimulus material in the form of an introduction of our research project (further explained in section 2.4.3) was sent to the interviewee in question. The aim was to make the interviewee prepared and to give a picture of the perspective we have chosen for our study (Wibeck, 2010). The interview sessions were approximately one hour and as mentioned before, the themes, context and questions varies between all our interviews, depending on the interviewee's represented expertise. However, all interviews are based on the interview guide pictured in appendix 3. In accordance with the focus group interviews, the semi-structured interviews were also both recorded and notes were taken during the session.

In Malmö, we chose to interview relevant actors at municipality level. Sven-Olof Isacsson was chosen due to his many years of experience of the social dimension of sustainability in Malmö and his role as a chairman of the Commission for a Socially Sustainable Malmö, an on-going project in the city. Nasrin Bigdelou and Emma Börjesson were chosen due to their knowledge of citizen participation and on-going sustainability projects in Malmö. We hoped they could provide us with an increased understanding of the interactions between the city and its citizens. Time limitations made us rely mainly on secondary sources when it comes to the environmental and economical issues.

In Curitiba, as in Malmö, we tried to identify relevant people at municipality level that could provide us with similar information about their sustainable development as we had done in Malmö to get it as transparent as possible. However, as the cities differ in their approaches to sustainability, this resulted in some differences in our identified interviewees. In Curitiba, we conducted interviews with; Daniele Moraes and Luiz Fernando Gomes Braga from Institute for Research and Urban Planning of Curitiba (IPPUC), Carlos Guillen from the Secretariat of Environment of Curitiba (SMMA) and Márcia Schlichting and Rennan Stelle from Municipal Public Management Institute (IMAP). IPPUC provided us with information about Curitiba's approach to land use and urban planning and how they interact with citizens within these issues. Guillen at SMMA explained about Curitiba's environmental practices and their garbage program and how Curitiba are trying to act as a role model for other cities. IMAP further explained more in

detail about the city structure, city investments and on-going projects. An overview of executed interviews can be found in appendix 1.

#### 2.4.3 Stimulus Material

Prior to both our focus group interviews, as well as our semi-structured interviews, we sent out a stimulus material designed as an introduction of our research project, see appendix 4. The aim with this introduction was to make the participants prepared for the interview, without influencing their perception of the sustainability concept. (Wibeck, 2010).

In our focus group interviews we complemented with the use of a second stimulus material. Our second stimulus material had the design of an A4 paper with a mix of printed words on it (appendix 5). The words on the paper are commonly used when talking about development of sustainable cities. The chosen words derived from all three dimensions of sustainability and was positioned as neutral as possible on the paper. The purpose was to generate questions, bring up thoughts and create a discussion among the participants. (Wibeck, 2010).

The stimulus material was distributed halfway through the interview, thus we got the opportunity to first reach the participants spontaneous thoughts about sustainability before we focused the interview on the development of sustainable cities and in particular their role as citizens in their specific sustainable city. Further, the stimulus material kept the group productive and alert throughout the interview. (Wibeck, 2010).

#### 2.5 Data Analysis

As we chose a qualitative approach, our collected data was composed in a variety of shapes. Variety is typical for this type of approach, which increases the importance of preparation and organization of the data to facilitate for a systematic and meaningful analysis and interpretation of data (Denscombe, 2009; Backman, 1998). To secure our collected data, we used backup of both our recorded and written original material, which was stored on our computers, online on the Internet as well as on our mobile telephones.

As Bryman and Bell (2013) describe the interpretation of data as one of the most important steps in a qualitative analysis, we chose to perform a stepwise interpretation process of our collected data, applying a positivistic view. The purpose with this approach is to identify variables from each context of the chosen case studies with the aim to generate propositions out of these variables. Further, these propositions can contribute to the creation of new theories (Bryman & Bell, 2013). To create a comprehensive interpretation process we both recorded the discussion and took notes, with the aim to capture both our own perception during the interview session as well as afterwards when we transliterated the interviews (Wibeck, 2010). During the transliteration of data both of us listened through the recorded material and summarised the interviews in written text. When we found signs of data ambiguity, we returned to the interview object to ensure that we captured the view that he or she intended to give. This is, according to Bryman and Bell (2013) essential, to be able to perform an accurate analysis process. We further complemented the summarized text with the notes taken during the interviews. The material was then structured according to four identified themes based on main findings of the interviews, which further, together with the conceptual framework, contributed as basis for our analysis.

Bryman and Bell (2013) mean that it is a high risk for biases during the analysis process, meaning that the researchers own perceptions can affect the result. They further state that it is difficult as researcher to be completely unbiased. As we have been two researchers, aware of the risk of biases, this increases the possibility to detect and control them.

## 2.6 Reflection of Method

To make our research result trustworthy, we have considered the reliability and validity of our study. Within a qualitative approach, reliability and validity are important criteria, regarding the quality of the research and it is shown that it can be a challenge to evaluate the reliability of a qualitative research. However, while some argue about the relevance of the criteria, others are of the opinion that the criteria for ensuring quality are in need of a revision (Bryman & Bell, 2013). To get a reliable outcome, our research is done according to the criteria of dependency, saying that primary sources should be considered over secondary sources (Berggren, 2008). Therefore we have

focused on finding original information. In addition, we have applied strict source criticism in our selection of secondary sources where we have chosen literature and articles with content verified by several authors within the field. As we are aware that rarely used definitions also might be relevant to our study, we have also added these to get a comprehensive view.

To get a reliable outcome from our focus group interviews, we used a test group as a trial of our chosen focus group structure, stimulus material and as an evaluation of our techniques as moderators. As our aim was to capture the spontaneous personal perceptions in the studied subject, we wanted to give every participant the opportunity to express their personal thoughts in their native language. This was accomplished by collaboration with interpreters, contributing with objective translations. The interpreters made the participants more comfortable, which in turn encouraged to deeper discussions in the subject and thereby a reliable result. To capture all nuances in the participants' perceptions, we recorded all interviews to be able to transliterate them afterwards (Wibeck, 2010). We believe this make our study reliable, as it gives us the opportunity to go back and listen to interviews again if feeling uncertain of what was discussed. Further, as we are two researchers conducting the study, it gave us the opportunity to apply an inter-rater reliability, meaning the evaluation of how consistent our two estimates of the same information was (Multon, 2010). This means an evaluation of our two separate interpretations of both the theory and the empirical data. We believe this evaluation has given us a comprehensive content of the research, strengthening the reliability of our result.

The validity of a research is considered to be one of the most important research criteria (Bryman & Bell, 2013). The validity criterion is the evaluation of how coherent the stated conclusions are. If the conclusions cohere in a reasonable way, the research is regarded as valid. Further, the internal validity considers the correlation between the empirical material and the theoretical framework of the study, while the external validity focuses on the study in total and how the empirics and theory can be generalized (Svenning, 2003).



To accomplish a valid result, we have used our research purpose as a foundation in the identification of relevant interviewees and also when structuring the interviews, as well as the interview questions. We believe this enable us to reach conclusions coherent with our research purpose. Furthermore, we have processed our data with supremely accuracy to further contribute to a reliable and valid research result. With the knowledge of the common difficulties to reach validity in a qualitative research, our aim has been to find new insights, rather than reaching generalizable results. The empirical result of our study might limit the validity, as it is grounded in our case study, where we studied a specific context at one specific moment in time. Our restricted number of interviewees, where the empirical experiences is mainly affiliated to the particular individual's knowledge of sustainable development, might have limited the validity further. However, we regard the theoretical result of our purpose to be valid.

## 2.7 Choice of Theory

As few existing theories can fully explain the complex phenomenon of sustainability and as the concept of sustainable development stretches over several fields, this made our choice of theory to a lengthy process. Our starting-point was naturally in the field of business administration, which is our chosen area to observe within. In the beginning of our process we read articles, searched online and discussed Porter and Kramer's (2011) theory of Creating Shared Value. However, as we understood that this theory do not fulfil our criteria of contribution to our research, we found theory about more suitable value configurations. In the attempt to increase the knowledge of what role interactions between citizens and institutions in sustainable cities plays, in the process of sustainable development, we applied theory describing both the institutional and citizen perspective.

With a chosen inductive approach, our theory chapters have been developed over time. During the process, we came across new findings, which made us go back in the literature to re-examine chosen theories. This process continued and finally ended up in theories that contribute as a good base for our final analysis.

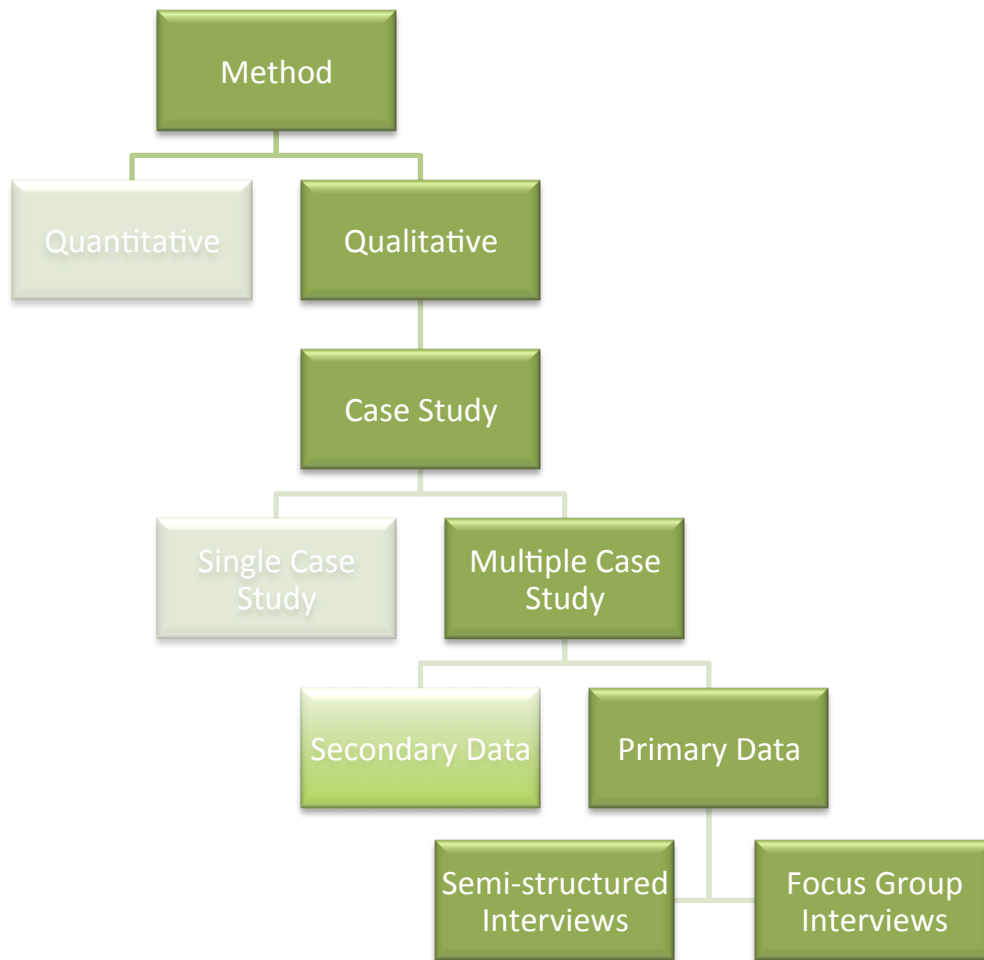


Figure 1. Structure of Method.

## 3 Sustainability and Sustainable Cities

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*In this chapter, we present the concepts of sustainability and sustainable cities. These concepts are commonly found to be complex and thus in need of a clarification.*

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### 3.1 Sustainability

To get a comprehensive overview of the concept of sustainability we applied one of the most commonly used definition articulated by WCED in their report *Our Common Future*. At the core of the report is the principle of sustainable development, explained as “*a development, which meets the needs of the present without compromising the ability of future generations to meet their own needs*” (WCED, 1987, p.15). This report gave political credibility to a concept others have tried to define over the previous decade. This explanation was further used as a foundation for the work by United Nations (UN) at their Conference on Environment and Development in 1992. To specify the concept of sustainability further, we also choose to apply USEPA’s (2014a) explanation of the concept, which capture the common division of the concept into the three dimensions; social, economic and environmental sustainability, defined as:

*“Everything that we need for our survival and well-being depends, either directly or indirectly, on our natural environment. Sustainability creates and maintains the conditions under which humans and nature can exist in productive harmony, that permit fulfilling the social, economic and other requirements of present and future generations.”* (USEPA, 2014a-05-14).

In the extensive discussion about the concept, there has been a growing recognition about the convergence between all the dimensions. Although it is important with a balance, the several dimensions introduce many potential complications (Harris, 2003). In the real world, it is often difficult to avoid trade-offs between the dimensions and as Norgaard (1994) points out, it is only possible to maximize one objective at a time. Despite these complications, we still find it necessary to define the dimensions as to concretize a working definition of the concept. The economical dimension considers the economic wealth in the society including the community’s economic development, the labour market development, infrastructure and tourism. The social dimension considers

issues such as education, health, nutrition, poverty, homelessness and safety. The third dimension contributes with environmental responsibility including the use of energy, water and land. In addition this dimension considers climate change, solid waste and built environment (Sustainable Kingston Corporation, 2014). The table below presents further detailed definitions of all the three dimensions.

<p>Social Dimension</p>	<ul style="list-style-type: none"> <li>•“A socially sustainable system must achieve fairness in distribution and opportunity, adequate provision of social services including health and education, gender equity, and political accountability and participation.”</li> </ul>
<p>Economical Dimension</p>	<ul style="list-style-type: none"> <li>•“An economically sustainable system must be able to produce goods and services on a continuing basis, to maintain manageable levels of government and external debt, and to avoid extreme sectorial imbalances which damage agricultural or industrial production.”</li> </ul>
<p>Environmental Dimension</p>	<ul style="list-style-type: none"> <li>•“An environmentally sustainable system must maintain a stable resource base. This includes maintenance of biodiversity, atmospheric stability, and other ecosystem functions not ordinarily classed as economic resources.”</li> </ul>

Table 1. Three Dimension of Sustainability (Harris, 2003, p. 1).

### 3.2 Sustainable Cities

Cities are complex units of analysis due to differences in structure and composition. The sustainable city is a relatively new concept of a framework of ideas on how cities can be developed more sustainable, both today and in the future (Roseland, 1997).

