Master's Degree Thesis

Towards Sustainability – Analysis of Collaborative Behaviour in Urban Cohousing –

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Abstract

Society is facing a great *Sustainability Challenge*. The designs of our social and economic structures are creating enormous stress in our social, environmental and economic systems and across the world, citizens, businesses and governments have begun to take notice. Adopting more *Sustainable Consumption* behaviours have been identified as a necessary step in the move towards *sustainability*. This thesis explores the idea of *Collaborative Consumption* within the context of *Cohousing* in cities. *Cohousing* is defined as housing comprising of individual apartments or homes with shared spaces and facilities designed to create a community, oriented towards collaboration among residents and collective organisation of services. This research sought to identify key barriers and enablers for moving towards *Sustainable Lifestyles* and study the role of *Cohousing* as a catalyst for *Collaborative Behaviour* that triggers *Collaborative Consumption* leading urban communities towards *Sustainable Lifestyles* and ultimately towards *Sustainable Development*. By combining the *Strategic Sustainable Development* approach and *Cohousing*, this thesis provides a set of recommendations that could help *Cohousing* communities move strategically towards *sustainability*.

Keywords

Cohousing Community, Framework for Strategic Sustainable Development, Sustainable Consumption, Collaborative Consumption, Collaborative Behaviour, Sustainable Lifestyle, Sustainability

Statement of Contribution

This thesis is a product of collaboration between three individuals, Judith ‘san’ Stratmann, Laura ‘pichusingh’ Weiss Ferreiro and Rumy ‘ana’ Narayan. All three took on the tasks and challenges related to the thesis in equal measure. This included a continuous process of researching, collecting, developing, building and distilling information and ideas in the initial phases and giving way to transcribing, coding, writing and editing in the later phases.

After drawing up a list of people that needed to be contacted for interviews and surveys, each person took on the responsibility of connecting and communicating with the contacts they had chosen, individually. All members participated in almost all calls and interviews but for better efficiency, all other communication with experts and other interviewees were managed and handled individually. Each member of the team reviewed all the content. Decisions were consensus-based and every member was part of all meetings, if not physically then via Skype. All the documents and draft versions were created in collaboration often together on a shared database.

Judith’s meticulous eye for detail and referencing, Laura’s critical and questioning mind and flair for design and Rumy’s research abilities and extraordinary editing skills came together to co-create this report. It was a wonderful learning process in collaboration and engagement and “a good time was had by all”.

Rumy, Laura and Judith in front of the Bofællesskabet Kæphøj, Roskilde, DK

Acknowledgements

"Knowledge is in the end based on acknowledgement." - Ludwig Wittgenstein

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We reserve our deepest gratitude for our principal advisor, Pierre Johnson, who supported us throughout the process by enduring our long chats, endless banters and bad jokes but always managing to get us back on track. We would also like to thank our secondary advisor, Lisiana Nurhadi for her valuable feedback, Dr. Göran Broman and Dr. Karl-Henrik Robèrt for sharing their views and knowledge on the FSSD and Tracy Meisterheim, Marco Valente and Merlina Missimer for taking the time to ask questions and offer feedback.

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Finally, we would like to thank our classmates who made this entire experience enchanting, fun and truly special and our families for their continuing love and support through the entire period of terrible mood swings.

Executive Summary

Introduction

The Sustainability Challenge

One of the principal objectives for a societal transition towards *sustainability* is the reduction of current impacts as well as those that will affect future generations. Global pressures on the environment are directly linked to the size of population which defines the level of consumption and the amount of materials and energy inputs that go into feeding that consumption. Further, it is estimated that nearly all of the world's population growth will occur in cities and in this context, it is important to address the issue of consumption in cities while working towards *sustainability* globally.

Cohousing as a Form of Collaborative Behaviour

Within the context of studying patterns of *Sustainable Consumption* it has been observed that *Collaborative Consumption* is largely effective when there is close physical proximity. It is one of the key elements that enable *Collaborative Behaviour*, like the sharing of services and products. This kind of behaviour can be witnessed in *Collaborative Housing* or *Cohousing* communities.

The intention of this thesis is to identify key barriers and enablers in *Cohousing* communities for moving towards *Sustainable Lifestyles* and study the role of *Cohousing* as a catalyst for *Collaborative Behaviour* that triggers *Collaborative Consumption* leading urban communities towards *Sustainable Lifestyles* and ultimately towards *sustainability*.

This study includes urban *Cohousing* communities in Scandinavia (Sweden, Denmark) and North America (Canada, United States). These four countries offered an opportunity to study the concept in different legal, cultural and socio-economic contexts.

Research Questions

Main Research Question: What should *Cohousing* communities do to move strategically towards *Sustainable Lifestyles*?

Sub-research Question 1: What are the gaps in current *Cohousing* models from a *Strategic Sustainable Development* perspective?

Sub-research Question 2: What are the patterns of *Collaborative Behaviour* for moving strategically towards *Sustainable Consumption* and Lifestyles?

Methodology

In order to structure the research, this study uses the Interactive Model for qualitative research developed by Joseph Maxwell (Maxwell 2005). It is a systemic approach composed of five interconnected areas; goals, conceptual framework, research questions, methods, and

validity; that are organized in an interactive structure. Every component is linked to the others. They form an integrated and interactive model.

The conceptual frameworks used to explore and to guide and inform the research are the *Five Level Framework (5LF)* for planning in complex systems and the *Framework for Strategic Sustainable Development (FSSD).* The five levels are Systems, Success, Strategic, Actions and Tools. When planning towards *Strategic Sustainable Development* the *5LF* is referred to as the *FSSD.*

Strategic Sustainable Development (SSD) is a concept that addresses the *Sustainability Challenge* within the *socio-ecological system* by incorporating *Systems Thinking, Sustainability Principles* and *Backcasting*.

Four-phased research design

Phase I. The literature review and the exploratory interviews provide the foundation for exploring and developing the research questions. The data for the introduction are structured and organised in order to create a simple overview of the current *Sustainability Challenge* and finally introduce the topic of *Cohousing*.

Phase II. A *5LF* on *Cohousing* is created to develop an overview of the topic and help structure questionnaires for expert interviews and a survey for *Cohousing* communities. Following that, *Cohousing* is analysed through the lens of the *FSSD*, to form a best case scenario, to identify key features that are required for a sustainable *Cohousing* community. The knowledge arrived at is informed by an extensive document content analysis, expert interviews and interviews with *Cohousing* communities.

Phase III. The current concept of *Cohousing (5LF)* is compared with the best case scenario of *Cohousing* informed by the *FSSD* to identify impediments and to look at challenges and barriers, benefits and positive outcomes. This is followed by a discussion of these patterns to explore how *Cohousing* communities could change to become more sustainable and how *Strategic Sustainable Development* could help in this process. A fieldtrip is undertaken to deepen the knowledge and gain some firsthand experience.

Phase IV. The gleaned knowledge from the previous phases is used to frame recommendations that could help *Cohousing* communities incorporate a wider planning perspective. To validate the results, discussion and conclusion, experts as well as people with no contact or knowledge of *Cohousing*, are asked for feedback.

What are the Gaps in Current Cohousing Models from a Strategic Sustainable Development Perspective?

Lack of Interaction. Interaction with the larger community is lacking in *Cohousing* communities, yet, they do offer some activities to encourage interactions. Neighbouring communities and especially municipalities take time to understand the benefits of *Cohousing*. This hinders both *Cohousing* communities and the community at large from having effective interactions and adopting *Collaborative Behaviour*.

Lack of Diversity. The lack of diversity in income, race, culture and education also acts as a deterrent to understanding the value of interconnectedness with the larger community. In

cases where city administrations are actively interested and are willing participants, many of these diversity issues are addressed and public policies enable such communities to thrive and connect with each other to evolve and flourish. The collaborative and supportive behaviour and the common *sustainability* approaches adopted by these communities could make them a great space for families, elderly people, single parents and people with low incomes.

Lack of Common Vision. All *Cohousing* communities evolve individual visions that integrate the idea of *sustainability* according to their interpretation of the concept. When planning and living in a *Cohousing* project most communities have a clear individual vision of what they want but it does not necessarily incorporate the vision of the larger community they are a part of. At the city level, *Cohousing* communities are often not considered or represented in the future vision of a city.

