LUND
UNIVERSITY

Public-Private Partnership in Sustainable City Development - Critical Success Factors

--Master-Thesis--

Malin Olofsson
Vera Koreneva
Maryna Pouzhyk
Quinn Ertel

Supervisor: Stein Kleppestø

Project Sponsor: Mattias Örtenvik

School of Economics and Management

M.Sc. Sustainable Business Leadership

Date: May 31st, 2012

Abstract

Title: Public-Private Partnership in Sustainable City Development

Authors: Malin Olofsson, Maryna Pouzhyk, Vera Koreneva, and Quinn Ertel

Tutor: Stein Kleppestø – Associate Professor, Department of Business Administration, Lund University

Background: E.ON and Malmö have formed a Public-Private Partnership to lead the sustainable city development initiative in Hyllie. The green field development project period is from 2009 to 2020 at which time Hyllie will be Sweden's most climate-smart city and an example of sustainable future cities consisting of 100% renewable or recycled energy. Additionally, by the long-term goal of 2030 Hyllie will have developed 9,000 office workspaces and 9,000 residencies supported by innovative solutions such as e-mobility, smart grid technology, and district heating. Hyllie is not only being established as a "Lighthouse" city, but as a creative and scalable city focused on exploring methods of sustainable innovation.

Purpose: The purpose of this report is to summarize relevant information about Public-Private Partnerships and Sustainable City Development in order to formulate critical success factors of Public-Private Partnerships in Sustainable City Development by analyzing literature and five case studies and conducting a comparative analysis.

Method: The research strategy utilized is qualitative. The method presents a combination of Grounded Theory and Case Studies methods (inductive approach) for data gathering and analysis, which based on Comparing, Describing, and Enlightening. Utilized forms of the data collection are the following: interactive interviews (interview guide approach and open-structured conversations), observations by

means of literature review. Data analysis is conducted through a comparative five cases analysis.

Conclusions: Through researching the concepts of Public-Private Partnership and Sustainable City Developments, both separately and as a unified model, and comparing our conclusions with five case studies, we have established four general critical success factors of Public-Private Partnerships in Sustainable City Development. Our contribution is one of the first of its kind to the academic realm and furthers the understanding of the role that the unified concept plays in addressing environmental, social and economic pressures of today's world. Our findings are presented in such a way that they are able to be applied by actors in partnerships such as E.ON and Malmö City or future endeavors. Of secondary importance is that our delivered insights help bring clarity to the two concepts separately. We envision future studies using our work as a starting point for greater elaboration and understanding of Public-Private Partnerships' role in Sustainable City Development and hope to ignite interest in strengthening our research through more rigorous testing. With a growing number of partnerships and developments around the world, we are hopeful that our conclusions could serve as a starting point for various types of effort in this field.

Key words: Public-Private Partnerships, Sustainable Development, Success Factors, Sustainable City Development, Governance, Trust,

This thesis has been written as a part of the degree project course in the Master program "Sustainable Business Leadership" at the School of Economics and Management, Lund University. The course was based on the methodology of action learning and self- managed learning. The students were all assigned to an in-company project as consultants. As a part of the course the students were responsible for organizing several learning events addressing relevant issues related to the in-company projects. The students continuously documented their learning in learning journals and participated in tutorials on these journals. The assessments of the students are done partly on the written thesis, partly on the consultancy process, partly on

performance in learning events and other parts of the course and partly on the ability to document and reflect on the student's individual learning and development.

Preface

This report was written with the ambition of merging two highly publicized and discussed 21st Century topics and identifying what they have in common that could benefit the public, private and society as a whole. Public-Private Partnerships and Sustainable City Developments are two of our time's hottest and most debated topics. Written in equal parts by four Sustainable Business Leadership Master students at Lund University, Malin Olofsson, Quinn Ertel, Vera Koreneva and Maryna Pouzhyk it is but one of the five Class 2012-assigned in-company projects sponsored by E.ON Sweden. Each project aimed at adding value to E.ON's efforts in the sustainable city development arena, specifically at Hyllie, Malmö.

Our group is made up of four nationalities, researching five nation's Sustainable City Developments. Our perspectives are wide and varied, so are the cities that we explored. What amazed us along the way was not the clearly articulated conclusions and literature that exists on the two topics as a combined concept, rather the lack thereof. For a two-month long project, this presented a daunting, yet exciting and valuable opportunity to us. We realized that we could create real value to both public and private actors by drawing conclusions on which circumstances lead to the creation of PPPs in Sustainable City Developments as well as how they are best initiated, planned, implemented, measured and evaluated.

We would like to convey our appreciation to the many individuals and organizations across Europe that made themselves available to discuss their projects and experiences with us. What's more, their willingness to share their knowledge, expertise and lessons learned! Importantly, we would also like to thank Mattias Örtenvik and his entire team at E.ON for bringing us this project and giving us the freedom of creating a vision and delivering a study and report that we feel confident adds value to E.ON's current project in Hyllie, but of equal importance, the many more to come!

TABLE OF CONTENTS

CHAPTER 1

INTRODUCTION

Background

Our world and societies as they stand today are unsustainable. The world is falling apart and we, as a people, are rapidly realizing that we have to do something to reverse the problems we contributed to. The world does not carry an infinite amount of natural resources nor can it support the rising population or increasing social issues associated with economic disparity or inequality. Little by little we are depleting or deteriorating our resources; resources that are needed to sustain our patterns of consuming, living, and relating to one another whether locally, regionally, nationally or internationally. Preventative measures guided by free-thinking and innovation are needed to save what is left of our natural resources, reduce energy consumption, slowdown climate change and battle poverty. Achievement of this calls for a systematic approach. It's not a task for one sector, one actor, one project or one country.

In many areas of the world, citizens are increasingly encouraged to recycle, car pool or use public transportation, reduce littering, buy products that more environmentally friendly and eco-labeled – the list of behaviors that we are asked to adapt could go on and on, yet even when adapted they do not offer a unified, holistic approach to tackle the root causes of deterioration, poverty, or depleting resources. Achieving the change needed takes a village, not a villager. To slow down climate change, reduce energy use and fossil-fuel dependency, create jobs so that parents can support their children and offer a good education, or increase the health of future generations take much more than individual's change in behavior, it requires societal change led by investments in the future and a new way of living.

Sustainable Cities are increasingly gaining ground and recognition as a vehicle to address these concerns. Shifting ways of living are developing in the region right next to yours. These cities are increasingly supporting cars powered by alternative fuels, buildings are heated and appliance run with wind-energy and regulated to consume as little energy as possible and only when absolutely necessary. These futuristic cities promote children biking to school and parents using public transportation powered by biogas to get to work. Locally produced vegetables and milk is served at the table, waste management is encouraged by being easy and fun and it is financially rewarding to consume less and recycle more. Businesses thrive

on innovation around new lifestyles and consumption patterns, and seek to profit on both equally. Such cities exist in many parts of the world and are slowly becoming an established means of developing into the 21st Century.

In this paper, we refer to these areas as Sustainable City Developments, a concept that is fairly new and underexplored. It encapsulates areas of cities that are developed to address social, economic and/or environmental needs. Different cities take on different targets and focuses, as shall be seen in five case studies in this report. Most are established cities focused on combinations of sustainable goals such as reducing emissions of carbon dioxide or on improving the social standard for its people through improved community systems. Others, like Hyllie (Sweden) apply an all-encompassing approach in essentially building a Sustainable City from the ground up. Yet, the one thing that they all have in common is that they take holistic approaches. All areas of sustainability are addressed, even if more focus might be given to one of the aspects. They include collaboration across sectors and departments, institutions and the greater community. These cities appear to be a perfect tool to address 21st Century issues.

There is however one major challenge with Sustainable City Developments (SCD). They are large scale and long-term resulting in huge investment requirements by public and private actors alike, as well as governing institutions nationally and regionally. Local governments and municipalities often do not have the capital, knowledge, or manpower to plan, initiate, and maintain a SCD. Neither can businesses because they need the support and approval of public entities, governmental bodies and regulation in order to engage in these activities. It is to our understanding, after extensive research on this topic that SCD relies on the collaboration among public and private actors to materialize and deliver significant outcomes.

This challenge appears to be addressed by the formation of Public-Private Partnerships (PPP), a collaboration, contractual or otherwise, which facilitates joint efforts between public and private actors in SCD projects. When partnerships are formed, so are opportunities to support sustainable development as a means to guide the world in a better direction. When working together the capabilities of the public entity can be combined with the private's which, when done correctly, will result in the creation of a competitive advantage for both sectors, increased funding opportunities and expertise, as well as innovative thinking. Neither actor is tied to a limited set of resources or capabilities, but instead a vast inventory is created through their mutually beneficial partnership. What the private actor cannot achieve on its own, it can increasingly achieve when collaborating with the public actor. The reverse is equally true. Although not as underexplored as the concept of SCD, only limited amounts

of literature exists on PPP, and substantially less on PPP's as a means of facilitating SCD's. This brings us the onus of this report, to understand the concepts separately in order to understand how the two work the best together.

This paper aims to deliver insight that will help establish and successfully build and manage Public- Private Partnerships (PPP) in Sustainable City Developments (SCD). It seeks to further our understanding of how people and various actors can and should work together to combat the challenges we are facing on in our towns, countries, and the world. However, as the concept has not been sufficiently or academically explored in a unified sense this paper offers one of the first known insights and concept formulations around PPP's in SCD's. As no commonly accepted definitions or understandings of PPP's and SCD's exist, it is necessary to begin this report by exploring definitions and assessing the concepts in order to establish a framework for the joint model. Only after we have established working characteristics of PPP's and SCD's will we be able to proceed to establish critical success factors which in turn will be supported by research conducted on five European case studies.

Main Issues and Problems

Ranging from global concerns down to local communities, actions big and small are being introduced to prevent social issues from increasing and further deterioration of natural resources while providing structures to encourage economic return. Investments in research and implementation of smarter solutions for the benefit of the climate, environment and people are needed to bring about change. PPP's have in recent years become one of the mechanisms which provide a vehicle for the investment needed in sustainable city initiatives. However, even with the increasing ties between PPP's and SCD's the literature which helps facilitate successful results and inform decisions around such partnerships is limited.

In writing this report we were unable to locate sufficient academic articles identifying critical success factors of PPP's in SCD's. Yet with the increasing numbers of PPP's and SCD's, and PPP's in SCD's being initiated to support urban development, it is apparent that a need for increased understanding of the concepts is necessary to improve their initiation, planning, implementation and evaluation. It is our intention to provide a report which addresses this gap and begins to formulate an understanding of the concepts and critical success factors of PPP's in SCD's. Additionally, inherent to PPP's and SCD's is the presence of a vast number of variables driving or effecting their implementation and understanding. Regardless of SCD's being in the same region or on different continents, the factors and

experiences of each are different. This variability presents difficulties in establishing conclusions which can be applied to any PPP in SCD, especially in regards to our research into establishing commonalities between five established, and ongoing, European SCD's.

Purpose Statement and Objectives

Purpose

The purpose of this report is to summarize relevant information about Public-Private Partnerships and Sustainable City Developments in order to formulate critical success factors of Public-Private Partnerships in Sustainable City Developments. This will be accomplished by analyzing literature, researching five case studies, and conducting a comparative analysis.

Objectives

- Research literature on PPP's and SCD's in order to identify critical success factors of PPP's in SCD's;
- Deliver general information and critical success factors of existing Public-Private Partnerships in the five established Sustainable City Developments;
- Use the established critical success factors of Public-Private Partnerships in Sustainable City Developments to deliver a comparative analysis used to frame a discussion delivering knowledge and observations to E.ON needed to improve current and future partnerships.

The concepts of both PPP and SCD are complex and although literature exploring both exists, however limited, academics have not yet come to a consensus around how they should be defined, their necessary conditions and how to account for and rectify circumstances of individual cases. The complexity is exasperated by the non-unified terminology and alternating verbiage that is used to describe similar concepts which perpetuates the absence of a unified understanding. In this we report are capturing these variances and what they stand for and creating a view that is all encompassing under Sustainable City Development. A similar approach was necessary to take for Public- Private Partnerships, another concept with an array of definitions, labels, and nuisances confusing to academics and participants alike.
As such, even less available information exist on PPP's in SCD's. For these reasons, we have in Chapter Three dedicated significant space for an extensive discussion to clarify the two concepts as they apply to this report and beyond. Although these findings are of

secondary importance to this report, it is necessary for the authors to be able to accomplish the objectives of this report. Therefore, while this report is of primary use for E.ON in increasing their understanding of their PPP in Hyllie, and future SCD's, the secondary offering of this report is an overall contribution to a more comprehensive understanding of PPP's in SCD's.

CHAPTER 2

METHODOLOGY

Introduction

This research was produced with a goal to bring insight and clarify general aspects of Public-Private Partnerships in Sustainable City Development projects. Based on a comparative study of five Sustainable City Development projects in different European regions and the partnerships established in these regions, the researches gathered information that pertains to both the overall success of such projects as well as the increased collaboration on sustainability issues between different regional partners[1]. The gathered information reveals mainly cities' commonalities and differences, which greatly influence cooperation between local authorities and private companies. The main users of the paper are sustainability practitioners within the private sector, energy sector particularly, who have willingness and capacity to move cities towards sustainability. The information guide, produced for this audience, can be applied to the current and future partnerships.

Methodological matters and ethical issues were consistently addressed. The methodology and approach, used to come up with conclusions and meet the objectives of this research, are discussed in the following parts.[2]

Research Approach

Research strategy utilized is qualitative. Since there is limited knowledge in this particular field, the research has been exploratory, with elements of discovery, vague queries, feelings, reflections and improvisation.[1] The method presents a combination of Grounded Theory and Case Studies methods (inductive approach) for data gathering and analysis, and these methods based on Comparing, Describing, and Enlightening. Analytic comparison, description and

[1] Fredrik von Malmborg, "Conditions for regional public-private partnerships for sustainable development – Swedish perspectives". European Environment, 13, 2003. 133-149.

[2] Adrian K. Mohareb, Kate M. Murray, Chidi U. Ogbuagu, "Sustainable cities – realizing the seven forms of community capital", School of Engineering, Blekinge Institute of Technology, Karlskrona, Sweden, 2009.

enlightening are interrelated activities that support each other in the research in order to produce conclusion with realizable relevance.[3] The choice of each approach is explained by the following reasons:[4]

Comparative research compares experience of different cities in similar projects both in the past and in the present situations.

Descriptive Research:

- Is characterized by observations and reflections as the means of data collecting;
- Is characterized by recorded observations which then analyzed.

Enlightening Research:

- Carried out in the real world with the purpose to enlighten the user;
- The final purpose for all interesting parties is learning.

Literature Search and Review

A literature search included primary (reports, theses, companies' reports, academic publications, case studies) and secondary literature sources (journals, books, newspapers). The review of available resources informed the participants that there is a huge amount of papers associated with Public-Private Partnerships and Sustainable City Development. However, there were not clear links between these two areas. This obstacle of identifying these links and drawing conclusions in relation to comparison points required multi-resource literature review.

The multidimensional literature review helped to acknowledge versatility of considered concepts. The trend to build new clean and energy-efficient districts is crucial to achieving sustainability goals[5]. Since Sustainable City projects cover energy, water, waste, transport and urban planning areas, it is necessary to include multiple actors from various fields who are able to think across sectors and able to cooperate with each other[6]. Thus, partnerships, aiming at

[3] Gretchen Rossman, Sharon Rallis, "Learning in the field: an introduction to qualitative research", SAGE Publications, Inc. 3-rd ed., 2012, 3-23.

[4] Nicholas Walliman, " Your research project. Designing and Planning your work", Sage Publications Ltd., 3-rd ed., 2001.

[5] Nathan, Goode, "Sustainable cities – A vision of our future landscape". Grant Thornton UK LLP, 2011.

[6] Peter Droege, "Renewable energy – and Beyond – for Cities". HafenCity University Hamburg and World Future Council Foundation, Hamburg, Germany, 2010.

achieving common goals, are critical component to successful implementation of such projects. Diffusion of eco-innovations, full implementation of advanced energy, water and waste services is hard to put into effect without close cooperation between public and private partners.[7]

Through literature review and numerous discussions the authors were able to identify a primary and a secondary focus in their research questions. By primary focus it is assumed to consider relations between a major private company in a partnership and local authorities. And cooperation between other stakeholders is a secondary issue of interest, less observed when conducting the research. Moreover, the participants established a preliminary list of questions for interviews and a list of comparison categories accordingly (what was subjected to change afterwards) after getting acquainted with literature. That helped them to contact with cities officials and private companies' sustainability practitioners during data collection phase.

Data Collection

This section discusses how the data were collected, how the interview process was designed, and how the respondents were selected.[8] Utilized forms of the data collection are the following:[9]

1. Primary research by means of interviews with cities officials, sustainability and community practitioners within partnerships;
2. Secondary/background research by means of literature search and review:

   The study relied on texts and interviews as the major sources of data. Such practical activities were considered when turning objects and sights into data: taking field notes, taking detailed notes during interviews, writing up findings diligently, discussing data with team partners and sharing on-going ideas with community of practice.[10]

[7] Lea Stadler, "Managing Across Corporate Boundaries: Public-Private Partnerships," In More than Bricks in the Wall: Organizational Perspectives for Sustainable Success, ed. Maria Akhavan (Geneva: University of Geneva, HEC, 2010).

[8] Annie Liqie Zhang, "Validation Study of Intangible Business Relationship Value Measurement", Auckland University of Technology, 2004.

[9] Dieter Grunow, "The research design in Organization Studies: Problems and Prospects", Organization Science, vol. 6(1), Focused Issue – European perspective on Organization Theory, 1995, 93-103.

[10] Rossman, and Rallis.

Techniques utilized during the interviews represent the mix of prefigured and open-ended strategies. Despite having specified questions in advance, interviewers allowed observations and open-structured conversations[10]. The quality of these interviews was very much dependent on the relevance of questions and ability to ask follow-up questions in order to elicit elaborations and clarifications from respondents.[11]

The Interview Process

Interview process was designed through real-life meetings, telephone and the Internet conversations.[12] In spite of some advantages of telephone interviews (speed, costs, distance consideration) there were some limitations such as establishing personal contact and trust, talking by phone and making notes at the same time, ability to develop more complex questions. These inconveniences were eliminated through face-to-face and Skype interviews. Also e-mails were considered as an important mean at the initial stage of establishing contacts. The main problem during the initial stage was long response time or even not having response at all (in that case team members had to call directly to establish the first contact). However, in some cases e-mails were the main form of communication when respondents preferred non-personal contacting, what can also be advantageous as it allows to reflect on the question before providing a response.[12]

Selection of Respondents

According to the topic of the research it was logical to assume that representatives from both the private and the public sector in each selected city should be the respondents for interviews.

Exploratory Stakeholder Interviews with E.ON Sverige and the City of Malmö

The data were gathered through interviews with both a sustainability practitioner from E.ON Sverige and officials from the City of Malmo. To guide and focus the interviews seventeen questions were developed. Since the purpose of the research was not clear at the initial stage, interviews with Mattias Örtenvik from E.ON Sverige helped to clarify company's expectations

[11] Ibid

[12] Mark Saunders, Philip Lewis, Adrian Thornhill, "Research methods for business students", Pearson Education, 5-th ed., 2009.

about this research. More explicitly, the interviewee explained that the Sustainability Department wanted general information (that can be used to improve current and future partnerships of the company) about critical success factors witnessed by cities engaged in partnerships for sustainability, and that this information.

Case Study Interviews

As in the case of the Hyllie project, the data was also collected through interviews with representatives from the public and the private sector. To increase chances to deliver worth-while information successfully about PPP's activities five European regions were deliberately chosen for the study. These cities were identified through the discussion between the project team and Mattias Örtenvik as a representative of an interested party. The choice was based on the fact that analyzed cities have rather distinct features in terms of established partnerships. The set of cities and collecting information from municipalities, organizations and communities within cities was as a justification to reduce the risk that the conclusions will be limited by a single data set or single type of source.

The same list of questions was used for every interview of 14 people in total that were asked about the circumstances that led to the creation of the partnership, how ongoing success is judged, what level of responsibility partners feel towards each other, etc.

Data Analysis

Further data analysis provided the basis for summarizing relevant information, formulating critical success factors and thus bringing insight into Sustainable City Development Public-Private Partnerships between authorities, private companies and communities. At the analysis stage the authors could understand city engagement strategies, scope the report and produce conclusions to external practitioners, private sector companies particularly, that are on the path to becoming sustainable. Since the data was voluminous, the research underwent 6-stages analysis:[13]

[13] Rossman, and Rallis.

1. *Organizing the data*

   At this stage the authors used three kinds of software and a final unified file identified by regions' names. When the report was being written they relied on this systematic allocation of the data. The software applications were used as an organizational tool, a storage place for primary and secondary literature resources, and as a place for keeping on-going documents (such as observations, interviews, team meetings notes).

2. *Familiarizing with the data*

   That was the most tedious process, however not least important, when participants were reading the data and making notes of ideas coming up to their mind to become familiar with the topic. Deep understanding and knowing the topic helped to provoke insights and analytical thinking.

3. *Identifying categories*

   This phase was the most challenging since the required comparative analysis is based on identified patterns within five cities. However, already having some background after comparing PPP's and SCD's in literature, the authors were able to provide a set of critical success factors in PPP's in SCD's.

4. *Interpretation*

   The task at this stage was to turn learned information into a story that makes sense to external readers through generating reflections and ideas. Reflexivity implied paying attention to intuitive insights and reaction of team members.[14]

5. *Writing a report*

6. *Presentation*

   The chosen format of presentation was the combination of Descriptive Essay and PowerPoint Presentation, since the audience included both representatives from the academic institution and business who has different preferences.

[14] Rossman, and Rallis.

Links between ideas gathered from literature review and respondents were established within each region to categorize the results. Identified categories were extrapolated to determine commonalities and differences in motivators and obstacles on the way to establishing successful partnerships. The findings of the research were built into the list of critical success factors as a tool for enlightening how collaborations can be improved by sustainability practitioners, who are the target audience in this study. This list aims at assisting them in expanding their knowledge around PPP's for sustainable city development through comparable case analysis[15].

Limitations of the research

It is important to recognize challenges in obtaining data and doing analysis:[16]

1. Personal interaction (both virtual and face-to-face) is essential to interview process, therefore, the overall success is determined by strong interpersonal skills and the willingness of the participants to engage and communicate to the same extent. For these reasons, interview results can differ or do not reveal all what interviewers wanted to explore, because the study was conducted by four people with different skills in conducting interviews.
2. Limited expertize or initial unfamiliarity of interviewers with this particular field of study could cause inability to ask questions that produce full responses. What is more, for the same reason participants of the research needed a good deal of time to clarify replies and conversations.
3. Identifying those people with knowledge in the area of Public-Private partnerships and sustainable development was time-consuming and created barriers at some stage of the research. The time consumed to establish contacts with desired individuals[18] included making contact; obtaining a positive reply and an invitation; adapting to the schedules of the respondents; building relationships.
4. Team dynamics (cultural and personal differences of the researches) could bring about some misunderstanding when discussing on-going questions, conducting analysis and finalizing results.

[15] Adrian K. Mohareb, Kate M. Murray, Chidi U. Ogbuagu, "Sustainable cities – realizing the seven forms of community capital", School of Engineering, Blekinge Institute of Technology, Karlskrona, Sweden, 2009.

[16] Rossman, and Rallis.

5. Bias from lack of relevant academic peer-reviewed analysis and articles; lack of critical acknowledgements from interviewed stakeholders and published information. Since PPP's in Sustainable City Developments is a relatively undocumented field, definitions and other concomitant issues are not agreed upon.
6. Finally, it was quite difficult to interview people who are experts, influential and well-informed people having high positions, because those people are usually with tight schedules. In such a case great demands were place on the ability of interviewers to establish competence.

CHAPTER 3

THEORETICAL FRAMEWORK: PUBLIC-PRIVATE PARTNERSHIPS AND SUSTAINABLE CITY DEVELOPMENT

Introduction

The purpose of this chapter is to establish a theoretical understanding of the concepts of Public-Private Partnerships (PPP) and Sustainable City Development (SCD). Research indicates that while a plethora of material associated with Public-Private Partnerships and Sustainable City Development exists separately, there is little general or academic consensus about the two concepts. What's more, there is not much information about PPP's in Sustainable City Development, and the links between these two areas have not yet been sufficiently established. Therefore, this chapter will begin by introducing and assessing the concepts separately. From this research we will be able to identify specific conditions and factors present in each as a preliminary step to concluding upon the critical success factors of PPP and SCD separately. These critical success factors will then be correlated to establish critical success factors of PPP's in SCD's in order to facilitate a comparative analysis between our five SCD cases studies.