In our study, we define sustainable cities in accordance with the earlier mentioned definition of sustainable development made by WCED (1987). With this balance of present and forward thinking in mind, a sustainable city is organized to enable all citizens to meet their own needs and enhance their well-being without damaging the natural world or endangering the living conditions of other people now or in the future

(Girardet, 1999). To concretize the concept of sustainable cities and also enable a more focused research with clarified guidelines of the meaning of the concept, we use the main principles of a sustainable city based on the definition made by Roseland in 1997;

Main principles of a sustainable city
(i) Revise land use priorities to create: compact, diverse, green, safe, pleasant, and vital mixed use communities near transit nodes and other transportation facilities.
(ii) Revise transportation priorities to favor foot, bicycle, cart, and transit over autos, and to emphasize "access by proximity".
(iii) Restore damaged urban environments, especially creeks, shorelines, ridgelines, and wetlands.
(iv) Create decent, affordable, safe, convenient, and radically and economically mixed- housing.
(v) Nature social justice and create improved opportunities for women, people of color and the disabled.
(vi) Support local agriculture, urban greening projects and community gardening.
(vii) Promote recycling, innovative appropriate technology, and resource conservation while reducing pollution a hazardous wastes.
(viii) Work with business to support ecologically sound economic activity while discouraging pollution, waste, and the use and production of hazardous materials.
(ix) Promote voluntary simplicity and discourage excessive consumption of material goods.
(x) Increase awareness of the local environment and bioregion through activist and educational projects that increase public awareness of ecological sustainability issues.

Table 2. Main Principles of a Sustainable City (Roseland, 1997, p. 198).

### 3.2.1 Categories of Sustainable Cities

Sustainable cities can be built in different ways and are usually divided into three categories. Retrofit cities are existing cities that increase their efforts to raise the energy efficiency of the residential, commercial and public buildings within the city. New investments are being built energy efficient and government encourage citizens to live sustainably in order to save energy, create jobs and reduce greenhouse gas emissions

(Sustainable Cities Institute, 2013). Joss (2010) describes retrofit development as sustainable innovation within an existing urban infrastructure. Brownfield cities are abandoned or underutilized sites next to already existing cities, for example a new district or neighbourhood. The clean up and rebuilding of these sites are carried out in a manner, which minimizes the ecological footprint (Joss, 2010; USEPA, 2014b). Greenfield cities are cities built from scratch, i.e. undeveloped parcel of land often located in less dense and less accessible areas. Due to their undeveloped characteristics, except for perhaps agriculture, they typically use more acreage per employ or per residence and are less location efficient (Joss, 2010; USEPA, 2011).

## 4 Institutions in Sustainable Cities

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*To understand sustainable city development from an institutional perspective, we begin this chapter by presenting theory about the role of institutions. This enabled us to understand the different categories of institutions and also what is required of them, by the society. The following section explains theories of how history matters in institutional decisions. We end the chapter with a presentation of value configuration to understand various approaches to, and structures of, value creation in sustainable city development.*

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### 4.1 The Role of Institutions

Institutions can be described in several ways. We use the explanation by Miller (2012), stating that institutions are public or private organizations considered being foundational structures or organizations of a society, often engaging in collection and research of data concerning a nation's economy. Another explanation of institutions can be found in theory of new institutional economics, which often is a definition of the term institution itself. Here, institutions can be defined as *"the rules of a society, or more formally, the restrictions people put up for human interactions"* (North & Thomas, 1973, p. 16) and they provide the incentive structure of an economy. Although they sometimes are divided into formal and informal institutions where the informal are rules that structure social conduct, we prefer to explain norms and attitudes among citizens by the theory of consumer behaviour (Klein, 1999). However, we still use the theory of new institutional economics in order to describe roles and functions of institutions.

Institutions exist for two reasons. Firstly, institutions reduce uncertainty associated with decision-making in the everyday life. As humans are rational beings they always prefer a better outcome in front of a worse outcome. However, as gathering information and ranking of all possible alternatives often involves large costs, not least in terms of time, humans are said to be restricted in their rationalism. This is where institutions help the individuals by defining and limiting the set of choices of individuals. Secondly, institutions facilitate cooperation and division of labour in the society.

In order to make economic exchanges, some institutional solutions are being required. There are three main categories of institutions; (i) institutions for personal exchanges, (ii) institutions for impersonal exchanges without need of external part and (iii) institutions for impersonal exchanges where a third part implements the exchange. All categories require individuals to cooperate, which in turn increases the total benefit for all parts. However, individuals sometimes might have strong incentives to break the contract and this is where the institutions' formal and informal rules and regulations are needed. (Bergström, 2000).

## 4.2 Path Dependency

The concept of path dependency was originated as an idea that a small initial advantage or few minor random shocks could alter the entire course of history. It was initially developed by David (1985) and Arthur (1989) to explore the path of technological change, but was further developed by North (1991), as he believed the concept could help to understand institutional change. In both cases increasing returns are the key to path dependency, but in the case of institutional change the process is more complex due to the key role of political organizations in the process. Path dependency means that the institutional development is contingent upon the historical process and explains that institutions prefer choosing an already established path. This can result in both positive and negative outcomes. In other words, although institutional decisions are not necessarily relevant anymore, the decisions today are limited by the decisions made in the past. Basically, the concept tries to explain that history matters, resulting in limitations in the decision-making process and thus inefficiency is created (Bergström, 2000).

## 4.3 Value Configuration

To understand how value is created, we use theory about value configuration. Understanding differences between institutions and their strategic planning is challenging both in theory and in practice, but in a dynamic society it is important to be aware of the dominant competitive logic of organizations. In value configuration, organizations outline a set of interdependent activities to profitably deliver value and create a competitive advantage (Stabell & Fjeldstad, 1998). As organizations can be seen



as a type of institution (Miller, 2012), we will use this theory to understand value creation of institutions by presenting three generic value creation technologies with distinctive value configuration models.

#### 4.3.1 Value Chain

The value chain can be described as a linear process and models a long-linked technology (Thompson, 1967). The value creation starts within the institution, by transforming inputs into products. Value is created throughout five main activities, and complemented with several supportive activities (Stabell & Fjeldstad, 1998). According to Porter (1985, 1990) the value-creating logic of the value chain with its generic categories of activities is applicable in all types of industries. He further argues that value creation activities vital to an institution's competitive advantage, are rather industry dependent. Value chain analysis is mainly about competitive positioning based on different types of cost leadership (Porter, 1985, 1990).



Figure 2. Value Chain.

#### 4.3.2 Value Shop

The value shop is, compared to the value chain, more of an iterative process and consists of cycling progress activities. While chains form a fixed set of activities enabling the organization to produce in a larger scale, shops schedule the activities to meet the needs of the clients or consumers problems. Value shops are applicable on organizations characterized by intensive technology, i.e. professional services such as law, medicine or architecture. The shop metaphor signals that matching of problems

and problem solving resources are important for the value shop organizations. Furthermore the shop metaphor signals *“organizations with intensive technologies often both improve performance and reduce costs by incorporating the object worked on”* (Stabell & Fjeldstad, 1998, p. 140). The five main activities are; problem finding & acquisition, problem solving, choice, execution and control & evaluation. The first two activities is about finding out how to approach a specific problem and evaluating alternative approaches. After that, the organization choose a proper approach, implement it and ends by measuring and evaluating to what extent the implementation has solved the initial problem. (Stabell & Fjeldstad, 1998).

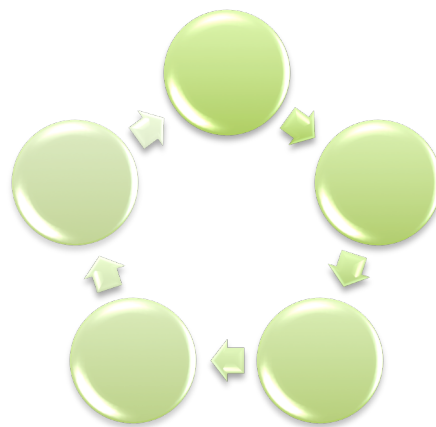


Figure 3. Value Shop.

#### 4.3.3 Value Network

The value network is a set of connections between organizations and/or individuals that interact with each other to benefit the entire group. The organization itself is therefore not the network but rather works as a networking service. Value is created as the value network facilitates linkings between actors, individuals and organizations within the society. The linkings can be direct between consumers or indirect where the value network serves as an intermediary. Furthermore, value networks do not involve suppliers and consumers in the same sense as in value chains. Here, exchange relationships offered by a mediation service can be extended to its immediate

consumers of other mediation service provides, which lead to a structure of interconnected mediation. In other words, the set of connections in a value network allows members to buy and sell services as well as share information among each other. (Stabell & Fjeldstad, 1998).

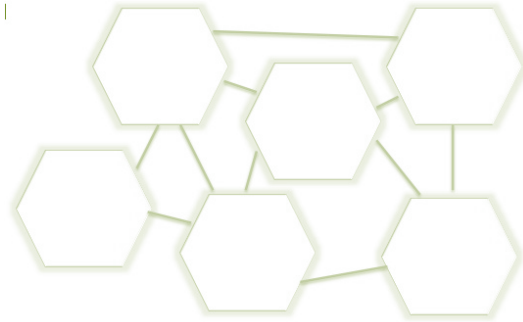


Figure 4. Value Network



## 5 Citizens in Sustainable Cities

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*To understand sustainable city development from a citizen perspective, we begin by applying a working definition of citizens by discussing the potential differences between being a citizen and a consumer. To understand individuals identified as consumers, we apply the theory of consumer behaviour. Previous research has shown potential attitude-behaviour gaps, especially evident in environmental consumerism. Therefore we complement with suitable theories explaining this gap and a model explaining the variables that affect humans' pro-environmental behaviour.*

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### 5.1 Citizens or Consumers?

Individuals in a city can be seen both as citizens and consumers. Traditional economists often choose to see them as consumers and define them as individuals guided by individualistic and materialistic concerns, responding to economic incentives and make rational choices determined by their own personal preferences and the constraints they face. At the same time, citizens are individuals who make decisions that are based on a separate set of values, motivated by an altruistic concern for a larger community. This means that citizens, in contrast to consumers, may refrain from individual short-term gains if the society at large is better off in the long term (Berglund & Matti, 2006). Sagoff (1988) talks about the dual role of these individuals and connects it to sustainability. He argues that environmental literature fails to distinguish between these roles and explain the roles:

“As a citizen, I am concerned with the public interest, rather than my own interest; with the good of the community, rather than simply the well-being of my own family. [...] In my role as a consumer, [...] I concern myself with personal or self-regarding wants and interests; I pursue the goals I have as an individual.” (Sagoff, 1988, p. 8).

Thus, he concludes that individuals must act in the manner of citizenship if the sustainable society is to be reached. Further, we will continue our explanation of citizenship in sustainable cities with relevant parts of consumer behaviour theory.

## 5.2 Citizens as Consumers

Consumer behaviour is “*the study of processes involved when individuals or groups select, purchase, use or dispose of products, services, ideas or experiences to satisfy needs and desires*” (Solomon et al., 2006, p.6). Factors influencing consumer behaviour can be both internal and external. The internal are found within the individual and are a result of the individual’s personality, while the external factors of consumer behaviour are grounded in the social and cultural setting that humans tend to be involved in (Assael, 1984).

### 5.2.1 Internal Factors

One internal factor is attitudes. Consumer attitudes are developed over time and affected by several variables. Firstly, the family is of great influence, implying that consumers’ attitudes toward environmental and other sustainability issues are formed during infancy. Secondly, peer groups, past experiences and personality are other influential factors (Assael 1984). Thus, the way in which consumers are confronted with sustainability among friends and within the society, can possibly impact their attitudes.

Motivation is another internal factor, occurring when there is an imbalance between a consumer’s current and desired state. The greater imbalance, the more motivated consumers are. Imbalances occur due to different stimulus and they are either personal or environmental. The two most common variables affecting consumer motivation are personal experience and level of product involvement (Lewin, 1951).

### 5.2.2 External Factors

The most basic group an individual is influenced by is the family (Schiffman & Kanuk, 1983). The two basic functions of a family are; *(i)* parents’ continuing influences on the child’s values and beliefs, including personal development, interpersonal development, interpersonal competence, proper manners and way of living and *(ii)* the desired style of living, which can be seen as an extension of the function of childhood socialization. In a sustainable context families’ lifestyle commitments are the result of the chosen sustainable way of living, including their view of education, recreational activities or frequency of recycling (Schiffman & Kanuk, 1983).

A second external factor is reference groups, as Schiffman and Kanuk (1983) argue that an individual's consumption beliefs, attitudes and behaviour are affected by the impact of other people. When an individual forms its personal values, attitude or behaviour, he or she, consciously or unconsciously, use a reference group as a comparison. A reference group is one single person or a group, directly or indirectly, influencing the individual. In other words, individuals can be influenced direct from its own family and indirect by a whole nation. Powerful reference groups are those identified by the individual as admirable, aspirational or empathic. Another powerful aspect is recognition, the group will be considered powerful if it mirrors the individual's personality (Schiffman & Kanuk, 1983).

Culture is seen as the broadest component of social behaviour. People in the same society, sharing the same culture create shared beliefs and values that are widely accepted within the society. These beliefs and values can sometimes be seen as so natural that the resulting behaviour is explained simply as "the right thing to do". This phenomenon is referred to as the invisible hand of culture. Culture is also a way for individuals to share their beliefs, values and customs and in this way, culture also serve as a link between the members of a society (Schiffman & Kanuk, 1983). Cultural values are permanent and dynamic; permanent, as they are passed on from parents to children and communicated in schools and religious groups and dynamic, as the society and values are changing. This is a complex task including changes in, for example, technology, population and economic value (Assael, 1984).

### 5.3 Gap Between Attitudes and Behaviour

There are ambiguities concerning the relationship between consumer attitudes and their behaviour and it is questioned whether attitudes necessarily lead to a certain behaviour. This potential gap is often referred to as the attitude-behaviour gap or value-action gap (Blake, 1999; Gupta & Ogden, 2009). This is evident especially in environmental consumerism, where attitudes have proven to have low impact on consumer behaviour (Gupta & Ogden, 2009). The gap between attitude and behaviour can be explained by the theories of reasoned action and planned behaviour (Fishbein & Ajzen, 1975; Ajzen and Fishbein, 1980).

According to Fishbein and Ajzen (1975), humans are essentially rational, meaning that they collect the information available and use it to make rational decisions. According to the theory of reasoned action (TRA), the decision to undertake or not undertake the behaviour is a result of individual's evaluation of whether the expected performance of behaviour is favourable or unfavourable for the individual. Hence, attitudes do not determine the resulting behaviour directly, but influence the actions taken (Ajzen & Fishbein, 1980). Further the decision can be influenced by social pressure but the TRA also make the assumption that decisions are volitional in nature, thus it is individual's own decision to perform the behaviour or not (Ajzen, 1991).

The theory of planned behaviour (TPB) is seen as a development of TRA, as it takes into consideration the existing incomplete volitional control (Ajzen, 1991). Hines et al. (1986-87) further developed TPB when publishing their model of responsible environmental behaviour explained below.