Lack of Strategic Approach. *Cohousing* communities do have certain guidelines but they serve mostly to help during the process of design and the conception phases. These guidelines are certainly not strategic in the sense that they do not include a *Backcasting* approach and miss out on the important and crucial stage of exploring the *Prioritization Questions* that would help them in planning strategically. Taking into consideration these questions would help gauge if the actions support communities in moving towards the right direction (*Sustainable Lifestyles*) in line with the *Sustainability Principles*, have enough flexibility to accommodate future potential actions and deliver a sufficient return on investment.

What are the Patterns of Collaborative Behaviour for Moving Strategically Towards Sustainable Consumption and Lifestyles?

Barriers and Challenges

Community vs. Individualism. Some people like the idea of *Cohousing* when they go for interactions but many find that the experience of actually living in such a community can be daunting. For instance, *Cohousing* communities usually have mandatory tasks and interactions that some people might find encroaching on their personal space and time.

Diversity and Affordability. As most of the communities get older, they need to look for younger members. Several *Cohousing* communities have specific policies that ensure a demographic balance. However, the high cost of access to *Cohousing* units becomes a critical issue, especially for people with limited resources.

Investment of Time and Money. Building collaborations take a considerable investment of time as well as financial resources. The process of creating *Cohousing* communities takes a lot of effort and the consensus process can be quite challenging. Ability to listen, patience and the art of conversation are important ingredients for the success of a community.

The Consumption Challenge. The continuing need for consumption does not allow a lot of space for collaboration and in many instances restricts it. It is one of the challenges for which there has been no real coherent solution. Even *Cohousing* members struggle with this within their individual communities.

Politics. Sometimes politics at the city level could act as a barrier to ideas espoused by *Cohousing* as political considerations are often dictated by factors that are not in the interest of the city or community. This can sometimes pitch elected city officials in direct conflict with *Cohousing* communities.

Education, Awareness and Communication. It is a challenge to figure out ways and means to introduce the *Cohousing* concept and the idea behind it. It is necessary to raise awareness about it and communicate the intrinsic link to human well-being.

Change of Mindset. It is necessary to encourage a shift in mindset in the larger community to increase sustainable behaviour. *Cohousing* already incorporates aspects that encourage collaboration yet the members do not actively spread ideas related to these aspects beyond their community. In many cases, they question the need for the communities to have such wide perspectives.

Benefits and positive outcomes

Social Benefits. *Cohousing* offers a sense of community that enables collaboration, sharing, trust and general well-being at the micro level. The community structures are especially supportive of needs of the elderly and single parents by offering a nurturing environment for all. *Cohousing* members have fairly developed social sensitivities in terms of understanding and acceptance towards others, a rather neglected and underrated value in our society but highly important for human interaction. This form of interaction that places a higher value on social well-being also encourages lower consumption and accumulation of material belongings.

Economic and Environmental Benefits. Research demonstrates that residents of *Cohousing* communities consume less energy, own fewer cars and share far more than residents outside of these communities. This leads to fewer durable goods meaning less raw materials, fewer miles travelled to deliver those goods and less energy required for operating them. The average space used by a *Cohousing* member is smaller and occupies a smaller footprint relative to larger homes and developments. Many communities also use renewable energy, sustainable products and building materials. The initial high costs of *Cohousing* communities are compensated by lower maintenance and operational costs.

What Should Cohousing Communities Do to Move Strategically Towards Sustainable Lifestyles?

The following recommendations should help *Cohousing* communities to move strategically towards *sustainability* and spread the idea of *Collaborative Consumption*.

For this, an initial process of engagement with the larger community of stakeholders is important. During this engagement, a shared vision is built based on a common understanding and shared language. The next step is to *Backcast* from this shared vision and to define *Prioritisation Questions* that help select strategic actions.

Finally, a strategic action plan can be developed where the community and its stakeholders define the vision, the strategic guidelines and chosen actions and tools. This action plan can be validated through continuous evaluation and refining of goals, if necessary.

Glossary

Agenda 21: United Nation's action plan on human impacts on the environment for global, national and local organisations and institutions like governments and municipalities.

Backcasting: A planning approach where a vision of success in the future is build and then planners ask: "What do we need to do today to reach the vision?"

Backcasting from Principles: Method utilising a shared vision of success aligned with the four *Sustainability Principles,* to plan towards the future in a strategic step-by-step manner.

Biosphere: The surface, atmosphere, and hydrosphere of the earth, functioning as a system to provide conditions for life.

Collaborative Housing, Cohousing: Cohousing will be defined as housing comprising of individual apartments or homes with shared spaces and facilities designed to create a community, oriented towards collaboration among residents and collective organisation of services.

Collaborative Behaviour: A behaviour where people organise themselves to solve everyday issues and explore possibilities in new urban environments and in doing so invent and practice sustainable ways of living.

Collaborative Consumption: Collaborative Consumption describes old world behaviours, such as lending, exchange, swapping and bartering that are now able to operate at scale, across geographic boundaries enabled by technology.

Community: A network of social ties and meaningful relationships connected by geographical territory or common ties or goals which creates belonging, connection and shared responsibility (Piselli 2007; Milio 1996).

Complex System: A collection of many simple, nonlinear units that operate in parallel and interact locally with each other so as to produce emergent behaviour (Flake 1998).

Engagement: Participation, involvement and interaction of individuals in decision-making, activities and leadership.

Five Level Framework for Planning in Complex Systems (5LF): A conceptual framework that helps in analysing, decision-making and planning in complex systems. It consists of five distinct, interrelated levels: Systems, Success, Strategic, Actions and Tools.

Framework for Strategic Sustainable Development (FSSD): The application and adaptation of the *Five Level Framework* for planning in complex systems to a planning towards *sustainability* as the desired outcome.

Green Architecture: Design approach to minimize the impact on human health and the environment.

Hyper-consumption: Consumption level that is brought to an abnormally high level

Living Building Challenge: A green building certification program that defines an advanced measure of *sustainability* when designing and constructing buildings.

Prioritisation Questions: These questions help the planners to prioritise actions that lead strategically to the vision of success. They should ask at a minimum the three basic questions:

1. Does this action lead in the right direction when all parts of the vision are considered?

2. Can the action be a flexible platform for further development towards the vision?

3. Does the action provide a sufficient return on investment?

Social Capital: Trust, norms and networks which improves societal efficiency through enhancement of coordinated operations.

Society: The global social system and physical infrastructure that humans have created, in part to meet individual and collective needs.

Socio-ecological system: The system made up of the biosphere, society, and their complex interactions.

Strategic Sustainable Development (SSD): An approach for conceptualizing and planning for *sustainability* that is designed to deal with the complexity of the global. Comprised of the funnel metaphor, *Systems Thinking*, a definition of *sustainability* based on four *Sustainability Principles (SPs)*, *Backcasting*, and a five-level planning framework for *sustainability* called the *Framework for Strategic Sustainable Development* (FSSD).

Sustainability: A state in which society does not systematically undermine natural or social systems within the biosphere. Achieving sustainability would happen when the four *Sustainability Principles* are met.

Sustainability Challenge: Challenges caused by unsustainable development that have continued to systematically increase the degradation of the natural biosphere and the social systems. It also includes the challenge to solve unsustainable issues to reach a sustainable society.

Sustainability Principles (SPs): In a sustainable society, nature is not subject to systematically increasing...

1. ...concentrations of substances extracted from the Earth's crust;

2. ...concentrations of substances produced by society;

3. ...degradation by physical means;

and, in that society...

4. ... people are not subject to conditions that systematically undermine their capacity to meet their needs.

Sustainable Consumption and Production: The use of services and related products, which respond to basic needs and bring a better quality of life while minimizing the use of natural

resources and toxic materials as well as the emissions of waste and pollutants over the life cycle of the service or product so as not to jeopardize the needs of future generations.

Sustainable Development: "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Bruntland 1987).