Literature review, presented in the next two sections, assists the authors in exploring definitions of the concepts (since there are no accepted understandings of PPP's and SCD's) and assessing these concepts with the purpose to establish characteristics and conditions of PPP's and SCD's. Thus, defining and assessing the concepts in terms of drivers, barriers, challenges and benefits provides a platform for conducting the comparative analysis and subsequent discussion. Moreover, literature review also assists in creating a preliminary list of interview questions and one of comparison categories. This research is expected to formulate and reformulate such questions as conclusions and links are drawn.

Sustainable City Development

Introduction

Cities play an important role in the process of moving towards sustainability due to the fact that more than 50% of the global population[1] and 74% of the population of developed countries[2] are city dwellers. Moreover, urban growth is increasing and is expected to increase from 3.4 bil to 6.4 bil by 2050.[3] Cities are a driving force for sustainability initiatives from the combination of their urban densities encouraging interaction, innovation, and knowledge sharing, and by acting as a focal point illustrating the sustainability gaps in social and environmental systems.[4] With their continued movement towards greater sprawl, sharper divisions within the social fabric, increasing environmental damage, and further depletion of resources,[5] cities are increasingly being recognized as the most important factor in supporting sustainable development.

The means of implementing and defining sustainable developments are numerous, even with the focus of those which pertain to city-aimed initiatives. In the course of our research we have heard these initiatives referenced as, but not limited to, creative cities, innovation cities, "lighthouse" projects, pilot cities, and Sustainable City Developments. While we have chosen to label the concept Sustainable City Development (SCD) it should be understood that the focuses of these definitions, and how they are implemented may be different, yet the common theme of sustainable development focused on social, economic, and/or environmental dimensions remains.

The variability of this concept requires that we must first establish a working definition of Sustainable City Development followed by a brief assessment of its motivators and barriers to successful implementation. We conclude by establishing and overviewing the critical success

[1] United Nations, 2008.

[2] United Nations, 2007.

[3] http://www.hiddencities.org/downloads/ch1_WHO_UN-HABITAT_Hidden_Cities.pdf

[4] Nathan Goode, Sustainable Cities- A Vision of our Future Landscape, Grant Thornton, 2011.

[5] Lurton Blassingame, "Sustainable cities: oxymoron, utopia or Inevitability?", *The Social Science Journal 35(1)* (1998): 1-13.

factors of SCD as a means of further understanding the role Public-Private Partnerships play in supporting and encouraging Sustainable City Development.

Definition and Characteristics of Sustainable City Development

Definition

Herbert Girardet states that "The cities of the 21st century are where human destiny will be play out, and where the future of the biosphere will be determined. There will be no sustainable world without sustainable cities."[6]

Before establishing a working definition of this concept one should understand that there are many disagreements and interpretations resulting from insufficient study and imprecise explanations of sustainability elements, specifically in Sustainable City Development (SCD). Therefore, assume the official and commonly used definitions as a basis. According to the UNEP, WWF, and IUCN "sustainability is improving the quality of human life while living within the carrying capacity of supporting eco-systems."[7] The World Commission on Environment and Development balances this relatively present-thinking definition by further defining sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."[8] With that balance of present and forward thinking this report will focus on the definition offered by H. Girardet who defines a sustainably city as "…organized so as to enable all citizens to meet their own needs and to enhance their well-being without damaging the natural world or endangering the living conditions of other people now or in the future."[9]

[6] Herbert Girardet, *"Creating sustainable cities"*, (Green Books for the Schumacher Society, 1999), 9.

[7] IUCN, UNEP, WWF, *Caring for the Earth: A Strategy for Sustainable Living*, (Gland, Switzerland, 1991).

[8] WCED, *Our Common Future*, (Oxford: Oxford University Press, 1987).

[9] Herbert Girardet, *"Creating sustainable cities"*, (Green Books for the Schumacher Society, 1999), 13.

Characteristics

The variability of SCD results from a combination of abstract concepts, such as lack of unified knowledge and frameworks for implementation, and tangible factors, such as geography, or infrastructure. With this in mind it is still possible to identify some basic characteristics of SCD's as it pertains to the scope of this report:

- Long-term development timeframe with defined project phases including an end date;
- Changes in city infrastructure such as transportation and energy grids;
- Engagement of the various city-sectors such as the community and/or business;
- Outcomes which affect the economic, social, or environmental sustainability of the city.

It should be stressed that these elements are not guaranteed to contribute to a successful SCD. The aim of this section is to make the transition from general characteristics such as these, to established critical success factors of SCD's.

Assessing Sustainable City Development

Purpose and Motivators of Sustainable City Development

The motivators driving SCD are typically seen as a balance between social, economic, and environmental concerns understood in a systematic manner. While these are not comprehensive, they serve to illustrate the balance needed to properly motivate a SCD.

Social Motivators

Social motivations are typically the least addressed and understood in SCD. This is widely regarded as a result of difficulties in quantifying the results.[10]

- Increasing citizen capital through enhanced sustainability awareness, engagement, and competency thereby building a foundation to better support ongoing SCD.[11]

[10] Mohareb, Adrian K. et al. Sustainable Cities- Realizing the Seven Forms of Community Capital, School of Engineering, Blekinge Institute of Technology, Karlskrona, Sweden, 2009.

[11] Mark Roseland, Toward Sustainable Communities. New Society Publishers, Canada, 2005.

- Increasing the quality of life and social capital of the citizens resulting in increased employment, taxes, revenues, and city resilience.[12]

Economic Motivators

Sustainable development would not be supported or enacted by cities unless there was an economic incentive.

- Increasing the overall economic competitiveness and resiliency of the city.
- Using the economic returns on the investments to attract additional private investments while using the ongoing success to sustain the ongoing sustainable developments.
- Identifying the economic benefits as ongoing tangible success factors of the success and effectiveness of the SCD such as reduced energy costs.

Environmental Motivators

The central motivator for cities to initiate sustainable development is in response to environmental concerns and/or anticipations, both at the micro and macro level.

- Leveraging or lessening impacts on natural characteristics of the city strongly motivate sustainable development. The recognition of the aspects of the cities environment, and what could cause future negative impacts, motivates a city to develop plans which are realistic and actionable. For example, Birmingham, UK was motivated to focus on district heating systems in their SCD as they have geography limited access to wind, solar, and hydropower.[13]
- The most widely cited motivation for sustainable development is in CO2 reduction and increased energy efficiencies. However this motivator must be pared with strong economic and social incentives to encourage participation in a relatively intangible concept.

---

[12] Mohareb, Adrian K. et al. Sustainable Cities.

[13] Birmingham City Council, Sustainable Energy Action Plan, http://helpdesk.eumayors.eu/docs/seap/330_507_1304007118.pdf (accessed May 18, 2012).

Barriers of Effective Sustainable City Development

There are a number of major challenges of sustainable cities which frequently are not taken into account when discussing such projects. After studying many different Sustainable City Development projects we have established seven barriers to SCD:

- *Lack of Awareness and Ethics*
  Stemming from the combination of unsustainable habits and the emerging, and relatively undefined field of sustainable development.
- *Lack of Tools for Decision Making*
  Attributed to an absence of unified sustainability definitions and city-wide structures hindering effective SCD governance implementation; absence of best practices.
- *Lack of Models for Sustainable Urban Management*
  The inclusion of many actors in SCD inhibits infrastructural change.
- Lack of Diffusion of Innovations
  Inadequately documenting and reporting innovation pertaining to SCD, especially in terms of understanding context dependency.
- *The Conflict between Green Technologies and Existing Infrastructure*
  The systematic characteristics of a city combined with infrastructure incapable of easily integrating new technologies.
- *Counteracting Trends in the Development of Society*
  Reconciling detrimental trends, such as globalization, increased residential space needs, and consumerism.
- *The Need for Reinventing Planning*
  Planning has been reduced to basic spatial planning in some municipalities and it makes it difficult for developers to play an active role in planning sustainable cities.[14]

As we have shown in this section, the motivations of SCD are supportive of necessary city and social change. Supported by effective conditions and the understanding of the difficulties from initiating SCD a city is better equipped to overcome the barriers we have established. One such method, that of Public-Private Partnerships will be explored further throughout this report

[14] M. Elle, S.B. Nielsen, J.O. Jensen, B. Hoffmann, "The Seven Challenges of Sustainable Cities", *COST C8 Final Conference Sustainable Urban Infrastructure approaches-solutions-networking*, (6-8 November 2003): 2-6, Trento, Italy. Web. 27 April 2012.

Conclusion: Establishing Critical Success Factors of Sustainable City Development

Whether one is participating in a sustainable development initiative, or assessing the effectiveness of a SCD to decide upon involvement via partnership or investment, it is important to understand the conditions and factors critical to successful implementation. However, it is also important that one understands that there is not a prerequisite urban form or set of conditions which are inherently conducive to success. Instead a combination of factors are needed which by working together can mitigate conditions which could otherwise be detrimental to the SCD.[15]

Communication, Documentation, and Reporting

Cities striving for effective sustainable change are encouraged to have systems in place for documenting and reporting both abstract –such as weaknesses- and tangible –tons of CO2 saved- results and observations.[16] The most effective systems are those which are understandable and accessible to the multitude of actors involved in the SCD. The level of communication can be indicative of a city which understands they are not only part of a micro-system, but a macro-system as well, both of which benefit from the ongoing reporting. With the lack of systematic best-practices of SCD it is of current importance to share as much information as possible to allow future SCD's to learn from the mistakes and successes of other cities, thereby encouraging further collaboration and not competition.[17]

Simple and Scalable Structures and Partnerships

The combination of shifting regulations, policies, governments, societies and technologies, indicates to a sustainable city that it should model its structures and partnerships in simple and scalable ways. This is especially necessary to ongoing SCD's as projects of that ilk typically have a 20-30 year timeframe which will inevitably find the need to adapt to ongoing innovation and change.

---

[15] Williams, K., Burton, E. and Jenks, M. (Eds.) (2000) *Achieving Sustainable Urban Form*, E & FN Spon, London.

[16] Birmingham City Council, Sustainable Community Strategy- Birmingham 2026, September 2008.

[17] Nathan Goode, Sustainable Cities- A Vision of our Future Landscape, Grant Thornton, 2011.

In the early stages it is important to have these simple structures to counteract the typically complex government structures and scalable structures to allow the SCD to limit the risk of investments not producing the envisioned goals. The nature of these shifting factors, an uncertain future, and the need for incremental innovation further illustrates the need for these scalable systems.[18] By identifying the implementation, or the cities capacity, for these structures and partnerships one is able to recognize the conditions which are ideal for involvement in such an SCD.

Supporting Regulations and Policies

Regulations and policies of a region should work to encourage, not inhibit, sustainable initiatives and growth. Preferably they operate on a local or regional level as opposed to national as it has the tendency to defuse rather than focus the benefits to the SCD stakeholder.[19] These could be in the form of feed-in tariffs, renewable heat incentives, discounts to attract businesses, and grants. One should recognize that regulations and policies aren't limited to the success of an overall SCD, but its partnerships as well. Regulatory incentives for private and public actors to work together in partnerships present a strong indicator of success in SCD's and should be of special interest to private entities interested in investing in SCD.[20]

Multi-sector Engagement

Cities striving to be sustainable must actively engage all sectors of the city to contribute to the overall goals of the SCD. This has a profound trickle-down effect upon other aspects such as trust, communication, and establishing realistic strategies and goals. Community involvement encourages participation in decision making as well as social integration, support and knowledge of SCD objectives and goals.[21] Private firm engagement on the other hand serves to illustrate the

[18] Bolton, Ronan P G., Socio-Technical Transistions and Infrastructure Networks: the cases of electricity and heat distribution in the UK, Sustainability Research Institute, School of Earth and Environment, University of Leeds. September, 2011.

[19] Nathan Goode, Sustainable Cities- A Vision of our Future Landscape, Grant Thornton, 2011.

[20] Tor Fossum, interviewed by author, 18 April 2012, Malmö, transcribed.

[21] Department of the Environment, Transport and Regions (DETR) (2001) *Achieving a Better Quality of Life: Review of Progress Towards Sustainable Development, Government Annual Report 2000*, HMSO, London.

benefits of the SCD initiatives which might otherwise not be understood, thereby encouraging further participation via partnerships or investments. Simply put, all sectors of a city need to be involved as they comprise the base upon which the initiatives are implemented. If they are not supporting, involved with, or knowledgeable of the SCD, then it is a strong indication that this condition is lacking.[22]

Tangible Strategies with Visible Goals

In order to engage stakeholders in the long term vision of a SCD it is vital to establish easily understandable goals which are supported by visible strategies. This is perfectly illustrated by the SCD efforts in Birmingham which, exacerbated by economic woes, required a reframing of their goal of reducing CO2 by 60% before 2026. The goal was to nebulous and thus allowed discord via outspoken climate change deniers and others maintaining the investments would be put to better use elsewhere. Thus the strategy was shifted to address the economic benefits of the goals such as job creation and energy savings from CHP-DH.[23] Cities which are able to understand where their "needs" converge with public and private "wants" are best suited to effectively implement and maintain SCD's.

City Characteristics

A city which acknowledges and utilizes their characteristics is in the strongest position to create an effective SCD. A currently well positioned city with access to transportation hubs, financial and social capital, and resources is better suited to implement SCD. However, other applicable characteristics can include relevant clustering (research, business, innovation), geographic and infrastructures attributes[24] i.e. alternative energy infrastructure, acknowledgement of terrain limitations, population densities, green and brownfield sites, attitudes of the community, and structures which are anticipated to assist in the goals set forth by the SCD. If a city is able to recognize these aspects, communicate their recognition, and then use

---

[22] Nathan Goode, Sustainable Cities- A Vision of our Future Landscape, Grant Thornton, 2011.

[23] Sandy Taylor, interviewed by author, 18 May 2012, Malmö, VOIP recording.

[24] Nathan Goode, Sustainable Cities- A Vision of our Future Landscape, Grant Thornton, 2011.

these aspects to the benefit of the initiative they are in a strong position to be able to support current and future SCD.

Honesty, Trust, and Transparency

While these aspects relate directly to communication, it is necessary to emphasis their importance separately. Communication in SCD can easily be seen, or used, to convey a sense of authenticity without actually being authentic in the values portrayed.[25] Whether in terms of specific green-washing or simply communicating what the stakeholder thinks the audience wants to hear, honesty and transparency work to negate this effect. Regardless of one communicating within a partnership, to the community, or in publications, a city will encourage trust via honesty and transparency. Honestly acknowledging weaknesses, failures, and attainable goals illustrates the stakeholder's understanding that the ensuing trust "facilitates coordination, and cooperation for mutual benefit."[26] Finally, the role of champions should be addressed as their role is vital to the success of an SCD. Champions are acknowledged as being driving forces behind sustainable initiatives as they are able to easily cross boundaries, communicate in an honest and transparent manner, and exhibit emotional attachment to the initiatives. According to Ronan Bolton "every successful scheme is spawned from a public sector champion on the grassroots level and also a public sector champion on a senior level."[27]

The content of this section combined with the "discourse on sustainability being more widely deployed as an urban and regional development strategy than ever before"[28] indicates that SCD's are expanding in size, scope, and understanding. With further study and reporting on their success it is inevitable that the amount of SCD's will continue to increase, especially if trends in socially and politically-driven support continues. Unfortunately, SCD financing is mainly reliant

[25] Ibid

[26] Mike Jenks, Colin Jones, eds., Dimensions of the Sustainable City 2 (Springer Science and Business Media, 2010).

[27] Bolton, Ronan P G., Socio-Technical Transistions and Infrastructure Networks: the cases of electricity and heat distribution in the UK, Sustainability Research Institute, School of Earth and Environment, University of Leeds. September, 2011.

[28] Rob Krueger and David Gibbs, *Introduction: Problematizing the Politics of Sustainability*. In R Krueger and D. Gibbs (eds.) *The Sustainable Development Paradox. Urban Political Economy in the United States and Europe*. (New York: Guildford Press, 2007).

on a combination of static public and dynamic private investment. As such, cities will be left to supplement their decreasing share of public funding via increases in private investment. However, if structured and implemented properly Public-Private Partnerships have the ability to leverage a mutually beneficial situation out of this ongoing trend.

Public-Private Partnerships

Introduction

Traditionally PPP's were created to manage infrastructural projects. Private firms invested both financially, as well as capability-wise, and assumed heavy risks. In return, they expected subsidies and continuous monetary returns from product usage for a specified period of time. The benefit and rational for the public sector was the ability to proceed with infrastructural development regardless of the monetary investment needed, without assuming major risk or jeopardizing other aspects of policy and public services. Unlike the traditional PPP's where the city dictates what and when something should get done, at what cost, and revenue streams, Sustainable City Development (SCD) partnerships applies a more joint approach. Overarching environmental targets might be identified by the city itself, but the deliverables for each project within the development and how-to is decided upon through a process of knowledge sharing and competency among public and private actors.

At first glance, it appears fairly easy to recognize a partnership, what it is, what it constitutes, and its conditions and actors. This assumption was made upon initiation of this report, however our research indicates differently. We have come across at least ten definitions of PPP and just as many variances of its conditions. Via case studies we have also learned that many of those that are in such a partnership are not aware of it. Without understanding the characteristics and factors of a PPP we are unable to establish what constitutes success factors of PPP in SCD; the very aim of this paper.

Consequently, it is necessary to begin this study by exploring and establishing which working definition and conditions of a PPP are most useful and encompassing for our purposes in order to arrive at critical success factors that will be compared to those of a Sustainable City Development to find commonalities. The outcome of this comparison will be a greater understanding of what literature suggests is necessary to effectively develop and manage partnerships in SCD's. What's more, the results, after compared to those of real-world examples from five case studies, have the potential of aiding the increment of benefits and returns of investments of such partnership members.

Definition and Characteristics of Public-Private Partnerships

Definition

In our research we came across a multitude of definitions of PPP, but only the following one captures the nuances and discrepancies so prevalent in literature. *Strategic Issues in Public-Private Partnerships* suggests that PPP's exist where there is "co-operation between public and private parties:

- At all stages of the project
- In a project-specific organization
- Involving all project risks
- Under contractual arrangements
- With contributions from all parties
- With added value for all parties
- With opportunities for generating cash flow." [29]

This concept is reworked into a definition stated as "PPP's can be defined as co-operation between public and private actors with a durable character in which actors develop mutual products and/or services and in which risk, costs, and benefits are shared. These are based on the idea of mutual added value."[30]

Characteristics

There are several common characteristics that can be found in most PPP's. Many of them seem to stem from early, traditional PPP's, but some have been added as time has gone on and the concept has developed. In addition to the above mentioned characteristics we have concluded that the following ones are generally indicative of PPP's:[31]

[29] Mirjam Bult-Spiering, and Geert Dewulf, "Strategic Issues in Public-Private Partnerships: An International Perspective", Oxford: Blackwell, 2006, 19.

[30] Ibid, 17.

[31] Ibid, 32.

- Two or more actors where at least one is private and one is public;
- Long-term commitment and timeframe; established timeframe;
- Established goals and objectives;
- Financial and/or manpower investment from all actors; and
- Two-way benefits.

Assessing Public-Private Partnerships

Purpose and Motivators of Public-Private Partnerships

It is important to note that the specific motivators or purposes are unique to each project that engages in PPP. However, in broad strokes we are in this section able to highlight some of the most commonly expressed purposes or motivations of PPP's:

- Sharing Risk;[32].
- Transferring/Sharing Hard and Soft Skills and Assets;[32] [33]
- Developing a Competitive Advantage;[34]
- Developing New Products or Services;[35] and
- Partaking in a Learning Environment.

Engagement in PPP's can provide opportunities to obtain intangible sources of a competitive advantage and enhance efficiency and growth by means of: [36]

[32] David Meunier, Emile Quinet, "Tips and Pitfalls in PPP design", Research in Transportation Economics 30, 2010, 126-138.

[33] Geert Teismann, Erik-Hans Klijn, "Partnership arrangements: Governmental Rhetoric or Governance Scheme?", Erasmus University Rotterdam, 2002, 62 (2).

[34] Lea Stadler, "Managing Across Corporate Boundaries: Public-Private Partnerships," In More than Bricks in the Wall: Organizational Perspectives for Sustainable Success, ed. Maria Akhavan (Geneva: University of Geneva, HEC, 2010).

[35] Joseph Stiglitz, Scott Wallsten, "Public-Private Technology Partnerships: Promises and Pitfalls", American Behavioral Scientist 1999 43, 52.

[36] Fredrik von Malmborg, "Conditions for regional Public-Private Partnerships for sustainable development – Swedish perspectives". European Environment, 13, 2003. 133-149.

- Decreased costs through efficient managing human resources, supply chains and environmental surroundings;
- Stimulating eco-innovations process, what causes corporate benefits in turn;
- Improving environmental understanding, what triggers mitigating costs, risks and future stability;
- Increasing customers loyalty and access to new markets, what influence companies' growth and sales; and
- Increasing legitimacy in terms of employees' loyalty and efficiency. [37]

Barriers to Effective Public-Private Partnerships

It is easy to get the impression that PPP's offer win-win situations. However, they are not risk-free; they require management, time, and investment in administrative costs. All aspects listed above as gains of or motivators to engage in a PPP, could easily be diminished or represent barriers if not considered or managed well. Moreover, working with partners from different sectors requires adjusting to each other in many areas, which in some sense means a loss in autonomy.[38] Hence, public entities tend to work differently from private ones and vice versa. When this is not understood by the parties involved, the partnership will lose strength and effectiveness.

Trafford, and Proctor[39] identify the following barriers to effective PPP's:

- *Loss of control*

  The inability to take action if things seem to be going wrong, or differently from, expectations. Shared decision-making may prove to be problematic;
- *Multiple goals*

  Stakeholders are likely to have internal and external goals, some which may not relate to the stated purpose of the partnership; and

[37] Lea Stadler, "Managing Across Corporate Boundaries: Public-Private Partnerships," In More than Bricks in the Wall: Organizational Perspectives for Sustainable Success, ed. Maria Akhavan , Geneva: University of Geneva, HEC, 2010.

[38] Ros Tennyson, "The Partnering Toolbox", the International Business Leader Forum (IBLF) and the Global Alliance for Improved Nutrition (GAIN), 2003.

[39] Sue Trafford, and Tony Proctor, "Successful Joint Venture Partnerships: Public-Private Partnerships," International Journal of Public Sector Management (2006): 119.

- *Tension between autonomy and accountability*

  Members may be accountable to their stakeholder groups, which may mean checking back before committing to a decision.

Conclusion: Establishing Critical Success Factors of Public-Private Partnerships

After reviewing literature on PPP, including definitions, conditions, motivators and barriers, we have been able to draw several conclusions. Based on our research, we have established and summarized what we consider critical success factors of PPP. We argue that these conditions need to be considered and analyzed before entering and during establishing and managing a PPP.

Governmental Policy and Regulation

Policies and regulation which encourage collaboration across sectors is pivotal to the success of a partnership. Where transparency, governmental accountability and property rights are lacking, the environment is too fragile to make up for the investment risk for PPP's to develop. Therefore, an important issue to consider prior to entering a PPP is "whether the environment is ready for a partnership approach…stable policies, their reliable enforcement, and support from the political side may leverage the PPP's outcome."[40]

Creating and Communicating a Shared Vision

All parties within a PPP need to share the vision for the project. While motivators for participating in the partnerships might differ, the vision for the project should be developed, adhered to and shared among all actors and individuals that are part of the structure. The vision could be developed by one sector, but must reflect the needs and targets of the next in order for it to serve as the guiding mechanism and inspiration it is intended to.

Realistic and Agreed Upon Objectives

Similar to any project, the objectives for the partnerships must be SMART (specific, measureable, attainable, realistic and timely). Literature suggests that objectives must be created by all actors involved to ensure that they meet the basic requirements of an objective, but also encourages accountability. At the same time, objectives must be flexible enough to adapt to a

[40] Lea Stadler, "Managing Across Corporate Boundaries: Public-Private Partnerships," In *More than Bricks in the Wall: Organizational Perspectives for Sustainable Success*, ed. Maria Akhavan (Geneva: University of Geneva, HEC, 2010), 148-200, 168.

change of circumstances and capabilities, yet sufficiently forward-thinking to encourage the creation of innovation solutions. When a mismatch exists between the public and private objectives, the partnership stands a significant change of failing, managers struggle to agree and commitment to move forward lags.[41]

Organizational Capability to Participate

It is not enough to exist in a region of the world where policies and regulations encourages PPP, it is of equal importance that the capability of the partner (whether public or private) matches goals, objectives and targets of the proposed partnership. If success of the partnership is pegged on a certain amount of hours of work every week, or having access to a particular technology, it is important to ensure that such items are in place prior to entering the partnership or at the very least that the limitations are understood at the outset.