#### 5.4 Model of Responsible Environmental Behaviour

Hines et al. (1986-87) identified six variables associated with humans performing responsible pro-environmental behaviour. The variables are; (i) the knowledge of issues, meaning that the person has to be familiar with the problem and its causes, (ii) the knowledge of action strategies, in other words the knowledge of how to lower the impact on the environmental problem, (iii) the locus of control, meaning to which extent the individual believe the individual can contribute to a change, (iv) attitudes, as mentioned earlier, the connection between attitude and behaviour is weak but a person with stronger pro-environmental attitude will to a greater extent act accordingly, (v) verbal commitment, meaning that how a person communicate its willingness to take action is an indicator to which extent he or she will engage in real action and finally (vi) Individual sense of responsibility, i.e. persons with higher personal responsibility are more likely to act environmentally responsible.

Situational factors are also included as variables affecting the behaviour, concerning economic constraints, social pressure and opportunities to choose different actions. It is also articulated that the relationship between knowledge, attitude, intention and actual behaviour is in conclusion very weak and hard to estimate. (Hines et al., 1986-87).



## 6 Empirical Findings

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*This chapter presents our empirical findings in Malmö and Curitiba. The cases are presented separately and consist of a combination of primary and secondary sources. The interview sections are divided into four identified themes; the view of sustainability, collaboration, investments and future challenges. Below is an introductory comparison of Curitiba and Malmö.*

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	Curitiba	Malmö
Founded	1693	1658
Location	South America - Brazil	Europe - Sweden
Gini Coefficient	0.59	0.35
Population	1.8 million	313 000
Category of City	Retro-fit	Retro-fit
Key Implementation Mode	Technological Innovation	Technological Innovation
Recent Awards	Award for sustainable development from UN Habitat Program (2009)	Globe Sustainable City Award from Globe Forum (2010)

Table 3. Comparison Between the Cases

(Joss, 2011; Braga, 2014; Prefeitura Municipal de Curitiba, 2014a; World Guides, 2014; Malmö Stad, 2014b, Salonen, 2012; Malmö Town, 2013).

### 6.1 Case Malmö

#### 6.1.1 History of Malmö

Malmö is a city in southern Sweden and part of the region Skåne. It is the third largest city of Sweden and was one of the earliest industrialized cities in Scandinavia. In two decades Malmö has been transformed from being a crisis-hit industrial city with high levels of outward migration into a so called knowledge and innovation city, making Malmö one of the most attractive cities of Scandinavia. The crisis hit Malmö in the 1980's because of major plant closures resulting highly increased unemployment. This resulted in a great financial loss forcing the city towards a change. In 1995, a plan named *Malmö 2000* was constructed, aiming to formulate visions and goals for the city.

This plan resulted in investments such as Malmö University, Öresund Bridge, and the City Tunnel (Möllerström, 2011). Malmö still expands and the city is currently a role model for its innovation and sustainable urban development and in 2013 they turned out to be the fourth most innovative city of the world (Malmö Stad, 2014a).

In 2013, a new master plan was issued that defines the direction for the city's long-term development. Compared to the previous plan, the new plan focuses more on urban development in a socially, economically and environmentally sustainable way, making the city a so-called retrofit city (Sustainable Cities Institute, 2013; Joss, 2010). This plan aims to transform Malmö into an even more attractive and sustainable city by making Malmö a close, dense, green and diverse city where all investments focus on needs of its inhabitants (Malmö Stad, 2009).

#### 6.1.2 Demography of Malmö

In the end of year 2013, Malmö had a population of 313 000 people. It is a good example of the on-going global urbanization trend, as the population has been increasing 29 years in a row and by 2018 Malmö is expected to have a population of approximately 338 550 people. At the same time, Malmö is known as a transit city. During 2012, 19 800 people moved to, and 17 300 people left the city. The city attracts younger people to a greater extent, which can be seen among the immigrants, as half of all new residents are in the age 20-29. This has resulted in a relatively low average age of 36, at least comparing to other Swedish cities. As a comparison, the same age of the region of Skåne is 40 and in the entire country it is 41 (Malmö Stad, 2014b). Furthermore, almost 31% of the residents are foreign-born, i.e. Malmö has a high cultural diversity with people from more than 170 different countries. The main groups represented are from Iraq, Yugoslavia, Denmark, Poland and Bosnia-Herzegovina (Malmö Stad, 2014c). In 2009, the gini coefficient for Sweden was 0.32, making Sweden a country with relatively low inequality in income distribution. In Malmö, the gini coefficient was 0.35, which is somewhat higher than for the entire country (Salonen, 2012).

### 6.1.3 Institutional Structure of Malmö

In Sweden, it is the central parliament and government that specify what laws and rules the municipalities must follow. These laws and rules are the minimum requirements for municipalities to follow. Upon these, municipalities have the rights to add their own special requirements. The City Council is Malmö's highest decision-making authority consisting of politicians appointed by general elections. The body takes decisions about all issues concerning the city, including everything from objectives and guidelines to municipal budget questions and tax rates. These decisions help to ensure that the interests of the citizens are conveyed through the organization and back to the people. The City Council is further responsible for appointing the City Office, which manages and coordinates the work of the city. City Office works as a link between all departments of the city, but does also have a governing role. Their overall aim is to ensure that Malmö is being transformed into an attractive city for the people. (Malmö Stad, 2014d).

In order to strengthen local democracy, Malmö has decided to divide the administration of the city into five districts; North, South, East, West and The Inner City. In addition, the city has several departments responsible for their own areas, e.g. City Planning Office, Environmental Department, Culture Department and Education Department (Malmö Stad, 2014d). The departments we have been in contact with during our study are described more in-depth below.

#### *The unit for Consumption and Lifestyle of the Environmental Department*

The unit for Consumption and Lifestyle (Consumption & Lifestyle) is part of the environmental department of Malmö. The environmental department has three additional departments working with urban development, food and environment & health. Consumption & Lifestyle aim to create a sustainable lifestyle for the citizens of Malmö and encourage them to participate and be active in all issues involving consumption, lifestyle and development of Malmö. (Malmö Stad, 2014e).

### *The Commission for a Socially Sustainable Malmö*

In May 2010, the City Council of Malmö appointed the Commission For a Socially Sustainable Malmö (Malmö Commission). They are politically independent and consist of fourteen commissioners, each with specific areas of expertise within the domains of social sciences, health economy, urban studies and the city of Malmö. Chairman of the commission is Professor Emeritus, Sven-Olof Isacson. The commission draws on the results of the WHO report *Closing the Gap in Generation*, which the Swedish National Institute of Public Health find to be one of the most important contributors to the current public health debate. (Malmö Stad, 2014f).

#### 6.1.4 Projects in Malmö

##### *A Socially Sustainable Malmö*

The Malmö Commission was tasked with analysing causes of the growing health inequalities within the population and the different areas in Malmö. It was well known that people in some parts of Malmö lived nearly seven years longer than people in other parts of the city, making the commission highly necessary. The commission had three priority areas; *(i)* conditions of growing up, for children and young people, *(ii)* democracy and influence in society and *(iii)* social and economic conditions. The work resulted in a new understanding of Malmö and a report with 24 goals, 72 actions and the following two overall recommendations; *(i)* to establish a social investment policy to reduce inequalities in living conditions and make societal systems more equitable, *(ii)* and to change processes in order to create knowledge alliances and a democratized management. (Malmö Stad, 2014f).

##### *Urban Mobility of Malmö*

Malmö's mobility goal is to make walking, bicycling or public transportation the first hand choices of transportation. The city has public environmentally friendly cars and buses and has made investments to transform the city into a bicycle-friendly city, resulting in an award as the Swedish Bicycle City of the Year 2004 (Malmö Stad, 2014g). City areas around Malmö are always planned and built to minimize future transport needs and car dependency. In order to double the use of public transportation and increase the status and attractiveness of public transport, Malmö has invested in new

buses that reduce fuel consumption and thus also the emissions. These newly invested buses operate on one of Malmö's busiest bus routes. Another project Malmö has invested in is the City Tunnel, which consists of 17 kilometres rail link and starts from Malmö C, stops at the stations Triangeln and Hyllie to continue all the way to Öresund Bridge. The tunnel has increased the number of departures, lowered the amount of changes and decreased the travel distance within the region, making it in line with the goal of increasing the attractiveness of public transportation (Malmö Stad, 2014h).

### *Sustainable Rosengård*

Rosengård is a city district of Malmö where many physical changes are in process. It is a heavily immigrant suburb to Malmö and the district has a history of civil unrest and riots. However, past years of investments and initiatives from residents have resulted in new social areas for meetings and activities, new job opportunities and a better infrastructure. An important part of the process is the frequent dialogue with residents, organisations and businesses in the district as their participation is seen as a fundamental factor for the transformation to succeed. (E. Börjesson, personal communication, 2014-04-08).

### *Climate Smart Hyllie*

Since the 1960's, Malmö has had plans on building a new city district and when they decided on building the City Tunnel, they saw an opportunity to turn plans into reality. Hyllie is Malmö's largest development area and as early as 2020, they plan to run the entire area on 100% locally produced renewable energy. A sustainable approach to transportation, waste management and recycling are key cornerstones of Hyllie. The sorting of food waste is mandatory, which makes Malmö pioneers as the first major city in Sweden to introduce. The food waste will be used to make biogas and will be used as bus fuel and garbage trucks. Hyllie will further be built to encourage the inhabitants to use public transportation instead of choosing their own cars. The district aims to make it easier to walk, bike or take the train and there are also carpooling alternatives. (Malmö Stad, 2014i).

### *Western Harbour*

Western Harbour has in a few decades been transformed from being an abandoned industrial park into an area of knowledge and sustainable living. The aim of the district is to be an internationally leading example of how to build an entire district sustainable, in collaboration with both citizens and companies. The goal is to run all buildings with renewable energy and the area consists of a mix of different housing opportunities in different price ranges (Malmö Stad, 2014j). Yet, some buildings have proven to be not as energy efficient as they were planned to be, partly because residents use more energy than originally thought. Malmö is aware of the problem and investigate in how they possibly can change residents' behaviour. When marketing the district, Malmö decided to not market it as an environmental friendly district. Instead, Malmö wanted to sell the properties solely because of closeness to the ocean and green areas, resulting in few people knowing about its environmental benefits (O'Hare, 2009).

### *Eco-City Augustenborg*

Eco-city Augustenborg is another district of Malmö, built with the idea of being economically, socially and environmentally long-term sustainable. The district offers local and ecological management of storm water, environmental reconstruction of outdoor areas, local waste disposal and small-scale environmental friendly public transportation. The area Augustenborg is a pioneer in Europe to implement an open storm water system. The system reduces the loading on the waste water system and the large amount of channels and ponds around the district increase the quality of environment. Further, all areas have so called green roofs in order to manage the water supply. (MKB, n.a.).

#### 6.1.5 Institutional Interviews in Malmö

This section is a summary of our interviews with relevant people at institutional level in Malmö. Sven-Olof Isacson is the chairman of the Malmö Commission. Emma Börjesson and Nasrin Bigdelou are employed at Consumption & Lifestyle.

### 6.1.5.1 Institutional View of Sustainability

According to Isacsson, sustainability has three dimensions; economic, social and environmental. These dimensions have been a guideline throughout the work of the Malmö Commission where they aim to treat the dimensions with equal importance. Isacsson explains that although a majority of all sustainable cities over the world aim for this, there often exists an imbalance between the dimensions. An explanatory factor to this is according to him, the difficulties in measuring the social dimension of a society. While the economical and environmental dimensions can be quantified with measurements, e.g. economic growth or GDP, the social dimension is much more complex. The commission believes the health inequalities of Malmö to be one of the main problems, thus they chose health as a measurement of the social dimensions, as well as their primary focus of their report. Despite the importance of health, Isacsson clarifies why they need to remember all dimensions:

*“With solely a strong social dimension in the society, it looks good in the short term, but would result in emptying the earth’s resources and cause damage to the society in the long term. The same holds for the other way around. There is no point in having only a long term perspective without focusing on the present, as that would cause damage to the public health situation today.”*

Börjesson and Bigdelou agree about all dimensions’ equal importance and strive to incorporate this in the institutional projects. However, as the institution is politically driven this highly affects their work. Börjesson explains that the City Council impacts their work by their selection of projects. This selection of projects often depends on the backgrounds of the politicians. She illustrates this with an example about Malmö’s different mayors. From 1985 to 2013, Malmö’s mayor, Ilmar Reepalu, made several physical investments resulting in the City Tunnel, Öresund Bridge and Turning Torso. An explanation to all these investments, she believes, is Reepalu’s background as a planning architect. Further, she explains that in 2013, Malmö replaced Reepalu and appointed Katarina Stjernfeldt Jammeh as mayor, who is more interested in the social dimension as she was eager to establish the Malmö Commission.

Börjesson further explains that one of the greatest strengths of their unit is the broad competency. She thinks that all individuals' different expertise and backgrounds provide them with a comprehensive view of the concept of sustainability. She believes this has helped them to not only think within their own expertise area as everyone help each other and collaborate.

#### *6.1.5.2 Integration of Citizens*

Consumption & Lifestyle aims to encourage citizens to engage in city related issues about consumption and sustainable living, as they believe in creating long-term improvements along with the citizens. Bigdelou highlights the importance of including citizens in the entire process, from idea to implementation, and explains several ways of how they involve the citizens. The first way is through their advisory services available for all citizens. She explains that Swedish municipalities are by law obliged to offer budget and rental advisory services. In addition, Malmö offers both energy and consumption advisory services to its citizens, as they have seen a need for advice on these matters. To be a sustainable city, they want to make sure citizens have someone to ask about their energy and consumption issues. Another way of involving citizens within their work is through the arrangement of breakfast seminars. The unit holds about eight breakfast seminars a year with various topics within the field of sustainable consumption. The seminars are open to all citizens of Malmö, aiming to encourage citizens to express their opinions of the city. In addition, the institution involves the citizens by marketing themselves through several public events such as fairs, conferences and the Malmö Festival.

Bigdelou especially explains about their integration of children in schools. They believe that educating children is a good starting point when trying to make people understand the importance of sustainability. By educating children in schools, children begin questioning their own lifestyles and Bigdelou hopes this create a domino effect as children in turn educate their own families.

According to Isacsson, when trying to develop a city in a sustainable manner, it is important that citizens have an interest in the city. He explains that since it is the citizens that constitute the linchpin of the city, there is no point of investing in



sustainable development if they are not engaged or committed. He continues by explaining that an important part of the work of the commission is to get a comprehensive and realistic view of Malmö. Hence, they have tried to use as much primary data as possible when conducting their research, resulting in previously unknown findings about the city. Isacson further believes there are great differences in knowledge of sustainability among the citizens, partly due to the high degree of cultural diversity. If cities are aware of the diversity among citizens and know how to communicate with each group, this most likely will make them succeed in their sustainable urban development. The more cities ignore the differences among citizens and the more they treat them as a homogeneous group, the less sustainable city.