Sustainable Lifestyles: A lifestyle that incorporates *sustainability* to help meeting basic human needs and providing a better quality of life for humans today and in the future while minimizing and reducing the human impacts on the Earth's resources and the society. A significant shift in behaviours and increased collaboration between individuals and communities are main drivers of *Sustainable Lifestyles.*

Sustainable Society: A society which could continue to develop within the limits of social and ecological *sustainability*.

Systems Approach: An approach to problem-solving that assumes that the individual problem is part of a much larger system. The intent is to solve the problem in a way that does not create further problems down the road. This approach is particularly important in complex systems where we do not always understand the inter-connection between parts.

Systems Thinking: Thinking in the context of the wider environmental and social system and the interconnectedness that exists.

List of Abbreviations

5LF	Five Level Framework
CA	Canada
e.g.	for example
etc.	et cetera
FSSD	Framework for Strategic Sustainable Development
GDP	Gross Domestic Product
KTH	Kungliga Tekniska Högskolan/ Royal Institute of Technology
n.d.	no date
SP	Sustainability Principles
SRQ	Sub-research question
SSD	Strategic Sustainable Development
TNS	The Natural Step
UK	United Kingdom
UN	United Nations
UNEP	United Nations Environment Programme
UNFPA	United Nations Population Fund
US	United States
WSSD	World Summit on Sustainable Development

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1. Introduction

1.1. Consumption and the Sustainability Challenge

The UN Global Compact's document on environment, climate and design for *sustainability* informs that one of the principal objectives for a society's transition to *sustainability* is reduction of current impacts as well as those that will affect future generations. Global pressures on the environment is directly linked to the size of population which defines the level of consumption and the amount of materials and energy inputs that go into feeding this consumption (UN Global Compact 2012).

Human society has and continues to explore wealth creation, efficiency and quality of life that began with the dawn of the industrial revolution and economists divided economic development into three stages, capital accumulation (characterised by society saving a large part of its income in order to invest in building capital goods) followed by the age of consumption (where society enjoys the fruits of its labour by consuming more and saving less) and lastly the third phase where with a surfeit of consumer goods would lead people to begin swapping. Unfortunately, much of the world has not yet reached the second phase, the age of consumption and to compound the problem, the ones that have, remain stuck there (Skidelsky and Skidelsky 2012).

We have designed and evolved a social and economic system that puts a high premium on consumption of products. Consumption, per se is not bad. It is when we continue to increase our supply of material goods and services at the expense of natural and *social capital* that consumption begins to threaten the *sustainability* of our planet and ultimately us.

This is creating enormous stress in our social, environmental and economic systems and across the world, citizens, businesses and governments have begun to take notice.

The Population Explosion

The world's population reached 7 billion people in 2011 and is expected to grow to 9 billion by 2050. To meet the basic needs of this growing population and fulfil the aspirations of a growing middle class for improved quality of life and higher standards of living we will be further increasing the strain on our already scarce resources. Our actions and choices as consumers have impacts on the environment as well as our personal well-being. This is why the topic of *Sustainable Consumption* is becoming a central focus for national and international policy (State of the World 2011).

The funnel as a metaphor (see Figure 1.1), can help visualise how consumption in the current form compounded by population growth puts economic, social and environmental pressures on society. As population grows and consumption patterns put a strain on the availability of resources, the ability of the ecosystem to provide them declines and society moves into the narrower part of the funnel. The funnel represents the limits society encounters if the current pattern is allowed to continue. The conditions are likely to become more stressful leading to competition for scarce resources, impacting the natural and social systems, limiting the ability to access essentials required for life. To prevent the narrowing of the funnel, society needs to devise ways of reducing impacts through various measures that will help restore the

capacity of the ecosystem while reducing the demands on it. One of those measures is rationalising or reversing current consumption patterns (Robèrt 2000).

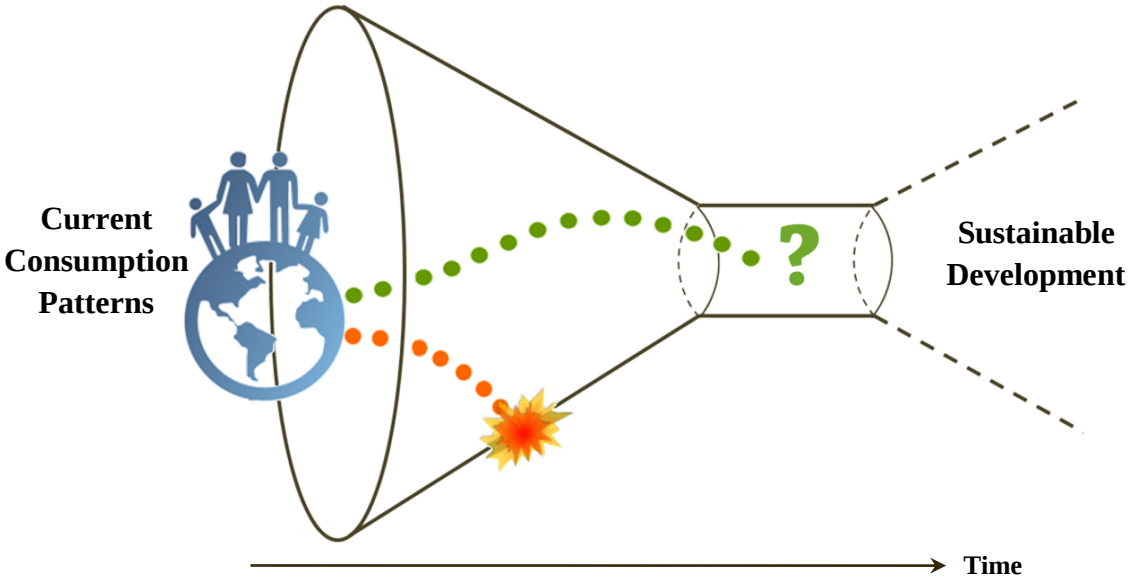

Figure 1.1. The Funnel Methaphor. (Adapted from Ny 2006)

The UN estimates that nearly all of the world's population growth will occur in cities and in this context, it is important to address the issue of consumption in cities while working towards *sustainability* globally (UNFPA 2007).

Future of Cities

Cities support some of the most complex systems of our societies and many have become sprawling, resource-intensive structures that are difficult to live in. All major cities today face issues relating to *sustainability* that constantly test their resilience and adaptation. Although world's cities only comprise 2 per cent of the Earth's land, they account for 60-80 per cent of energy consumption and are responsible for 75 per cent of carbon emissions. This trend is growing as more and more people are moving to cities. Every day 180,000 people join the global urban population, by 2030 it is estimated that 60 per cent of the world's population will live in urban areas (United Nations 2012).

It should be pointed out though, that a city is like an elephant that "is much more metabolically efficient than the mouse" (Lehrer 2013, 1). The British physicist, Geoffrey West noted that, "size was sub-linearly related to metabolic need. In other words, an elephant, which weighs 10,000 times more than a mouse, does not require 10,000 times a mouse's energy; it actually only needs 1,000 times as much" (Urwin 2013). The great opportunity a city has compared to a mouse is that it can enter a positive feedback loop: "A bigger population means more economic activity for each person, which encourages more people to move to the city, which results in more economic activity, and so on. Imagine an

elephant that never stops growing, and whose growth just encourages more growth. That's what a city is like" (Lehrer 2013, 2).

These cities can go on growing forever but at a certain point, every city runs out of resources and the positive feedback loop exhausts itself. In order to deal with this limitation, cities should innovate. "The only way to avoid stagnation from a shortage of resources, is to change something. You have to reset the clock, reset the initial parameters of growth" (Lehrer 2013, 2).

This is why the authors of this thesis believe that the focus on cities becomes vital as well as interesting as cities provide the highest potential for *Sustainable Development* due to its high efficiencies and innovative potential.