Governance Requirements

The partnership must be guided by a set of expectations and a governing structure. The governing structure may take many forms including bottom-up, top-down or somewhere in between the two. The importance here is not to identify which structure works the most efficiently or productively overall, rather a structure in which all actors understand their roles, its barriers and contributions. In addition, actors must understand what expectations are attached to each role and trust that everyone will meet their agreements and obligations states that **"**where there is mistrust or hostility between some or all of the partners, then the effective operation of their partnership may be difficult to achieve".[42]

Established Project Framework with Clear Phases

As was discussed earlier, PPP's tend to have an established timeframe which informs the creation of objectives and targets. When a partnership is created, time targets for the end of the development are usually already established. This practice is in line with universally accepted

[41] Oswald Jones, "Managing Public-Private Partnerships: the enactment of a new business venture", Technovation 25 (2005) 587–597.

[42] Sue Trafford, Tony Proctor, "Successful joint venture Partnerships: Public-Private Partnerships", International Journal of Public Sector Management, Vol. 19 Iss: 2 pp. 117 – 129 (119).

business practices. Several different models for establishing these phases exist, including Change Management[43] and Project Management.[44]

The private sector is gaining more and more understanding that "creating economic value through societal value is one of the most powerful forces driving change in global economy."[45] Since we are in need of a holistic approach for meeting numerous human needs, serving new markets, offering products, configuring value chains, internalizing social and community costs and enhancing competitive advantage, collaboration across sectors is increasing. This section provides an explanation and understanding of how PPP is formed and how it can contribute to the success of an innovative project. And it arrives at six critical success factors which will be further explored in the context of Sustainable City Developments in the next section.

[43] Lea Stadler, "Managing Across Corporate Boundaries: Public-Private Partnerships," In More than Bricks in the Wall: Organizational Perspectives for Sustainable Success, ed. Maria Akhavan, Geneva: University of Geneva, HEC, 2010, 148-200, 168.

[44] "Joint Public-Private Approaches for Energy Efficiency Finance: policies to scale-up private sector investment ", International Energy Agency, 2011.

[45]Michael Porter, Mark Kramer, "Creating Shared Value: how to reinvent capitalism and unleash a wave of innovation and growth". Harvard Business Review, 2011.

Critical Success Factors of Public-Private Partnerships in Sustainable City Developments

As the number of SCD's increase throughout the world funding from the government and institutional level (grants, EU, etc.) will be increasingly less capable of providing adequate investments. The result is an increasing future requirement of additional funding sources. As cities aren't equipped to invest large amounts of initial capital securing private funding is becoming less an option than requirement. PPP's are a mutually beneficial method for the publically initiated SCD's to obtain increased value from the ongoing development while limiting their initial investment and overall risk. For PPP's to thrive in SCD situations they must be capable of incorporating social and environmental factors into their traditional understanding of partnerships as solely focused on creating economic value.

The literature pertaining to PPP's in SCD is rather limited; as such the conditions indicated in the first part of this chapter are from limited sources with insufficient corroboration. The result is the need for this conclusion to take a correlative approach to establishing the aspects of this relatively undocumented form of sustainable partnership. The previous sections within this chapter were researched and written by separate authors to decrease the likelihood of bias and pre-association.

In this chapter we have presented a range of information pertaining to PPP's and SCD's and will now use specific portions of that information, namely the critical success factors, to draw correlated conclusions. The critical success factors identified here through the PPP and SCD correlation will then be used later in this report to compare against the most common success factors found in the five case cities. The result will be a set of overarching primary[46] critical success factors. However, the value of these success factors goes beyond that scope as they contribute to the increased understanding of PPP's in SCD's which we have established to be lacking. Therefore, they may serve as a general tool for both public and private actors involved in sustainability-focused partnerships. The results will be an increased ability for the actors to identify beneficial factors and conditions for PPP's in SCD's, as well as insight into what critical

[46] Used to distinguish from, and avoid confusion with, other instances of critical success factors found in the report

success factors can be targeted by partners, and possible ways to affect them, to increase the overall success of the partnership and sustainable development.

Critical Success Factors

It should be understood that this is not a comprehensive set of critical success factors. Many of the success factors established in the PPP and SCD sections, which are used to comprise this list, overlap or support multiple factors. Originally, the disparate nature of the two concepts, coupled with the presence of variables, presented a set of difficulties in correlating the results. However, the critical success factors of the both PPP and SCD ended up being remarkably similar which, to the authors, implies that the successful use of PPP's in SCD's would require few, if any, shifts in understanding from the partners involved. The analysis and discussion in chapter four contains extended information regarding these success factors supported by corresponding examples from our specified sustainable cities in the form of primary critical success factors for Public-Private Partnerships in Sustainable Development.

Honesty, Transparency, and Trust

Includes- Trust (PPP), Honesty, Transparency, and Trust (SCD), and Creating and Communicating a Shared Vision (PPP)

- The long term goals, comprehensive stakeholder inclusion, significant investments, and community focus of SCD are a few of the concerns a PPP can mitigate with the understanding and proper application of this indicator.

Communication and Accountability

Includes- Established Project Framework with Clear Phases (PPP) and Communication, Documentation, and Reporting (SCD)

- Effective PPP's understand the value of establishing open and honest communication not only with the many stakeholders of the SCD and the partnership itself. Constant and open communication works to hold the PPP accountable, thereby encouraging trust, as well as contributing to the best practices of PPP's in SCD's, a growing field reliant on collaboration and applied information.

Partnership and Structure Governance

Includes- Governance Requirements (PPP) and Simple, Scalable Structures and Partnerships (SCD)

- Partnerships within SCD's require local governance which supports their ability to remain flexible and adaptable over the long period of the SCD.

Supportive Regulation and Policies

Includes- Government Policy and Regulation (PPP) and Supporting Regulation and Policy (SCD)

- PPP's are most effective when they are working in SCD regions with regulations supporting sustainability initiatives as it can serve to decrease their risk through outside investment. These policies should be conducive to equality within the PPP to promote shared governance thereby increasing the effectiveness of the PPP in the SCD.

Multi-Sector Organizational Capabilities

Includes- Organizational Capability to Participate (PPP), Multi-Sector Engagement (SCD) and City Geography and Characteristics (SCD)

- The most effective PPP's leverage all sectors of the SCD to contribute to the overall value of the initiative and the partnership. PPP's capable of understanding and utilizing the value different sectors contribute to the SCD, even if outside of the scope of the partnership, are in a position to be at their most effective.

Clear Frameworks, Strategies and Objectives

Includes- Realistic Objectives (PPP) and Tangible Strategies with Visible Goals (SCD)

- Any PPP in a SCD should understand and use this factor as a tool to communicate their ongoing success, encourage additional interest, and increase their competitiveness through meeting ongoing financial objectives. This indicator also supports trust through its effective communication to the stakeholders of the SCD.

When understood and used effectively, these critical success factors of Public-Private Partnerships in Sustainable City Developments are proposed to lead to increasingly robust partnerships resulting in more successful SCD's. Therefore it is encouraged that the information pertaining to the PPP and SCD specific critical success factors comprising these results be read

and understood to compliment the understanding of these critical success factors. However, only through application can we more strongly indicate the validity of these critical success factors and their role in PPP's in SCD's. In the following chapter we will be exploring five European SCD's which exhibit different aspects of PPP's in SCD's. From this research we will better understand the practical application of PPP's in SCD's while identifying specific success factors of their successful implementation and use. The resulting practice-based critical success factors will then be narrowed to those most commonly illustrated and used, in conjunction with these literature-based critical success factors, to arrive at a set of primary critical success factors substantiated through both literature and practical application.

CHAPTER 4

CASE STUDIES: SUSTAINABLE CITY PROFILES

Introduction

The following chapter aims to deliver a concise overview of existing Sustainable City Developments in five locations, Stockholm, Copenhagen, Birmingham, Hamburg and Freiburg. This set of cities was chosen deliberately in order to increase chances to reduce the risk of being limited to a single type of source or set of variables. The choice was also based on the fact that established partnerships in analyzed cities have rather distinct features and a variation in cultures, geographies, and overall sustainability goals. Information was collected from primary and secondary literature sources and from individuals from public and private entities within the cities.

While the general information we provide is useful, the specific purpose of this chapter is to use the research gathered from each city's literature and respondents to establish general success factors of Public-Private Partnerships in the Sustainable City Developments. The success factors that we arrive at will then be compared against the previously established success factors in chapter three, those of Public-Private Partnerships in Sustainable City Developments in order to generate commonalities and provide a discussion and analysis supported by a combination of theoretical and practical applications.

Finally, extended information regarding these cities and their sustainable developments, such as roles and timelines, can be found in Appendix B - City Profiles, Birmingham.

City of Birmingham

Introduction

The Birmingham Growth Prospect (BGP), published in 2006, delivered "a shared vision and priorities for the city's long-term development, in particular focusing on major growth and opportunities to develop the way the city's communications and services are organized"[1] with a specific focus pertaining to the economic stability and growth of Birmingham . The result of this study was Birmingham 2026, the city's first sustainable community strategy (SCS). Initiated in 2008 by Be Birmingham (the local strategic partnership (LSP)), it contains the vision of the sustainable city Birmingham that was aiming to become to answer the challenges and observations from the BGP.[2]

With the publishing of B2026 it was understood that the driving force behind any of the proposed project aspects is a strong economy. This was addressed by the development of two delivery frameworks within B2026, the Local Area Agreement (LAA) and the Local Development Framework (LDF). The LAA involved local private partners and the BCC was focused on providing funding for clear targets and action during a three year period while the LDF centered on long term initiatives such as the 20-year Big City Plan (BCP) focused on the development of the city center, the rebuilding of New Street Station (the heart of the city), and the regeneration of south and north areas[3] in order to support the estimated growth and economic needs. The combination of the Birmingham Growth Prospectus, Birmingham 2026, the Local Area Agreement, and the Local Development Framework present a comprehensive strategy to obtaining the outcomes established within the Sustainable Community Strategy.

Targets and Focus Areas

The overall Birmingham Sustainable City Development (SCD), B2026, is a city wide project with a systematic approach to sustainable development driven by a focus on economic

[1] Birmingham City Council, Sustainable Community Strategy- Birmingham 2026, September 2008

[2] Birmingham Inquiry, March 2009, www.idea.gov.uk/idk/core/page.do?pageId=9454512&aspect=print (accessed May 18, 2012).

[3] South-Digbeth/Highgate, North-Jewellery and Gun Quarters

sustainability. However, the targets of B2026 are equally emphasized among the focuses of environmental, social, and economic sustainability in order to create "the first sustainable global city in modern Britain." All target and focus information was gathered from the SCS and SEAP.[4] [5]

Targets:

1. A reduction of CO2 emissions by 60% by 2026;
2. The development of 50,000 new homes to accommodate the estimated 100,000 more inhabitants by 2026;
3. Become Britain's safest, cleanest, most cohesive and most engaged city by 2026; and
4. Further expansion of the UK's largest CHP-DH system to deliver 30% sustainable energy by 2020.

Focus Areas:

1. A hybrid energy approach using a combination of energy from waste, renewables, and energy efficient measures and behavior;
2. Encouraging and supporting Public-Private Partnerships by acknowledging local characteristics and clusters; [6] and
3. Multi-sector engagement in planning, implementing, and guiding the initiatives.

Conclusion

Our research of Birmingham's Public-Private Partnerships, in the context of the Birmingham 2026 initiative, has been comprised of literature review and interviews with key stakeholders from BCC and Aston University. While a plethora of information has been reported in this profile, it is necessary to conclude upon the most widely recognized and cited reasons for the ongoing success of their partnerships, particularly as they pertain to BDEC.

[4] Birmingham City Council, Sustainable Community Strategy- Birmingham 2026, September 2008.

[5] Birmingham City Council, Sustainable Energy Action Plan, http://helpdesk.eumayors.eu/docs/seap/330_507_1304007118.pdf (accessed May 18, 2012).

[6] As defined by OECD, Competitive Regional Clusters: National Policy Approaches, Policy Brief, May 2007.

Organizational Structures and Governance

The establishment of BDEC as the PPP and energy provider for Birmingham is regarded as one of the key points of success for the energy initiatives of B2026. The inclusion of a diverse set of partners allows for a wide range of benefits to BDEC and Cofely. Aston provides research, interpretations, and mapping, BCC identifies opportunities, and Cofely bears the risk and enables profit sharing. The variety of partners influences governance via incentives, inclusion and influence in terms of potential customers, private firms, community, and detractors. This leads to strong, supported objectives, encourages additional partnerships and trust while establishing solid tangible goals. [7] [8]

Communication and Leadership

This aspect pertains not only to BDEC partners, but to the way they communicate and lead the energy initiatives. Both rely on trust, honesty, and transparency as a means to support the long term goals via a clear, ongoing vision supported not only by the BDEC partners, but by individual champions of the initiatives.[9] While literature indicates a stronger need for champions in other sectors, such as building development, to realize long term benefits[10], Sandy Taylor identified two champions within the BDEC - Deputy Leader Paul Tilsley from the BCC and Simon Woodward, CEO of Cofely - whom are essential to driving, inspiring, and encouraging participation both internally and externally.[11]

Trust and Transparency

The most widely agreed upon success factor is central to the overall strategy of BDEC and the B2026 initiative as a whole. By taking a systematic, scalable, evidence based approach the

[7] Sandy Taylor, interviewed by author, 18 May 2012, Malmö, VOIP recording.

[8] Andrew Bryers, interviewed by author, 10 May 2012, Malmö, VOIP recording.

[9] Birmingham City Council, Sustainable Energy Action Plan, http://helpdesk.eumayors.eu/docs/seap/330_507_1304007118.pdf (accessed May 18, 2012)

[10] Sustainability West Midlands, Consultation on the Birmingham Core Strategy 2026- Consultation Draft, 18 March 2011.

[11] Sandy Taylor, interviewed by author, 18 May 2012, Malmö, VOIP recording.

partnerships promoted trust by acknowledging past and current weaknesses and transparently exhibiting their ongoing successes through reporting and results. Within BDEC trust was encouraged though the open and honest discussion focused less on "getting bogged down in legal contracts and negotiations" and instead on the means to achieve long term goals established by the partnership.[12] Finally, the structure of the BDEC partnership itself promoted trust and transparency by including key customers as essential components. By acknowledging the values of the actors and their unique contributions to create a cohesive and mutually beneficial partnership Cofely was able to leverage increased value for themselves.

[12] Sandy Taylor

The City of Stockholm: Stockholm Royal Seaport (SRS)

(Norra Djurgårdsstaden)

Introduction

The urban city development was initiated in 2008 when the City of Stockholm made a decision on its Environmental Profile. The area is to be fully developed by 2030, a date that is in line with the overall vision for the city. SRS is a prime location for urban development as it is located by the water and harbors huge areas of greenery. The district will include 10,000 dwellings and provide 30,000 employment opportunities. Although a few older, shut down industrial buildings will be restored and reopened, the area is primarily made up of new-builds. Not only will the district help the City of Stockholm achieve its overarching environmental and climate targets, "the aim for Stockholm Royal Seaport is to be a showcase for sustainable urban construction where innovative Swedish environmental technologies and creative solutions are developed, tested and presented."[13]

Whether considering written publications or referring to interviews conducted with public and private actors of SRS, we have not yet come across a mentioning of PPP's. In fact, Staffan Lorentz, Head of Development, Stockholm Royal Seaport states that no PPP exists in SRS or any other SCD in Stockholm.[14] However, according to our working definition of PPP, such a one has been formed and is actively contributing to the SCD via dialogue, development participation, shared risk, research and/or creating solutions.

13 "Stockholm Royal Seaport selected for newly launched climate positive development program," Stockholms hamnar, http://www.stockholmshamnar.se/en/News-and-press/2009/Stockholm-Royal-Seaport-selected-for-newly-launched-climate-positive-development-program/ (accessed March 31, 2012).

14 Executive Office of Stockholm, Vision Stockholm Royal Seaport 2030 (Stockholm), 8.

Targets and Focus Areas

According to *Vision Stockholm Royal Seaport 2030*[15] the three main targets and subsequent focus areas are:

Targets:

1. By 2020 carbon dioxide emissions will be less than 1.5 tones per person;
2. To adapt the city to future climate change, for example increased precipitation; and
3. By 2030 Stockholm Royal Seaport will be fossil-fuel free. The ambition is higher than for the city as a whole, where the same target has been set for 2050.

Focus Areas:

1. Energy use;
2. Environmentally efficient transport;
3. Adaptation to a changed climate;
4. Cycles and cyclical models at system level; and
5. Lifestyle issues.

Conclusion

Collaboration

The City of Stockholm does not enter contractual Public-Private Partnerships with private actors, but it does however place great importance on collaboration and cooperation with such entities. It stresses the need for basing targets and objectives on attainable, yet far-reaching goals that are only able to be produced via continuous dialogue between the City and the business community.

Internal Motivation

Motivations to participate and achieve in the SRS projects are marketing opportunities, competence-building and networking. Private actors are engaged in SRS because activities and participation offers an opportunity to remain competitive in the field of development and energy.

15 Staffan Lorentz (Head of Development, The City Development Administration, Stockholm Royal Seaport) in discussion with Malin Olofsson, May 11, 2012.

Visions and targets established, as informed by the environmental, social and economic issues, as well as private actors with firsthand experience, become shared among the participants in SRS solely because they are in-line with what is required by a Sustainable City Development-focused city such as Stockholm. They are aligned with the efforts of businesses that seek to compete in an international arena.

Communication Structure

The SRS' Implementation Organization does not permit private actor decision-making, yet it invites such actors to develop its own strategies to achieve targets. To ensure that actors meet targets, the City asks them to provide matrix' in their proposals for development that will later be used to gauge whether or not they are meeting established objectives. As such information is publicized, actors are expected to actively seeking to achieve or outperform targets and goals. The organizational structure as well as the Innovation ensure that private actors, whether informal partners or not, are heard, incorporated, consulted and held accountable.

Lessons Learned

Visions and overall targets for the district have long been established. However, how to materialize and reach those targets has not. SRS uses lessons learned from Hammarby Sjöstad to ensure the best possible results. Additionally, target plan implementation is conducted in stages in such a way that one project has the potential to inform the next. In any long-term project it is also evident that technological solutions change rapidly; this is true for the implementation plans and solutions in sustainable cities. This too is something Stockholm considers in both its planning and implementation phases.

Strong Political Support

As mentioned, SRS is but one of four main Sustainable City Developments managed by the City of Stockholm. What's more, Sustainable City Developments represent only one type of projects that the City is implementing around climate change management and environmental issues. The City advertises its commitment to and seeks to be a leader in reducing harmful emissions, mitigating environmental issues and developing solutions for urban settings. Needless to say, the municipality is in strong support of and a huge advocate of the development. Tremendous resources and assets are allocated to SRS and other projects implemented to reach city-wide environmental targets.

The City of Copenhagen: Nordhavnen

Introduction

As is generally known Copenhagen is one of the leading sustainable cities in the world. The City has a reputation for its comprehensive long-term planning and regulation for climate change, and is seen as an innovative leader in several areas including wind energy, district heating, and bicycle transportation.[16] It has successfully transformed an urban area into a Green City. During the last 25 years the City of Copenhagen managed to improve its infrastructure to improve living standards without distorting the balance between the well-being of its citizens, environment and urban landscape. The results of the activities of the Danish government in sustainable development are impressive:

- The Harbor transformation into a blue public space;
- Protecting the groundwater resources and limiting losses from the drinking water supply;
- Improved cycling infrastructure;
- Integrated public transport;
- Integrated waste management approach;
- Renewable energy infrastructure; and
- Advanced district heating system and development of "district cooling" system;[17]

These achievements and sustainability-related initiatives have taken place in the absence of any overarching sustainability or sustainable development plan. This is due, in large part, to the long history of understanding the concept of sustainability in Copenhagen; comprehensive long-range planning has been a common practice for decades throughout Denmark. Although it hasn't been identified as such, aspects of sustainable development have for long been integrated into governmental frameworks and are now typically intrinsic to the planning and decision-making processes. Copenhagen continues to set high goals for the future, e.g. by 2015 to define itself as

[16] Alex Fletcher, Member, Sustainability Solutions Group, "City of Copenhagen, Denmark", http://crcresearch.org/community-research-connections/climate-change-adaptation-and-mitigation/city-copenhagen-denmark, Web, 20 March 2012.

[17] City of Copenhagen "Copenhagen: Solutions for Sustainable cities", 2011, http://www.kk.dk/sitecore/content/Subsites/CityOfCopenhagen/~/media/9933EE8E38A547C7B3A3C52BC4CAD89D.ashx, Web, 6 May 2012

the world's 'eco-metropolis' and by 2025 to become the world's first carbon neutral capital. In addition, Copenhagen is improving continuously by developing its urban districts and creating new ones with the help of different development proposals. One such project is Nordhavnen - Scandinavia's largest metropolitan development project.[18]

Nordhavnen

Targets of the Project

Allegedly, Nordhavnen is presently one of the most ambitious projects of its kind. According to the governing body of Nordhavnen, the main objectives of the project are:[19]

1. Improve climate conditions by showing how Danish energy solutions can be implemented;
2. Increase Danish export of green technology (thus contributing to creating green growth and jobs in Denmark); and
3. Show how cities can help reverse climate change without losing out on quality of life, welfare and democracy (to make Nordhavnen a green showcase for the City of Copenhagen and Denmark).

Conclusion

Research based on online resources and interviews with participants of the project make it possible to conclude that there are three critical success factors for advancing sustainable development in Copenhagen:

[18]Official web-site of Nordhavnen, English Frontpage, http://www.nordhavnen.dk/EnglishFrontpage.aspx?sc_lang=en, Web, 30 March, 2012.

[19] Official web-site of Danish Presidency of the Council of the EU 2012, Educational material for Denmark's Presidency of the EU 2012, "Green Growth – Climate Change", 2012, http://eu2012.dk/en/EU-and-the-Presidency/Undervisning/~/media/Undervisning/PDFer%20Final/Green%20growth.pdf, Web, 14 May, 2012

Broad Political Commitment

Collaboration and unity are considered cultural norms in Denmark. In Copenhagen, significant efforts were made to collaborate across party lines and between government departments, thereby gaining approval from both the city council and the public.

A Long-Term Vision that Proceeds from Mainstream Initiatives

As the Copenhagen case study shows, ambitious large-scale projects, that in some cases span for decades, are possible and can provide many benefits.

Priorities and Initiatives Based on Facts and Supported by Science

In Denmark, education is highly valued and free to all citizens, resulting in a well-informed public and an educated workforce. The city employs experts and scientists and engages external expertise, when needed.[20]

- Involvement of citizens in the project is a key success factor of Nordhavnen. The Brief for the development of Nordhavnen was prepared on the basis of dialogue with citizens and other stakeholders. A number of citizens meetings were held that attracted many people and brought out several points of view and ideas for future development.[21]

According to a representative of BY&HAVN, Rita Justesen, the CPH City and Port Development is a general partnership, owned by the City of Copenhagen and the Danish government. The task of the Corporation is to develop the areas owned by the Corporation into urban districts and to be responsible for the port activities in the Port of Copenhagen. The areas include Ørestad – a new town close to the airport – and huge areas in the harbor that are no longer required for port operations. The management of the maritime operation is handled by Copenhagen Malmö Port.[22] To read more about the details of Copenhagen's energy partnership please visit Appendix B, City Profiles, Copenhagen.

[20] Alex Fletcher, Member, Sustainability Solutions Group, "City of Copenhagen, Denmark", http://crcresearch.org/community-research-connections/climate-change-adaptation-and-mitigation/city-copenhagen-denmark, Web, 20 March 2012.

[21] Official web-site of Nordhavnen, English Frontpage: Involvement of citizens, http://www.nordhavnen.dk/en/Aarhusgadekvarteret/baggrund+for+byudvikling/Nordhavnskonkurrencen/InvolvementOfCitizens.aspx, Web, 30 March, 2012.

[22] Rita Justesen, "Nordhavnen – a city district at the water", PortusPlus, (2011): http://www.reteonline.org/media/pdf/Portus-Plus-2011/Rita%20JUSTESEN.pdf, Web, 22 May 2012.

The City of Hamburg: HafenCity District

Introduction

A wide array of materials about strategic sustainability issues in Hamburg indicates that Public-Private Partnerships have already demonstrated their fruitful results.[23] However, not all involved people realize that they work in a partnership. This fact does not mean that such collaboration related to sustainability problems does not exist, on the contrary, it proves the fact that partnerships take place in many different forms. Hamburg is one example of a city with established partnerships; one with distinct features and characteristics.