#### *6.1.5.3 Investments According to Institutions*

Consumption & Lifestyle runs several projects, mostly based around different districts of Malmö. Lately, they have made huge investments in the district of Rosengård. Bigdelou explains that regardless of what investments they make, they always try to see the opportunities rather than the problems of the districts. She also believes that when making changes in a district, it is important to involve the citizens, as they are the people living in the area. Thus, when investing in Rosengård they have tried to engage people and together with investments from several other actors Börjesson clearly sees a difference:

*"The image of Rosengård has changed. Today it is no longer the image of burning cars that is being highlighted. Physical investment has led to social mobilization."*

Another district in focus is Lindängen. According to Bigdelou, citizens of Lindängen have started to understand that their own initiatives are what make a difference. This understanding is partly a result of residents organizing activities after school time in the area. She also explains that they try to encourage citizens to move to Lindängen, as they believe this will reduce the criminality in the area. Börjesson adds that the more people in motion, the less criminality. Moreover, she concludes by stating the importance of money in everything they do and experience that it is difficult to convince decision-makers that investments difficult to quantify, sometimes are as important as investments easier to quantify.

*"It is so obvious that money is the essence of everything." (Börjesson).*

Isacsson's focus is mainly on the social dimension when it comes to investments. The commission has tried to include all aspects of what makes a society socially sustainable and Isacsson especially highlights the importance of solving the inequalities in Malmö. Differences in income, health and education among the citizens are recognized as clear examples of what Malmö should invest resources in. However, he concludes by stating that it all comes down to the citizens. The city investments does not matter if citizens are not interested in utilizing them, and illustrates it with the requirement of natural meeting points:

*"Malmö can build parks in order to develop a sustainable city, but if parks are not the demands of the people, people will not use the parks." (Isacsson).*

#### *6.1.5.4 Future Challenges of Malmö*

According to Börjesson, one of the future challenges of Malmö is the gap between groups having the best and worst living conditions in Malmö. If not properly taken care of, this problem will increase in the future. Another problem is the increasing population. Malmö has great potential to become sustainably developed but currently the population grows in a higher speed than the city itself. She explains this by Malmö's too large focus on sustainable areas such as Western Harbour and Hyllie. In order for Malmö to be a sustainable city for all citizens, she believes in focusing on areas like Lindängen or Rosengård as well. These areas have great potential to grow, if citizens only give them a chance. She advocates diversity of buildings and explains that since citizens have different demands, income and needs, Malmö must start building in a wider price range.

Börjesson explains that the mission of their unit is to find solutions before the problems even occur. As they are trying to rebuild areas like Lindängen and create job opportunities, they believe this most likely will result in people having more money in the future. Hence, they work proactively in these situations and make citizens understand the importance of sustainable consumption before they even get used to

their increase of money. Thus, one of their future challenges is to counteract and prevent unsustainable consumption by learning citizens about the concept of shared consumption. Börjesson illustrates it with tool-pools as an example:

*“As all households hardly need their own drilling machine we want to implement tool-pools in buildings where households share their tools instead of everyone buying their one. Laundry rooms are of the same concept and they obviously work fine, so why not have a tool- or bicycle-pool in the same way?”*

Isacsson mentions the social problems as the greatest challenges of Malmö. Further, he refers to their report and what actions it has resulted in. He particularly highlights the importance of education in a sustainable society and describes it as:

*“To make a society sustainable we must begin with the children as they are the source to the future growth for the society. Further, I believe all children must be given the right to do something of their own lives.”*

#### 6.1.6 Citizen Interviews in Malmö

This section is a summary of our focus group interviews with citizens in Malmö, see appendix 1.

##### 6.1.6.1 Citizens' Views of Sustainability

The focus group participants highly associate sustainability with environmental issues like recycling, transportation and energy. A majority of them begin to mention issues like healthcare, education and criminality as well. One citizen explains his view of sustainability as the following:

*“Sustainability is about our impact on the planet and what we leave behind to our future generations. Hence, sustainability is more of a moral concept. I believe we should live in the present without destroying our planet in the future.”*

One citizen believes the social dimension is as highly important as the other ones. Yet, she almost feels expected to associate sustainability with environmental or economical

issues, almost against her own will. She believes this possibly has to do with the complexity of defining sustainability. Furthermore, she finds it difficult to write about sustainability in a scientific way, as sustainability for her is to a great extent about ethics. Another citizen tries to concretize this complexity by stating:

*“When encouraging citizens to live more sustainably, it is probably easier to accomplish a changed behaviour, such as a reduction of citizens’ meat intake, than encourage citizens to care about each other. Yet, I see the latter as more important.”*

Citizens’ attitudes towards sustainability are positive and they understand the importance of thinking about the consequences of their consumption and resource use. However, some citizens feel restricted in their set of sustainable choices. Many citizens feel they act in contrast with what they believe is sustainable. For example one citizen explains that he has no other choice than taking the car to work instead of the bus, as he needs the car during the day. Another citizen explains that he does not recycle as he finds it time consuming, inconvenient and unnecessary, while a third citizen not recycle because her housing association do not supply the service. One citizen experiences an increased sustainable behaviour when being educated in the field at work, which also influences his private life.

Some citizens get slightly irritated when asking about their relationship to the concept. They experience sustainability as something the society has forced them to live after and do not understand the importance. One citizen finds it difficult to feel motivated to live sustainably because of the uncertain future. Everything is based on hypotheses and as nobody with certainty knows what will happen, he finds it hard to see what impact his actions make. Some citizens agree with this and although they in some ways have adapted their lifestyles to favour a sustainable behaviour, they also have difficulties in understanding how their individual actions make any differences in the world. One consumer explained his lack of understanding as the following:

*“I do not like the idea of being forced into a particular behaviour. I believe it is up to each and everyone to build up their own opinions about the concept of sustainability without other people advising me on how to live my life.”*

One citizen mentions that although finding sustainability important, he does not always trust that eco-friendly labelled products always are good for the environment. He explains that he never knows with certainty that the products actually are eco-friendly due to insufficient information about the producer. Another citizen fills in that there have been too much news lately about firms promoting products to be ecological, where the products have proven not to be.

#### *6.1.6.2 Collaboration with Institutions*

During the interviews, the collaboration with institutions of the city is discussed. Citizens have divergent opinions regarding whether institutions should involve in their lifestyles and behaviour. Basically, the citizens can be divided into two groups. The first group believes that it is each individual's responsibility to behave sustainably while the second group believes it is an institutional responsibility.

Citizens from the first group argue that their definition of sustainability somewhat differ from the institutions and thus, they want to decide when to choose the sustainable choice and when to not. One citizen explains it by taking renewable energy as an example. While institutions decide to invest in renewable energy sources like wind or sun, he would prefer to reuse the energy that nuclear power plants emit in the oceans. He finds it frustrating that institutions have decided these issues for him and therefore he does not support that it should be an institutional decision. He ends by stating:

*"What is a green choice? That is only something politicians have decided."*

In contrast, citizens from the second group argue that institutions are needed to make a change in the society. As sustainability is something more or less voluntary, they find laws and regulations necessary. One citizen explains that the day she changes her behaviour, it will be because someone tells her to do so, and continues by stating:

*"To make citizens live sustainably requires that they have no choice. I believe institutions should help to reduce the choices to facilitate a sustainable lifestyle for us."*

However, one of the citizens that prefer institutions to make the decisions sometimes feels a bit betrayed and thus, he has started questioning his own opinion. He explains that for example when firms promote ecological products, which prove to not be sustainable, or when energy companies sell renewable energy, which prove to be from a different source than he would prefer, he starts questioning if the responsibility actually should be put on the institutions.

In order to develop and build a sustainable city, one citizen believes it is political decisions that in the end will make a difference. Further, citizens vote for the party they believe in and that is how they make their voices heard. After all, politicians are supposed to represent the people.

#### *6.1.6.3 Investments in Malmö*

Many citizens want Malmö to invest in traffic reductions in the Inner City. One citizen explains the impossibility of having a normal conversation when using some pedestrian walks because of the heavy traffic nearby. Another citizen once tried to grow her own herbs on the balcony but was forced to stop because of the heavy car emissions around her house. The heavy traffic in the Inner city has even somewhat made some citizens change their behaviour in the sense that they nowadays prefer visiting shopping centers situated outside of Malmö, such as Emporia in Hyllie, rather than go shopping in the Inner City. However, as they nowadays visit Hyllie instead, they very much appreciate the convenient transportation alternatives to the area such as the City Tunnel.

Some citizens would appreciate if Malmö invested in outdoor gyms, allotment gardens, parks and other meeting point in the city. Something explicitly highlighted is green area, as they believe closeness to parks enhances the quality of life. During the discussions about housing construction, one citizen explains she has been looking at an apartment in the area of Western Harbour and is highly impressed by all solar panels, car- and bicycle pools and other sustainability efforts. Unfortunately, the apartment is not an alternative, as she cannot afford it and she ends with saying:

*"It is too expensive for me. I will never be able to afford an apartment like that."*

She continued by explaining that although she encourages sustainable construction she has difficulties in understanding why Malmö builds so expensive apartments when there already exists a housing shortage in the city. However, other citizens understand why the apartments have become so expensive and explain it with the great location. One citizen further believes that the apartments would have become expensive regardless of whether they had built it sustainable or not, and thus support Malmö's efforts in building it sustainable.

One citizen highlights his appreciation for Malmö's investments in pilot projects such as Eco-district Augustenborg. He finds the open storm water system and green roofs fascinating. At the same time as they are good in an environmental and economical way, the solutions enhances the quality of life for the residents in the area. He continues by explaining that:

*"If you create a city where citizens want to live, you have managed to create a socially sustainable city. By appreciating the district you live in, you do not want to destroy it and then you feel motivated to live sustainably. This would result in citizens feeling like a part of the society and it would be nice if all citizens felt as a part of the society."*

During the interviews, participants sometimes have difficulties in separating what them, as citizens want Malmö to invest in for individual reasons and what Malmö should invest in in order to become a green and pleasant city. One citizen explains:

*"It would be so nice to have a bike path that runs the whole way from my house to school but that is only for my own sake, for me to ride the bike safely. You can also see it from the society's perspective and what investments that make our society better and less segregated. I mean, of course I want everyone to have access to water and health care. Everybody should have the right to work and we should have a democratic society. That is what I am supposed to say, but I want stuff too. This is why it is so confusing."*

#### 6.1.6.4 Future Challenges of Malmö

When discussing future challenges of Malmö, citizens mainly bring up the same areas they believe Malmö currently invest in. One citizen, for example, believes that Malmö is in the process of rerouting the traffic in the Inner City but is not sure. If not, he thinks this definitely is a future challenge for Malmö.

Another citizen highlights the importance of continuing to encourage citizens to live more sustainably and many agree that education is the main key to success. By educating people in how they affect the city and how to change to a more pro-sustainable living, they believe citizens would become more motivated. One of the citizens is of the opinion that education is every individual's responsibility and explains that he unfortunately experiences that sustainability currently is a political issue. Although he believes in making sustainability an ethical question for all individuals, it will probably never work. He explains:

*"I do not want to take a political position in this field, as sustainability should be important to everyone, but unfortunately it is unavoidable. So how do we solve this? I do not think individual humans will find a solution because then we must fix all individuals' ethical compasses first, which from a historical perspective seem to be difficult."*

## 6.2 Case Curitiba

### 6.2.1 History of Curitiba

Curitiba was founded by Portuguese colonists in 1693 and became the capital of the state of Paraná in 1854. In the early 19th century immigrants, mainly from Europe, began to arrive to Curitiba and already in 1912 Curitiba was the first city in Brazil to open a university. This was followed up by continued immigration, now mainly from China, Japan, Middle East and Latin American countries. Curitiba has continued to grow and in the 20th century the city developed into a connection for trading and service. (World Guides, 2014).

Curitiba is seen as a prominent example in its work towards environmental- and economical urban planning. It all started in the 1970's when the architect Jaime Lerner



was appointed as city mayor and started the urban revolution of the city. A city-focused Master Plan was formulated where the main objectives were the shift to a linear structure of the city with planned integration of transportation- and street systems and optimized land use. The traditional features of the city were highly prioritized, thus a proposal of freeing the downtown area from heavy traffic was discussed. Further objectives were to ensure urban equipment all over the city and create economic support to urban development (IPPUC, 2014). Curitiba is developed as a retrofit sustainable city (Joss, 2010; Dixon, Eames, Hunt & Lannon, 2014) where they approach sustainability in line with the three dimensions (IPPUC, 2014).

### 6.2.2 Demography of Curitiba

In the end of 2013, Curitiba had a population of 1.8 million and including the metropolitan region, consisting of 29 municipalities, the population was approximately 3.2 millions. The annual growth rate of Curitiba is currently 1.7%. Almost a third of the curitibanos are in the ages 15 to 29, where women in their 20's account for the highest percentage of the population (Prefeitura Municipal de Curitiba, 2014a). The gini coefficient of Curitiba is 0.59, which is higher than Brazil that has 0.52, making the city one of the most unequal cities in the world (The World Bank, 2014; L.F.G. Braga, personal communication, 2014-03-26).

### 6.2.3 Institutional Structure of Curitiba

Brazil has a democratic government, elected by the residents of the country. The voting is mandatory and made in formal elections every fourth year. Brazil has three different political dimensions with a federal government on top of the hierarchy, contributing with a president running the country. The second level of the political hierarchy is the state government contributing with a governor. The third level is the municipality government, i.e. city government, contributing with a mayor. The municipality government cannot undertake the policies set by the federal government, but they are allowed to restrict the policies further. There is no mayor for the whole metropolitan region, only different association managing it. (Municipal Public Management Institute, 2014).

Curitiba's institutional structure consists of 40 secretariats with different responsibilities. Examples are secretariats for public management, research and urban planning, environment, metropolitan issues, workforce, anti-drugs and transits (Municipal Public Management Institute, 2014). The secretariats we have been in contact with during our study are described more in-depth below.

#### *Municipal Public Management Institute (IMAP)*

IMAP is the association responsible for the business plan and the economics of the city. IMAP plans and organizes all the earlier mentioned secretariats and is responsible for the structure of the secretariats as well as the identification of potential problems and lack of attributes. (IMAP, 2014).

#### *Institute for Research and Urban Planning of Curitiba (IPPUC)*

IPPUC works as an independent public authority handling research, planning, implementation and supervision of urban plans. They regulate and monitor the implementation, negotiation and transfer of development rights among interested parties (private developers and landowners). Further they ensure continuity and consistency in planning processes of urban development and elaborate programs, plans and projects. (Suzuki, Dastur, Moffatt, Yabuki & Maruyama, 2010).