1.2. The Need for Alternatives

So how do we meet our basic needs, create opportunities for people to live better and healthier lives while staying within the carrying capacity of our planet? The issue of consumption is ultimately linked to values, behaviours and lifestyles and can be addressed when people understand the problems associated with unbridled consumption and develop the ability to see the consequences of their actions and evolve creative ways to address them and move towards *Sustainable Lifestyles.*

Sustainable Lifestyles

The way we live our lives define us as individuals. It enables us to connect with other individuals, direct how we interact with each other in the decisions and choices we make. Our lifestyle choices direct our consumption patterns that fulfil our needs and aspirations and it is these choices that have an impact on our environment, society and markets. Incorporating *sustainability* into our lifestyles has the potential to help us in meeting our basic needs and providing a better quality of life for ourselves and our future generations while minimizing and reducing the impacts we have on the Earth's resources and the society. A significant shift in behaviours and increased collaboration between individuals and communities will drive *Sustainable Lifestyles* (UNEP n.d.).

Tim Jackson, author of "Prosperity Without Growth" and member of UK's Sustainable Development Commission, points out that the issue of lifestyles have escaped any scrutiny at the policy level mainly because lifestyle choices are often "regarded as too subjective, too ideological, too value-ridden, or simply too intractable to be amenable to policy intervention" (UNEP n.d., 8). The Task Force on *Sustainable Lifestyles* was set up in 2005 by the Swedish Ministry of the Environment as part of the Marrakech Process with the express purpose of harnessing "the power of social movements including consumer demand, mass participation and global connection" (UNEP n.d., 8). The idea is to make evident a need for *Sustainable Lifestyles* in order to encourage policy makers to take notice and act accordingly.

Living Within Limits

The evolution of mindsets requires continuous dialogue between various stakeholders globally. The ball was set rolling at the United Nations Conference for Environment and Development at Rio de Janeiro in 1992 when the need for *Sustainable Consumption* was communicated formally. The *Agenda 21*, developed at the Rio Earth Summit listed the following objectives:

- To promote patterns of consumption and production that reduce environmental stress and will meet the basic needs of humanity.

- To develop a better understanding of the role of consumption and how to bring about more *Sustainable Consumption* patterns

(UN Conference on Environment & Development 1992).

The most widely accepted definition of *Sustainable Consumption* and *Production* as articulated by the Norwegian Ministry of Environment at the Oslo Symposium on Sustainable Consumption, 1994 is: "The use of services and related products, which respond to basic needs and bring a better quality of life while minimizing the use of natural resources and toxic materials as well as the emissions of waste and pollutants over the life cycle of the service or product so as not to jeopardize the needs of future generations" (UNEP 2011).

International cooperation is beneficial for this sort of transitions and at the World Summit on Sustainable Development in 2002, governments around the world called for action to, "encourage and promote the development of a 10-year framework of programmes in support of regional and national initiatives to accelerate the shift towards sustainable consumption and production" (WSSD n.d.).

This was followed by the Marrakech Process which provided a unique platform for multi-stakeholder engagement for the implementation of the *Sustainable Consumption* and *Production* plan (UNEP 2003).

While these initiatives continue at the global policy level, there are several innovative *Sustainable Consumption* patterns that are evolving across the world and one of the emerging trends is *Collaborative Consumption.*

Rise of Collaborative Consumption

Collaborative consumption could be one of the most innovative and interesting solutions for cities aiming to address unsustainable consumption. It deals with current and future problems by using historical economic models based on bartering, sharing, trading and renting in combination with the latest technology to spread a more *Sustainable Consumption* approach and acts as an enabler for handling today's societal and ecological challenges.

"Collaborative consumption describes old world behaviours, such as lending, exchange, swapping and bartering that are now able to operate at scale, across geographic boundaries enabled by technology" (Nesta n.d.).

In addition to this, *Collaborative Consumption* has the potential to address issues that are common to many cities today. Cities can improve the relationships between citizens and counter alienation, mistrust, inequality and incidence of crime through various integration approaches. *Collaborative Consumption* strikes at the heart of the current model of economic growth that encourages *hyper-consumption* and contributes greatly to the problems modern cities face (Botsman and Rogers 2010).

Measuring the rate of growth of *Collaborative Consumption* is challenging as it consists mainly of disaggregation of "existing physical assets and repurposing them as services". This means there is very little or no capital expenditure and as a consequence the growth numbers do not show up in the Gross Domestic Product (GDP) measurements. In terms of GDP, the impacts related *to Collaborative Consumption* are not captured thus creating a measurement challenge (Sundararajan, 2012).

It is assumed that *Collaborative Consumption* is becoming a viable and acceptable form of consumption across the world. In this context, it would be both interesting and informative to explore how cities could adopt this form of consumption in their quest for *sustainability* (Botsman and Rogers 2010).

By focusing on *Collaborative Consumption*, different aspects that lead to *sustainability* are addressed. By sharing and exchanging goods and services we can reduce the current consumption level in the society and also bring about a societal transformational change towards *sustainability*. *Collaborative Consumption* is part of a paradigm shift, about "shifting from ownership of many low quality cheap and short-lived products to shared access to high quality goods or services" (Spread Sustainable Lifestyles 2050 2012). We could reduce the amount of products in the market and at the same time satisfy consumer needs. This in turn would reduce the *sustainability* impact on the ecological system and could have the potential to increase social *sustainability*.

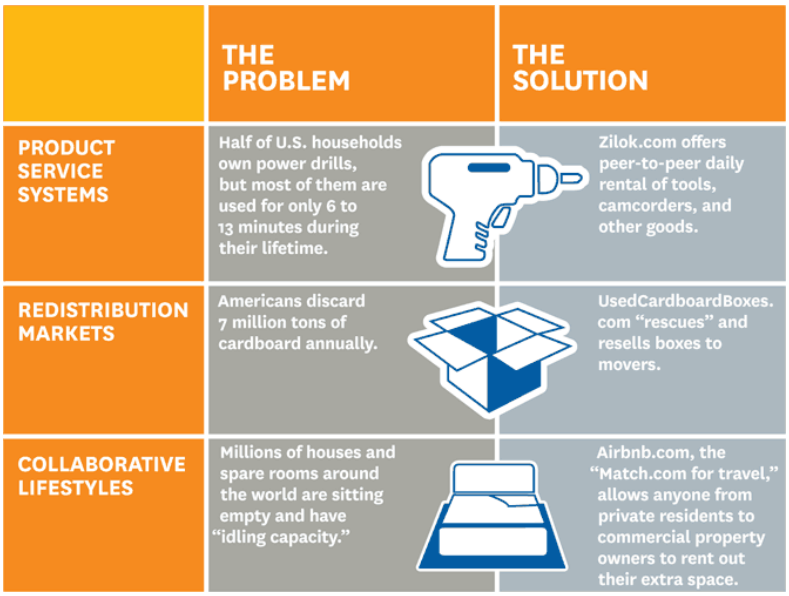

Figure 1.2. Three Types of Collaborative Consumption Systems. (Botsman and Rogers 2010)

Further, *Collaborative Consumption* is based on trust among members of the sharing community which is lacking in today's society. *Collaborative Consumption* has the potential to give access to members of the society that used to be excluded from the consumption society due to significant societal inequalities. (Botsman 2012).

The different sharing platforms and ideas that are currently evolving have some characteristics in common, they "improve quality of life, reduce costs, are kinder to the environment, and build community" (Wolcott 2012).

Of course, cities alone cannot alter conventional consumption patterns and drive initiatives that could mitigate the problems arising due to *hyper-consumption*. However, if a city is able to develop a model for *Collaborative Consumption* in consonance with the various stakeholders, it could act as a model that could inspire other cities, regions and governments across countries to take action.

Encouraging Collaborative Behaviour

Sociologist Anthony Gidden's "Theory of Structuration" puts forward the idea that how individuals act in society is guided by social structure and social structures are formed by the repetition of the acts by individuals. This means that there is a social structure - traditions, institutions, moral codes and established mores of doing things, nevertheless, these could change when individuals begin to replace, reinvent or ignore them (Turner 1986).

This is an important as well as interesting theory to consider when looking at *Sustainable Consumption* trends and how *Collaborative Behaviour* is slowly becoming an acceptable norm. One of the most visible manifestations of this kind of *Collaborative Behaviour* can be witnessed in *Collaborative Housing* communities. While faster communications technologies are accelerating the rate of *Collaborative Consumption* across diverse geographical locations, the deeper and longer lasting impacts that have the potential to change behaviours will emerge from those communities where individuals are in close physical proximity with each other; after all, incidences of sharing services and products are an extension of our communities and require a belief and trust in the commons (Vestbro 2012).