Hamburg is notable for its environmental projects, which due to workable practices and concepts are worth replication or improving in other European cities. The HafenCity district represents one such project in Hamburg. HafenCity is a bright example of sustainability that focuses on new-builds at previously industrial sites and development with intensive use of land. This district, a so-called "innercity", is the biggest project in Europe and one the leading waterfront projects in the world. The building of the unique urban structure, with the population of 10 -12 000 citizens and 40 000 jobs, was triggered by developing of flood protection strategy. The recent economic crisis hasn't prevented the development of the City due to involvement of many different companies and investors. This robust position in the market has made the project durable to the changes.[24]

Targets and Focus areas

The vision of the district is "living up to the challenges of the future without abandoning its own traditions and qualities."[25] Principal targets cover such dimensions of the structural concepts as land uses, the structure of urban development, town planning considering waterfront

[23] Barelier Laurent. Hamburg European Green Capital 2011: The Train of Ideas made a stop in Copenhagen. Sustainable Cities. http://sustainablecities.dk/en/blog/2011/05/hamburg-european-green-capital-2011-the-train-of-ideas-made-a-stop-in-copenhagen (accessed May 14, 2012).

[24] Danish Architecture Centre. Hamburg: HafenCity – bringing the city to the water. Sustainable Cities. http://sustainablecities.dk/en/city-projects/cases/hamburg-hafencity-bringing-the-city-to-the-water (accessed May 14, 2012).

[25] HafenCity Hamburg GmbH. HafenCity Press area. HafenCity Hamburg. http://www.hafencity.com/en/press-releases/building-the-city-anew-the-major-city-of-tomorrow.html (accessed May 16, 2012).

characteristics, integration into the city, sustainability and ecology.[26] In addition to having a Masterplan with numerous aims and objectives regarding these areas, Hamburg intends to initiate programs in other large cities aiming at gaining experiences that will aid in local development efforts. Also HafenCity aims at supporting groups of investors, builders, designers, residents and authorities to work in partnerships and joint ventures with the common purpose of making HafenCity the central place for "a new business, social, cultural and urban economic breakthrough."[27]

The following areas are given priority in developing the district:[28]

- Brownfield development, which implies transforming former industrial zones and development of residential and business territories compatible with neighboring port activity;
- Climate-adjusted flood protection;
- Efficient use of ground surface;
- Sustainable climatically suitable city structure;
- Sustainable mobility;
- Sustainable thermal energy supply;
- Sustainable buildings;
- Utilities and sewer system;
- Soil contamination; and
- Air pollution, etc.

[26] HafenCity. HafenCIty hamburg – the Masterplan, 2006. http://www.hafencity.com/upload/files/files/z_en_broschueren_19_Masterplan_end.pdf (accessed May 16, 2012).

[27] HafenCity Hamburg GmbH. HafenCity – the genesis of idea. HafenCity Hamburg. http://www.hafencity.com/en/overview/hafencity-the-genesis-of-an-idea.html (accessed May 16, 2012).

[28] HafenCity Hamburg GmbH. Sustainability and Quarters. HafenCity Hamburg. http://www.hafencity.com/en/overview/sustainability-and-quarters.html (accessed May 14, 2012).

Conclusion

Practitioners from Hamburg state that there is no PPP in the project,[29] yet involved parties with diverse backgrounds highlights the emergence of a promising PPP that has already begun to show its achievements. "A transparent urban development competition for creating the area was possible because planners, HafenCity Hamburg and political representatives had been working together."[30]

The following practices assisted successful realization of the district*:*

- *Encouragement of Social Entrepreneurship and Creativity*

  The existence of an innovative development type (the joint building venture as a mechanism of pre-sail cooperation encouraging diverse groups to collaborate) assists cooperation between future residents,[31] quality enhancement, risk and cost reduction for developers and investment value increase.[32]

- *Financial Resources*

  Many interested investors and companies ensure robustness to the changes in the market and to the financial crisis. Subsidizing new infrastructure does not use resources from the sale of land, thus, there is no time pressure for the development of HafenCity's building plots.

- *Strong Community Orientation*

  The community is tied to together using several methods, including monthly expert meetings that link stakeholders, a large number of publications, a high level of transparency and communication. Communication on sustainability issues is an important constituent of this set of multiple measures.

- *Competition Encouragement*

[29] Interview Tim Geilenkauser, interviewed by author, May 16, 2012.

[30] HafenCity. HafenCIty Hamburg – the Masterplan, 2006. http://www.hafencity.com/upload/files/files/z_en_broschueren_19_Masterplan_end.pdf (accessed May 22, 2012).

[31] Danish Architecture Centre. Hamburg: HafenCity – bringing the city to the water. Sustainable Cities. http://sustainablecities.dk/en/city-projects/cases/hamburg-hafencity-bringing-the-city-to-the-water (accessed May 22, 2012).

[32] Hape Schneider, presentation "HafenCity Hamburg: The Link betweenUrbanityandEcologicalSustainability". European Green Capital seminar Stockholm, November 30, 2010.

Competition is encouraged by awarding eco-labels, promoting energy efficient buildings under competitive market conditions, adjusting benchmarks regularly, and designing quality promotion. Competitions for creative ideas, the quality of concepts ensures innovative processes. HafenCity Hamburg GmbH assesses the quality of ideas according to its sustainability standards in energy performance, social amenity, mix of use, efficiency of building maintenance.

- *Development Location*

The district is a prime location within Hamburg, opening the city to the harbor and the river Elbe.

City of Freiburg: Vauban District

Introduction

As in the case of HafenCity, people from Freiburg involved in partnerships do not acknowledge the existence of PPP's. However this unawareness does not undermine the fact that the overall success of Freiburg was achieved due to synergy among players working together and mutually benefiting each other.

Freiburg City is notable for its trend to reduce the number of privately owned cars. The new district Vauban is a model project of the City. The main idea of the area is saving space and energy with the purpose of educating and influencing a wide population[33]. Vauban is a place where citizen engagement provokes people to take responsibility of their local community, where the streets are without cars and buildings are energy efficient. Citizens participate in all stages of development, even in the planning process, and they established the association "Forum Vauban" which was recognized as legal body in 1995. At that time Forum convinced the City Council to start a car free project and although the entity agreed, tension between the two sides remained during the development of the concept. The major goal of the project was "to create a car-free city with a reduced number of private cars."[34] By means of supplying good public transport, a car-sharing system and providing economic incentives to those who live without a private car and adjusting conditions for bicycles the City reduced the number of cars and, consequently, traffic and air pollution.

Targets and Focus Areas

The vision was "to create a completely new type of city district, where planning is based on environmental, economic and social sustainability and initial preparations to fulfill this vision began in 1993." The initial objective was "to offer high quality building spaces for young

[33] Bund Gruppen. Freiburg & Environment: Ecological Capital – Environmental Capital – Solar City - Sustainable City - Green City? Regionalverband Sudlicher Oberrhein. http://vorort.bund.net/suedlicher-oberrhein/freiburg-environment-ecology.html (accessed May 15, 2012).

[34] Melia Steve, "On the road to Sustainability. Transport and Carfree living in Freiburg", Bristol, Faculty of the built environment, 2006.

families within the city's territory and to counteract sub-urbanization."[35] However, throughout the project the objective was modified to "implement a city district in a co-operative, participatory way which meets ecological, social, economic and cultural requirements" through:

- "Balance of working and living areas;
- Balance of social groups;
- Integration of future building owners;
- Priority to pedestrians, cyclists and public transport;
- Privileges to car-free living;
- Co-generation plant and short-distance heating system;
- Extensive use of ecological building material and solar energy", etc.

These objectives were brought into effect through cooperative participation of the City, working citizens groups, private organizations, private builders and groups of building owners. Through this process the major strengths of the project were realized. The major element is strong citizens' participation as the driving force for ideas sharing and generation, creativity and commitment to the common aim to create a sustainable city.[36]

Conclusion

Although not all participants of "Sustainable Model District Vauban Project" acknowledge the existence of a formal established partnership, we argue that activity within the district results in a partnership between the voluntary organization Forum Vauban, Freiburg City Council and several other partners. The development phase was also put into effect by small co-housing groups for further usage by an owner.

[35] Forum Vauban, Greiburg, Germany. Forum Vauban e.v. Overview. http://www.forum-vauban.de/overview.shtml (accessed May 19, 2012).

[36] Delleske Andreas. Main objectives. Vauban District, Freiburg, Germany, http://www.vauban.de/info/abstract2.html (accessed May 15, 2012).

There are several critical success factors that should be recognized both from the project development phase and implementation:

- *Information and Fairness*

  It is logical to assume that when there are two or more groups with individual viewpoints the groups need to have access to enough information to reach an agreement or at least compromise.

- *Strong Cooperation and Collaboration*

  The driving force for creating a sustainable and democratic city was strong cooperation and collaboration between engaged citizens at all stages of development including planning. Citizens' demands, their small and bigger insights, as well as ideas were the leading forces. Community did not establish any fixed and big goals, but rather was oriented on small changes[37], according to community representative Tim Delleske from Freiburg.

- *Economic Incentives*

  A resident gets a monetary compensation if he or she chooses to live without a car. In the other direction, residents have to buy a parking space if they want to use a private vehicle. Also, economic benefits are given to joint building groups formed by new inhabitants, a type of development that influences the overall success of the district[38]. Within so called co-building groups, people with low and moderate income level have a chance to participate. This fact signifies the importance of the social groups balance[39].

- Focusing on young families, since they are easier to attract.
- Political actions are of great importance, as a basis for exchanging information and developing concepts.

In addition to identifying critical success factors, few problems should also be recognized:

[37] Interview Andreas Delleske, interviewed by author, May 18, 2012.

[38] Danish Architecture Centre. Vauban - an environmentally friendly and (almost) car-free city Sustainable Cities. Sustainable Cities. http://sustainablecities.dk/en/city-projects/cases/vauban-an-environmentally-friendly-and-almost-car-free-city (accessed May 22, 2012).

[39] Forum Vauban, Greiburg, Germany. Forum Vauban e.v. Overview. http://www.forum-vauban.de/overview.shtml (accessed May 22, 2012).

- The administration sometimes did not follow the community visions. Quite often the administration was skeptical and at first reluctant to citizens' suggestions. For example, today the authorities admit that the orientation of most of the streets could have been better suited for passive houses, something that Forum had predicated.
- Citizens' decision power was not very strong in the project. Here the problem arose when the citizens did not feel that their view was honestly taken into account by those who claim power. In such instances they would not bother to contribute in a significant way.
- Funding resources were and remain difficult to attract, especially for small and independent organizations like Forum Vauban, which need more resources to accomplish common goals.

Governance

Developing a structure with identified responsibilities and roles comes across as a major focus area for each city. This suggests that each of the five cities has identified governance and its components as a critical success factor for the project benefit. We have seen a variety of structures throughout our research where some stakeholders focus on community involvement as it is in Freiburg, others address the needs of the business community such as Stockholm. Hence, both top-down and bottom-up approaches exist. In addition, there seem to have developed a hybrid where public and private actors, along with the general public work on aspects together. The governance structure of each city seems to reflect a philosophy, circumstances and assumptions of a particular city during a particular time. There is no one size fits all. Only two of five cities admit to having entered formal partnerships with private actors, yet all incorporate and collaborate with such entities.

Motivations and Competition

Creating or maintaining a competitive advantage and market share is central to private involvement in urban development projects of this kind. Often times the investments are grand and return on investments in the short-term abysmal. What actors stand to gain is knowledge, know-how and competency. Obviously, both economic and human capital investments are expected to yield returns, but it seems to be of secondary priority to most actors. Each of the cities explored has created a systematic infrastructure to conduct research, innovate, formulate solutions and develop technology, an approach that seems to be motivating many actors to participate in partnerships. Creating a competitive advantage also works in the reverse direction as cities acquire support, skills and engage in development that wouldn't otherwise be available to them. All cities citied in this report have stated directly that they seek to become a leading entity in one aspect or another of sustainability. Through the partnerships in the SCD's that we have researched the cities are also acquiring or building a competitive advantage or sustainable business models. Some of the aspects include but are not limited to Stockholm's capitalization of its harbors and proximity to water, the City of Birmingham on CHP-DC, Hamburg on its

waterfronts and Freiburg on reducing the number of private cars. These aspects are often combined with other efforts and part of a more holistic model.

Political Context and Commitment

It is often discussed how private actors need to be motivated and incentivized to invest in a project. In this section we argue that for the topic at hand, it is of equal importance for political representatives and governmental institutions to be motivated. Evidence gathered in our research show that a political will and commitment are two major necessary aspects of the concepts of PPP and SCD. Political bodies are needed to mobilize the community and encourage both public and private participation. Such is the case in Stockholm, where political leaders were part of motivating and bringing forth the environmental targets, making them a city wide priority. In the City of Birmingham, it is argued that Champions, a body which advocate for the PPP's and SCD's are pivotal to success. These environments are more stable and reliable for PPP's and SCD's, thus, affording greater commitment and success of and for projects.

Regulation and policy could arguably be a hindrance to PPP's and SCD's and having Champions of your cause, an individual, department or even the city as a whole seem to build a safety net for the partnerships and developments. Where national or local policies inhibits the political supporters are able to advocate on the development's or partnership's behalf. It becomes a more attractive area to work in. Copenhagen provides a brilliant example of a committed City Council and interdepartmental support in SCD efforts.

Trust

For a PPP to be successful it needs to display a high level of trust among members. Formality of partnership or lack thereof seems to be of lesser importance. Citied in literature, this is idea is also supported by the interviews conducted with both public and private actors representative of four of the five cities. Trust as it is understood from our case studies encapsulates the level of transparency, credibility of leaders and champions, community buy-in, knowledge and the layout of the governance structure. Where trust is lacking, private actors are reluctant to participate and invest, something that is true in the reverse as well. The culture and environment in which PPP's and SCD's blossom, is where actors from all sectors are able to trust each other, whether

facilitated by community meetings as in the case of Freiburg, reporting as in Stockholm, or incentives offered by the BDEC partnership in Birmingham.

CHAPTER 5

COMPARATIVE ANALYSIS AND DISCUSSION

Comparative Analysis:
Critical Success Factors for Public-Private Partnerships in Sustainable City Developments

In order to provide the most accurate analysis and discussion possible, within the scope of this report, a combination of theoretical critical success factors and those exhibited by the five assessed sustainable cities has been made. While the factors of Public-Private Partnerships (PPP) in Sustainable City Developments (SCD) have previously been established, it is only with a comparison of that theoretical information against the practiced city factors that we are able to arrive at sufficiently substantiated critical success factors.

These primary critical success factors represent theory being substantiated by practice; it is not an indication that success factors are limited strictly to them. As such it is important to keep in mind the other critical success factors established in chapter 3 and chapter 4 which are either less prevalent in the cities from their diverse SCD implementations, or inherently tied to aspects found within the primary factors. As a result from the varied understandings, definitions, and implementations of PPP's and SCD's we are providing this chapter as a means to illustrate how these primary success factors can be understood and leveraged for the benefit of both ongoing partnerships, and SCD's. Furthermore, the primary critical success factors included below aren't dictations or directions, it will be up to the reader to relate this information and apply it in a practical way to the particular PPP and SCD being researched or discussed.

Trust

The abstract nature of trust makes it difficult to examine in a practical sense. However, its explicit inclusion in PPP and SCD and implicit inclusion in the examined cities strongly indicates its importance to the effectiveness of PPP's and SCD's. Some cities, such as Birmingham, went so far as to say that trust was the single most important aspect of the partnerships within the sustainable development.[1] As such, it is important to understand the role trust plays in SCD to be able to leverage it to optimize partnerships as well as identify situations where the level of trust, or the knowledge of its value, will increase the likelihood of successful PPP in SCD.

Our research has established that honesty and transparency are the leading factors supporting trust in this situation. This conclusion could be illustrated by scenario where a public actor in a PPP openly acknowledging its weaknesses which then allows the private partner to mitigate the admitted weaknesses through their strengths which "facilitates coordination and cooperation for mutual benefit."[2]

This honesty and transparency therefore builds a stronger partnership while simultaneously increasing the level of trust within the PPP. Additionally, one can see that the secondary factor of "creating a shared vision" is related to trust in that the partnership is strengthened through honesty and transparency and consequently becomes better equipped to establish how its attributes work toward supporting a shared and long term vision. Simply put, the long term goals of SCD's require a long term PPP. Without the knowledge and implementation of trust it will be difficult to sustain the partnership through the life of the project.

Trust doesn't have to be reliant on a framework or systematic method of application. A less complex way, more easily implemented by partnerships struggling with sub-optimal levels of trust, is to identify and utilize champions. Research indicates that one of the strongest tools to encourage trust via honesty and transparency is through the use of champions. Their ability to

[1] Sandy Taylor, interviewed by author, 18 May 2012, Malmö, VOIP recording.

[2] Mike Jenks, Colin Jones, eds., Dimensions of the Sustainable City 2 (Springer Science and Business Media, 2010).

easily cross partnership and stakeholder boundaries to communicate project values, visions, and goals is a powerful tool which is acknowledged, in both the Birmingham SCD and our research.[3]

The effective indication of trust extends to the overall goals of the SCD by attracting additional positive attention which may result in additional private partners who wish to invest, or otherwise be involved in, a transparent, honest, and trustworthy partnership. This is illustrated in the Stockholm SCD at the SRS Innovation Center which is the only official partnership in the development. Endorsed by the municipality, it has members ranging from Fortum to IBM who not only willingly pay a yearly fee to access the center and its research, but must actively contribute to the research being done. The combination of a long time commitment of research and innovation with a large capital investment by the partners indicates a high level of trust which encourages additional partners to join every year.[4] This illustrates the benefits which stem from trust, not only for the partnerships, but the SCD as well.

Governance and Structures

The inherent complexity of government structures is one of the driving forces of its interest in initiating PPP's. In terms of long term SCD's this complexity is exacerbated and benefits from the implementation of PPP's with less complex - even simple – structures which act as a counterbalance for the complex governance systems of the municipal partner. The private partner is more agile which allows it to recognize, and implement necessary changes to the SCD structures, but only if the governance system established in the SCD balances power between the public and private actors. Additionally, this flexible governance system is especially important when dealing with long-term SCD's as it allows inevitable unforeseen circumstances to be more easily adapted to and leveraged for change rather than as a detriment to the project. However, this is only a small part of what makes governance and structures such an important critical success factor for PPP's in SCD's.

[3] Bolton, Ronan P G., Socio-Technical Transistions and Infrastructure Networks: the cases of electricity and heat distribution in the UK, Sustainability Research Institute, School of Earth and Environment, University of Leeds. September, 2011.

[4] See Appendix B, Stockholm.

Both public and private partners should understand that in this mutually governed structure the success or failure of the PPP and SCD rest on their understanding that what affects one affects the other. With this in mind a partnership is better equipped to understand the systematic nature of SCD's and acknowledge that the overall success of the initiative is reliant on their ability to assess the full range of responsibilities of the PPP. Our research into all but one of the SCD cities[5] indicates that these structures should facilitate a combination of top-down and bottom-up governance focused on multi-sector engagement (particularly community-level). This encourages increased participation in the SCD initiatives as it illustrates a need for their commitment and input which in turn strengthens the PPP.

In terms of leveraging the optimal levels of participation within the PPP, structures and governance which create a mutually beneficial system for all parties should be established. This is perfectly illustrated by the Birmingham District Energy Cooperative (BDEC) which acts as a both the energy provider and as a PPP involving key customers such as Aston University, a leader in biofuel research. While BDEC was established to provide CHP-DH sales, its structure as a PPP allows Aston to obtain profit sharing from the addition of new customers, incentivizes innovation of alternative fuels, all while BDEC bares the financial risk from their investment in Aston. Aston realizes the benefit of lower energy costs stemming from renewable sources and the additional profits from increased partnerships while BDEC benefits from the ongoing research and innovation at Aston.[6] By understanding the need for mutually beneficial governance systems and structures PPP's are best equipped to identify gaps in their current structures as well as identifying SCD's which acknowledge the value of this type of sustainable governance.

Clear Strategies and Competitive Advantages

Effective private and public partners in SCD's have different objectives, but maintain a shared and guiding vision which unites them in their ongoing development. Where the private firm is typically primarily interested in an overall return on investment, the public entity is typically interested in the overall change being brought by the SCD. These ongoing concerns must be

[5] Appendix B, Stockholm.

[6] Appendix B, Birmingham.

joined for the PPP in SCD to be able to operate effectively and continually. The primary factor for this relates to the implementation of clear frameworks, strategies and objectives.

By establishing clear frameworks which support ongoing short-term objectives the PPP is able to advertise its progress to the stakeholders and other interested parties. The private partner is able to use these met objectives to communicate its progress and give indications of continued return on investment which can encourage interest from additional partners as well as strengthening the private partners overall position in the PPP and SCD thereby increasing their competitive advantage.

The public partner is able to use these short term objectives to communicate the ongoing success of its vision which makes it easier for different stakeholders to easily understand the progress being made and thereby encouraging further participation. The clearer and simpler these strategies are, the wider audience they are able to reach and be understood by thereby increasing the likelihood of ongoing success for the SCD. This is illustrated by the community involvement in Birmingham SCD after the financial crisis in 2008. Support wavered for the nebulous goal of CO2 reduction which was exacerbated by climate change debaters. As a result, the local strategic partnership of Birmingham reframed the SCD in terms of the economic benefit such as jobs created and the money saved via increased energy efficiencies. Their adaptive frameworks allowed them to quickly reframe the short term objectives while maintaining the long term vision.[7]

This example illustrates the importance of understanding the role the secondary factor of multi-sector engagement and communication play in this primary factor. By understanding the links between them and how to properly use them for the benefit of the PPP the likelihood of ongoing success for the partnership and the SCD are both increased.

Political Context and Commitment

Similar to trust as a primary factor of effectiveness in PPP's in SCD's, acknowledgment of supporting regulations and policies are promoted in the research we conducted, but was not so explicit as in the SCD cities we discussed. It could be said that this factor is rather obvious as non-supportive regulation would severely inhibit any PPP or SCD. However, the reason for this

[7] Appendix B, Birmingham.

being a primary factor is not for this aspect alone, but the combination of these regulatory concerns with the level of commitment found in the SCD region. By understanding how each of these aspects work together to create a single factor a PPP is in a stronger position to contribute to the success of the partnership and the SCD.

Naturally, incentives such as feed in tariff and renewable heat incentives contribute a SCD PPP with the private partner minimizing costs and the public partner encouraging participation from other community and private actors. Hence one can say unequivocally that incentives such as these are beneficial to a SCD PPP. Perhaps it is more interesting to discuss how a PPP can leverage regulation which is unsupportive of SCD. Policy in the United Kingdom states that municipalities cannot profit from research so Birmingham found an interesting way to use that negative policy to create a positive outcome.[8] The structuring of the PPP within BDEC, which included Aston University - a leading alternative fuel research institute - and the Birmingham City Council (BCC), was done in such a way as to have Aston's research benefit the BCC. By having the research benefit BDEC, which is privately owned, yet be dispersed via the PPP the municipality was able to leverage benefits from unsupportive regulation. The importance of this example is to illustrate how one should not take for granted the policy concepts and regulation. If properly understood and communicated among the PPP it is possible to create stronger partnerships without the presence of typically supportive systems.

The commitment of municipal leaders is a prerequisite to successful SCD's as shown by both Stockholm and Copenhagen where traditionally differential politicians worked across party lines in order to support the SCD initiatives in Nordhavn.[9] Their willingness to work together towards a common goal communicated a very strong message which is credited as having a large impact on the initial stage of the SCD in both cities.[10] It is of additional benefit to PPP's in SCD's to be in an area with stronger regional or city based control and government systems as this reduces the complexity inherent of central governments with a traditional top-down approach. Regional control increases the speed in which aspects such as change and funding can be leveraged by the PPP and SCD. Additionally regional attributes such as histories of PPP's and sustainable

[8] Andrew Bryers, interviewed by author, 10 May 2012, Malmö, VOIP recording.

[9] Appendix B Birmingham, Copenhagen.

[10] This could be indicative of supportive cultures for SCD, however this is beyond the scope of this report.

initiatives are strong factors of being able to easily and successfully implement new PPP's or support existing ones.[11]

[11] Tor Fossum, interviewed by author, 18 April 2012, Malmö, transcribed.