#### *Secretariat of Environment of Curitiba (SMMA)*

SMMA is responsible for the formulation and implementation of Curitiba's environmental policies including monitoring and control of the policies. The secretariat is also responsible for the programs of maintenance, conservation and recreation of the environment with the goal to create a high quality of environmental conditions, which they state, will result in an increase of the quality of life for Curitiba's citizens. (Prefeitura Municipal de Curitiba, 2014b).

### 6.2.4 Projects in Curitiba

#### *The Revision of the Master Plan*

The Master Plan has to be revised every 10<sup>th</sup> year and 2014 is the year when the Master Plan, by law, has to go through a revision. The guidelines from the very first Master Plan

in 1966 are still considered as important and have to be included in the revision. The main focus of this year's revision is the sustainable way of living and to include the green economy. Green economy means that the master plan is changing to include rules of climate changes and sustainable issues, where all three dimensions of sustainability are incorporated. Examples of issues are an increased biking path system and less pollution. (L.F.G. Braga, personal communication, 2014-03-26).

#### *"Curitiba 2015 + 50"*

Curitiba's sustainable comprehensive plan, "Curitiba 2015 + 50" is planned to stretch from the year of 2015 until 2065. This sustainability plan has a much broader focus than the master plan and requires collaboration between different cities and regions. The broader focus does also includes the integration of all on-going projects in the city of Curitiba, i.e. waste management, river pollutions and water supply, each affecting several regions and cities. Currently the plan is still in its conceptual phase where IPPUC works to reinstall the sustainability thoughts in the population's minds. (L.F.G. Braga, personal communication, 2014-03-26).

#### *Management Plan 2013 – 2016*

The mayor of Curitiba creates the management plan and one of the plan's main cornerstones is democracy. A federal law settled in 1992 states that the citizens of all Brazilian cities should have the opportunity to participate in meetings to have a say in the city's investment decisions. Through so called Public calls (further explained in section 6.2.5.2), the municipal government ensure that all the citizens and all the institutions representing the citizens are participating or in some way are involved in the discussion of the management and the execution of all the City Hall actions. The democracy part of the management plan promote for citizens to have a say in how the resource investments should be executed. The public audience discussion from 2013 about the budget of 2014 resulted mainly in concerns about the public streets, the public transportation network and security. This year the main focus is on the review of the Master Plan. Other cornerstones in the management plan are the integration of all sectors and areas, innovation (keep the city innovative), commitment (from everyone) and transparency. The transparency part communicates that all problems are

connected to each other and it is required by the city hall to see a macro picture of the city. (Municipal Public Management Institute, 2014).

To integrate sustainable work in the management plan, the management team has set up 12 programs to create a more sustainable Curitiba. Examples of objectives included in the programs are; the creation of a more human, secure, healthier and creative city. Further they strive to increase the quality of life with more education, better nutrition, urban mobility and greener areas. Included is also a program to work towards a metropolitan region perspective. (Municipal Public Management Institute, 2014).

### *Recycling Program*

As mentioned before, Curitiba is famous for its work with the recycling program. As the outcome of this program has been so successful, it will continue to run. The idea of the program is that different garbage bins, for different kinds of garbage are placed throughout the whole city so all the citizens have access to the bins. The bins are most commonly separated in two parts; one for recyclable garbage and one for non-recyclable garbage. In most public places, such as squares, schools, transportation terminals and downtown, coloured bins are located. Each of these locations has six coloured bins beside each other, and every colour has its own purpose. Blue for paper, green for glass, grey for “other” waste, yellow for metal, red for plastic and orange for “hazardous” waste. The garbage is then collected and sent to one of Curitiba’s 33 recycling farms. (C. Guillen, personal communication, 2014-03-27).

### 6.2.5 Institutional Interviews in Curitiba

This section is a summary of our interviews with people at institutional level in Curitiba. Daniele Moraes and Luiz Fernando Gomes Braga are architects at IPPUC, Carlos Guillen is engineer at SMMA, Márcia Schlichting is director at IMAP and Rennan Stelle is International Affairs Officer at IMAP.

### 6.2.5.1 Institutions' view of the concept of sustainability

*"The sustainable way of living is the root of Curitiba's Master Plan." (Schlichting).*

According to Schlichting at IMAP and as the quote indicates, Curitiba's view of sustainability is deeply rooted and a very important part of their urban development. Currently, to further improve their work with the sustainable development the management team of Curitiba have set up the earlier mentioned 12 programs, where each program aims to make Curitiba more sustainable. Braga and Moraes agree with the deeply rooted view of sustainability but they have noted that today Curitiba is going through a change in how to approach the concept of sustainability:

*"We need to think about sustainability in a deeper way. We need to think about what sustainability really is and how we should deal with it." (Braga).*

The reason why they believe Curitiba needs to change their approach to sustainability is grounded on two concerns. Firstly, Curitiba's on-going urbanization process. This process occurred with the growing population and makes the city realize that they need a more human aspect of sustainability. Secondly, climate changes because of human actions. The city realizes that it needs a well-defined dimension about the environmental aspect of sustainability.

Further, Braga states that Curitiba's concept of sustainability needs to be complemented. He mentions a fourth dimension, namely governance, which he means is a fairly new, but essential dimension:

*"Without governance the three dimensions of sustainability become just a speech." (Braga).*

Braga also adds a fifth dimension to the concept of sustainability, the human dimension. The need of a more human approach occurred when they realized the need to create a city designed for humans. He means that the ideal would be to maintain an on-going human dimension but due to situations that cannot be predicted and that they cannot

foresee the result of a policy or a project, things can get out of control. According to Braga, this is the reason why Curitiba cannot approach a human dimension continuously.

According to Schlichting and Stelle, Curitiba is now 100% urbanized and you cannot see the frontiers anymore between Curitiba and the cities around. As this expansion continues to grow it is now essential to think of the whole picture when talking about e.g. mobility and environmental management.

From an environmental perspective, Guillen states that Brazil has abundant natural resources. This abundance results in cheap energy consumption for the citizens but do also have some negative drawbacks when the high availability of water supply is mostly of bad quality.

Schlichting states that the city growth requires a creation and maintenance of collaboration between institutions. She believes the city hall of Curitiba is aware of the growth and takes all other cities into consideration in their decisions and always tries to include the metropolitan region. However, as all municipalities have their own mayor taking their own municipality-related decisions, it might be hard to include interests of all municipalities in the same decision.

When discussing solutions for Curitiba and how to accomplish desired results in the city, Braga at IPPUC mention that the collaboration between the department of environment planning (SMMA) and IPPUC themselves needs to be improved. Braga means that the tradition and all practice of urban planning in the city are done independent of the environmental planning but in reality the environmental planners and the urban planners are working at the same location, but with different focus. He believe the ideal would be if the departments could collaborate and share the same vision and approach, in contrast with today when the departments are working separately. Braga further believes this collaboration would increase the understanding among citizens. By seeing that the departments collaborate, this would result in an increased engagement and integration of citizens, as they would get the opportunity to discuss environmental and urban planning matters in symbiosis. IPPUC is currently

working hard to convince relevant people that collaboration would be possible and he believes that the new sustainable plan is a work towards a unification of the environmental and the urban planning institutions. When asking Guillen at SMMA about their collaboration with IPPUC, he answers:

*"Yes! We work all together because the problems are all connected!" (Guillen).*

According to Stelle at IMAP, one way to foster good collaboration between institutions is by national programs, set by the federal government, demand cities to run programs in collaboration with private companies. One example is the sanitation programs where the City Hall of Curitiba together with the private sanitation company Sanepar developed, and is still developing a sanitation plan. Included in this plan is the communication with citizens to understand the citizen interest and together create holistic sanitation management. Another example of good collaboration is that SMMA together with the city hall has a program where they encourage people to ride their bikes on Tuesday evenings. In the past two years the result has shown an increase of biking with 30% and they believe this approach will continue to increase the use of bikes. A third example of a good collaboration is between institutions and the television producers. By broadcasting programs about i.e. existing environmental problems, they believe people increase their knowledge and also get encouraged to live more sustainable (Guillen).

Moraes also highlights the problems that occur when different institutions take contradictory decisions. An example of this is that the federal government encourage people to buy cars, which are not according to Curitiba's goal; to create a city for people, not for cars. This federal approach causes more traffic and results in mobility issues that the institutions of Curitiba have to deal with.

#### *6.2.5.2 Integration of citizens*

As explained by Schlichting, one of the main cornerstones of the management plan running from the year of 2013 until 2016 is democracy. In this plan democracy stands for:

*“All citizens’, and institutions’ representing them, rights to participate or in some way be involved in the discussions of management and action execution in the city of Curitiba.”*  
(Schlichting).

To accomplish this interaction between citizens and institutions, which is also in line with the federal law giving all citizens the right to speak up, so called public calls are executed. These public calls are held two to three times yearly for each region where all citizens are invited. Calls are not mandatory, but to secure that everyone’s interests are included in the decision-making process, at least one representative from each group of neighbourhood is participating. It is also possible to participate through social media, such as Twitter and Facebook. The main goal with the meetings is to give the citizens the opportunity to discuss the resource investments of the city. The content of the meetings can be specific (e.g. about health, transportation or education) or general, where citizens are able to bring up any problems they think is in the need of discussion. The results of the public calls are used to make sure that the budget is divided accordingly to the citizens’ suggestions and preferences.

To solve more specific problems around the city, Braga mentions population meetings, which will be included in the sustainability plan, *Curitiba 2015 + 50*. These meeting are planned to be held regionally, in smaller areas and people living close to the occurred problems will be invited. This will make it possible for citizens to bring up experienced problems to discussion. Braga and Moraes believe this will help to solve many problems of the city, and increase the citizens’ conscience as they want to communicate information about what is the citizens’ obligated actions and make them understand that it is not only about legislations. Further, they hope this will make citizens understand the conditions of the city and how they together can work in a proactive way to stop new problems to occur.

From an environmental perspective, explained by Guillen, SMMA integrates children in their work to increase the knowledge of the children. For example, SMMA runs workshops for children on the recycling farms, where children get educated in recycling and what materials that can be created if they recycle properly. Further, SMMA gives children equipment to test the water quality.



### *6.2.5.3 Resource investments according to institutions*

Stelle states that the annual budget is distributed in accordance with suggestions from citizens during the public calls. Moraes at IPPUC explains that in order to further ensure that the budget is spent in accordance with citizens' interests, services that are essential for a country to be independent, is in the city of Curitiba publicly owned. Essential services for a country are water supply, energy supply, transportation and banking. Curitiba believes that if these services remain publicly owned they could keep the control of the services and ensure that they are operated in the way of the citizens' interests. An example is the transportation system, which is publicly managed to guarantee the interest of the society (e.g. timetable, price and bus stop location) but all operation is private run (e.g. maintenance, fuel and cleaning). IPPUC believes that if this system would have been privately owned there is a big risk for competition between private companies instead of assuring timely access for the citizens.

### *6.2.5.4 Future challenges of the city*

Schlichting at IMAP believes that Curitiba's biggest challenge is education:

*"There is no problem in the city that is simple. Since everything is integrated one problem often hits other sectors. But when you have a nice education you have solved a lot of the problems. If you are educated you are aware of many procedures that uneducated people possibly would miss."*

She continues by saying that everyone agree that education is the key to change the behaviour of the citizens. People need to learn how to interpret the fact about what is good and what is not.

According to Braga, Curitiba needs to break the culture of creating experts in different areas and create a more holistic thought about the city. He means that this will be a structural challenge for the city, requiring a change of their habits. The city must start work together to reach a model that can give concrete answers to the population.

As Curitiba is going through a change where it is transformed from being a city into a metropolitan region, the main future challenge, according to IPPUC, is to think outside the borders in a more regional way. He further believes that Curitiba needs to think bigger and in a different way, which will demand a lot of attention from the city. He explains it as:

*“A snake has to change its skin when it grows. If the skin is not big enough, the snake will get stuck.” (Braga).*

Other discussed challenges for the future is a more integrated transportation system including an increase of bike paths, a reintroduced innovation thinking and to solve the bad quality of water. Stelle at IMAP concludes by saying:

*“Well, everything is harder now with a growing population. Management, education, communication [...] everything.” (Stelle).*

#### 6.2.6 Citizen Interviews in Curitiba

This section is a summary of our focus group interviews with citizens in Curitiba. The participants are citizens from the universities; UTP, PUCPR and UFPR, see appendix 1.

##### 6.2.6.1 Citizens' Views of Sustainability

Citizens' views of sustainability differ a lot among the participants. Many participants associate it with the way of living where one citizen describes it as *“the right way to live”* or *“the way of helping the world and deliver a better future for our children”*. Another citizen associate the concept with saving money as a result of decreased use of resources while a third one's perspective of sustainability is the following:

*“I think sustainability is not about all green. It's about money too. You have to think that city growth is really fast and sustainability do not take all the city in consideration. People in the Favelas, the most poor neighbourhoods, I mean, the sustainability is not for all, it is just for parts of the city.”*

A majority of the citizens mention the environmental perspective of sustainability. They agree about the importance of thinking of the future in the means of saving natural resources and believe this has become a cultural thing in Curitiba:

*“It is a cultural thing to recycle in Curitiba, people are born to recycle and that is why they do it!”*

They mean that the recycling program encourages people to recycle and it has become an unconscious mind-set like a tradition. One citizen explains that they have a big recycling program at work, which makes her recycle and think sustainable in her daily life, as she get aware of the importance to live sustainably. However, one thought about recycling was about how the collection of the bins is done:

*“There is no need to separate the garbage as it is not being done properly when collecting it anyway.”*

Words that are frequently mentioned throughout all interviews are garbage, nature, green, trees and decrease of the ecological footprint, which are all related to the environmental dimension of sustainability.

When the citizens discuss Curitiba as a sustainable city, they agree that Curitiba used to be the sustainable environmental capital of Brazil, with green parks and good transportation. Also, the citizens feel that Curitiba cares more about sustainability than other cities but the situation today could be better:

*“Everything is an image created by the politicians!”*

The citizens explain it further as a created image of a nice city but when you live in the city you get to see all the problems that actually exist. Another citizen agree and thinks that the propaganda for sustainability is very high in Curitiba, but it is just propaganda, not reality.

### 6.2.6.2 Collaboration with Institutions

Citizens believe the easiest way to make institutions and politicians listen to them is by voting in the elections to parliament, where voting is mandatory. However, there is a big problem with the system and one citizen explains:

*"The problem is that most citizens do not know enough about politics to understand what they are voting for."*

One citizen further explains that people do not even remember what party they previously voted for and they believe the main reason is that people do not care. Another reason is explained as:

*"I vote for the promises, but at the same time I know they won't fulfil them."*

Other citizens agree with this. They think actions are taken only during election years, to make people vote for that specific party. When the party has won, they do not fulfil their promises. One citizen does not feel any support from politicians or the police and explain it by stating:

*"Politicians and the police see all activists as vandals, mainly and firstly they blame the people for everything. This is just a way for politicians not listening to people."*

The perception is that the federal government does not listen to the population but they believe the mayor in the municipal government listens more to the populations' preferences. Citizens say that they need to see improvements and governmental actions to believe the promises including actualized evidences of set visions.