Collaborative Housing as a Form of Collaborative Consumption

Collaborative Housing, or *Cohousing*, could be a possible response to *sustainability* issues in cities, where such initiatives can help connect members and encourage collaboration within communities (McCamant and Durrett 2011). *Cohousing* communities are based on the idea of balancing common owned properties and privately owned properties of the different members. Usually, *Cohousing* communities are designed, managed, maintained and governed by the community members (Coho/US n.d.). The planning and design elements of *Cohousing* communities incorporate and encourage a strong sense of community. Due to its design *Cohousing* could be an optimal platform for collaboration, sharing and participation.

The concept of *Cohousing* was first introduced in the 1960s in Denmark and since then it has spread all over the world. The concept is becoming increasingly popular in developed countries and has largely been able to shed the "hippie" tag with which it has been associated with in the past. Today *Cohousing* communities can be found all over the U.S., Canada,

Australia, Sweden, New Zealand, the Netherlands, Germany, France, Belgium and Austria (Coho/US n.d.).

There are different forms of *Cohousing* but the most common legal structure of *Cohousing* communities is a condominium[1]. Condominiums are understood as an ownership form where "each resident owns a house and a portion of the common areas" (McCamant and Durrett 2011, 20) and every resident pays a fee to the community according to the size of the private house.

The concept of *Cohousing* is for people who would like to get together and form a community that encourages a high level of social interaction. "Individuals enter into the project with a very strong intention or ideology, in many cases around improving their social relationships. People living in Cohousing are generally pretty mainstream people and most of them are people who recognise that their social relationships in the mainstream, in conventional urban and suburban settings, are not very satisfactory and they seek to develop a lifestyle with others that brings a great deal more social satisfaction than they would normally find in the mainstream" (Meltzer 2013).

The intention is to focus on *Cohousing*, as exploratory interviews and literature reviews indicated that there remains a high potential in *Cohousing* communities to address the *Sustainability Challenge* of consumption which was introduced earlier. This idea will be explored from the perspective of the physical interaction and proximity as well as the existing trust that these communities naturally seem to foster and advocate. These *Cohousing* communities create an interesting field to explore the subject of *Collaborative Consumption.*

1.3. Strategic Sustainable Development

As the introduction to the *Sustainability Challenge* outlined, the city and the communities within it is a highly complex system. To be able to see *Cohousing* from a complete *sustainability* perspective a whole *systems approach* is needed as *Cohousing* communities are subsystems of the city and by that association they are interconnected with the city system.

Therefore, to find solutions in order to stay within the carrying capacity of our planet, a strategic approach to successfully move towards *sustainability* is needed. *Strategic Sustainable Development* (*SSD*) is one such concept that addresses both, complex *Systems Thinking* as well as the *Sustainability Challenge* within the *socio-ecological system*. Moreover, *Strategic Sustainable Development* clearly articulates a definition of *sustainability* that is based on *Sustainability Principles* that have been defined in order to reach a common understanding of *sustainability* (Robèrt et al. 1997; Broman et al. 2000).

The approach that can be used in this process is a generic *Five Level Framework* which is used to structure information for planning in a complex system. When the approach is used to plan towards *Strategic Sustainable Development* it is referred to as the *Framework for Strategic Sustainable Development* (*FSSD*). The five levels are the *Systems Level*, the

[1] This was also represented in the survey results. Please see *Appendix B. Cohousing Communities Survey - Results.*

Success Level, the *Strategic Level*, the *Actions Level* and finally the *Tools Level*. Yet, it needs to be understood that all levels are interconnected and need to be addressed simultaneously, otherwise strategic planning cannot be successfully reached (Waldron et al. 2008).

1.4. Purpose of the Thesis

Collaborative Consumption, as introduced before, could help society to move towards *Sustainable Development*. For the purpose of this thesis, the authors have tried to explore the idea of *Collaborative Consumption* within the context of *Cohousing* in cities, through the opportunities that such communities offer for *Collaborative Behaviour*.

The intention is to identify key barriers and enablers for moving towards *Sustainable Lifestyles* and study the role of *Cohousing* as a catalyst for *Collaborative Behaviour* that triggers *Collaborative Consumption* leading urban communities towards *Sustainable Lifestyles* and ultimately towards *Sustainable Development.*

It is the endeavour of the authors of this thesis to analyse how the intrinsic benefits of *Cohousing* combined with the *SSD* approach, outlined in the introduction, enable communities to move strategically towards *sustainability*.

1.5. Scope of the Study

For the purpose of this thesis, *Cohousing* will be defined as housing comprising of individual apartments or homes with shared spaces and facilities designed to create a community, oriented towards collaboration among residents and collective organisation of services. This scope has been distilled from the article "The History of Co-Housing Ideas and Realities" (Vestbro and Horelli 2012).

The scope of this study includes engaging with *Cohousing* communities in cities and experts in the developed world; Northern Europe and North America, more specifically Sweden, Denmark, Canada and the United States. Denmark was a natural choice as the *Cohousing* movement began here and has distinct bottoms up approach, that is, communities get together and build for themselves. Sweden was chosen because the *Cohousing* ideas differ slightly from its neighbour. Swedish *Cohousing* projects are mainly built by municipal housing companies, they are public rental and residents mostly do not have to have access to bank loans for access to *Cohousing*. *Cohousing* in Canada and the United States are largely privately owned and are witnessing a growing interest in the concept. These four countries offered an opportunity to study *Cohousing* in different legal, cultural and socio-economic contexts.

The scope of this study excludes looking at Consumer Behaviours[2] explicitly as well as architectural and design issues specifically.

Urban areas were chosen as a focus because of the global trend towards urbanization and since, as mentioned in the Introduction, cities represent both a challenge and an opportunity for *sustainability*. This provides an interesting analysis given that the Scandinavian countries have some of the best social systems and welfare and capitalism are balanced, whereas in contrast, North American countries represent some of the most consumerist societies (Economist 2013).

The target audience for this research includes *Cohousing* communities, with special attention to local communities and city neighbourhoods willing to take the lead towards *Sustainable Development.* This research may also be of interest to city planners, municipalities and regional governments that are interested in moving towards *sustainability* and are looking for strategic approaches in building city communities.

1.6. Research Questions

The purpose of this thesis leads the authors to their main research question:

What should *Cohousing* communities do to move strategically towards *Sustainable Lifestyles*?

In order to answer the main research question the following secondary research questions need to be answered first:

SRQ1. What are the gaps in current *Cohousing* models from a *Strategic Sustainable Development* perspective?

SRQ2. What are the patterns of *Collaborative Behaviour* for moving strategically towards *Sustainable Consumption* and *Lifestyles*?

[2] "The study of individuals, groups, or organizations and the processes they use to select, secure, use, and dispose of products, services, experiences, or ideas to satisfy needs and the impacts that these processes have on the consumer and society." (Perner n.d.)

2. Methodology

2.1. The Research Design

In order to structure the research, this study used the Interactive Model for qualitative research developed by Joseph Maxwell (Maxwell 2005). This is a systemic approach composed of five interconnected areas; goals, conceptual framework, research questions, methods, and validity; that are organized in an interacting structure (Figure 2.1). In this process, each of the components are revisited and reviewed throughout the whole research process as the depth of knowledge and understanding of the subject increases. Every component of the design model is linked to the others and together they form "an integrated and interacting whole" (Maxwell 2005, 4).