Discussion: Applying our Findings

Introduction

Since the objective of this chapter is to give E.ON knowledge and information needed to improve current and future partnerships, the following part contains suggestions on how the comparative analysis of primary critical success factors, that was done in the previous section, can be applied to the Hyllie project and future projects. It should be noted that each success factor from the analysis includes elaborations in order to illustrate how the primary factors can be expanded even further for the benefit of E.ON partnerships.

Application of Key Findings

On the assumption of the previous comparative analysis there are four critical success factors that should be taken into account by the practitioners from E.ON:

Trust

According to the conducted interviews within the Hyllie project all actors work together in a trustful manner. The city applies an open dialogue with PPP stakeholders. However, for E.ON it is important to understand that the level of trust, honesty and transparency can be increased on condition that:

- There are shared vision and mission - all the researched cities exhibit this feature and it helps them to improve their business relations by being open and trusting;
- The public sector acknowledges limitations and allows businesses to mitigate its flaws - partnerships in Birmingham promote trust by accepting their weaknesses and report their results in a transparent manner. Such actions promote cooperation and communication within the partnership what in turn increases the level of trust;
- The partnership creates a positive impression that attracts external companies - as Stockholm Royal Seaport project illustrates, there are many private actors who wish to participate in the project because of trustworthy atmosphere. Thus, involved partners not only experience this atmosphere, but also bring innovations and finances to the development of the project. All this leads to increased trust in the partnership;

- There is information and fairness in the partnership - for example, transparent information is crucial element in Vauban district, where there are two major groups of involved partners (the municipality and citizens' organization) with their individual viewpoints, and who have enough information to find synthesis or at least compromise. Thereby, it should be taken into account that transparency in the partnership has a good influence on the level of trust between the partners;
- There are clear frameworks, strategies and objectives - private firms are usually preoccupied with a return on investments, while the public entity strives for overall change in the SCD. These two-sided considerations should be leveraged for the overall success and the clear frameworks, strategies and objectives can be good tools for solving such kind of problems. Also, clear strategies and objectives can reach a wider audience, and thus, assist in diffusion of innovations. This is illustrated by the Birmingham SCD, where community involvement reinforced the city favored CO2 reduction strategy through their desire for stronger economic returns. This example also illustrates the importance of strong communication program in reaching a wide audience.

Governance and Structures

Both public and private partners in the Hyllie project understand that the success of the project is directly dependent on the quality of structures and governance within the partnership. In turn, this creates a mutually beneficial system for all parties. Since structures in the Hyllie project are not formed yet, E.ON can follow the examples of comparable cities that were considered in the research:

- It can be beneficial for the private company to engage not only in providing energy services, but also in involving key customers such as universities and scientific centers. In such a way (which can be observed in Birmingham) key customers get economic benefits while the energy provider shares risks associated with their investments as they obtain increased mutual value.
- Sometimes partnerships are not fully recognized by involved partners because the governance structure is represented by only one company. As in HafenCity of Hamburg and Nordhavnen of Copenhagen, a real estate development company is responsible for developing the whole project. However, the company is not a private company but is rather

a "Public-Private Company", which is represented by actors from the City/State, private developers, and investors. The company is full subsidiary of the local government and acts in assignment of the city as a spatial planner, developer and marketer. This demonstrates that structures and, accordingly, partnerships can take many forms and it is an ample opportunity for partners to experiment on organizational structures and decide which structure suits the partnership better.

Clear Strategies and Competitive Advantages

Currently in the Hyllie project there is an open bidding for developers in the energy field. However, for E.ON it is important to acknowledge the fact that competition should be addressed at all levels by means of:

- Awarding of eco-labels – for example HafenCity (Hamburg) received such Eco Label categories as:
    1. Sustainable use of energy resources;
    2. Sustainable use of public goods;
    3. Use of eco-friendly building materials;
    4. Special consideration for environment, comfort and health protection;
    5. Sustainable Facility Management;[12]
- Promotion of energy efficient buildings under competitive market conditions;
- Regular adjustments of benchmarks;
- Design quality promotion - competitions for creative ideas, and the quality of concepts, ensures innovative processes. Innovative processes are driven by competition for creative ideas; in turn creative ideas should be stimulated by matching sustainability standards.[13]
- Stimulating of eco-entrepreneurship that is one of the major driving forces on the way to becoming sustainable. The example of HafenCity in Hamburg demonstrates that actions stimulating creativity and social entrepreneurship assist collaboration between future home owners, reduction in costs and risks for developers, quality improvement, and increase in investment value. The existence of an innovative development type (the joint

[12]HafenCity, HafenCIty Hamburg – the Masterplan, 2006, http://www.hafencity.com/upload/files/files/z_en_broschueren_19_Masterplan_end.pdf, Web, accessed May 17, 2012.

[13] Appendix B, HafenCity (Hamburg)

building venture as a mechanism of pre-sale cooperation encouraging diverse groups to collaborate) and architectural competition with respect to quality and creativity are examples of such stimulating actions.

What is more, a private company gains additional competitive advantage when it is involved in the partnership. Consequently, it can anticipate increased returns on investments and increased interests from other partners.

Political Context and Commitment

According to the interviews[14].[15] politicians' involvement is a very strong success factor that can be seen in Hyllie. Not only in the Hyllie project, but most types of sustainable initiatives get strong political support in Sweden. Partly, it can be explained by internal motivation as an element of culture. Therefore, this issue is fully addressed in the Hyllie project.

We have spent the past few pages discussing and applying the *primary* critical success factors established earlier in this chapter. In addition to this, below we are presenting a visual representation of the specific critical success factors established by conducting five case studies on Sustainable City Developments in Chapter Four. The table could serve as a guiding tool for sustainability practitioners.

[14] Interview with Tor Fossum.

[15] Interview with Mattias Örtenvik.

Applying Sustainable City Profile Critical Success Factors

Critical Success Factors of Five Sustainable Cities						
Critical Success Factors	Nordhavnen (Copenhagen)	SRS (Stockholm)	Birmingham (UK)	HafenCity (Hamburg)	Vauban (Freiburg)	**Hyllie**
Encouragement of social entrepreneurship and creativity	√			√		
Interested parties and availability of finance resources		√		√		
Strong involvement of citizens	√			√		
Competition encouragement		√		√	√	
Development location	√	√		√		√
High level of trust		√	√		√	
Providing economic incentives			√		√	
Social considerations					√	
Governance and structures	√		√		√	√
Clear and shared vision, mission, strategies and objectives	√	√	√			√
Strong political support	√	√				√

According to this table there are many fields within the Hyllie project to be considered and improved during implementation the project. Since the Hyllie project is still at the initial stage, a number of the discovered gaps illustrated above are not crucial. However, for further successful development it is desirable to look at missing critical success factors and decide which of them can be implemented in particular circumstances:

Interested Parties and Availability of Finance Resources

The more finance resources the project has, the less probability to being subjected to market changes and financial crises. A great number of interested parties ensure robustness and flexibility, which can be observed in HafenCity. This fact also ensures independency of time pressure for the development of HafenCity's building plots, because new infrastructure does not use resources from the sale of land.

Strong Involvement of Citizens

Another factor that strongly stimulates successful Sustainable City Development is involvement of citizens into the project. A good example of it can be the Nordhavnen project (Copenhagen) where a summary of Nordhavnen's development was prepared on the basis of a dialogue with the public. It afforded a great opportunity for the main stakeholders to attract and inform of the project many people. Moreover, during several meetings with citizens several points of view were considered and ideas for future development were suggested. All this has led to entertaining the opinions of citizens positively influencing further development of the project, and entering the stakeholders of the Nordhavnen project into cooperation with the community.

It is also worthy to highlight one more example of citizens' participation, that was organized by the NGO "Forum Vauban" that reached far more goals that was expected. From the first stages Forum Vauban did not restrict itself only to organizing responsibilities, but played the main role developing suggestions for planning and building.

Providing of Economic Incentives

Monetary rewards are always good stimulating tools, and sustainable cities projects are not exceptions from the rule. In Vauban district economic incentives play a great role in influencing residents. If a resident chooses to live without a private car, he/she gets a monetary compensation. Similarly, if a resident wants to have a parking place, he/she needs to pay some amount of money for buying a plot for an individual vehicle. Also, economic incentives are introduced to new inhabitants who form joint building groups influence the overall success of the area.

Social Considerations

Social considerations can influence Sustainable City Development greatly. For instance, stakeholders of the Vauban project (Freiburg) took into account the fact that young families are looking for new homes and that more efforts needs to be made in order to attract older people to move into new districts.[16] In the sequel it was used while implementing the project: right from the start the Vauban project was designed for young people who needed both accommodation and work and were open-minded.

The above-mentioned points derived from the comparison are equally applied both to the Hyllie project and to future sustainable city development projects. However, it is important to accept the fact that only parts of these cities' experiences can be applied to other cities. The goal for other cities and partnerships should be to find the best solution for the particular problem.

[16] Official forum of Vauban district project, http://www.forum-vauban.de/overview.shtml, Web, accessed 15 March 2012.

CHAPTER 6

CONCLUSIONS

Main Conclusions

We are moving towards sustainable future. This movement has been catalyzed by economic, social, and environmental drivers working together to motivate the ongoing shift towards globally sustainable practices. While this shift in thinking is beneficial and necessary in order to mitigate externalities, such as increasing urbanization and decreasing resources, it presents another set of difficulties as well. We live in a finite world. Whether dealing with resources or financing, there is only a certain amount to be distributed. Sustainable City Development (SCD) is reliant on both public and private funding in order to finance their initiatives and as the number of SCD's increase, so will the amount of available public funding decreases. Thus, higher levels of private investment will become more necessary to enable these long term SCD's to reach their goals. Public-Private Partnerships (PPP) in SCD are a mutually beneficial means to address these conclusions, but only if correctly understood, governed, and maintained.

As the information regarding PPP's in SCD's is relatively unsubstantiated and correlated we took an approach of researching the concepts of PPP and SCD individually using available literature and research. This research was done by separate teams to avoid preconceived bias and resulted in our ability to correlate their independently identified critical success factors.
Using this correlation method we established *six critical success factors for PPP's in SCD's*.

- Honesty, transparency, and trust;
- Communication and Accountability;
- Partnership and Structure Governance;
- Supportive Regulation and Policies;
- Multi-Sector Organizational Capabilities; and
- Clear Frameworks, Strategies, and Objectives.

We are able to conclude through this method of correlation that the separately identified critical success factors of PPP and SCD were distinctly similar and allowed for a nearly direct correlation, further supporting our assertion that PPP's and SCD's are distinctly suited for combined implementation.

This conclusion directly contributed to our objective of providing the means to analyze and discuss these critical success factors as they are compared to those found in our five SCD case studies. Additionally, our research contributed a secondary benefit as our critical success factors contribute a deeper understanding to the poorly defined and researched field of PPP's in SCD.

We researched our five SCD case examples separately to avoid bias, using a combination of literature and interviews with key stakeholders. We were able to define both specific and general elements from each city which indicated their supportive PPP's successes or limitations. The wide ranging nature of these identified critical success factors, combined with the variable nature of the cities, responses, partnerships and documentation required a means to broaden their scope. As such our city analysis concluded in a set of four overarching critical success factors comprised of the most *common PPP in SCD critical success factors identified from each city*:

- Governance;
- Motivation and Competition;
- Political Context and Commitment; and
- Trust.

By comparatively analyzing these city-based critical success factors with the six critical success factors of PPP in SCD established in our research we were able to provide a set of substantiated critical success factors supported by a combination of theory and practice:

- Governance and Structures;
- Competition Encouragement;
- Political Context and Commitment; and
- Trust.

These *primary*[1] *critical success factors* of PPP in SCD provided us with the ability to accomplish our objective of framing and driving a discussion regarding the Hyllie Project. Using this information as a framework we were able to discuss E.ON's current PPP in the Hyllie SCD supported by references to specifically cited critical success factors from our five cities. From this discussion we established recommendations to increase the success of E.ON's current PPP as well as providing observations pertaining to successful implementation of their future PPP's in SCD's.

[1] used to distinguish between SCD in PPP key success factors and those from combining theory and practice

In conclusion, this report, and the extensive research contained within, contributes to the comprehensive understanding of PPP's in SCD's while simultaneously achieving the objective of delivering concise information to E.ON beneficial to their ongoing and future partnerships in SCD's. However, for the greatest benefit to be taken from this report it is encouraged that it should be understood that the city of today is the foundation for the sustainable city of tomorrow. It is the material which will build that future city, thus the focus of PPP's in SCD's should be balanced across the multiple sectors of the city. The increasing implementation of SCD's will require the presence and support of effective PPP's which should understand that changes must be anticipated; innovation will deliver new technologies, societal and political support with waver, and the best laid objectives and goals will force the need to adapt. If Public-Private Partnerships in Sustainable City Developments are strong, resilient, flexible, and diverse, they will be best equipped to handle the shifting needs of the current city, and support the future sustainable one.

Conclusions of Further Application and Study

The combination of the insufficiently researched and documented field of Public-Private Partnerships in Sustainable Developments and the wide scope of our report presents us with the opportunity to discuss additional conclusions which can be addressed with further study. We encourage the conclusions and information from our report be used in this regard.

- The insufficient study and academic understanding of PPP in SCD indicates a strong general need for our research to be elaborated upon through more in-depth research and rigorous testing of our conclusions. Establishing a more deeply rooted and agreed upon understanding of the role of PPP's in SCD's will contribute to the success of ongoing and future projects translating into increased global sustainability.
- Learning from ongoing SCD's is paramount to the success of SCD's in general. The information we gathered through our research into the five sustainable city case studies is of great use in its contribution to the general understanding of PPP's in SCD's as well as the specific city initiatives as a whole. We suggest this information be used to further establish best practices of SCD's.
- Our report is one of five being submitted covering aspects of the Hyllie Sustainable City Development Project. These reports, which focus on smart grids, consumer incentives, e-mobility, and sustainable building certifications, all contain applications of Public-Private Partnerships. This strongly indicates that most aspects of SCD's, would benefit from a deeper understanding of PPP's. As such we recommend that further research be undertaken to establish the links between the different initiatives and objectives present in SCD's to increase the systematic benefit from research into PPP's in SCD's.

REFERENCES

Adrian K. Mohareb, Kate M. Murray, Chidi U. Ogbuagu, "Sustainable cities – realizing the seven forms of community capital". School of Engineering, Blekinge Institute of Technology, Karlskrona, Sweden. 2009.

Aston University. "What is BERG?" http://www.aston-berg.co.uk/. (accessed May 17, 2012).

Barelier, Laurent. "Hamburg European Green Capital 2011: The Train of Ideas made a stop in Copenhagen. Sustainable Cities". http://sustainablecities.dk/en/blog/2011/05/hamburg-european-green-capital-2011-the-train-of-ideas-made-a-stop-in-copenhagen (accessed April 18, 2012).

Birmingham City Council. "Sustainable Community Strategy - Birmingham 2026". September 2008.

Birmingham City Council. Sustainable Energy Action Plan. http://helpdesk.eumayors.eu/docs/seap/330_507_1304007118.pdf (accessed May 18, 2012).

Birmingham District Energy Company, Utilicom Case Study, http://chp.decc.gov.uk/cms/assets/pdf/chp_focus/utilicom-case-study.pdf (accessed May 2012).

Birmingham Inquiry. March 2009. www.idea.gov.uk/idk/core/page.do?pageId=9454512&aspect=print (accessed May 18, 2012).

Blassingame, Lurton. "Sustainable cities: oxymoron, utopia or Inevitability?" *The Social Science Journal 35(1).* 1998.

Bolton, Ronan P G., Socio-Technical Transistions and Infrastructure Networks: the cases of electricity and heat distribution in the UK, Sustainability Research Institute, School of Earth and Environment, University of Leeds. September, 2011.

Bryers, Andrew. Interviewed by Quinn Ertel. 10 May 2012. Malmö. VOIP recording.

Bult-Spiering, Mirjam and Dewulf, Geert. "*Strategic Issues in Public-Private Partnerships: An International Perspective"*. Oxford: Blackwell. 2006.

Bund Gruppen. Freiburg & Environment: "Ecological Capital – Environmental Capital – Solar City - Sustainable City - Green City?". Regionalverband Sudlicher Oberrhein. http://vorort.bund.net/suedlicher-oberrhein/freiburg-environment-ecology.html (accessed May 15, 2012).

Cerin, Pontus. "Bringing economic opportunity into line with environmental influence: A discussion on the Coase theorem and the Porter and van der Linde hypothesis". Ecological economics. 2006.

City of Copenhagen "Copenhagen: Solutions for Sustainable cities". 2011. http://www.kk.dk/sitecore/content/Subsites/CityOfCopenhagen/~/media/9933EE8E38A547C7B3A3C52BC4CAD89D.ashx (accessed May 6, 2012).

City of Stockholm, Environment Administration, *The City of Stockholm's Climate Initiatives.* 2010. https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&sqi=2&ved=0CFwQFjAA&url=http%3A%2F%2Finternational.stockholm.se%2FPageFiles%2F145186%2FThe_City_of_Stockholms_Climate_Initiatives%255B1%255D.pdf&ei=YWzCT_imBPTa4QTdsMzfCQ&usg=AFQjCNFhXRsKQ36vllcygxM0yDHqHM_nSQ&sig2=1pHUamwMbBZXpDCna2w8Mw (accessed May 27, 2012).

Convenant of Mayors. http://www.borgmastaravtalet.eu/about/covenant-of-mayors_sv.html. Web. Accessed 31 March 2012.

CPH City and Port Development, COBE, SLETH MODERNISM, Polyform and Rambøl. "Sustainable city – the Copenhagen Way, Nordhavnen Urban Strategy". November 2009. http://www.nordhavnen.dk/~/media/NordHavnen/PDF/Nordhavnen_Strategy_271009.ashx. Web. 30 April, 2012.

Dahlberg, Jenny. Project Manager, Fortum. Interview by Malin Olofsson. May 9 2012.

Danish Architecture Centre. Hamburg: HafenCity – bringing the city to the water. Sustainable Cities. http://sustainablecities.dk/en/city-projects/cases/hamburg-hafencity-bringing-the-city-to-the-water. Web. Accessed 20 April 2012.

Danish Architecture Centre. Vauban - an environmentally friendly and (almost) car-free city Sustainable Cities. Sustainable Cities. http://sustainablecities.dk/en/city-projects/cases/vauban-an-environmentally-friendly-and-almost-car-free-city. Web. Accessed 22 May 2012.

Delleske, Andreas. Main objectives. Vauban District, Freiburg, Germany. http://www.vauban.de/info/abstract2.html. Web. Accessed 15 May 2012.

Display Campaign. "Combined Heat and Power Comes to Birmingham." Http://www.display-campaign.org/example620?PHPSESSID=bj6to0hv8q35rhonh5tgttc9p5 (accessed on May 16, 2012)

Droege, Peter. "Renewable energy – and Beyond – for Cities". HafenCity University Hamburg and World Future Council Foundation. Hamburg, Germany. 2010.

Elle, M, Nielsen, S.B., Jensen J.O., Hoffmann B. "The Seven Challenges of Sustainable Cities". *COST C8 Final Conference Sustainable Urban Infrastructure approaches-solutions-networking,* (6-8 November 2003): 2-6, Trento, Italy. Web. 27 April 2012.

European Green Capital. "2010- Stockholm." European Commission. http://ec.europa.eu/environment/europeangreencapital/winning-cities/stockholm-european-green-capital-2010/index.html. Web. Accessed 31 March 2012.

Executive Office of Stockholm, *Vision Stockholm Royal Seaport 2030*, 2011. http://www.stockholmshamnar.se/Global/NorraDjurgardsstadenVision2030.pdf. Web. Accessed 27 May 2012.

Fletcher, Alex. Member of Sustainability Solutions Group. "City of Copenhagen, Denmark", http://crcresearch.org/community-research-connections/climate-change-adaptation-and-mitigation/city-copenhagen-denmark (accessed March 20, 2012).

Fogtmann, Anne-Louise. "Hotspot: Nordhavnen, Copenhagen", CNBC magazine (October, 2011). http://www.cnbcmagazine.com/story/hotspot-nordhavnen-copenhagen/1457/1/ (accessed May 14, 2012).

Fossum, Tor. Interviewed by authors. 18 April 2012. Malmö. Transcribed.

Girardet, Herbert. *"Creating sustainable cities"*. Green Books for the Schumacher Society, 1999.

Goode, Nathan. "Sustainable cities – A vision of our future landscape". Grant Thornton UK LLP. 2011.

Goode, Nathan. Sustainable Cities- A Vision of our Future Landscape. Grant Thornton. 2011.

Grunow, Dieter. "The research design in Organization Studies: Problems and Prospects". Organization Science, vol. 6(1). Focused Issue – European perspective on Organization Theory: 93-103. 1995.

IUCN, UNEP, WWF. *Caring for the Earth: A Strategy for Sustainable Living.* Gland, Switzerland, 1991.

Jackson, Tim. "Prosperity without growth? The transition to a sustainable economy". Sustainable Development Commission. 2009.

Jenks, M. and Jones, C. eds., Dimensions of the Sustainable City 2. Springer Science and Business Media. 2010

Justesen, Rita. "Nordhavnen – a city district at the water". PortusPlus, 2011 http://www.reteonline.org/media/pdf/Portus-Plus-2011/Rita%20JUSTESEN.pdf (accessed May 22, 2012).

Kenworthy, Jeffrey R. "The eco-city: ten key transport and planning dimensions for sustainable city development". *Environment and Urbanization* 2006 18. SAGE (April, 2006). DOI: 10.1177/0956247806063947.

Koglin, Till. *Sustainable development in general and urban context: a literature review.* Lund, Department of Technology and Society, Traffic and Road. Bulletin Lund University, Faculty of Engineering in Lund, Department of Technology and Society. 248. 2009.

Krueger, Rob and Gibbs, David *Introduction: Problematizing the Politics of Sustainability.* In R Krueger and D. Gibbs (eds.) *The Sustainable Development Paradox. Urban Political Economy in the United States and Europe*. New York: Guildford Press, 2007.

Lönngren, Örjan. Climate and Environmental Expert, City of Stockholm. Interview by Malin Olofsson. May 7 2012.

Lorentz, Staffan. Project Manager, Stockholm Royal Seaport. Interview by Malin Olofsson. May 11 2012.

Malmborg, von Fredrik "Conditions for regional public-private partnerships for sustainable development – Swedish perspectives". European Environment. 13: 133-149. 2003.

Malmö Städ. http://www.malmo.se/hyllievang (accessed April 17, 2012).

Meunier, David, and Quinet, Emile. "Tips and Pitfalls in PPP design". Research in Transportation Economics 30, 2010, 126-138.

Mohareb, Adrian K. et al. Sustainable Cities- Realizing the Seven Forms of Community Capital. School of Engineering. Blekinge Institute of Technology, Karlskrona, Sweden. 2009.

Nilsson, Michaela. Former Master student. In discussion with Malin Olofsson. 24 April 2012.

OECD. Competitive Regional Clusters: National Policy Approaches, Policy Brief. May 2007.

Official forum of Vauban district project. http://www.forum-vauban.de/overview.shtml (accessed April 14, 2012).

Official website of Danish Presidency of the Council of the EU 2012. Educational material for Denmark's Presidency of the EU 2012. *"Green Growth – Climate Change"*. 2012. http://eu2012.dk/en/EU-and-the-Presidency/Undervisning/~/media/Undervisning/PDFer%20Final/Green%20growth.pdf (accessed May 14, 2012).

Official website of HafenCity. Hamburg GmbH. HafenCity Hamburg. http://www.hafencity.com/en/press-releases/building-the-city-anew-the-major-city-of-tomorrow.html (accessed April 14, 2012).

Official website of HafenCity. HafenCIty Hamburg – the Masterplan, 2006. http://www.hafencity.com/upload/files/files/z_en_broschueren_19_Masterplan_end.pdf (accessed April 23, 2012).

Official website of Nordhavnen. English Frontpage. http://www.nordhavnen.dk/EnglishFrontpage.aspx?sc_lang=en (accessed March 25, 2012).

Oswald Jones. "Managing public-private partnerships: the enactment of a new business venture". Technovation 25 (2005) 587–597.

Oswald Jones. "Joint Public-Private Approaches for Energy Efficiency Finance: policies to scale-up private sector investment ". International Energy Agency. 2011.

"Partnering for success – Business perspectives on multi-stakeholder partnerships". Forum. 2005.

Peterson, Thor and Synthesis Consultants. *A comparative analysis of sustainable community* frameworks. USA. September 14, 2008.

Porter, Michael and Kramer, Mark. *"Strategy & Society: The Link between Competitive Advantage and Corporate Social Responsibility".* Harvard Business Review, 84(12): 78-92. 2006.