A successful way of communicating with citizens is the sustainable certificates showing whether a building is sustainable constructed. Citizens appreciate this as they see by themselves if a building is certificated, indicating a processing work towards a more sustainable city.

An example of lack of communication is Curitiba's investment in a bridge, located on the way to the airport, something that the citizens thought was indefensibly and worthless:

*"Why do we need a fancy bridge like that when we do not have other basic things?"*

The citizens clearly want other services to be prioritized before building a landmark in the shape of a bridge. When discussing that some institutions claim they have a lot of advertising about sustainable information through TV, the citizens has a different view of it. According to the citizens they are more interested in the TV shows and does not really pay attention to the TV advertisement about for example recycling:

*"Because it is just propaganda!"*

#### *6.2.6.3 Investments in Curitiba*

When asking what Curitiba invests in, many citizens have few ideas. However, one reappearing answer is on education, as they believe educated people ask for their own rights:

*"Education would definitely solve a lot of problems. However, the government does not want it because if people get educated they will understand their power over government. This will decrease the power of the government and the government think this will create a lot of problems for them."*

However, citizens do not believe the government will invest in this, as education is more of a long-term investment where the result is seen in 20 years. They experience the government wanting to see results now and to be able to take credit for what they did during their period in the parliament.

Another investment citizens want Curitiba to invest in is safety, as they experience an increase of robberies and killings:

*“We do not feel safe here. No one goes out alone, especially not women. Sometimes when people get robbed, they get killed to.”*

Citizens think that Curitiba’s transportation system is the best in the country. Yet, with a growing population and with a transportation system from the 70s’, the system needs to be revised. Hence, people prefer the more convenient, faster and safer car instead of taking the bus or bicycle. As citizens nowadays have access to credits, they have the possibility to buy their own cars, resulting in an increase of the mobility problem as the use of cars increases. An investment in biking paths is also mentioned in the transportation perspective. The citizens see the roads as very dangerous for biking and what is supposed to be good biking paths in town are in reality located only between the parks and downtown, excluding the suburban areas.

Although the majority of citizens believe the public investments are too low, they admit that it has been done tiny steps in the right directions and although it has been spent a lot in those tiny steps, it is worth it.

#### *6.2.6.4 Future Challenges of Curitiba*

When discussing the future, the citizens speculate that they believe the concept of sustainability will become more important and that the concerns will grow as the natural resources become scarce. Citizens believe that the biggest future challenges for Curitiba will be welfare including; job opportunities, transportation, water and recycling. They believe it is the sum of all these things that needs to be considered. In conclusion the quality of life needs to be frequently improved.

*“The city has increased, but the public investment has not.”*

A big reason to the increase of problems in Curitiba is the growing population. Many citizens view Curitiba as a city used to be successful, but is not anymore:

*“The appearance of Curitiba is nice but the inside of the city has so many problems. It is all about city marketing.”*

Citizens are aware of the problems with corruption in Curitiba, and in the entire country, and find this to be a great challenge. They believe the distribution of wealth between different institutions and different groups of people are unequal. One citizen explains the problem with inequality as:

*“The educated and richer people do not care, they have enough money to pay for private education and private health care, and they have everything they need. The richer people do not think the government should help the poorer people with money and essentials when the richer people sacrifice themselves at work.”*

Some citizens do not believe that changes will happen in Brazil and Curitiba and have started to lose faith. However, if investments will be put on education, they believe all citizens will understand their role and power in the society, encouraging to a better democracy:

*“The day when all poor people realize that they are in majority, they will change Brazil. Today they do not understand their power.”*





## 7 Analysis

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*This chapter analyses our findings by following the same structure as our presented theory chapters. We begin by examining whether the cases are sustainable by chosen definitions from chapter 3, followed by an analysis from both an institutional and a citizen perspective, based on theory from chapter 4-5. We continue by analysing the value configuration in the cities, with support from chapter 4 and ends with a discussion of general findings and sustainable responsibility.*

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### 7.1 Curitiba and Malmö - Sustainable Cities by Definition?

Since representatives from institutions in Malmö stated that they always try to consider all dimensions of sustainability (Isacsson; Bigdelou) it seems that their view is in line with theory, stating that sustainable cities should be developed, built or updated in a social, environmental and economical manner (USEPA, 2014a). The awareness and knowledge about this risk of creating an imbalance between the dimensions (Isacsson) indicates that they at least strive to reduce this risk.

On the other hand, there are findings indicating the complexity of succeeding with the convergence between all three dimensions. Under the leadership by Reepalu, Malmö focused more on physical investments like the City Tunnel and Turning Torso (Börjesson). With Stjernfeldt Jammeh as Mayor, the city seems to focus more on the social dimension. It can be argued that this is a result of the complexity of focusing on all dimensions at the same time. In addition, there is a risk that the Malmö Commission might have failed with the convergence as well, due to their health as primary focus. At the same time, as the main idea of the commission was to investigate the inequalities in Malmö and as Isacsson seemed to be aware of the risk of a potential imbalance, we reject the idea of potential biases between the dimensions emerged during their work. Börjesson's statement about the difficulties in convincing decision-makers that investments harder to quantify sometimes are least as important as other investments, is another indicator of the complexity of treating all dimensions with equal importance (Baldwin, 2014). This was also found in the interview with Isacsson when he explained the complexity of quantifying the social dimension.

According to WCED (1987), sustainable cities should, among other things, be organized to enable all citizens to meet their own needs and enhance their wellbeing. Malmö's inequalities in health indicate that Malmö currently fails in meeting the definition of a sustainable city. However, as the aim of Malmö's on-going projects is to solve these issues (Isacsson), it seems that Malmö at least has a plan on how to be developed to meet the needs of all citizens. On the other hand, this has not always been the case. For a period of time, Malmö mainly focused on physical investments (Börjesson). This present thinking has emerged relatively recently. This also indicates the complexity of treating all dimensions equal.

As in Malmö, the institutions of Curitiba argued that they follow the common definition of sustainability and use the three dimensions of sustainability (Braga; Schlichting). However, our findings indicate that institutions have different views of the concept of sustainability mainly occurring due to their different work focus. This most likely creates an imbalance between the three dimensions. We also identified differences in their view of urgency of the problems. SMMA has an environmental perspective, which indicates that they see the sustainable work as rather good and may not see the same urgent situation as IPPUC and IMAP does (Braga; Schlichting; Guillen). Furthermore, institutions of Curitiba highlighted the importance of complementing their concept of sustainability with two additional dimensions and a need of revitalizing it, this indicates that the usual definition is insufficient (Braga).

Citizens of Malmö and Curitiba agree with the chosen definition of sustainability (WCED, 1987), where they highlight the importance of both present and future thinking. Hence, this definition seems to be feasible among citizens. However, the views of the three dimensions of sustainability clearly differ. In both Malmö and Curitiba there seem to be a larger focus on the environmental and economical issues rather than the social. This can further indicate a possible imbalance between dimensions (Harris, 2003). It is possible that the views of the dimensions of citizens follow what institutions of the cities focus on, i.e. a greater institutional focus on environment might influence citizens' views of the concept of sustainability.

In Curitiba, citizens experience the concept of sustainability as an image created by politicians. They agree with the importance of sustainable development and Curitiba being a former sustainable city. Yet, they do not recognize the city as sustainable anymore. Further, most of the citizens mention the issues that Curitiba is most famous for, such as the recycling program and the transportation system (Joss et al., 2011). This indicates that even though they might experience it as propaganda, the institutions have at least succeeded in educating them in recycling and sustainable transportation.

## 7.2 Institutions' Fulfillment of Roles and Functions

To examine whether institutions of Malmö and Curitiba fulfil their roles, we base our analysis on the three functions made by Bergström (2000); *(i)* the reduction of uncertainty, *(ii)* facilitate cooperation and *(iii)* facilitate division of labour.

In Malmö, institutions seem to have succeeded with the reduction of uncertainty, even though it can be discussed whether the limitation of choices is too restrict. For example, City Council of Malmö reduces uncertainty in the decision-making process by making decisions about what projects the institutions should run (Börjesson). However, as these decisions do not seem to always support what the institutions wish to focus on, there is a risk that this sometimes leads to a creation, rather than reduction, of uncertainty if institutions do not understand the reasons behind these decisions (Bergström, 2000). The same argument holds for citizens, as they sometimes feel forced to certain behaviour, resulting in a potential increase of uncertainty due to lack of knowledge. Moreover, Malmö has divided the administration of the city into five districts and has a district-oriented approach in their projects (Bigdelou), indicating that Malmö succeed with the division of labour (Bergström, 2000). Yet, if institutions have too high focus on their own areas, it might result in lacking cooperation between them, in turn leading to institutions failing to fulfil their third function as facilitators of cooperation (Bergström, 2000).

Institutions of Curitiba believe in reducing uncertainty and restricting choices for citizens by keeping services publicly owned. By keeping services such as transportation and energy consumption mainly publicly owned, they ensure that citizens' interests are fully respected and at the same time reduce uncertainty in their decisions (Moraes).

However, citizen interviews indicate that citizen' interests are not fully in line with the institutional decisions. As they find for example the transportation system in need of improvement, we argue that controlled public ownership might result in institutions failing in their function as uncertainty reducers and distributors of labour in the society.

In addition, there are indicators showing a lack of cooperation among institutions and thus they partly fail in their function of facilitating cooperation in the society (Bergström, 2000). These indicators are; (i) the somewhat different views of urgency in problems related to sustainability between IPPUC and SMMA, (ii) and the contradictory answers to the question about communication and collaboration between the institutions (Braga; Moraes; Guillen). Different views of the concept of sustainability and the high focus within their own areas might result in a lack of cooperation, which (Bergström, 2000) argues result in a reduction of total benefits for all parts in the society.

In Curitiba, institutions and citizens agree on the great importance of cooperation in the sustainable city development. Also, they believe this is something that needs to be improved (Braga; Guillen; Schlichting). Citizens seem to believe collaboration with institutions would lead to a feeling of trust and a better outcome of the development, which is in accordance with the theory saying that humans always prefer a better outcome. One way for the citizens to achieve this is by help from the institutions, defining and limiting the set of choices (Bergström, 2000). Another indication of citizens' mistrust is the citizens' perceptions of the mandatory elections. It seems that they do not care and do not believe they have a say in the decision-making. This mistrust seems to occur when citizens do not see any result of governmental actions. An improved cooperation would probably improve the communication of actions taken by the government, in turn increasing the citizens' trust for the city. Curitiba's building certificates strengthen this; as they are very appreciated indicators of sustainability, thus probably increase the incentives among the citizens to behave accordingly, when they see the better outcome (Bergström, 2000).

Braga indicates that the approach towards the third required function, the facilitation of division of labour (Bergström, 2000), is insufficient in Curitiba. He highlights the need

to change the habit of creating experts in the city and instead create a more holistic view. The creation of experts might have result in everyone focusing on their own fields. The outcome of this might be a declining cooperation (Bergström, 2000) and reduced understanding of the holistic view of the city.

Further, it can be argued that Curitiba lack in the structure of social conduct in the city, which is the institutions' responsibility to provide (Klein, 1999). This lack was indicated by IPPUC's beliefs in both the upcoming governance dimension and the need of a human approach (Braga), which put together have the opportunity to create a better structure of social conduct (Klein, 1999).

### 7.3 Path Dependency

In Curitiba, we found several indications of path dependency. We believe an explanation to this is as they use the same guidelines as from the very first Master Plan in the 1970's (Schlichting). Braga explains about the continuing interruptions in their work to establish and maintain an on-going sustainable development. We argue that these interruptions might not only be unpredictable situations occurring from nowhere. It might be changes in the city, resulting in new city conditions, meaning that instead of seeing them as continuing interruptions, they ought to be considered as new prerequisites that the city needs to adapt to. Therefore we believe these interruptions can partly be explained by path dependency. The city seems to prefer choosing the already established path, even though it might not be relevant anymore (Bergström, 2000).

A possible solution would be a revitalization of the guidelines to better suit a city, which is about to be transformed into a metropolitan. This is further proved by Braga and Schlichting stating that the city needs to be revitalized due to Curitiba's situation with a rapid population growth, the city's transition from a city to a metropolitan and the climate changes. Therefore, in Curitiba's current situation, it can be highly important to consider occurrence of path dependency (Bergström, 2000).

Path dependency is also identified in SMMA's view of sustainability. SMMA with a main focus on the environment seems to consider the sustainable development mainly as a

successful recycling program and that they live in a country with abundant natural resources (Guillen). This indicates that SMMA sees their efforts in sustainable development as rather good and may not see the situation as urgent as IPPUC and IMAP do (Braga; Schlichting; Guillen). SMMA's view of sustainability can therefore be explained by the concept of path dependency, as they seem to recognize sustainability in the success factors from the past (Bergström, 2000). Lastly, Braga's explanation of the need to change the habit of creating experts will require a structural change. This will probably be difficult, as it is a complex mission for a city to change from an established path and find a new, but it might be essential in the case of Curitiba (Bergström, 2000).

In the case of Malmö, we have not seen any negative signs of path dependency. We believe this can be explained by Malmö being a role model for its innovation and as the Malmö Commission aims to use primary data in their report (Malmö Stad, 2014a). Hence, innovation seems to be a way to prevent negative outcomes of path dependency. According to Stelle, innovation is one of Curitiba's future challenges and this might be a way to break the current path dependency in the city.

#### 7.4 Value Configuration

We have noticed several potential deficiencies in the value configuration in the cities, which we aim to describe with support from value configuration theory by (Stabell & Fjeldstad, 1998).

Findings indicate that the value creation process in Curitiba and Malmö seem to be done by value shops. Decision-makers and institutions follow the process of identifying problems, finding potential solutions, implementing a chosen alternative and end by evaluating these implementations. An example illustrating this is the master plan of Curitiba. The plan is revitalized every tenth year, where the responsible institutions find alternative solutions on recurring problems (Braga; Moraes). The revitalization resembles an iterative process, where the problem is matched with the problem solving resources (Stabell & Fjeldstad, 1998). Another example is the Malmö Commission, where they have identified a problem of inequities in health in Malmö and aims to find possible solutions to the problem in order to implement and further evaluate it

(Isacsson). This process is also, according to the theory by Stabell and Fjeldstad (1998), a type of value shop.