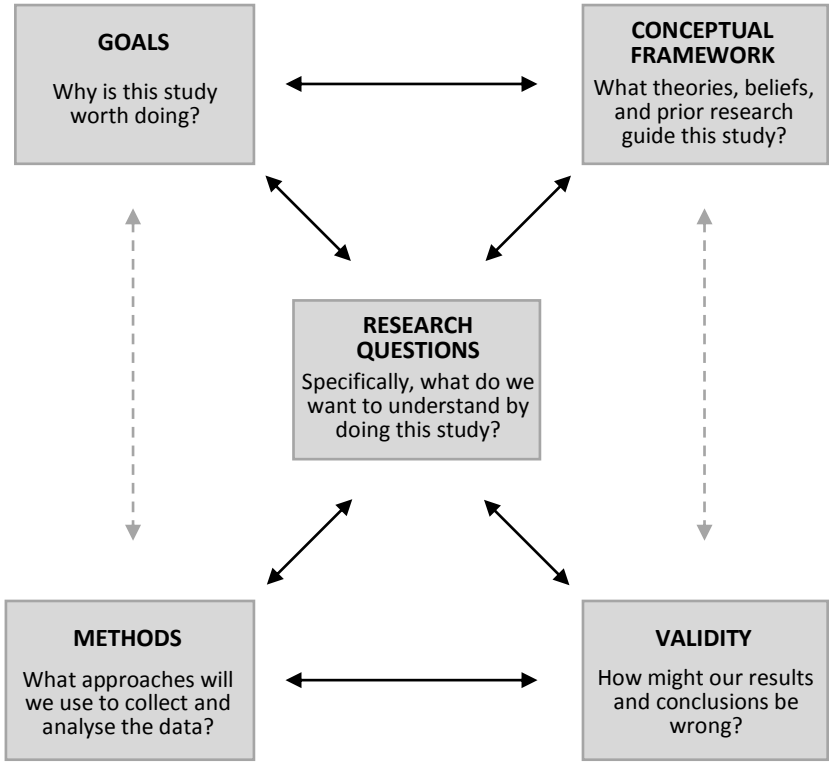

Figure 2.1. Maxwell's Interactive Model for Research Design. (Maxwell 2005)

Conceptual Frameworks

The *Five Level Framework* (*5LF*) and the *Framework for Strategic Sustainable Development* (*FSSD*) were the conceptual frameworks being used to guide and inform the research.

Table 2.1. Generic Five Level Framework and Framework for Strategic Sustainable Development (Adapted from Waldron et al. 2008)

Level	**Generic Five Level Framework *(5LF)***	**Framework for Strategic Sustainable Development *(FSSD)***
System	System relevant to the concept	Society within the biosphere
Success	Vision, goals within the concept	Vision of success in line with *Sustainability Principles*
Strategic	Guidelines to select actions to reach success	*Backcasting from Principles*, *Prioritisation Questions* to select actions to reach success
Actions	Actions selected by guidelines to reach success	Actions selected by strategic guidelines to reach vision of success
Tools	Tools in alignment with actions	Tools in alignment with actions

On the *Systems Level* the *FSSD* identifies the system in which society (comprised of humans) exists within the biosphere. The *FSSD* enables a whole *Systems Thinking* approach and helps focus on not just the challenge at hand but identify the system it is a part of. The *Systems Thinking* approach helps to demystify and clarify the complex relationships between different subsystems within the bigger system and identify the S*ustainability Challenge* the system and its subsystems are facing (Waldron et al. 2008).

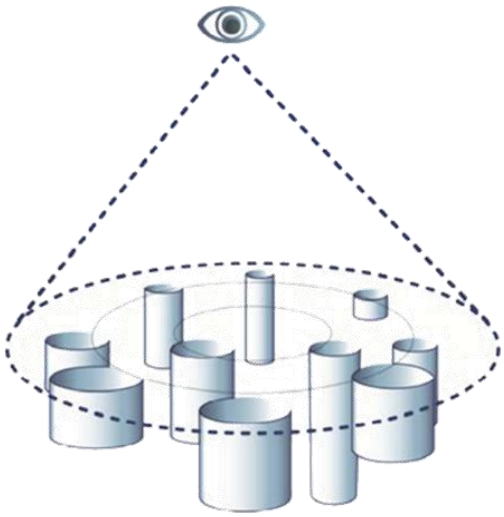

Figure 2.2. Full systems perspective. (Adapted from Ny 2006)

The *Systems Level* is followed by the *Success Level* which mainly includes the identification of success patterns in alignment with the *Sustainability Principles*, which are defined as followed:

In a sustainable society, nature is not subject to systematically increasing:

… concentrations of substances extracted from the Earth's crust

… concentrations of substances produced by society

… degradation by physical means;

and, in society…

… people are not subject to conditions that systematically undermine their capacity to meet their needs.

(Holmberg and Robèrt 2000; Ny et al. 2006).

The first three *Sustainability Principles (SPs)* address environmental *sustainability* and the fourth principle addresses social *sustainability*. The four *Sustainability Principles* are the systems boundaries of the *Success Level*. However, they need to be seen as basic conditions to move towards *Sustainable Development* and they are all equally important to address (Waldron et al. 2008).

On the *Strategic Level* the main objective is to find a strategic way of reaching success defined in the earlier stage of the *FSSD* and this is best achieved through the use of the concept of *Backcasting*. *Backcasting from Principles* helps to move strategically towards *sustainability* within a complex system (Holmberg and Robèrt 2000). This entails envisioning and articulating how the desired future would look like.

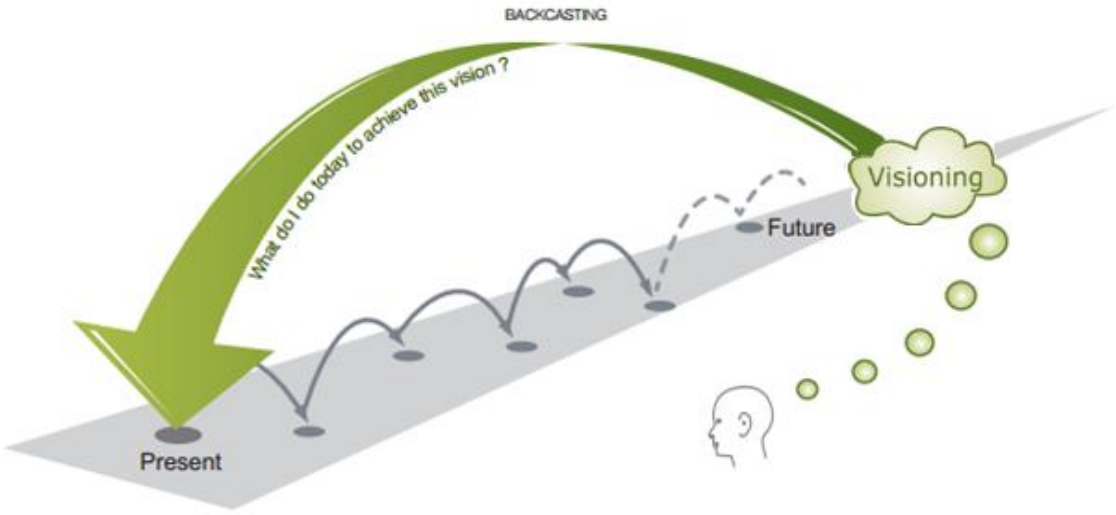

Figure 2.3. Backcasting approach. (TNS 2009, 11)

The three *Prioritization Questions* assist in identifying actions that lead towards the vision of success. Each action taken into consideration needs to be flexible enough to adapt to future needs and realities, ensure that it leads to the right direction by being in alignment with the *Sustainability Principles* and finally, ascertain a sufficient (financial, social, ecological) return on investment (Holmberg and Robèrt 2000).

The next step of the *FSSD* is the *Actions Level* in which possible actions that help to move towards success are identified and are validated by the *Backcasting* approach and the *Prioritization Questions* defined in the *Strategic Level*.

Finally, the *Tools Level* identifies tools that are needed to implement the actions, these can be indicators or other tools that help attain success (Robèrt et al. 2002).

Application of the 5LF and the FSSD

The Five Level Framework (5LF)

The five levels of this framework (Systems, Success, Strategic, Actions, Tools) were used to structure all the data collected. Despite the complexity of *Cohousing*, the *5LF* helped organise all the information providing an understandable and clear picture of the current models of *Cohousing.* The *5LF* also lent an understanding of the interrelationships between the *Systems*, *Success* and *Strategic* levels with regard to *Cohousing* thus helping to build a foundation for identifying appropriate tools and actions. In addition, it helped build a shared mental model of *Cohousing*, which provided the clarity needed to summarise the results in a final model that was used to offer a simplified overview of the concept of *Cohousing*. The model was later compared with a best case scenario of *Cohousing* informed by the *FSSD.*

Framework for Strategic Sustainable Development (FSSD)

All the information collected was analysed through the lens of the *FSSD*. The *FSSD*'s five levels were used to create a best case of *Cohousing* where concepts such as *Systems Thinking*, *Sustainability Principles* and *Backcasting from Principles* were essential. The best case of *Cohousing* ensured that the residents, the community and the society at large are moving towards *Sustainable Development*.