Porter, Michael and Kramer, Mark. *"Creating Shared Value: how to reinvent capitalism and unleash a wave of innovation and growth".* Harvard Business Review. 2011.

PriceWaterhouseCoopers, UK Economic Outlook, November 2009.

Reinhardt, Forest. *"Bringing the Environment Down to Earth"*. Harvard Business Review 77 (4): 149-158. 1999.

Renewable Case Study 1- Aston University. http://www.foe.co.uk/resource/factsheets/birmingham_studies.pdf (accessed May 16, 2012).

Responding to Climate Change (RTCC). *"100% renewable – local partnership against climate change"*. http://www.rtcc.org/2006/html/soc_gov_malmo.html (accessed May 7, 2012)

Roseland, Mark. "*Towards Sustainable Communities – Resources for Citizens and their Governments"*. New Society Publishers, *Gabriola* Island, B.C. 2005

Roseland, Mark. *"Dimensions of the eco-city Cities.* Volume 14, Issue 4. 1997.

Rossman, Gretchen and Rallis, Sharon. "Learning in the field: an introduction to qualitative research": 3-23. SAGE Publications, Inc. 3-rd ed. 2012.

Saunders, Mark, Lewis, Philip, Thornhill, Adrian. "Research methods for business students", Pearson Education, 5-th ed. 2009.

Schneider, Hape. Presentation "HafenCity Hamburg: The Link betweenUrbanityandEcologicalSustainability". European Green Capital seminar Stockholm. November 30, 2010.

Stadler, Lea. "Managing Across Corporate Boundaries: Public-Private Partnerships." In *More than Bricks in the Wall: Organizational Perspectives for Sustainable Success*, edited by Maria Akhavan, 148-200. Geneva: University of Geneva, HEC. 2010.

Steve, Melia. "On the road to Sustainability. Transport and Carfree living in Freiburg", Bristol, Faculty of the built environment. 2006.

Stiglitz, Joseph and Wallsten, Scott. "Public-Private Technology Partnerships: Promises and Pitfalls", American Behavioral Scientist 1999 43, 52.

"Stockholm Royal Seaport selected for newly launched climate positive development program." Stockholms hamnar. http://www.stockholmshamnar.se/en/News-and-press/2009/Stockholm-Royal-Seaport-selected-for-newly-launched-climate-positive-development-program/ (accessed March 31, 2012).

Sustainability West Midlands. Consultation on the Birmingham Core Strategy 2026-Consultation Draft. 18 March 2011.

Taylor, Sandy. Interviewed by Quinn Ertel. 18 May 2012. Malmö, VOIP recording.

Teismann, Geert and Klijn, Erik-Hans. "Partnership arrangements: Governmental Rhetoric or Governance Scheme?". Erasmus University Rotterdam, 2002, 62 (2).

Tennyson, Ros. "The Partnering Toolbox". The International Business Leader Forum (IBLF) and the Global Alliance for Improved Nutrition (GAIN). 2003.

The official website of VA SYD. http://www.vasyd.se/en/about_us/cooperation_projects/hyllie_climatesmart_district/Pages/default.aspx. Accessed May 20, 2012. http://www.vasyd.se/en/about_us/cooperation_projects/hyllie_climatesmart_district/Pages/default.aspx (accessed March 10, 2012).

Trafford, Sue, and Proctor, Tony. "Successful Joint Venture Partnerships: Public-Private Partnerships." *International Journal of Public Sector Management:* 117-129. 2006.

Walliman, Nicholas. "Your research project. Designing and Planning your work", Sage Publications Ltd., 3-rd ed. 2001.

WCED. *Our* Common *Future.* Oxford: Oxford University Press. 1987.

Zhang, Annie Liqie. "Validation Study of Intangible Business Relationship Value Measurement". Auckland University of Technology. 2004.

APPENDIX A – BACKGROUND

History

The idea of expanding southern Malmö has been around since the 1960s. However, it was not a large-scale plan but only the decision about the City Tunnel, which by-turn has led to building a new train station in Hyllie and untimely to the ambition of Malmö to create sustainability-focused city.

The Hyllie project is one of the most ambitious sustainable city development projects of the present. Located in the Öresund region - one of Northern Europe's most important and dynamic regions - Hyllie will become an integral part of a "smart city" Malmö and a model for other cities striving for sustainability.

Timeline

- 2008 to 2013 - Building of infrastructure;
- 2010 - Hyllie station was built;
- 2010 to 2012 - Building of green areas;
- 2011 to 2014 - Building of residences;[1]

E.ON and Malmö partnership

The City of Malmö is the third largest city of Sweden. It is a multi-cultural, quick-growing, forward-looking and eco-friendly city that goes with the time and strives for sustainability, creativity, and uniqueness. The city's goal is to reduce the average emission level of carbon dioxide during the period between 2008 and 2012 to at least 25% lower than the level of 1990. In the long term, all energy production and use shall be based on non-fossil fuel sources.

[1] Malmö Städ, "Current pans and projects in the extension area Hyllie", (November 2010): 29, Web, 20 May 2012,http://www.malmo.se/download/18.6e1be7ef13514d6cfcc80004462/aktuella%2Bplaner%2Boch%2Bprojekt%2Bi%2Bhyllie%2Bwebb101122.pdf

E.ON Sverige – a company of the E.ON Group that produces and delivers energy and energy-related services. The company's goal is to generate profitability based on its customer benefits and social responsibility. E.ON seeks to improved service, more efficient energy utilization, an increasing proportion of renewable energy types and a holistic approach to the global threat of climate change.[2]

It can be seen from the description above that the City of Malmö and E.ON have common goals and a good platform for collaboration. Therefore, there are several areas of cooperation between Malmö and E.ON:

1. *Promoting Sustainable Transport*

   E.ON Sverige and the City of Malmö are both key partners in Miløre Centre, a regional organization working to promote sustainable transport and clean fuels by providing information, advice and inspiration to public, private and voluntary sector organizations in southern Sweden.

2. *"Green" Public Transport (buses)*

   E.ON Sverige is developing the gas infrastructure in the Öresund region to make natural gas and biogas a viable alternative as a vehicle fuel in Sweden and so busses in Malmö are now powered by natural gas. This resulted in the fact that air quality in the city has improved – emissions of CO2 and other pollutants were cut significantly. In the near future it is planned to mix 25% biogas in the natural gas system that will further decrease CO2 emissions.

3. *A Concept of Future Construction (the Western Harbor)*

   The City of Malmö and E.ON Sverige have collaborated with developers in the Western Harbor urban redevelopment project to create a model for future construction in Malmö and in other cities around the world.

4. *The Quality Program and Synergies*

   E.ON Sverige and the City of Malmö created a joint Quality Programme for the construction of the new housing area in the former industrial heartland of Malmö. The Quality Programme not only set the aesthetic and architectural standards, but also

[2] Responding to Climate Change (RTCC), "100% renewable – local partnership against climate change", http://www.rtcc.org/2006/html/soc_gov_malmo.html, Web, 7 May 2012

included commitments from different partners to provide services in the area, and to meet specific targets with regard to issues such as green space, biodiversity, recycling and low energy use in the buildings. Amongst the service commitments was that of E.ON Sverige to supply the area with 100% local renewable energy. The result is a neighborhood – the Western Harbour - in which the energy demand and supply balance over the course of the year. The Quality Programme concept for sustainable construction has been adopted for other projects in the city currently and E.ON Sverige and the City of Malmö are working with developers in a major commercial development to use a similar energy concept, creating synergies between existing energy systems and innovative applications of existing technologies.

5. Sustainability and quality of life

   The Western Harboor project has not only influenced development in Malmö. Businesses and officials from cities around the world started to visit Malmö in order to gain inspiration for their own work with sustainable urban development. Moreover, cities such as Barcelona and Seattle are starting to put their own concepts into practice modeled after the example of Malmö.[3]

[3] Responding to Climate Change (RTCC), "100% renewable – local partnership against climate change", http://www.rtcc.org/2006/html/soc_gov_malmo.html, Web, 7 May 2012.

APPENDIX B - CITY PROFILES

Birmingham

Background

Birmingham has not only the second largest population, but the second largest city economy in the UK, behind London. With a city population of approximately 1.1 million, a metropolitan population of 3.7 million, and an estimated GDP of $90bil Birmingham is in the position to lead and support initiatives to better solidify their future growth and positioning in the world market.[4] In order to utilize and develop these assets Birmingham chose to establish itself as "the first sustainable global city in modern Britain."[5]

In 2006 the Birmingham Growth Prospectus (BGP) was published in cooperation with a number of public and private stakeholders and directed by the leader of the Birmingham City Council (BCC).[6] It was focused on establishing means for the city to respond to identified shifts in growth, diversification, and city investments and included information as:

- Birmingham is the youngest[7] European city with an estimated increase of 24,000 by 2026;
- It is estimated that by 2026 Birmingham will not have a single ethnicity form a majority of the population;
- Experienced a reduction in unemployment from 17% to 8% between 1998 and 2008, but a current employment rate of only 63%;
- An estimated real GDP growth rate of only 1.4%; and
- An estimated need for 181,000 additional jobs by 2026.

[4] PriceWaterhouseCoopers, UK Economic Outlook, November 2009

[5] Birmingham City Council, Sustainable Community Strategy- Birmingham 2026, September 2008

[6] Birmingham Inquiry, March 2009, www.idea.gov.uk/idk/core/page.do?pageId=9454512& aspect=print (accessed May 18, 2012).

[7] Under 18 years old.

Introduction

Keeping in mind the enormous scope of B2026 and the systematic nature of SCD it is important to outline the overall aims of the initiative to develop the overall characteristics of the city. Energy concerns are only a small part of the overall B2026 goals, but the systematic effects energy systems have on social, economic, and environmental factors makes it important to establish the project as a whole. As such, I will first describe the key elements of B2026 and then pay a focused attention to the aspect which pertains to the scope of this report which is exemplified by the Sustainable Energy Action Plan.

Birmingham 2026

From the first moments of the planning stage of B2026 the Be Birmingham Partnership (BBP) took a bottom-up approach. While the BGP had established an overarching path for the city to take, BBP chose to leverage the city's strong community to develop these focuses. The BBP began the process by gathering evidence and refining the acquired information. An "Area Profile" was established in partnership with the Audit Commission. It was comprised of over 14,000 home based interviews, focus groups, a two day conference, group discussions, and the active participation of a "Peoples Panel" made up of 2,000 actively engaged citizens. This information was then drafted and submitted for a four month review process which resulted in the final version of B2026 to be published in 2008.[8] It also includes efforts to develop "vibrant urban villages" around the city as a means of establishing sustainability focused networks.[9]

Birmingham has focused on using public input to arrive at a general consensus of the highest valued goals for the community. While the city had pre-established goals to meet, the consensus allowed the city to establish means to assist in the realization of those goals. The five outcomes according to the public are defined as:

- **Succeed economically**- Benefit from education, training, jobs, and investment;
- **Stay safe in a clean, green city**- Living in safe and clean neighborhoods;
- **Be Healthy**- Enjoy long and healthy lives;

[8]Birmingham City Council, Sustainable Community Strategy- Birmingham 2026, September 2008

[9]Ibid

- **Enjoy a high quality of life**- Benefit from good housing and renowned cultural and leisure opportunities; and
- **Make a contribution**- Value one another and play an active part in the community.

The BBP used this information to adopt four principles with which to work towards accomplishing the five outcomes.

- **Prevention**- Redirecting our energies and resources into working with communities to stop problems developing and to reduce dependency;
- **Targeting**- Protecting and nurturing vulnerable people, and tackling disadvantaged communities in the city. Referred to as "closing the gap" this is done in terms of issues such as safety, health, education, and social and digital exclusion; and
- **Personalization**- Ensuring we tailor our services to people's needs.[10]

Starting with the driving partnership of BBP, B2026 has established the importance of Public-Private Partnerships in the overall success of defined objectives. A number of partnerships - comprised of public, private and voluntary members - have been established to cater to differently aligned objectives. Some examples of which are:

- **Funding**- Driven by a system of public sector partnerships via a "sustainable procurement compact" to align investments with the LAA;
- **Environment**- Birmingham Environment Partnership develops city-wide environmental initiatives; and
- **Energy**- Birmingham District Energy Company (BDEC) is the local energy services company (ESCo) owned by Cofely Energy, but comprised of public and private customers.

The intrinsic value of these goals, and the reason to assume their success, is that they are evidence based. Birmingham acknowledged their weaknesses and strengths, leveraged community needs, and working in Public-Private Partnerships developed means to realistically

[10] Italicized portions directly referenced from Birmingham City Council, Sustainable Community Strategy-Birmingham 2026, September 2008

implement their shared vision. Finally, Birmingham is embracing innovative methods to carry out a number of the planned outcomes. Not only has a Creative Birmingham Board been funded with £12M with the intent to establish Birmingham as a creative city, but Birmingham is also developing knowledge clusters according to OECD findings.[11] These clusters serve to develop business initiatives and networking - and of particular interest to this report – innovation and knowledge support. One such cluster is centered on Aston University and their Bioenergy Research Group, "one of the largest university based research groups in thermal biomass conversion in the world."[12] One outcome of this cluster is the inclusion of future innovation in the BDEC contracts. According to Andrew Bryers, energy manager for Aston University, their research in biofuels allowed them to include a stipulation that once biofuel alternatives are price competitive they would be implemented by Cofely at the same rates. This example was then copied by BCC to include a broader range of future innovative solutions such as "alternative fuels, systems and approaches."[13]

While all aspects of these outcomes and principles have been established as key to the overall success of Birmingham 2026, the focus of this report is on the sustainable development aspect with a particular focus on the role of energy services and the subsequent partnerships. As such, the remainder of this profile will focus on providing further background of the energy development partnership between Cofely, Birmingham, and Aston University. While the original partnership was comprised of Cofely on the private side and Birmingham on the public, Aston was included once they became a part of BDEC. Their inclusion in the PPP, as opposed to other BDEC partners, stems from their values aligning with the overall goals and mission of the Birmingham 2026. Additionally, their position as academics allows another facet of the partnership to be examined which could otherwise be inaccessible via information gathered from the traditional public and private partners.[14]

Sustainable Energy Action Plan

[11]OECD, Competitive Regional Clusters: National Policy Approaches, Policy Brief, May 2007

[12] http://www.aston-berg.co.uk/ (accessed on May 17, 2012)

[13] Sandy Taylor, interviewed by author, 18 May 2012, Malmö, VOIP recording.

[14] Andrew Bryers, interviewed by author, 10 May 2012, Malmö, VOIP recording.

Three years prior to the initial planning stages of the BGP, Cofely District Energy (Cofely)[15] was approached by the BCC to develop initial feasibility studies on developing established Combined Heat and Power (CHP) and District Heating (DH) within the city. At that point Birmingham was a part of the "largest commercially developed CHP/district energy scheme in the UK" which was started over 21 years ago in cooperation with the Southampton City Council. With 14 km of pipework already laid and fed by 8 MWe of combined heat and power (CHP), sales of £2.5M and 11,000 tons of CO2 saved per year, capital expenditures of £8M, and access to the UK's only source of deep geothermal resources Birmingham was seen as being in a unique position.[16] This position was balanced with the fact that "Birmingham has an extremely limited potential for hydropower and few sites that could support significant investment in wind turbines…solar panels provide a good opportunity…although this is generally limited."[17]

While it was initially independent from the not as yet established B2026 initiative, the timeframe of the project had it work in parallel. A detailed timeline can be seen below, but briefly, two main schemes - Broad Street and Eastside - were established by the feasibility study and Cofely was officially chosen as the provider three years later. An ESCo was created in the form of BDEC which acted not only as the delivery vehicle for the energy, but as the face of the PPP. Key customers become a part of the partnership and through their participation obtain revenue sharing from the example and incentive they embody.[18]

When Birmingham 2026 was initiated it was realized that it would support the already established schemes in place to accomplish its central goal of 60% reduction in CO2. Upon joining the Covenant of Mayors in 2009 Birmingham was required to submit a Sustainable Energy Action Plan (SEAP) which must follow the minimum 20/20/20 commitment. Additionally the SEAP must act as a "direction rather than a prescriptive set of programs."[19]

---

[15] Cofely bought Utilicom from Idex in May 2010 and for the sake of continuity and clarity will be referred to as Cofely District Energy in this report.

[16] Birmingham District Energy Company, Utilicom Case Study, http://chp.decc.gov.uk/cms /assets/pdf/chp_focus/utilicom-case-study.pdf (Accessed May 14, 2012)

[17] Birmingham City Council, Sustainable Energy Action Plan, http://helpdesk.eumayors.eu/docs/ seap/330_507_1304007118.pdf (accessed May 18, 2012)

[18] Sandy Taylor, interviewed by author, 18 May 2012, Malmö, VOIP recording.

[19] Birmingham City Council, Sustainable Energy Action Plan, http://helpdesk.eumayors.eu/docs/ seap/330_507_1304007118.pdf (accessed May 18, 2012)

Using a tool called Vantage Point it was established that the optimal means to accomplish the goals set by B2026 were in a hybrid approach utilizing programs which were already underway, specifically that of CHP and DH led by Cofely and BDEC.[20] It was further established that the amount of financing needed to accomplish these goals would require private investments via PPP's, specifically BDEC. This is accomplished by Cofely shouldering the risk by selling the CHP generators to the targeted high usage customers while providing ongoing maintenance. The capital costs are spread out over the 25 year contract and in return guarantee a 5% reduction in costs compared to the current market. Since 2009, when Phase 1 was completed, the City's carbon emissions have been reduced by a total of 17M kg of CO2 with annual savings estimated by the SEAP to total 3,862,030 MWH and the estimated carbon reduction is increased to 408,600 tons per year.

CHP-DH Timeline

- 2003: Initial feasibility studies performed, comparable projects examined (Southampton), and two schemes established. These schemes focused on buildings and areas with high heat and energy requirements as well as key BCC buildings. Tenders were then issued by BCC for delivery in 2005.
- 2006: Utilicom chosen as the private partner in the initiative. Formed the subsidiary Birmingham District Energy Company Limited (BDEC) to act as the delivery agent. Broad Street scheme made official on December 6th.
- 2007: CHP installation completed in February with the entire Broad Street scheme operational October 1st. First draft of Birmingham 2026 distributed in December for a four month public consultation period.
- 2008: Eastside scheme Phase 2 (Aston University) signed April 28th.
- 2009: Eastside scheme Phase 1 (Children's Hospital and BCC Lancaster Circus) signed in January with Phase 2 operational in June.
- 2010: Phase 1 operational in August

[20] Sandy Taylor, interviewed by author, 18 May 2012, Malmö, VOIP recording.

Roles and Responsibilities

- Birmingham City Council (BCC):
    - The City Council assumed the roles of coordination and facilitation in the initial stages of the projects. "They engaged with various public and private bodies to create the CHP scheme"[21] and have been the central public drivers of Birmingham 2026 as well.
- Be Birmingham Partnership[22] (BBP):
    - Comprised of a multitude of public and private stakeholders it has existed since the initial phases of the project and is the driving partnership in B2026.
- Cofely District Energy Ltd:[23]
    - Won the tender to act as the private side developer and provider of the energy initiatives incorporated into Birmingham 2026.
- Birmingham District Energy Company (BDEC):
    - Created by Utilicom, and transferred to Cofely, as a wholly-owned subsidiary to act as the local energy services company (ESCo).
    - Operated in partnership with the BCC, Aston University, and the Children's Hospital to "design, build, finance, own and operate sustainable district energy schemes across Birmingham."[24]
- Aston University:[25]
    - One of the three key partners in the Birmingham 2026 energy initiatives.
    - Opening Demonstration Laboratories in Oct 2012. European Bioenergy research institute (EBRI)[26]
    - Will contain waste fuelled power plant and allow exploration and demonstration of renewable energy technologies.

[21] Http://www.display-campaign.org/example620?PHPSESSID=bj6to0hv8q35rhonh5tgttc9p5 (accessed on May 16, 2012)

[22] Originally established in 2001 as a local strategic partnership (LSP) in response to a government initiative.

[24] Renewable Case Study 1- Aston University, http://www.foe.co.uk/resource/factsheets /birmingham_studies.pdf (Accessed May 16, 2012)

[25] Ibid

[26] Http://www.aston-berg.co.uk/ (accessed on May 17, 2012)

Stockholm Royal Seaport (SRS)

(Norra Djurgårdsstaden)

Background

Stockholm's vision is to be fossil-fuel free by 2050. Several emission reduction targets have already been met including a 25% carbon emission decrease per resident since 1990.[27] Efforts were encouraged when the city joined the Convenant of Mayors[28] in 2009 and was honored The European Green Capital Award 2010 by the European Commission.[29] The City has put in place several targets including reducing emissions to 3 tones CO2e per resident by 2015 and becoming an 'electric car city' by 2030. Furthermore, the Development Administration (Exploateringskontoret) manages a structure that includes four urban development areas called STORA where each project is to benefit the other through improved control mechanism and implementation.

Introduction

The urban city development was initiated in 2008 when City of Stockholm made a decision on its Environmental Profile. The area is to be fully developed by 2030, a date that is in line with the overall vision for the city. SRS is a prime location for urban development as it is located by the water and harbors huge areas of greenery. The district will include 10,000 dwellings and provide 30,000 employment opportunities. Although made up of mainly new- builds, the area's old gasworks will be reconstructed and used for cultural events and the city is currently reaching out to the greater community to submit proposals of usage for aforementioned buildings. The City of Stockholm intends to focus great effort on creating and tying together several seaports with SRS, the city's new and main port, ceasing the opportunity to appeal to tourists, as well as cruise ship and freight traffic. Public transportation will connect the area with the rest of

[27] City of Stockholm, Environment Administration. *The City of Stockholm's Climate Initiatives* (Stockholm, 2010).

[28] Convenant of Mayors, http://www.borgmastaravtalet.eu/about/covenant-of-mayors_sv.html (accessed March 31, 2012).

[29] European Green Capital, "2010- Stockholm," European Commission http://ec.europa.eu/environment/europeangreencapital/winning-cities/stockholm-european-green-capital-2010/index.html (accessed March 31, 2012)

Stockholm, making it affordable, leisurely and time-efficient to travel in an environmentally friendly way. A new motorway leading into the City has been planned, boat taxis will be in place and it should take no more than 8 minutes by bike to reach the city's business and shopping center. The district will offer dwellings, office space as well as cultural and outdoor activities. In short, the district will offer something for everyone, the environment and the climate.

Not only will the district help the City of Stockholm achieve its overarching environmental and climate targets, "the aim for Stockholm Royal Seaport is to be a showcase for sustainable urban construction where innovative Swedish environmental technologies and creative solutions are developed, tested and presented."[30] SRS is internationally recognized and one of 18 members of the Climate Positive Development Program.

Targets and Focus Areas

According to *Vision Stockholm Royal Seaport 2030*[31] the three main targets and subsequent focus areas are:

Targets:

1. By 2020 carbon dioxide emissions will be less than 1.5 tones per person;
2. Stockholm will be adapted to future climate change, for example increased precipitation; and
3. By 2030 Stockholm Royal Seaport will be fossil-fuel free. The ambition is higher than for the city as a whole, where the same target has been set for 2050.

Focus Areas:

1. Energy use;
2. Environmentally efficient transport;
3. Adaptation to a changed climate;
4. Cycles and cyclical models at system level; and
5. Lifestyle issues.

30 "Stockholm Royal Seaport selected for newly launched climate positive development program," Stockholms hamnar, http://www.stockholmshamnar.se/en/News-and-press/2009/Stockholm-Royal-Seaport-selected-for-newly-launched-climate-positive-development-program/ (accessed March 31, 2012).

31 Executive Office of Stockholm, 8.

Timeline

This timeline has been adopted from the *Vision Stockholm Royal Seaport 2030*.[32]

2008	Decision on Environmental Profile Opening of Scandinavia's most modern cruise terminal Building work starts on expansion of the South Värtahamnen port
2009	Clinton Climate Initiative pledges support for Stockholm Royal Seaport Opening of offices and business in the Riga complex in the Värtahamnen port
2010	Tunneling of power lines through Hjorthagen Building work start on the Värtahamnen pier Closure of gasworks Stockholm is honored as the First European Green Capital
2011	Building work starts on the first 700 dwellings Building work starts on 1200 flats in the second phase of construction
2012	Centenary of the Stockholm Olympics First residents move to Stockholm Royal Seaport Building work starts on offices and businesses in the Värtahamnen port
2013	Opening of the new passenger terminal at the Värtapiren pier
2014	Opening of the new modern freight port in Nynäshamn, south of Stockholm
2015	Norra länken opens to traffic (highway) Opening of offices and business in the South Värtahamnen port
2017	Construction reaches the quay areas in Ropsten
2018	First residents and businesses move into homes and offices at the Frihamnen port
2020	Building work starts on the new homes and offices at Loudden
2030	Completion of Stockholm Royal Seaport

[32] Executive Office of Stockholm, *Vision Stockholm Royal Seaport 2030* (Stockholm), 2-3.