There are indications of a shift in the value creation process of Malmö. As explained in one of the interviews, the mission of Consumption & Lifestyle are to find solutions before the problems occur (Börjesson). They also focus on spreading knowledge of sustainability by being visible at public event and believe one of the future challenges is the implementation of shared services such as tool-, car, and bicycle pools (Bigdelou). This can be seen as a shift from a value shop to a value network perspective. In a value network, value is created as the network facilitates linkings between actors, individuals and organizations within the society (Stabell & Fjeldstad, 1998). The institutional efforts of spreading the knowledge of sustainability in Malmö can be viewed as these linkings between individuals.

In Curitiba we found indications of beliefs that interaction in different ways would benefit the city in total. This is in line with the theory of value configuration, explaining value networks to benefit an entire group, in this case the entire city (Stabell & Fjeldstad, 1998). The beliefs could be identified in the citizens' proposed solution to Curitiba's most urgent problems. They believe that it is the sum of different city services, i.e. education, jobs, transportation and water supply, possibly resulting in higher quality of life and increased welfare for the citizens. Further, Braga's view of teaching everyone about a more holistic view and include citizens in the development, can also be argued to be in line with the concepts of value networks.

## 7.5 Citizens and Consumers

In Malmö, citizens have problems answering the question of investments in Malmö. One citizen explained the difference between seeing what she as an individual wants or what the city in general needs, indicating the dual role of individuals in sustainable societies (Sagoff, 1988). Some citizens of Malmö almost felt guilty when explaining what they wanted for their own sake and often justified their wishes by adding problems like segregation, housing problems and poverty.

In Curitiba, it is harder to discern any differences between the role of citizens and consumers among the participants, as needs and requirements of the city often were the same. As the theoretical definition of citizens is individuals who make decisions based on a separate set of values and people who are motivated by an altruistic concern for a larger community (Berglund and Matti (2006), individuals in Curitiba seem to be more alike the theoretical definition of citizens, rather than consumers.

Differences between the cities can depend on their divergent situations. In Curitiba, polluted rivers, public transportation and poverty probably impact people both as citizens and consumers. In Malmö, problems like poverty can be argued to not be as urgent as in Curitiba and therefore the roles differ. Another possible explanation might be differences in democracy. Findings indicate that citizens of Curitiba experience themselves having low power to influence the decisions and therefore cannot identify themselves as consumers. In Malmö, citizens believe there is a possibility to impact the decision-makers and therefore they easier can identify themselves as consumers, meaning individuals guided by individualistic and materialistic concerns (Berglund & Matti, 2006).

## 7.6 Consumer Behaviour

### 7.6.1 Internal Factors

According to Schieffman and Kanuk (1983), people are affected by the impact of other people. When examining attitudes towards sustainability, we found examples of Curitiba's encouraging work towards sustainable attitudes. SMMA's integration of children (Guillen) can be seen as a step in the right direction in the work to increase sustainable knowledge among citizens. When approaching children with this knowledge there is an opportunity to integrate the sustainable thinking in their beliefs and values and make it a cultural matter (Schiffman & Kanuk, 1983). Further, this is also in accordance with consumer behaviour theory where Assael (1984) states that attitudes are formed during infancy.

Education is also agreed as one of Curitiba's most important future challenges to make everyone understand the actions needed to solve the problems of the city (Schlichting).



Citizens' attitudes are developed over time, thus an approach to increase the education has the opportunity to contribute to a change in citizens' attitudes (Assael, 1984). We believe that a change of attitudes can possibly encourage people in their sustainable behaviour. The institutions of Malmö also seem to believe in involving citizens in their early ages as they educate children in schools (Isacsson). This is in accordance with before mentioned Assael's (1984) statement of forming attitudes during infancy and early childhood.

The citizens experience Curitiba as a former sustainable city but what is left today, they seem to experience as mainly propaganda, which result in an imbalance in motivation due to the change in personal experiences of the city. Also the occurring uncertainty with the thought of the garbage not being collected properly might also result in decreasing motivation for the citizens to recycle (Lewin, 1951).

Assael (1984) states the great extent to which the family can influence consumers' attitudes and behaviour, making them a good starting point for changing attitudes and behaviour towards sustainability. Malmö encourages families to use their advisory services, which enhances the possibility of creating sustainable attitudes and behaviour among the citizens. These families in turn educate future generations of Malmö, which can be seen as a long-term investment in sustainable development (Bigdelou). Also, in Malmö we found families influential, as citizens seem to behave sustainably despite their inability in understanding how it actually impacts the society. We believe a possible explanation of this sustainable behaviour is likely to be that their families had a sustainable approach when they grew up which the children has followed (Schiffman & Kanuk, 1983). In Curitiba, families to some extent also had an influence on the citizens' behaviour. The citizens that had a sustainable behaviour at home, most likely continued this behaviour when moving to their own places.

#### 7.6.2 External Factors

Institutions and citizens of Curitiba find sustainability to be deeply rooted in the culture of the city and seem very proud when talking about sustainable city development (Braga; Guillen; Stelle). The majority of Curitiba's citizens see sustainability as something integrated in their beliefs and values, i.e. the "*right way to live*". This view of

sustainability can further prove the existence of a strong cultural factor in Curitiba. The cultural factor is also supported in the citizens' view of the work with sustainability in Curitiba, that it has become a cultural thing, especially in the environmental dimension. These attitudes towards sustainability are in line with what Schiffman and Kanuk (1983) explain as the broadest component of social behaviour, when people in the same society create shared beliefs and values, which become a part of the city culture.

According to Braga, Curitiba has successfully integrated citizens in their environmental- and economical urban planning by creating it as a culture. They have successfully created shared beliefs and values among the citizens, which also is shown to serve as a link between the members of a society (Schiffman & Kanuk, 1983). Further stated by Schiffman and Kanuk (1983), the cultural factor is partly composed by a dynamic factor saying; as society changes, values must change. This complex task of changing conditions is where Curitiba is standing today, mainly because of the articulated need of revitalization (Braga; Schlichting). The public calls are seen as a very successful channel between the institutions and the citizens, where a big part of the city is participating (Stelle). These meetings are planning to be complemented with public meetings brought up in the master plan (Schlichting), but as they still are in the planning phase it is hard to predict the outcome. Yet, this plan shows an awareness of the importance to integrate citizens in the sustainable development.

Citizens in Malmö and Curitiba who were educated in sustainability at work increased their awareness of the importance of sustainability, in turn influencing their private life. Hence, educating citizens at work can be argued to be successful and is also supported by theory stating that if a reference group, i.e. the worksite, is considered as aspirational and the individual can identify him or herself with the group, the reference group can influence individuals' beliefs, attitudes and behaviour (Schiffman & Kanuk, 1983).

## 7.7 Gap Between Attitude and Behaviour

There seem to be a gap between attitude and behaviour towards sustainability among citizens in Curitiba and Malmö. Citizens seem to have a positive attitude towards sustainability and even though the primary focus was on environmental issues, they most often defined sustainability in accordance with the theory. However, the number

of citizens that actually undertook the sustainable behaviour was not as high as the number that said that they wanted to live sustainably, which can be identified as a gap in accordance with theory by Ajzen (1991).

In Curitiba, all citizens did not believe sustainability is for everyone, especially not for citizens living in poorer areas. This indicates that citizens have difficulties in seeing sustainability from a holistic point of view, resulting in uncertainty among them including mistrust and changing attitudes (Bergström, 2000; Assael, 1984). As previously mentioned, citizens experiencing Curitiba as a former sustainable city, which might also explain the gap. The general thought of the future in Curitiba was an increased importance of sustainability. This reflects that citizens' attitudes towards sustainability is an important subject but right now the gap to the behaviour is too wide, most likely as citizens cannot trust a favourable outcome if they undertake the sustainable behaviour (Ajzen, 1991; Bergström, 2000).

In Malmö, we found a willingness to behave sustainably among the citizens. However, they sometimes did not fulfil this by reasons such as (i) lack of time, i.e. citizens do not prioritize sustainable options, (ii) inconvenience, i.e. citizens experience recycling to be energy consuming, and (iii) mistrust, i.e. not trusting green products to be eco-friendly. A majority of the citizens argued that a sustainable lifestyle required dedication and huge adjustments and therefore they did not act as they believed was the most suitable sustainable behaviour. Thus, a gap between attitudes and behaviour seems to exist (Ajzen, 1991).

## 7.8 Responsible Environmental Behaviour

In Malmö, citizens seem to appreciate eco-districts like Augustenborg as they find them to enhance quality of life. Yet, some mention they do not believe the areas get enough attention, resulting in citizens not fully understanding the main reasons behind the areas. Knowledge of issues and action strategies are, according to Hines et al. (1986-87), two variables that facilitate and enhance pro-environmental behaviour among citizens. Hence, findings about the lacking knowledge show that the city must increase their efforts in spreading knowledge of the areas. On the other hand, Malmö's efforts shown

in several projects explained by Börjesson and Bigdelou indicate that they increase knowledge about sustainability in some ways.

Citizens of Curitiba and Malmö fail in meeting the requirements made by Hines et al. (1986-87), resulting in not feeling responsible for their own sustainable behaviour. First, as we saw in the example of Augustenborg, findings clearly indicate that citizens do not have enough knowledge about for example the environmental impact of their actions. Secondly, neither in Curitiba or Malmö, the citizens felt they had enough possibility to contribute to a change, as they have the perception of being a too small part of the society. Thirdly, we could see that citizens with stronger attitudes towards pro-environmental behaviour to a greater extent acted accordingly. However, sometimes other factors than the attitude limited their ability to behave accordingly to their attitudes and beliefs. An example of this is the situation of citizens in Malmö explaining they do not have enough money to buy a sustainable apartment in Western Harbour or when citizens in Curitiba prefer taking their own cars to work or school, rather than using public transportation. Here it is evident that even though they felt responsible to act in a sustainable manner, factors such as time and money limited them.

Another variable, made by Hines et al. (1986-87), associated with pro-environmental humans, concerns individuals sense of responsibility. Isacson also explained the importance of having committed citizens in sustainable development, which can be questioned to be a problem in Malmö due to its characteristic of being a transit city. A large number of people in movement might result in decreased feelings of belongingness among citizens, as they only live in Malmö for a short period of time. If citizens only see their life in Malmö as temporary, this might result in a lack of trust for its institutions and less loyalty to its politicians. This might also lead to decreasing feelings of responsibility for their actions, which might result in unsustainable behaviour (Hines et al., 1986-1987). It can be argued that this feeling of belongingness is empowered due to the Malmö's division of the city into five districts (Malmö Stad, 2014d). It is possible that this division creates affinity within the districts but at the same time there is also a risk of creating differences between the districts. For example, if some districts are more committed to sustainable development than others, this

might result in differences in knowledge about sustainability between the districts, which could possibly lead to segregation between the districts.

Another factor endangering the possibility of creating individual sense of responsibility is the fast growing population of Curitiba (Prefeitura Municipal de Curitiba, 2014a). Citizens that had lived in Curitiba for a shorter period of time did not experience the same responsibility to contribute to the city through a pro-environmental behaviour. A fast growing population, we believe endanger the possibility of creating individual sense of responsibility as they have not grown up with Curitiba's recycling program or public transportation. Hence, in order for Curitiba to succeed they must continue to educate new arrivals to the city.



## 8 Conclusion

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*The purpose of this study was to increase the knowledge of sustainable city development and understand what role the interaction between citizens and institutions in sustainable cities plays, in the process of sustainable city development. In our conclusion, we present a model including a number of key factors found to be of great necessity during this process. Further, we present our findings of a potential paradigm shift within the interaction between citizens and institutions in sustainable city development. We continue with recommendations to decision-makers and some theoretical and practical contribution and implications. We end by presenting a proposal for future research.*

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### 8.1 A Paradigm Shift in Value Creation

Through our study of value creation in sustainable city development, we have identified some possible deficiencies in the current procedures. We have developed a model, as a means to present what we argue to be a new process of value creation.

Currently, institutions in sustainable cities begin the value creation within institutions, organizations and decision-making organs. They identify problems of the society and evaluate possible solutions by working on various projects, putting up decade action plans and formulating strategies. Although these plans to some extent facilitate sustainable development by enabling individuals and actors of a society to work towards common goals, we argue that this sometimes create problems because of insufficient integration of citizens in the early stages of the process. This must be changed as an earlier integration has proven to increase citizens' motivation and engagement in sustainable behaviour.

Our proposed model below is based on three layers, which we will present stepwise. Despite the stepwise presentation, we consider it necessary to highlight the importance of viewing all layers as integrated. To begin with, we present three key input factors identified to be of great necessity in sustainable city development, and in particular for institutions to be aware of. The model continues down to institutional level where we explain main ideas behind the institutional change of value configuration technique, i.e. the paradigm shift where they move from an iterative process to a somewhat ad hoc

and holistic value network. Lastly, we include citizens in the model to highlight the importance of citizens' integration and participation.

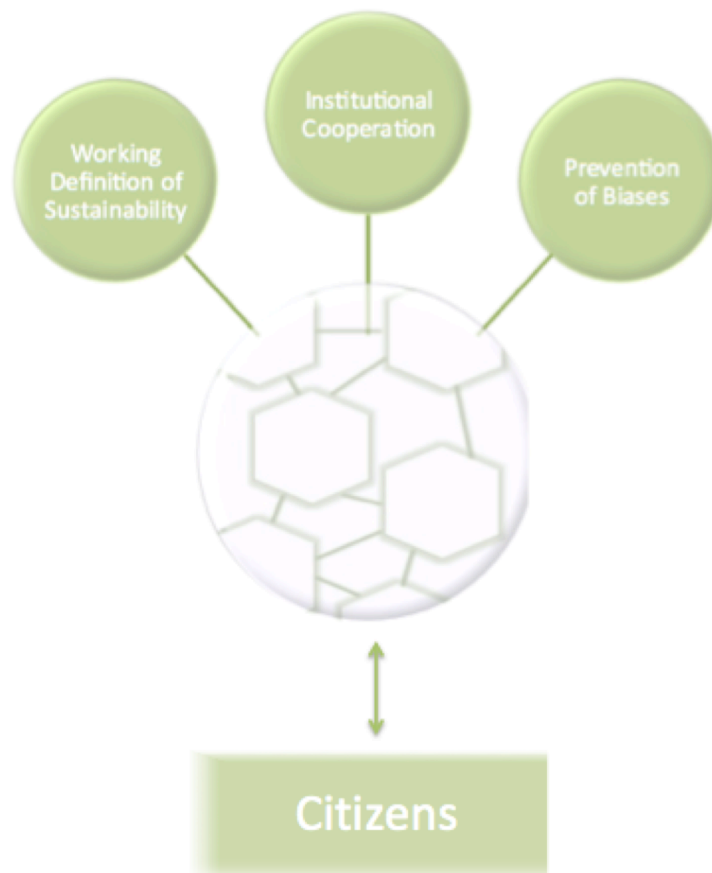


Figure 5. Model of Sustainable City Development.