Finally, the *5LF* analysis was compared to the best case of *Cohousing* in order to identify the potential gaps and challenges of the current models of *Cohousing*. This helped define the guidelines and new strategies that *Cohousing* communities should follow if they want to move towards *Sustainable Lifestyles*.

2.2. Research Phases

A four-phase research design was created in order to answer the research questions.

Phase I: Exploratory Phase

The literature review and the exploratory interviews in Phase I provided the foundation for analysing and developing the research questions. The data for the introduction were structured and organised in order to create a simple overview of the current *Sustainability Challenge*, alternative ways of consumption and finally introduce the topic of *Cohousing.*

Peer reviewed papers, books and internet research helped the authors to understand the concept of *Cohousing* and current consumption patterns as well as the *Sustainability Challenge* associated with them. Key concepts studied were: Sustainable Development, Sustainability Challenges, Consumption and Sustainable Consumption, Collaborative Consumption, Co-living, Cohousing.

Further, exploratory interviews were conducted with different experts in the field:

Members working on the Downtown Project Las Vegas in the United States were interviewed as they are actively working towards revitalising neglected urban neighbourhoods by creating vibrant city communities through citizen participation.

Additionally, the authors talked to a senior executive from a global retail business to understand the role of retailers in the context of consumption and consumer behaviour and possibilities for *Sustainable Consumption*.

An interview with the Swedish Housing Board (Boverket) was conducted to understand the sustainable housing development in Sweden and especially the development of *Cohousing* communities and the role of a national association in this context. The same discussion took place with the *Cohousing* Association of the US.

Finally, the authors started to develop questionnaires for expert interviews and a survey for *Cohousing* communities.

Phase II: Collecting Detailed Information to Build a 5LF and a FSSD Model of Cohousing

The next step was to formulate an analysis of *Cohousing* using a generic conceptual *Five Level Framework* (*5LF*). This helped organise the collective knowledge about *Cohousing* and develop an overview of the topic. This also helped better inform the questionnaires that were developed for expert interviews and surveys for *Cohousing* communities.

This was followed by an analysis of the *Cohousing* concept through the lens of the *FSSD* to identify key features that are required for a *Cohousing* community to be sustainable. The *FSSD* helped to create a best case scenario for every level using the knowledge of *SSD* and additional information culled from the document content analysis and expert interviews on different kinds of *Cohousing* settlements in cities.

To deepen the knowledge, an extensive document content analysis was done to understand the different aspects of *Cohousing* like Co-living, Cohousing communities, Cohousing Movement, Sustainability and Cohousing, Building and Designing Cohousing, Decision Making Process in Cohousing, Patterns of Cohousing and City Neighbourhoods. The *Framework for Strategic Sustainable Development* and the *Five Level Framework* were also studied in greater detail.

Expert interviews[i] were conducted to supplement the understanding of the *Cohousing* concept. For a list of interviewed experts please see *Table 2.2. List of Experts and Area of Expertise.*

Further, *Cohousing* communities in cities or city suburbs in Canada, the US, Sweden and Denmark were also interviewed or alternately requested to fill in surveys[3][4] to help identify typical patterns of *Cohousing*. For a list of current and future *Cohousing* communities that were interviewed, answered the survey or were visited by the authors, please see *Table 2.3. List of Cohousing communities, location and engagement.*

[3] For the survey for future Cohousing communities please see *Appendix C. Future Cohousing Communities Survey.*
[4] For the survey for current Cohousing communities please see *Appendix A. Cohousing Communities Survey.*

Table 2.2. List of Experts and Area of Expertise

Expert	Place of Work, Expertise, other information
Charles Durrett	McCamant & Durrett Architects, architect, brought Cohousing movement from Denmark to the US in 1980s, lives in Cohousing
Dick Urban Vestbro	Co-founder of Kollektivhus, architect, former professor at KTH university, urban planning, housing and urban life, lives in Cohousing
Grace Kim	Schemata Workshop, architect, Cohousing expert, lives in Cohousing
Graham Meltzer	Findhorn Foundation, Cohousing, Ecovillages and Sustainable Living
Hans Thor Andersen	Byggeforskningsinstitut (Danish Building Research Institute), Cohousing
Hildur Jackson	Gaia Trust, expert of Cohousing and Eco-villages, founded and lived in a Cohousing and an Ecovillage
Lena Dübeck	Boverket, Urban planning, Sustainable Cities, Transportation, lives in Cohousing
Marylee Stephenson	M.A., Ph.D. in Sociology, CS/RESORS Consulting Ltd., lives in Cohousing
Xavier Fisher	Cohabitat Montreal, planning Cohousing community in Montreal, CA

Table 2.3. List of Cohousing communities, location and type of engagement

Cohousing community	Country	Engagement
Bofællesskabet Kæphøj	Denmark	interview, field trip
Majbacken	Sweden	interview, field trip
Quayside Village Cohousing	Canada	Interview
WindSong	Canada	Interview
Capitol Hill Urban Cohousing	United States	interview, survey
Kollektivhusföreningen Färdknäppen	Sweden	Survey
Kollen	Denmark	Survey
Peninsula Park Commons	United States	Survey
Prairie Sky Cohousing	Canada	Survey
Terra Firma Cohousing	Canada	Survey

Phase III: Gap Analysis and Discussion of Challenges and Barriers, Benefits and Positive outcomes

In the previous phase, the *5LF* was used to capture the current concept of *Cohousing* and a best case scenario of *Cohousing* informed by the *FSSD* was developed.

In this phase, the two models were compared in order to identify gaps and missing elements of the current concept. This helped to answer the first sub-research question - What are the gaps in current *Cohousing* models from a *Strategic Sustainable Development* perspective?

This process was also supported by knowledge gained from the document content analysis, interviews and surveys as well as a field trip. The field trip was undertaken to observe and study *Cohousing* communities in Denmark and Sweden in their living environments. This made it possible to witness firsthand the experience of community life and to understand the inherent cultural differences of the two countries. The fact that the Danish *Cohousing* in Roskilde represented a family *Cohousing* and the Swedish one in Gothenburg was an elderly *Cohousing* added to the diversity. During the field trip Dr. Hans Thor Andersen from the Danish Building Research Institute in Copenhagen was interviewed as well.

This was followed by a discussion of the challenges and barriers, benefits and positive outcomes in order to explore how *Cohousing* communities could supplement their activities to become more sustainable and how *Strategic Sustainable Development* could inform this process. This answers the second sub-research question - What are the patterns of *Collaborative Behaviour* for moving strategically towards *Sustainable Consumption* and *Lifestyles*?

Phase IV: Recommendations to Help Cohousing Communities Move Towards Sustainability

In Phase IV the knowledge gleaned from the previous phases was used to frame recommendations that could help *Cohousing* communities incorporate a wider planning perspective. This would include understanding the entire urban system that they are a part of and ultimately inform their move towards *sustainability*. These recommendations could encourage *Cohousing* communities to engage on a more practical level to move strategically towards *Sustainable Lifestyles* and also help the authors answer the main research question - What should *Cohousing* communities do to move strategically towards *Sustainable Lifestyles*?

To validate the results, discussion and conclusion, experts as well as people with no contact or knowledge of *Cohousing*, were asked for feedback. This helped refine the discussion and conclusion further.

2.3. Validation and Biases

It is important to point out that *Cohousing* as a concept is compelling as it is unique in the way it addresses and fulfils basic social needs and desires without appearing to encroach on individual space. These and other qualities of *Cohousing* could easily influence any researcher to develop a positive bias. Therefore, it was important to develop a robust validation process prevent any biases.