Roles and Responsibilities

The City of Stockholm employs a cooperative approach to planning and implementation for SRS. Several private actors including, but not limited to ABB, KTh, Fortum and NCC have been involved with the development of the standards set for buildings and energy targets, solutions and other similar elements. Consultants and representatives from private firms are continuously invited to participate in brainstorming of and development of strategies, targets, etc. In 2011, the Vision Stockholm Royal Seaport was released. This document, put together by the City of Stockholm as well as the business community, contains signatures from several private actors including Nasdaq OMX, Tallink Silja, Fortum Sweden, Vasakronan, Länsförsäkringar and Envac.[33] From this we stipulate that many businesses, as well as public actors are involved in shaping the creation of SRS. According our research, the City of Stockholm appears to be heavily focused on creating an open dialogue with private actors. This is confirmed by Örjan Lönngren who expresses the importance of including private actors in setting climate and environmental targets for development because targets must match technical know-how and advancement.[34]

The majority of actors within the Focus Group (see chart below) appear to represent the Public, but Private actors are also members of this planning and implementation structure of SRS and participate as the need is called for. Neither actor has entered a formal partnership with the City of Stockholm. Though private actors contribute to discussions around development aspects, solely the City is responsible for decision-making. This structure and approach is made possible, in part, by the fact that the City owns the land at SRS.

All actors are responsible for financing their own development. Fortum for example is responsible for developing a SMART Grid for district heating and NCC and ABB are responsible for building development.

Another very important and pivotal private actor role, expressed by Staffan Lorentz, SRS Head of Development is that of the Stockholm Royal Seaport Innovation. In 2012 Innovation was sponsored by Fortum, Ericsson, KTH and Envac. To partake, actors, mainly private, have to

[33] Executive Office of Stockholm, 4.

[34] Örjan Lönngren (Climate and Environmental Expert, City of Stockholm) in discussion with Malin Olofsson, May 7, 2012.

pay an annual fee and participate in SRS development to be granted membership. Innovation engages in, among other things, research and marketing efforts. Center participation seems to be a huge incentive for private actors to engage in SRS.[35] Jenny Dahlberg agrees with this statement and adds that SRS offers a great platform for research in this field and is most valuable to Fortum.[36] The actors are motivated by the skills and knowledge the gain, as well as the opportunity to use Stockholm branding and marketing its capabilities says Staffan Lorentz.[37]

Örjan Lönngren, Environment and Climate Expert with the City of Stockholm explains that the City intends to involve the residents of SRS in development and lifestyle discussions as soon as such a community has been established. As Stockholm conducts development at SRS project by project, in phases if you will, the extent or details of these aspects have not yet been established.[38] It is generally known that the City of Stockholm accumulated lessons learned that has helped improve the planning, implementation and management of SRS from Hammarby Sjöstad, a climate smart city district project expected to be completed in 2017.[39] This notion goes hand in hand with the idea of learning from one project to another, something our interviews with SRS actors stressed.[40].[41]

Organizational Structure

The City highlights the importance of cooperation between itself and the business community in order to make the district successful, innovative, meet targets and become a lead to the rest of the world. The following chart represents the Planning Organization of SRS:

[35] Staffan Lorentz (Head of Development, The City Development Administration, Stockholm Royal Seaport) in discussion with Malin Olofsson, May 11, 2012.

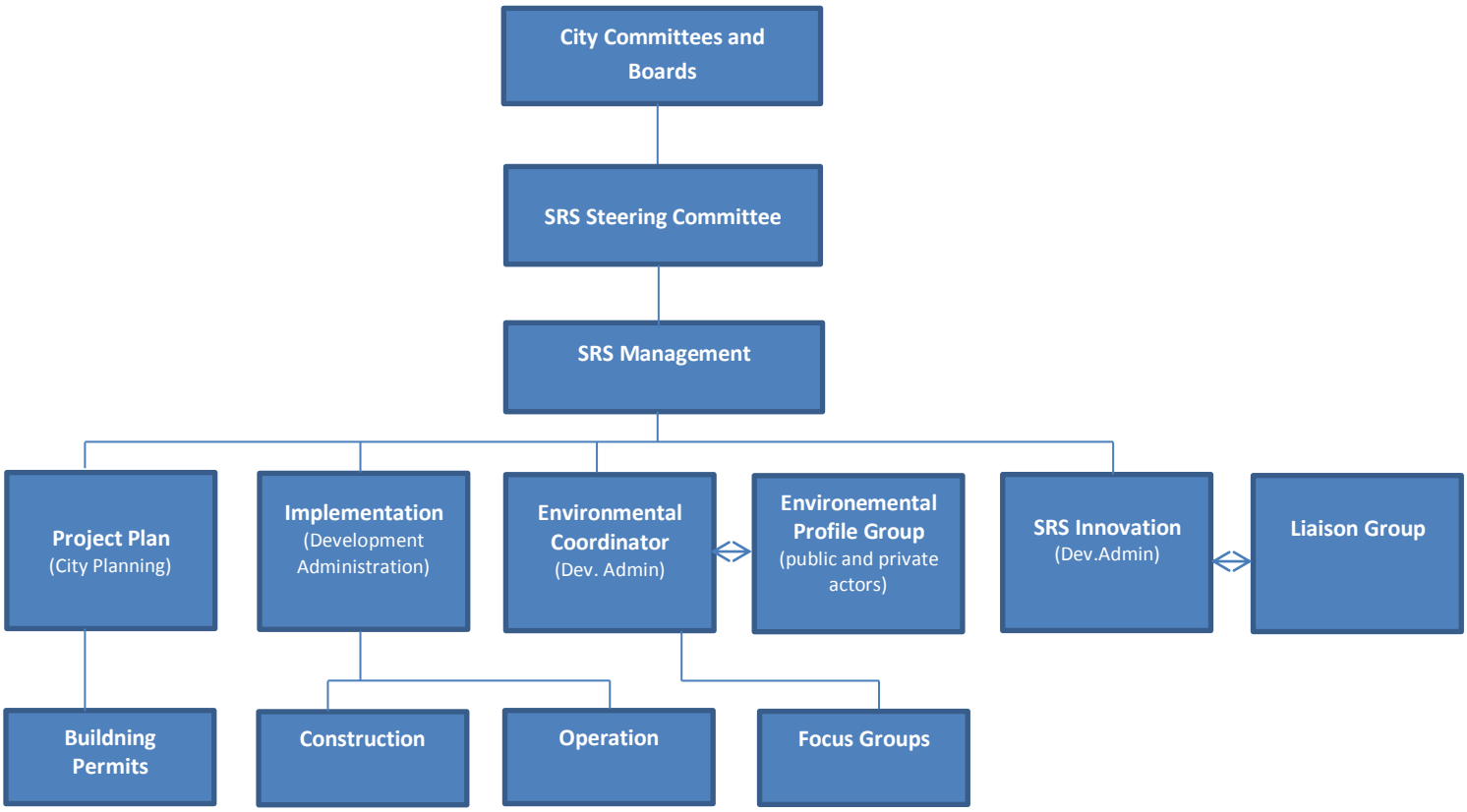
[36] Jenny Dahlberg (Project Manager, Fortum) in discussion with Malin Olofsson, May 9, 2012.

[37] Staffan Lorentz.

[38] Örjan Lönngren.

[40] Örjan Lönngren.

[41] Staffan Lorentz.



Focus Groups include: Climate Adaption and Outdoor Environment, Climate Adapted Buildings, Cycles, Sustainable Lifestyles, Sustainable Transports, Sustainable Activity and Sustainable Energy.

It has been suggested that private actors would like to be provided greater responsibilities in the Organizational Structure. Michaela Nilsson shares that based on the research she conducted for her Master thesis it is to her understanding that private actors in the Stockholm area are generally interested in more formal partnerships and responsibilities.[42] Jenny Dahlberg with Fortum expresses interests in line with this sentiment. Fortum has suggested to Stockholm that it harbors necessary knowledge around energy issues and development to push it forward and would like to be offered greater responsibilities in the project.[43]

[42] Michaela Nilsson (former Master student) in discussion with Malin Olofsson, April 2012.

[43] Jenny Dahlberg.

The structure encourages communication among not only public and private entities, but also among public departments and development areas. STORA projects are able to learn from each other, sharing bottom-up information. Discussions are facilitated via Focus Groups efforts that inform decisions taken by the City. Such a structure is critical to the overall collaboration between the City and businesses.

Conclusion

Collaboration

The City of Stockholm does not enter contractual Public-Private Partnerships with private actors, but it does however place great importance on collaboration and cooperation with such entities. It stresses the need for basing targets and objectives on attainable, yet far-reaching goals that are only able to be produced via continuous dialogue between the City and the business community.

Internal Motivation

Motivations to participate and achieve in the SRS development projects are simply put marketing opportunities, competence-building and networking. Private actors are engaged in SRS because they need to keep with the times in order to remain competitive in the field of development and energy. Visions and targets established, as informed by the environmental, social and economic issues, as well as private actors with firsthand experience, become shared among the participants in SRS solely because they are in-line with what is required by a Sustainable City Development-focused city such as Stockholm. They are aligned with the efforts of businesses that seek to compete in an international arena.

Communication Structure

The SRS' Implementation Organization does not permit private actor decision-making, yet it invites such actors to develop its own strategies to achieve targets. To ensure that actors meet targets, the City asks them to provide a matrix in their proposals that will later be used to gauge whether or not they are meeting established objectives. As such information is publicized, actors are expected to actively seeking to achieve or outperforming targets and goals. The organizational structure as well as the Center ensure that private actors, whether informal partners or not, are heard, incorporated, consulted and held accountable.

Lessons Learned

Visions and overall targets for the district have long been established while methods on how to materialize and reach those targets have not. SRS uses lessons learned from Hammarby Sjöstad to ensure the best possible results. Additionally, target plan implementation is conducted in stages in such a way that one project has the potential to inform the next. In a long-term project it is also evident that technological solutions change rapidly and as such, so must the implementation plans and solutions in sustainable cities. This too is something Stockholm considers in planning and implementation phases.

Strong Political Support

As mentioned, SRS is but one of four main Sustainable City Developments managed by the City of Stockholm. What's more, Sustainable City Developments represent only one type of projects that the City is implementing around climate change management and environmental issues. The City advertises its commitment to and seeks to be a leader in reducing harmful emissions, mitigating environmental issues and developing solutions for urban settings. Needless to say, the municipality is in strong support of and a huge advocate of the development. Tremendous resources and assets are allocated to SRS and other projects implemented to reach city-wide environmental targets.

Nordhavnen, Copenhagen

Targets of the Nordhavnen Project

Allegedly, Nordhavnen is one of the most ambitious projects of the present. According to the governing body of Nordhavnen, the main objectives of the project are:

1. Improve climate conditions by showing how Danish energy solutions can be implemented;
2. Increase Danish export of green technology (thus contributing to creating green growth and jobs in Denmark); and
3. Show how cities can help reverse climate change without losing out on quality of life, welfare and democracy (to make Nordhavnen a green showcase for the City of Copenhagen and Denmark).

One of the Nordhavnen project's ultimate goals is to introduce new green technologies and solutions world over. The following technologies will be tested in Nordhavnen:

1. Development of an intelligent housing that can consume or store energy (for power, cooling and heat);
2. Development of an intelligent power grid where electricity and district heating interact to utilize the renewable energy in the best possible way;
3. The spread of electric cars that form part of the intelligent electricity grid by operating on green electricity;
4. Development of a network for distance cooling, using seawater for cooling;
5. Construction of a large solar cell plant to convert solar energy into power;
6. Development of a geothermal plant that utilizes energy from the hot water in the inside of the earth and connects it to the overall energy system.[44]

[44] Official web-site of Danish Presidency of the Council of the EU 2012, Educational material for Denmark's Presidency of the EU 2012, "Green Growth – Climate Change", 2012, http://eu2012.dk/en/EU-and-the-Presidency/Undervisning/~/media/Undervisning/PDFer%20Final/Green%20growth.pdf, Web, 14 May, 2012

The overall vision for Nordhavnen is to create the sustainable city of the future as a matter of environmental responsibility, social diversity and the addition of value. Nordhavnen is seen by its developers as:

1. *An Eco-Friendly City*

   Renewable energy and new types of energy, optimal use of resources, recycling of resources and sustainable transport will help make Nordhavnen a model for sustainable development and sustainable design.

2. *A Vibrant City*

   A versatile urban area with a multitude of activities and a wide range of shops, cultural facilities and sports facilities, natural environment and not least the water should invite experiences, enthusiasm and activity for everyone.

3. *A City for Everyone*

   Nordhavnen will become an open and inviting city district, and dialogue with residents and other users is the key in the development of the district.

4. *A City at the Water*

   Housing and public activities will be linked directly with the water in order to make it possible to see and use the water everywhere in the district. Waterfronts, quays and coasts therefore will be open to the public.

5. *A Dynamic City*

   Nordhavnen will contain a wide variety of public institutions and shopping facilities and offer opportunities for new experiences. In this way, Nordhavnen will add to Copenhagen's position as an outstanding international city of knowledge.

6. *A City with Sustainable Mobility*

   Nordhavnen will spearhead the adoption of new sustainable transport solutions. The natural choice for people should be to walk, cycle or use public transport, rather than travel by car.[45]

[45] CPH City and Port Development, COBE, SLETH MODERNISM, Polyform and Rambøl, "Sustainable city – the Copenhagen Way, Nordhavnen Urban Strategy", November 2009, http://www.nordhavnen.dk/~/media/NordHavnen/PDF/Nordhavnen_Strategy_271009.ashx, Web, 30 April, 2012

Roles and Responsibilities

The Energy Partnership

1. The City of Copenhagen together with the Danish Government are initiators of the Nordhavnen project.
2. DONG Energy and Copenhagen Energy Ltd. are suppliers of the intelligent power grids.
3. The CPH City & Port Development (BY&HAVN) is owned 55% by the City of Copenhagen and 45% by the Danish state which owns the land, and is working alongside architecture firms Cobe, Sleth and Polyform and engineering company Rambøll on the project.[46] It was founded in 2007 as the Port of Copenhagen and the Ørestad Development Corporation merged together.[47]
4. The Ministry of Climate, Energy and Building together with the above stated partners form the energy partnership of the Nordhavnen project.

A number of Danish and international companies will also be invited to join the partnership to test new climate-friendly technologies and products.[48]

Timeline

- 2007: The legal basis for the urban development of Nordhavnen officially recognized;
- 2009: The competition for the future of Nordhavnen closed;
- 2011: The local plan for the district adopted by the City Council;
- 2012: Building is planned to start in the Århusgade quarter;
- 2025: The Århusgade quarter will be finished; and
- 2060: Buildings constructed on the last sites in Nodhavnen.

[46] Anne-Louise Fogtmann. "Hotspot: Nordhavnen, Copenhagen", CNBC magazine (October, 2011). http://www.cnbcmagazine.com/story/hotspot-nordhavnen-copenhagen/1457/1/**.** Web. 14 May, 2012

[47] Rita Justesen, "Nordhavnen – a city district at the water", PortusPlus, (2011): 1, http://www.reteonline.org/media/pdf/Portus-Plus-2011/Rita%20JUSTESEN.pdf, Web, 22 May 2012

[48] Official web-site of Danish Presidency of the Council of the EU 2012, Educational material for Denmark's Presidency of the EU 2012, "Green Growth – Climate Change", 2012, http://eu2012.dk/en/EU-and-the-Presidency/Undervisning/~/media/Undervisning/PDFer%20Final/Green%20growth.pdf, Web, 14 May, 2012

Focus Areas

The development strategy of Nordhavnen was elaborated by means of ideas that were chosen by having regard to the results of an open international competition for the layout of Nordhavnen in March 2009. The basis of Nordhavnen's development strategy consists in the six following themes:

1. *Islets and Canals*

   The main structural concept of the Nordhavnen city district is to divide the harbor space into a number of small islets by intersecting canals and basins. Except a unique design of the area, its attractive layout, islets and canals will provide good conditions for rowing, sailing and activities on the quays.

2. *Identity and History*

   A strong starting point for the development of Nordhavnen was the fact that the harbor features several distinctive traces of culture which will be improved and will become active parts of the new city district. The special nature of the harbor area will be reinterpreted and emphasized by new building zones, new road structure and green structure.

3. *Five-Minute City*

   The five-minute-city principle reflects the concept of sustainable modes of transport of Nordhavnen when it should be easier to walk, cycle or use public transport than to travel by car. The district will be composed of short distances from housing and workplaces to public transport, bicycle paths, green areas, public institutions and commercial facilities. The key element of in the five-minute-city strategy is the green loop – the public transport systems and a "super bicycle path" at Nordhavnen. The loop will connect the various neighbourhoods in Nordhavnen with each other and with the rest of Copenhagen.

4. *Blue and Green City*

   Nature is one of the key elements of Nordhavnen: it is surrounded by water in the east and various green areas. Such natural landscapes will make Nordhavnen a healthy and active city district.

5. *CO^2 Friendly City*

   Nordhavnen is seen as a lighthouse project because the strategy of it consists in implementing well-known sustainable solutions, while at the same time ensuring that the

district will be able to adapt to future needs and opportunities. Hence, there will be used shared energy supply systems (sustainable energy, heating and cooling) that will further be developed in future: electricity will be generated with the help of the sun and wind; heat will be produced from the sun and earth; and the sea will be used for cooling.

6. *Intelligent Grid*

   One of the most important features of Nordhavnen is its future dynamic structure designed in order to develop constantly, function and change appearance over time. Thereto at the strategic level, a number of governing principles will be applied to design the needed urban space and "the intelligent grid" will be used that is a dynamic principle for the development of the area, based on the existing right-angled grid. Also the islets will be built using flexible and robust framework. In combination of the intelligent grid and robustness and flexibility it will be possible to manage construction in the area for many years to come.

All the six themes described above match the six headlines set out in the vision for the sustainable city of the future. Together, they provide a robust yet flexible framework for future sustainable urban development.[49]

Progress updates

In late May 2008, the CPH Port and City Development launched an open international ideas competition for Nordhavnen. The competition for the layout of Nordhavnen was concluded in March 2009. The 'Nordholmene – Urban Delta' entry was selected as the winning entry, to form the basis for further work. At the same time, it was decided to appoint COBE, SLETH Modernism, Polyform and Rambøll consultants to assist in the development of Nordhavnen.

In the summer of 2009, quality assurance of the design and the development strategies on which it is based was carried out in close collaboration between CPH City & Port Development, the consultants and the City of Copenhagen. In parallel, a number of public meetings, open house events and exhibitions were arranged to involve local residents.

[49] CPH City and Port Development, COBE, SLETH MODERNISM, Polyform and Rambøl, "Sustainable city – the Copenhagen Way, Nordhavnen Urban Strategy", November 2009, http://www.nordhavnen.dk/~/media/NordHavnen/PDF/Nordhavnen_Strategy_271009.ashx, Web, 30 April, 2012

In December 2011, the City of Copenhagen adopted the local plan for the Århusgade quarter. As a result, there will be about 350,000 sqm of new buildings, while some of the existing buildings will be preserved.[50]

[50] Official web-site of Nordhavnen, English Frontpage, http://www.nordhavnen.dk/EnglishFrontpage.aspx?sc_lang=en, Web, 30 March, 2012

HafenCity, Hamburg

Background

The important harbor city in Northern Germany Hamburg was named "European Green Capital" in 2011 for excellent performance in climate change mitigation and environmental protection. A responsible attitude towards water, soil, air, waste collecting and recycling is the norm in the City today. Partnerships are means of achieving established targets and a key factor in all projects. A diversity of people involved in strategic sustainability issues in Hamburg indicates that public-private partnerships have already demonstrated their fruitful results. Questions such as how to foster cities to learn from each other and how public and private deciders can collaborate even better are not rare discussions in the City.[51]

City plans are focused on seven distinct areas, which determine the future outlook of the area.[52]

- Mobility, public transport, the environment and bicycle traffic are focus areas in the city;
- Climate and energy, according to Climate Action Program, which includes 300 measures; the City intends to lower greenhouse gas emissions by 40% by 2020 and by 50% by 2050 through passive house standards, wind and geothermal energy and other renewable energy initiatives;
- Protection and expansion of green areas;
- Urban development through transforming former harbor and industrial areas;
- Noise prevention;
- Assisting sustainable, resource-efficient business practices;
- Consumerism that is addressed through communication programs.

[51] Barelier Laurent. Hamburg European Green Capital 2011: The Train of Ideas made a stop in Copenhagen. Sustainable Cities. http://sustainablecities.dk/en/blog/2011/05/hamburg-european-green-capital-2011-the-train-of-ideas-made-a-stop-in-copenhagen (accessed May 14, 2012).

[52] Ziegler Helmuth. Hamburg is the European Green Capital 2011. Sustainable Cities Collective. http://sustainablecitiescollective.com/helmuthziegler/18134/hamburg-european-green-capital-2011 (accessed May 14, 2012).

Hamburg is notable for its best environmental projects, which are worth of repeating or improving in other European cities due to workable practices and concepts. HafenCity district is one of such projects focused on urban development.

Introduction

As an initial event the fall of the iron curtain and the German reunification play a major role in initiating the project. Hamburg, until 1990 being a city close to the iron curtain, moved into the center of Europe, which was seen as a key factor for the growth of the city, whereas most other German cities face shrinking populations. Also the old harbor, the site of the HafenCity, was out of date and no longer suitable for container shipping.[53]

Now HafenCity is a bright example of sustainability that focused on new-building of previous industrial sites and their development with intensive use of land. This district, so called "innercity", is the biggest project in Europe and one the leading waterfront project in the world. The building of the unique urban structure, with the population of 10 -12000 citizens and 40 000 jobs, was caused by the development of flood protection strategy. The area's central location and high quality sets the project apart from other urban development projects on the water. Creativity is a crucial criterion of HafenCity, which gave rise to stimulating social entrepreneurship.

HafenCity can function even during the current construction period since temporary structures make it possible. The peculiarity of project implementation is that the subsidizing of new infrastructure doesn't use resources from the sale of land. Thus, there is no time pressure for the development of HafenCity's building plots. The recent economic crisis hasn't prevented the development of the city due to involvement of many different companies and investors. This robust position in the market has made the project durable to the changes.[54]

Targets and Focus areas

[53] Tim Geilenkeuser, interviewed by author, May 16, 2012, Lund.

[54] Danish Architecture Centre. Hamburg: HafenCity – bringing the city to the water. Sustainable Cities. http://sustainablecities.dk/en/city-projects/cases/hamburg-hafencity-bringing-the-city-to-the-water (accessed May 14, 2012).

The vision of the district is "living up to the challenges of the future without abandoning its own traditions and qualities".[55] Principal targets cover such dimensions of the structural concepts as land uses, the structure of urban development, town planning considering waterfront characteristics, integration into the city, sustainability and ecology.[56] Besides having a masterplan with numerous aims and objectives regarding these areas, Hamburg intends to initiate many programs about the future of other large cities aiming at bringing experiences from them. Also, HafenCity aims at supporting groups of investors, builders, designers, residents and authorities to work in partnerships and joint ventures with the common purpose of making HafenCity the central place for "a new business, social, cultural and urban economic breakthrough".[57]The following areas are given priority in developing the district[58]:

- Brownfield development, which implies transforming former industrial zones and the development of residential and business territories compatible with neighboring port activity;
- Climate-adjusted flood protection;
- Efficient use of ground surface;
- Sustainable climatically suitable city structure;
- Sustainable mobility;
- Sustainable thermal energy supply;
- Sustainable buildings;
- Utilities and sewer system;
- Soil contamination; and
- Air pollution, etc.

[55]HafenCity Hamburg GmbH. HafenCity Press area. HafenCity Hamburg. http://www.hafencity.com/en/press-releases/building-the-city-anew-the-major-city-of-tomorrow.html (accessed May 16, 2012).

[56] HafenCity. HafenCIty hamburg – the Masterplan, 2006. http://www.hafencity.com/upload/files/files/z_en_broschueren_19_Masterplan_end.pdf (accessed May 16, 2012).

[57] HafenCity Hamburg GmbH. HafenCity – the genesis of idea. HafenCity Hamburg. http://www.hafencity.com/en/overview/hafencity-the-genesis-of-an-idea.html (accessed May 16, 2012).