### 8.1.1 Layer 1 – Input Factors

#### *Input Factor 1: A Working Definition of Sustainability*

The first input factor is the need of creating a working definition of sustainability. Previous researchers demonstrate the complexity of the concept of sustainability, which is further confirmed by our study. Yet, we find it necessary to highlight the importance of having a definition that allows institutions and citizens of sustainable cities to understand the aim of their efforts and to work towards commonly set goals. A working definition of sustainability should have the following characteristics; *(i)* adapted for city-specific conditions and prerequisites, *(ii)* manageable and understandable for all



institutions and citizens, (iii) easily adaptable along the process due to the dynamic society (iv) and communicable to all intended target groups. A working definition of sustainability will most likely facilitate for institutions in their value creation of sustainable city development and from a citizen perspective, it will create loyalty for institutions when they understand the meaning of sustainability.

#### *Input Factor 2: Institutional Cooperation*

Our second identified input factor is cooperation. Findings demonstrate a lack of cooperation between institutions in their work with sustainable development. From our research, we conclude that above-mentioned creation of a holistic approach towards sustainable development facilitates cooperation. Conversely, findings show that cooperation can facilitate the holistic approach and thus we have also identified cooperation as a separate important input factor. An increased cooperation most likely result in a maximization of the total benefit for the society, as well as improves the communication among institutions and citizens, thereby increasing the feeling of trust.

Although institutions probably always will have their own objectives and goals, it is important that they fully understand each other's work in order to enable cooperation. We argue that this awareness and knowledge, will create a feeling of community among the institutions, as well as increase the feeling of responsibility. In addition, it will prevent the risk of essential parts being outside of everyone's responsibility.

#### *Input Factor 3: Prevention of Biases*

The third input factor is identified as the prevention of biases. Research indicate the importance of being aware of the possible existence of biases in sustainable development, such as path dependency and the lacking knowledge and/or awareness of the dynamic factor of culture. We further presume that biases occur in other parts of the sustainable development, for instance in the benchmarking of other cities. In our findings we have seen signs of how innovative thinking can avoid biases. Therefore we want to highlight the importance of managing the forces that potentially can restrict innovative thinking in sustainable city development.

### 8.1.2 Layer 2 - Institutions

Layer two in our model is the institutional level. In order to maximize value in their process of sustainable development, institutions of sustainable cities should be structured as a network. We have identified a paradigm shift in the value configuration in sustainable cities. Cities currently seem to operate in an iterative process, rather than organize themselves in a way that facilitates dissemination of knowledge between all institutions. By being structured as value networks, each member relies on the others in making it possible to foster sustainable development and increase the total value. An increased awareness of sustainability among citizens, indicate that the value creation has started a movement from institutional level to citizen level. A value network would facilitate this and enhance the integration of citizens.

### 8.1.3 Layer 3 - Citizens

The third layer in our model represents the integration of citizens. Findings demonstrate the importance of citizen participation, as it was found that citizens, who feel less heard, have reduced willingness to live sustainably. Further, if cities' investments are not in line with citizens' interests, or if the communication of institutional actions and executed improvements are lacking, it might result in reduced motivation for citizens to contribute to sustainable living. The research further shows a lack of communication about the definition of sustainability to citizens, as citizens are unsure about the meaning of sustainable development.

Trust and belongingness seems to be two reappearing feelings requested by the citizens. Our research has revealed that these two feelings can be created in several ways, which differ depending on the characteristics of the city. Regardless of approach, the main focus should always be on capturing all groups of the society. A revitalization of the value configuration into a value network, will most likely improve and simplify the collaboration between institutions and citizens, as well as improve the sharing of information between them. This would also increase the feeling of trust and belongingness among citizens.

## 8.2 Discussion of Sustainable Responsibility

It is clear that there are insufficiencies in the interaction between citizens and institutions. Yet, institutions have started to understand the importance of involving citizens in their decision-making process and are currently struggling to make citizens understand the impact of their actions. However, as the society is dynamic, they keep getting interrupted during their work, when they are forced to deal with new situations. At the same time they struggle to fulfil their roles as institutions and must always be aware of the potential biases in the decision-making process.

While institutions strive to build a sustainable city, citizens seem to have difficulties in understanding their own impact on the society. Citizens that understand the importance of sustainability do not know how to live sustainably, without knowing how to adapt their actions in a way that is neither time consuming, inconvenient nor expensive. Other citizens highlight that they do not have enough power to contribute to the decisions and thus feel it is worthless to engage in the sustainability issues. All these problems appear to result in a gap between their attitudes and behaviour.

Having this in mind, we want to raise the question of sustainable responsibility. Institutions of the society have for a long time followed the assumption that value is created by either doing it from inside the institution or at the market, depending on what alternative lead to the lowest transaction costs. From when these assumptions were set, the society has changed a lot. Thanks to technological development, access to information has moved towards the end of the chain and is nowadays closer to the end users, or in our case citizens, than earlier before. The increased access to information gives citizens more power and the possibility of increasing their knowledge within the field of sustainable development. Therefore, we believe that the way sustainable cities create value, need to be changed. By giving citizens access to more data earlier in the process, we believe citizens will engage more in sustainable development, as they feel as a bigger part of the change. An earlier integration of citizens would facilitate for institutions to in an earlier stage detect changes in the society and create a feeling of belongingness among citizens, i.e. a win-win situation for both institutions as well as for citizens.

### 8.3 Recommendations to Decision Makers

We recommend decisions-makers of sustainable cities to critically evaluate and review their value configurations. By examining how they currently manage the three proposed input factors, we believe institutions have the possibility to increase their awareness of potential improvements. Yet, we want to highlight the importance of adapting our proposed model in the sustainable city development. Some input factors might be more applicable than others, allowing for a partial adoption. Moreover, it is possible that decision-makers find some parts of the sustainable development as more suitable than other to be structured as a value network. In other words, parts of the process might continue to be an iterative process in the form of a value shop, while others should be structured as a value network.

### 8.4 Theoretical Contribution and Implications

In our introduction we discussed the previous research in the complexity of sustainable city development. Hence, the theoretical contribution of our study is partly about this complexity. By examining sustainable city development from both the institutional and citizen perspective, we have been able to develop a model facilitating for institutions and citizens of sustainable cities in their value creating process. The model consists of three layers, representing input factors required in sustainable city development, a value network of institutions of the city, including an integration of all citizens, to highlight the importance of their engagement. The model can be either partially or fully utilized depending on the current situation of the sustainable city.

### 8.5 Practical Contribution and Implications

We encourage decision-makers, at national and international level, in sustainable cities to apply our proposed model in the process of sustainable city development. It should be stressed that the examined cases are categorized as retrofit cities, yet we believe that it is to some extent applicable in green- and brownfield cities as well. In addition, cities with an ambition to begin a transformation to become sustainable cities, would potentially also benefit from using the model, as it highlights important input factors in the sustainable development and a way to structure the interactions between institutions and citizens. Furthermore, it should be stressed that the study has been

conducted on a limited part of the population, with young students representing the entire citizen perspective. However, they can be argued to represent the future generations, making our model applicable in the long term.

## 8.6 Proposal for Future Research

Throughout our research, we have come across interesting phenomenon that future research in this field could examine. A reappearing issue is the complexity of the concept of sustainability. Therefore it could be of great interest to do a research about the definition of sustainability to critically review the three existing dimensions and how to adapt them to different city conditions, as different cities might require different sets of dimensions.

Another opportunity of research could be to apply our developed model on a bigger sample of citizens, i.e. do a quantitative research on an entire population. Further, it would be of interest to apply our model on other categories of sustainable cities, to see how applicable it is on sustainable city development in green- and brownfield cities.

We have further identified interesting findings in sustainable responsibility. Hence, we encourage an investigation in the consequences of giving the citizens more access to data in the process of sustainable development. Will the citizens' interest for sustainability increase and result in an increased sustainable behaviour, or will the interest and behaviour remain the same?

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## Appendix 1 – Personal Communication

### Personal Communication

Date	Institution	Name	Title
2014-03-06	Citizens of Malmö	Focusgroup	
2014-03-11	The commission for a Socially Sustainable Malmö	Sven-Olof Isacson	Chairman
2014-03-11	Citizens of Malmö	Focusgroup	
2014-03-12	Malmö University	Focusgroup	
2014-03-25	Universidade Tuiuti do Paraná (UTP)	Focusgroup	
2014-03-26	Institute for Research and Urban Planning of Curitiba (IPPUC)	Daniele Moraes	Architect
2014-03-26	Institute for Research and Urban Planning of Curitiba (IPPUC)	Luiz Fernando Gomes Braga	Architect
2014-03-27	Secretariat of Environment (SMMA)	Carlos Guillen	Engineer
2014-03-27	Pontifícia Universidade Católica do Paraná (PUCPR)	Focusgroup	
2014-03-28	Municipal Public Management Institute (IMAP)	Márcia Schlichting	Director
2014-03-28	Municipal Public Management Institute (IMAP)	Rennan Stelle	International Affairs Officer
2014-03-28	Universidade Federal do Paraná (UFPR)	Focusgroup	
2014-04-08	The Unit for Consumption and Lifestyle of Environmental Department of Malmö	Nasrin Bigdelou	Employee
2014-04-08	The Unit for Consumption and Lifestyle of Environmental Department of Malmö	Emma Börjesson	Employee

## Appendix 2 – Interview Guide to Focus Groups

1. What do you think of when hearing the word sustainability?
2. How does sustainability imply to your everyday life?
3. Explain a recent situation when you acted in a sustainable manner
4. Are there any words on the paper you associate more with sustainability?
5. Are there any words on the paper you associate less with sustainability?
6. What motivate you to live sustainably?
7. What influence/have influenced your sustainable mindset?
8. Have you adjusted your lifestyle in order to increase your sustainable living?
9. What is required for you to change to a more sustainable lifestyle?
10. How does you experience that your city approach sustainable development?
11. What would you like the city to invest in?
12. Do you feel that the city invests resources in line with your preferences?
13. How do you think your sustainable behaviour will look like in the future?
14. How do you think the city will look like in the future?

## Appendix 3 – Interview Guide to Semi-structured Interviews

1. What is sustainability?
2. What is your approach to the three dimensions of sustainability?
3. Describe the sustainable development of the city
4. How has the city dealt with sustainable development until today?
5. How do the city currently deal with sustainable development?
6. What is the future plans for sustainable development?
7. How do you integrate citizens in the sustainable development of the city?
8. What do you think is citizens' approach to sustainability?
9. How does the city motivate and encourage citizens to live sustainably?
10. How can the city encourage citizens to change their behaviour/attitude/lifestyle?
11. Describe the cooperation between the municipality, decision-makers, organizations and citizens
12. What is your relation to other institutions?
13. How do you make politicians understand the importance of all dimensions of sustainability?
14. Have you looked at any other cities when developing the city?

## Appendix 4 – Introduction to Interviewees

### **To Whom It May Concern:**

We are two students from Lund University in Sweden, writing our thesis about sustainable city development. We are part of the research programme SuS (Sustainable Societies), a programme established to increase the understanding of the development of a sustainable society.

Sustainability is currently one of the most important global issues where sustainable development usually is defined as “*a development, which meets the needs of the present without compromising the ability of future generations to meet their own needs*”. To meet these challenges, cities have formulated new goals with the ambition to reach a high degree of sustainability. One of these goals is usually that citizens should be educated in the field and encouraged to live sustainably. In our thesis, we want to increase our understanding in the citizen integration and how the process of sustainable city development is being done.

In order to examine the citizens’ perceptions, we will conduct focus group interviews with consumers in two separate cities, Curitiba in Brazil and Malmö in Sweden. In addition, we will interview relevant institutions of the city to understand their work within sustainability. Our hope is that these interviews can provide us with knowledge about the interaction between citizens and institutions.

By increasing our understanding in this field, we want to help citizens, influential decision-making bodies and companies to make better decisions regarding sustainable urban planning.

We highly appreciate your contribution to our project, thank you very much in advance!

Sincerely,

Märta Lagergren & Sandra Olsson

Appendix 5 – Stimulus Material to Focus Groups

TRANSPORTATION	HEALTH CARE	WATER
	EMPLOYMENT	
POLITICS	RECYCLING	
TECHNICAL DEVELOPMENT		TOURISM
	ELECTRICITY	
EDUCATION		BIODIVERSITY
WELFARE	HEAT	
		LAND USE
EVERYDAY CONSUMPTION	EQUALITY	
		JUSTICE
	POVERTY	
	HEALTH	
HOMELESSNESS	HOUSEHOLD	SECURITY



# Increased Responsibility of Sustainability – *Empowering or Constraining?*



**There is an upcoming paradigm shift in the development of sustainable cities. Decision-makers and politicians are giving citizens more sustainable responsibility, which will have consequences for people's everyday decisions**

Sustainable development has long been extensively discussed. Lately, eco-cities, i.e. cities with a strong ambition to be developed in a social, environmental and economical manner, have started to emerge. This is partly because by 2050, the number of people living in cities will have nearly doubled. Decision-makers in cities have started to realize that sustainability must start within the cities and struggle with finding a solution on how to develop the city for citizens with the least possible use of resources.

## **A Paradigm Shift**

Latest research indicates a paradigm shift in the development of these cities. Until now, political institutions have waited with integrating the citizens in the development

until the decisions have been made. However, technological innovation and development enable institutions to be restructured and change the entire process. Instead of formulating the problem and later question citizens about their view of the best solution, new findings suggest to make information public earlier in the process. By sharing the responsibility of identifying potential improvements around the city with people living close to these areas, would increase the possibility of identifying them earlier.

## **Empowerment of Citizens**

A consequence of possible change is increased sustainable responsibility for citizens. However, in order to be responsible you must know how to be sustainable. Susan Ecorre, employee at the unit for Consumption and Lifestyle of the Environment Department of Malmö in Sweden, aims to encourage citizens to participate in current issues about sustainability and affirms the importance of education. "People must have knowledge

of sustainability in order to feel that they can make a difference", argues Susan Ecorre and explains that sustainability should not be associated with any extra efforts. Examples could be condos providing tool-pools in the buildings instead of everyone buying their own tools, or the arrangement of public meetings such as breakfast seminars for citizens.

## **Ready for a Change?**

The question is whether institutions and citizens are ready for this paradigm shift. The change requires that institutions collaborate, work towards commonly set goals and are highly innovative. At the same time, citizens must be prepared enough to take on that responsibility and motivated enough to approach sustainability on a completely new level. Regardless of how prepared the society is for a change, this is probably not the end of the extensive discussion of how cities should handle the challenges of sustainability.

**Märta Lagergren & Sandra Olsson**