[58] HafenCity Hamburg GmbH. Sustainability and Quarters. HafenCity Hamburg. http://www.hafencity.com/en/overview/sustainability-and-quarters.html (accessed May 14, 2012).

Brownfield and harbor-front developments are not new aspects of city planning, on the contrary many actors can be identified worldwide. But regarding the time frame the HafenCity stands out, as it was initiated in the early stages of post-industrial renewal projects, is the biggest project of its kind in Europe, and takes a long-term incremental approach[59] according to Tim Geilenkeuser who is Assistant to the Executives in HafenCity Hamburg GmbH. The development of the project is characterized by brisk pace, which wasn't predicted originally. The multiple main targets and objectives of the Masterplan in HafenCity are divided into a number of stages for a period of 25 years starting from 2000. However, planning is flexible which makes it easier to adapt to changing circumstances.[60] So far the time-frame of the entire area is the following:[61]

- 1990s: Initial vision of Hamburg's harbor transformation into HafenCity began after Fall of the iron curtain;
- 1997: Announcement of HafenCity project; a draft of a Masterplan is created;
- 2000: Masterplan with its clear vision was selected; relocation of businesses and clearing of sites;
- 2003 to 2004: HafenCity is known as HafenCity Hamburg GmbH; construction of buildings begins; heat energy supply with CO2-benchmark;
- 2009: the first neighborhood is completed;
- 2010: Public presentation and discussion of the revised Masterplan; and
- 2011 to 2013: new subway and HafenCity University start to function; reward "European Green Capital 2011."

Roles and responsibilities

In the initial phase pilot project methods were used (i.e. starting in small scale units, splitting lots among multiple investors). Today, due to the length of the project of approximately 30 years

[59] Interview Tim Geilenkeuser, interviewed by author, May 16, 2012, Lund.

[60] HafenCity. HafenCIty hamburg – the Masterplan, 2006. http://www.hafencity.com/upload/files/files/z_en_broschueren_19_Masterplan_end.pdf (accessed May 16, 2012).

[61] HafenCity Hamburg GmbH. Development and Land Use. HafenCity Hamburg. http://www.hafencity.com/en/overview/development-and-land-use.html (accessed May 14, 2012).

and the difficulties in planning tasks, the project has to be scalable.[62] This project is a bright example of successful collaboration, it demonstrates tight links between conception and realization, and it is perceived as a benchmark waterfront project. The level of development pace and the complexity of public and private relationships requires taking up much responsibility and strong management skills.[63]

There are three main bodies: City State of Hamburg, Private/Public Sector HafenCity Hamburg GmbH and the private sector consisting of Private and institutional developers and investors.[64]

Responsibilities of City State of Hamburg:

1. State Commission approvals: development plans, land sales;
2. Prepares and grants: plans, urban design (guidelines),building permits;
3. Finances and builds, partly as public-private joint venture:-schools-university-concert hall-science center-subway.

*Responsibilities of HafenCity Hamburg GmbH (*acts in assignment of the city as spatial planner and markets and sells lots*):*

- Market and sell municipally-owned real estate in HafenCity (approximately 98% of the total area to be developed).
- Attract investors and buyers, providing all necessary assistance.
- Develop the location for residential use, service industries and leisure amenities.
- Coordinate all planning and construction projects.
- Plan and implement land development.
- Manage and administer funds (Special Fund 'City and Port') used for the development of HafenCity.
- Co-operate with the relevant Hamburg authorities and indirectly with parliamentary

[62] Interview Geilenkeuser, interviewed by author, May 16, 2012, Lund.

[63] HafenCity Hamburg GmbH. Facts and Figures. HafenCity Hamburg. http://www.hafencity.com/en/overview/hafencity-facts-and-figures.html (accessed May 16, 2012).

[64] Hape Schneider, presentation "Hafen City Hamburg: The Link between Urbanity and Ecological Sustainability". European Green Capital seminar Stockholm, November 30, 2010.

committees.

- Location marketing, public relations and citizen involvement.[16]

Responsibilities of private and institutional developers and investors:

- Development of individual sites

There are three main finance sources[65]:

- Urban Development Fund "City and Harbor", presented by HafenCity Hamburg GmbH (the purpose – investments in quays, promenades, parks, streets, bridges, water, sewage mains with the purpose of site clearance and relocation of companies);
- City/State Finance (investments in external linkages and special projects);
- Private Finance (finances development of individual projects).

Progress Updates

The realization of the project is very flexible, what can be proved by some alterations in the original plan. Several changes contributed to successful development of the project. They were rather sequential steps undertaken firstly by the City State Government and sometimes they were discussed in the City State Parliament if budget issues dominated. Therefore, the alterations in the original plan are the results of political discussions and consensus. These changes that are significant for the development of the project having been applied in the following areas:[66]

- Restricted areas;
- Acquisition of land;
- Density;
- Work places;
- Local public transport;
- Educational and cultural facilities;
- And development time frames.

[65] Hape Schneider, presentation "HafenCity Hamburg: The Link between Urbanity and Ecological Sustainability". European Green Capital seminar Stockholm, November 30, 2010.

[66] HafenCity. HafenCIty Hamburg – the Masterplan, 2006. http://www.hafencity.com/upload/files/files/z_en_broschueren_19_Masterplan_end.pdf (accessed May 17, 2012).

The district received such Eco Label categories as:[15]

1. Sustainable use of energy resources;
2. Sustainable use of public goods;
3. Use of environmentally friendly building materials;
4. Special consideration for environment, comfort and health protection;
5. Sustainable Facility Management.

Vauban, Freiburg

Background

Freiburg City belongs to "car-free city" category, what means housing with no parking. The city is notable for its trend to reduce the number of private cars. In 1998 the car-free construction began here. Apart from transport orientation, in 1986 after Chernobyl catastrophe Freiburg's municipality adopted future-oriented energy measures which would distinguish the city as a European prominent solar city. However, the main strategy is directed towards transport and relies on:[67]

- Extension of the public transport network;
- Promotion of cycling;
- Traffic restraint;
- Channelling of motor traffic;
- Parking space management.

Today city's energy policies are directed towards:

- Energy conservation;
- Use of new technologies; and
- Use of renewable energy sources.[68]

As a result of above stated policies, cycling and public transport journeys increased, the share of private cars declined, energy consumption was reduced due to the support program for home energy retrofit and energy efficiency design standards. Freiburg is also eminent for numerous projects that use different solar applications – "solar PV solar thermal, solar sunrooms, passive solar design, solar cooling, and transparent solar insulation"[18]. The City has attracted many

[67] Melia Steve, "On the road to Sustainability. Transport and Carfree living in Freiburg", Bristol, Faculty of the built environment, 2006.

[68] Madison Freiburg Sister City Committee: Sustainable City Freiburg. http://madisonfreiburg.org/green/sustainablecity.htm (accessed May 15, 2012).

research and development organizations that contributed to successful implementation of those projects. Transport initiatives, energy programs and other kinds of environmental programs contributed to the overall success of Freiburg[17], and they became the reality due to synergy among players working together and mutually benefiting each other.

The new district Vauban, which is described below, is a model project of the City. The main idea is saving space and energy with a purpose to educate and influence wide population.[69]

Introduction

In the 1980s Freiburg was one of the first cities having a strong green party. Many people and organizations were involved in energy and ecology, so when pondering to create a new district from an old barrack site, some citizens thought: "Where if not here could we launch a more ecologic district (whatever that means, we'll see...) with less cars and a better life quality? And when if not now?".[70] Now the district is almost a new build area, only several buildings from the former military area were retained. This is a place where citizen engagement provokes people to take responsibility of their local community, where the streets are without cars and buildings are energy efficient. Citizens participate in all stages of development, even in the planning process, and they established the association "Forum Vauban" recognized as legal body from 1995. At that time Forum convinced the council to start a car free project. Although the Council agreed, sometimes the relationships between the two sides were tense during the development of the concept.

The major goal of the project was "to create a car-free city with a reduced number of private cars."[71] By means of supplying good public transport, a car-sharing system and providing economic incentives to those who live without a private car and adjusting conditions for bicycles the City reduced the number of cars and, consequently, traffic and air pollution. The district uses a combined heat system, some buildings are passive houses with passive solar heating and heat exchangers, and there are an innovative waste system and an urban drainage system. The project

[69] Bund Gruppen. Freiburg & Environment: Ecological Capital – Environmental Capital – Solar City - Sustainable City - Green City? Regionalverband Sudlicher Oberrhein. http://vorort.bund.net/suedlicher-oberrhein/freiburg-environment-ecology.html (accessed May 15, 2012).

[70] Interview Andreas Delleske, interviewed by author, May 18, 2012, Lund.

[71] Melia Steve, "On the road to Sustainability. Transport and Carfree living in Freiburg", Bristol, Faculty of the built environment, 2006.

”Realization of the Sustainable model district Vauban” received financial help from the EU environment program from 1997 to 2004, the purpose of this support was to assist projects focusing on energy and traffic.[72]

Targets and Focus areas

The vision was “to create a completely new type of city district, where planning is based on environmental, economic and social sustainability and initial preparations to fulfill this vision began in 1993”.[23] The prior objective was “to offer high quality building spaces for young families within the city's territory and to counteract sub-urbanization”[73]. The further objective of the project was to “implement a city district in a co-operative, participatory way which meets ecological, social, economic and cultural requirements” through:[2]

- “Balance of working and living areas;
- Balance of social groups;
- Integration of future building owners;
- Priority to pedestrians, cyclists and public transport;
- Privileges to car-free living;
- Co-generation plant and short-distance heating system; and
- Extensive use of ecological building material and solar energy”, etc.

These objectives were brought into effect through cooperative participation of the City, working citizens groups, private organizations, private builders and groups of building owners. Through this process the major strengths of the project were realized. The major element is strong citizens’ participation as the driving force for ideas sharing and generation, creativity and commitment to the common aim to create a sustainable city.[74]

[72] Danish Architecture Centre. Vauban - an environmentally friendly and (almost) car-free city Sustainable Cities. Sustainable Cities. http://sustainablecities.dk/en/city-projects/cases/vauban-an-environmentally-friendly-and-almost-car-free-city (accessed May 15, 2012).

[73] Forum Vauban, Freiburg, Germany. Forum Vauban e.v. Overview. http://www.forum-vauban.de/overview.shtml (accessed May 19, 2012).

[74] Delleske Andreas. Main objectives. Vauban District, Freiburg, Germany . http://www.vauban.de/info/abstract2.html (accessed May 15, 2012).

Timeline

The process of realization of this sustainable city project undertook a number of stages, with the main stages being the following:[75]

- 1995: Discussion about planning of city district Vauban begins;
- 1997 to 1999: Detailed concepts were worked out; Forum Vauban organized the first community meetings and workshops for active citizens;
- 1998: First construction period of the first public green spaces begins;
- 2000: First development phase was completed providing a home for 2000 residents;
- 2006: Vauban is ready for its inhabitants.

Roles and Responsibilities

At the very initial stage the administration of Freiburg, who had the task to plan a district, was on one side; and some interested and motivated ordinary citizens, who wanted to make a difference and do it better than usual, were on the other side. The council members were somewhere in between. Citizens could inform them, express their demands and suggestions, but they had zero influence on how much money to spend and where to spend it.[76]

During the further development there are three main bodies connected with Vauban which are identified:

- Project Group Vauban (or the City of Freiburg), which is the local authority working on the project and the main responsible party for district planning and development.
- City Council Vauban, which represents political parties from the City Council collaborating with representatives from the City authorities and the community forum; this is the main body for decision preparation.
- Forum Vauban, organization consisted of citizen's organization and dealing with social work within the district; this is an equal collaboration partner of the City, participating in such decisions as influence, traffic, energy issues and sustainable building.

[75] Forum Vauban, Freiburg, Germany. Forum Vauban e.v. Overview. http://www.forum-vauban.de/overview.shtml (accessed May 19, 2012).

[76] Interview Andreas Delleske, interviewed by author, May 18, 2012.

It is worthy to highlight one more time that citizens' participation, that was organized by the NGO "Forum Vauban", reached far more goals that was expected. From the first stages Forum Vauban did not restrict itself only to organizing responsibilities, but played the main role developing suggestions for planning and building.

Progress updates

From the beginning the project was neither a pilot project, nor a scalable one. Rather it was something in between. But today we can say that the area have become sort of a model. The project motivates and inspires. But it is important to accept the fact that only parts of this city experience can be applied to other cities, other people. The goal for others cities and partnerships should be to find the best particular solution for any particular problem.[77]

In total, Vauban is both progress and success. Today it is a family-friendly area for 5,000 people where collective building, ecological awareness and civil commitment are very important.[78] The elements, which contributed to the overall success of the project, are presented below:

- Economic incentives were crucial in fostering individuals not to use private vehicles (although the project didn't intend to be driven by economic considerations);
- The established process of dividing small lots of land between private builders groups; joint building projects gave rise to ecological awareness.
- The City could establish contact with citizens at the early stages of development what fostered citizens' participation; now people really identify themselves with the Vauban area;
- The goal of living without a private car was achieved; almost 50% of households are "car-free";
- An organized platform for different stakeholders, integrated from up to down level, could share and develop ideas through community meetings and workshops;
- All houses are energy-efficient, co-generation plant is connected to the district-heating grid, the number of solar installation is increasing.

[77] Interview Andreas Delleske, interviewed by author, May 18, 2012.

[78] Green City Freiburg. Vauban. http://www.fwtm.freiburg.de/servlet/PB/menu/1174690_l2/index.html (accessed May 18, 2012).

***Lessons learned**:*[79]

- A real participatory process needs extra resources;
- The balance of social groups is most important;
- Recycling of old military and industrial areas slows down sub-urbanization;
- Political actions are necessary too;
- More funding resources for small, independent groups are needed;
- New districts are "young districts"; and
- New districts also need to preserve their history.

[79] Forum Vauban, Greiburg, Germany. Forum Vauban e.v. Overview. http://www.forum-vauban.de/overview.shtml (accessed May 19, 2012).

APPENDIX C - SUSTAINABLE CITY DEVELOPMENT

Background

Nowadays economic crisis, financial collapse, social crisis and environmental problems are becoming even clearer. It is evident that mankind needs effective solutions desperately in order to avoid disastrous effects. In view of this, the concepts of sustainability and sustainable development assume importance.

Despite the fact that the sustainability aspect causes controversy, Krueger and Gibbs affirm that "The discourse of sustainability is being more widely deployed as an urban and regional development strategy than ever before."[80] Furthermore, over the last 19 years, "sustainability frameworks have been emerging in a wide variety of fields, from individual product category standards to overarching, universal frameworks…"[81] Additionally, there are several countries which aspire to be leaders of sustainable development, among them are: UK, Denmark, Germany, USA, Sweden, Japan, Taiwan and China.

Sustainable City

It is known that cities destroy ecological system by their activity including manufacture, over-expenditure of resources, overpopulation, and a general disregard of nature. Hence, in Blassingame's judgment, during the second half of the 20th century and the first decade of the 21st century, cities continued to move towards greater sprawl, sharper divisions within the social fabric, increasing environmental damage and further depletion of resources.[82] At the same time cities with their residents should take the lead in sustainability challenge as they influence on the prosperity and feel the impacts from global and regional problems such as climate change, declining air and water quality, rising population and social conflicts.[83] And consequently, a city

[80] Rob Krueger and David Gibbs, *Introduction: Problematizing the Politics of Sustainability*. In R Krueger and D. Gibbs (eds.) *The Sustainable Development Paradox. Urban Political Economy in the United States and Europe*. (New York: Guildford Press, 2007)

[81] Thor Peterson and Synthesis Consultants, *A comparative analysis of sustainable community frameworks* (USA, September 14, 2008), 4

[82] Lurton Blassingame, "Sustainable cities: oxymoron, utopia or Inevitability?", *The Social Science Journal 35(1)* (1998): 1-13.

[83] Mark Roseland, "*Towards Sustainable Communities – Resources for Citizens and their Governments"*, (New Society Publishers, Gabriola Island, B.C., 2005), 194; WCED, *Our Common Future*, (Oxford: Oxford University Press, 1987), 238-243.

is one of the most important factors in creating sustainable development. Sustainable city is a complex system of different elements that concern political, economic, social, environmental, cultural, technological, business spheres and which are interdependent. In addition to that many experts and researchers pay attention to the fact that the model of sustainable city should be flexible in order to meet the requirements of modernity.

Key Dimensions for Sustainable City Development

There are many views on what the sustainable city should look like. Most of them are considered to be utopian or hardly feasible but in any case one can find practical steps and ideas that can be used in real life because the utopian vision of the eco-city can offer a frame from which urban planners and practitioners can work and make today's cities more sustainable. In general the eco-city concept promotes harmony between human actions and nature and also that disturbance of ecological systems by humans should be reduced.[84]

Mark Roseland describes the concept of eco-city and combines all aspects of sustainability into the following:

1. Revise land-use priorities to create compact, diverse, green, safe, pleasant and vital mixed-use communities near transit nodes and other transportation facilities;
2. Revise transportation priorities to favor foot, bicycle, cart, and transit over autos, and to emphasize 'access by proximity';
3. Restore damaged urban environments, especially creeks, shore lines, ridgelines and wetlands;
4. Create decent, affordable, safe, convenient, and racially and economically mixed housing;
5. Nurture social justice and create improved opportunities for women, people of color and the disabled;
6. Support local agriculture, urban greening projects and community gardening;
7. Promote recycling, innovative appropriate technology, and resource conservation while reducing pollution and hazardous wastes;
8. Work with businesses to support ecologically sound economic activity while discouraging pollution, waste, and the use and production of hazardous materials;

---

[84] Mark Roseland, *"Dimensions of the eco-city Cities,* (Volume 14, Issue 4, 1997).

9. Promote voluntary simplicity and discourage excessive consumption of material goods;
10. Increase awareness of the local environment and bioregion through activist and educational projects that increase public awareness of ecological sustainability issues.[85]

It should be noted that developing urban development in a sustainable way is a very complex process. Before implementing "green technologies" the value systems and underlying processes of urban governance and planning need to be reformed to reflect a sustainability agenda.[86]

Jeffrey Kenworthy who was researching cities around the world over 26 years elaborated ten critical eco-city dimensions:

1. The city has a compact, mixed-use urban form that uses land efficiently and protects the natural environment, biodiversity and food-producing areas.
2. The natural environment permeates the city's spaces and embraces the city, while the city and its hinterland provide a major proportion of its food needs.
3. Freeway and road infrastructure are de-emphasized in favour of transit, walking and cycling infrastructure, with a special emphasis on rail. Car and motorcycle use are minimized.
4. There is extensive use of environmental technologies for water, energy and waste management – the city's life support systems become closed loop systems.
5. The central city and sub-centres within the city are human centres that emphasize access and circulation by modes of transport other than the automobile, and absorb a high proportion of employment and residential growth.
6. The city has a high-quality public realm throughout that expresses a public culture, community, and equity and good governance. The public realm includes the entire transit system and all the environments associated with it.
7. The physical structure and urban design of the city, especially its public environments, are highly legible, permeable, robust, varied, rich, visually appropriate and personalized for human needs.

---

[85] Till Koglin, *"Sustainable development in general and urban context: a Literature review"*, (Lund, Department of Technology and Society, Traffic and Road. Bulletin Lund University, Faculty of Engineering in Lund, Department of Technology and Society, 248, 2009)

[86] Jeffrey R. Kenworthy, *"The eco-city: ten key transport and planning dimensions for sustainable city development"*, *Environment and Urbanization* 2006 18, SAGE (April, 2006): 67. DOI: 10.1177/0956247806063947

8. The economic performance of the city and employment creation are maximized through innovation, creativity and the uniqueness of the local environment, culture and history, as well as the high environmental and social quality of the city's public environments.
9. Planning for the future of the city is a visionary "debate and decide" process, not a "predict and provide", computer-driven process.
10. All decision-making is sustainability-based, integrating social, economic, environmental and cultural considerations as well as compact, transit-oriented urban form principles. Such decision-making processes are democratic, inclusive, empowering and engendering of hope.

However, Kenworthy noted that these dimensions do not touch upon all aspects of sustainable city development, e.g. they do not political aspect or other interests in urban decision-making process.[87]

Expanded Barriers of Effective Sustainable City Development

Sustainable city development can take many forms and can be attained by means of different strategies. There is no universal model of sustainable city that will meet the case of each city of the world. In addition, heeding the fact that sustainable development is a very complex, mixed and multipurpose process, one cannot find a full-fledged project of sustainable city. There are only parts of cities involved in sustainable city development and the sustainable city profiles that are presented in this report are the evidence of these facts.

There are a number of the major challenges of sustainable cities which frequently are not taken into account when talking about sustainable city projects. According to M. Elle et al.[88] the sustainable city is not only about planning a compact city and a complex technological system. There are several groups of specialists equipped in a sustainable city project who create and plan strategies for it. All these groups are responsible for very different components of the city, e.g. construction, customer behavior, infrastructure, governance and legislation, etc. The difficulty is

[87] Jeffrey R. Kenworthy, *"The eco-city: ten key transport and planning dimensions for sustainable city development"*, *Environment and Urbanization* 2006 18, SAGE (April, 2006): 68. DOI: 10.1177/0956247806063947.

[88] M. Elle, S.B. Nielsen, J.O. Jensen, B. Hoffmann, "The Seven Challenges of Sustainable Cities", *COST C8 Final Conference Sustainable Urban Infrastructure approaches-solutions-networking*, (6-8 November 2003): 2-6, Trento, Italy, Web, 27 April 2012.

that all the strategies are interdependent and two-way influenced and therefore should be unified. After studying many different sustainable city development projects the authors found out seven barriers to SCD.

1. *Lack of Awareness and Ethics*

   Although some people consider themselves to be environmentally aware, it does not lead to sustainable actions. Thus, decision makers (officials, celebrities, leaders) prefer comfort and luxury, house owners do not think about sustainability when renovating their houses. Awareness has to be increased to a level that environmental aspects are considered to everyday life and apply to each person regardless of social status. Currently many negative impacts of human activity are intangible and invisible and this should be changed. Also sustainability has a strong ethical dimension - many results of sustainable actions that are made today will become apparent to next generations. "Green products" are branded and promoted successfully, however the most sustainable way is not buying at all, using non-buying strategy which seems impossible in the system we live in.

2. *Lack of Tools for Decision Making*

   Even those sustainability projects that are considered to be best practices have been carried out without the use of advanced tools to support decision. And these tools are:

   - Mapping, evaluating and visualizing the present state of the sector, the goals for sustainability in the sector, and the difference between the goals and present state ("Sustainability Gaps");
   - Assessing the sustainability of different possible strategies and solutions (environmental, social, economic) and prioritizing between them; and
   - Guiding actors through the processes of implementing sustainability in projects and strategies. Evidently, if there is no systematic evaluation, future projects will not be efficient.

3. *Lack of Models for Sustainable Urban Management*

   Sustainable city administration does not make the entire city sustainable. Different elements in the city have their own path towards sustainability. The organizational structure of the city is much softer and that is why the business way of environmental management cannot be directly implemented. Soft management methods have to be introduced. Sustainable urban

management will have to recognize many single actors and their characteristics. Uncertainties and complexity of the informal organization of the city must be respected. The different actors will have their own agenda for sustainable development – factories, housings companies, utilities etc. Partnerships could play an essential role. Different kinds of intermediaries could be introduced as part of navigating towards a sustainable development.

4. *Lack of Diffusion of Innovations*

   One of the reasons for the lack of diffusion is the missing focus on documentation and dissemination of the results. Documentation of the project influences on the information transfer. In practice attention is concentrated on the innovation itself and the realization of the demonstration project. Special attention has to be paid to context dependency. It is essential to be able to recognize whether a certain innovation can be transferred to another local context or not.

5. *The Conflict between "Green Technologies" and Existing Infrastructure*

   The modern city and its infrastructure in aggregate can be viewed as a large technological system which is complex and interdependent. That is why it can be difficult to introduce new technologies. The transition of urban infrastructure has to be planned and coordinated with the development in the building sector. Decision makers have to accept that parallel solutions occur in the transition period.

6. *Counteracting Trends in the Development of Society*

   Some of the essential trends in the development of modern society counteract sustainable development, these are: globalization, smaller family units and growing use of floor space.

7. *The Need for Reinventing Planning*

   Planning has apparently been reduced to basic spatial planning in some municipalities and it makes it difficult for planners to play an active role in planning sustainable cities.[89]

[89] M. Elle, S.B. Nielsen, J.O. Jensen, B. Hoffmann, "The Seven Challenges of Sustainable Cities", *COST C8 Final Conference Sustainable Urban Infrastructure approaches-solutions-networking*, (6-8 November 2003): 2-6, Trento, Italy. Webs. 27 April 2012.