The authors of this thesis used data triangulation for basic research. The use of multiple data sources helped understand the various topics connected with the research, for example, *Sustainable Consumption*, *Collaborative Consumption* and *Cohousing*.

During the research process, there was a concerted effort to question the assumptions, results and discussions. The authors reviewed and discussed each other's work at every stage. Throughout the entire process each team member took notes and recorded individual reflections and analysis on the information accessed, in a common database.

All team members had access to each other's thoughts and approaches and understood how each person interpreted the topic. This had a three-pronged benefit, it added additional perspective, acted as a validation of approaches and thoughts and limited individual biases. The authors used this document to develop questionnaires for the survey but also for interviews with different experts. The questions used were clustered in groups that corresponded to the conceptual framework, as described earlier, and which also helped in the coding process. Additionally, the survey responses, interviews and the document content analysis informed the validation process to a large extent. The authors used low-inference descriptors like quotes from experts and passages from books to validate some of the data and facts included in the research.

The *FSSD* helped prevent bias while building the best case scenario. Further, this approach ensures that the predilection for specific actions and tools disappear as they are chosen on the basis of strategic guidelines, thus preventing bias.

The survey responses and interviews were collected by the team and analysed and interpreted individually by each team member. Later, common aspects were discussed to understand how they could be relevant to the research. It was agreed that each member would write down her own interpretation of the interviews and surveys so that individual ideas are captured and incorporated in the final analysis.

In the quest for transparency and informed interpretation, all interviews, except the *Cohousing* community in Gothenburg, Majbacken, were recorded with prior permission of the interviewees and transcribed. Further, main aspects from the interviews were distilled to categorise the different themes of the *Cohousing* concept that also informed the research questions.

The authors did not have the opportunity to test the efficacy of the recommendations offered though they were shared with experts, *Cohousing* community members and individuals, who have no connections to either *Cohousing* or the *FSSD*, for feedback and in order to maintain triangulation of opinions.

In addition, the results and the discussions were also shared with *Cohousing* residents as well as experts and individuals, who are not in any manner connected to *Cohousing*, to gather unbiased feedback. This was done to check for researcher biases.

Finally, the fact that the authors represent different nationalities (Indian, Spanish and German) with diverse experiences and educational backgrounds, ranging from architecture, economics, politics, literature to sustainability, complemented the search for biases and also acted as an alert mechanism whenever they threatened to sidle in during the process.

3. Results: Cohousing Concepts Analysed Through the Lens of the 5LF and FSSD

This section includes an analysis wherein gaps between the concept of *Cohousing* using the *Five Level Framework (5LF)* and the best case scenario of the aforementioned concept using the *FSSD* are specified. This was done principally to understand the critical aspects of *Cohousing* and also help inform as well as provide a foundation for the process the authors followed to frame the discussions and the guidelines in the following sections.

3.1. Five Level Framework Analysis of Cohousing

The concept of *Cohousing* is described within the five levels of this framework: Systems, Success, Strategic, Actions and Tools.

Systems Level

What is Cohousing?

Cohousing is a type of intentional[5] neighbourhood or housing development consisting of both private and common spaces, where there is a strong focus on community. The members operate and develop the community through consensus and are part of the design creation. These communities usually consist of between 7-67 residences on average (Kim 2013; Coho/US n.d.).

They are designed to provide a balance between personal privacy and living with like-minded people who know and care about each other (Belk 2006).

Cohousing communities are urban and suburban developments whereas Ecovillages are mostly built in rural areas (Jackson 2013).

Although *Cohousing* communities "vary in size, location, type of ownership, design, and priorities" (Connexus *Cohousing* Collaborative n.d.), in general, most *Cohousing* communities can be defined by the following characteristics (McCamant and Durrett 2011):

1. Participatory Process: The community is planned and designed by the residents from the beginning, ensuring that the community meets their needs, both individual and collective.

2. Integrated Neighbourhood Design: The physical design fosters a sense of community. *Cohousing* communities can be organised according to the following: "(a) the pedestrian "street", (b) the courtyard, (c) a hybrid of the "street" and courtyard types, and (d) the single

[5] In order to create a community there needs to be an intention to come together. In that sense a *Cohousing* community is an intentional community that comes together with the intention of sharing and collaborating while living in separate private houses (Kim 2013).

building with an internal atrium which functions as a "street" covered by a glazed roof" (Meltzer 2005).

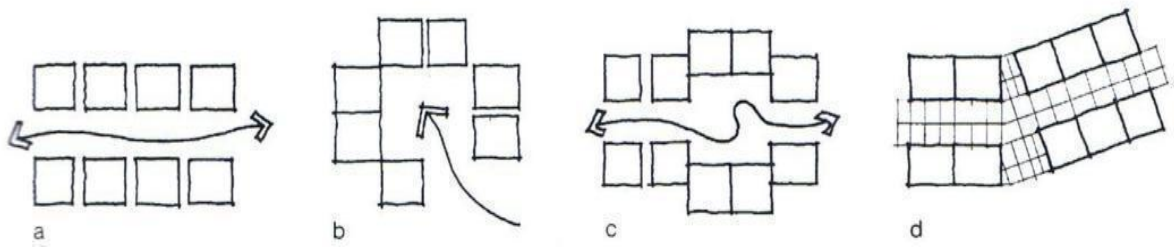

Table 3.1. Different types of site plans. (McCamant and Durrett 2011, 255)

This includes a more efficient design and use of space which is why *Cohousing* is also a solution for urban environments (also Durrett 2013; Blomberg 2013, Meltzer 2013).

3. Private Homes Supplemented by Extensive Common Facilities: Each household owns a private residence and in addition shares common facilities within the community of which the common house is the most important one. These common facilities constitute an important aspect of community life both for social and practical reasons.

4. Management: Residents take responsibility for day-to-day management of their communities and participate in the preparation of common meals, regular meetings and frame policies for the communities. Members are usually in charge of housing maintenance except in some cases where the housing stock is owned by the housing companies, as is the case in Sweden (Vestbro 2012).

5. Non-Hierarchical Structure and Decision-Making: Most *Cohousing* groups make all of their decisions by consensus and the community's adults share the responsibility. In many cases a core team takes decisions on the behalf of the community through a consensus building process. Conflict resolution and a community declaration are frequently used to set standards that have to be followed by all community members (Durrett 2013; Blomberg 2013).

6. Community Does Not Share an Economy: There is no shared community economy or residents that receive their primary income from the community.

What is generally true of Cohousing?

Cohousing could be described as communities where people come together to improve social well-being. People living in *Cohousing* communities usually pay their taxes, the children show positive behaviour in school, have good grades, are healthy, helpful and display a good understanding of group behaviour (Jackson 2013).

It is not an intentional community where religion plays an important part and it is not a commune as there is no communal living, people live in individual apartments (Vestbro 2012). Also *Cohousing* communities are "not based on ideology, political or religious, other

than the commitment to a more practical, inclusive, and social neighbourhoods" (Takoma Village n.d.).

They are not gated communities in the sense that they are not cut off completely from their surrounding communities. There is a certain degree of permeability but they are not completely integrated with the communities outside or the larger city system either (Meltzer 2013).

Interviews, surveys and the document content analysis indicated that most *Cohousing* communities are largely homogeneous when it comes to income, race, age and education. Some *Cohousing* communities try and accommodate low income families and individuals to some extent by offering affordable housing options, while some have policies for intergenerational representation within the community (Meltzer 2005; Butler 2013; Stephenson 2013).

The concept of *Cohousing* is primarily based on social relationships and incorporates an adequate sense of environmental awareness. The social and environmental focus automatically brings about savings that are economical in nature (Butler 2013; Blomberg 2013; Meltzer 2013).

Cohousing is a way of reducing consumption by using less space. Smaller dwelling units mean less things and more common areas leading to collective ownership, more sharing and less material consumption. As social interactions and environmental concerns gain importance in *Cohousing* communities material consumption declines (Meltzer 2010). Charles Durrett (2013) pointed out that "many people move from 20 acres to 100 acres to all 34 households in 3.5 acres" and currently many projects in the US are planned on 1 hectare or 1.2 hectare. Dick Urban Vestbro (2013) validated this by emphasizing that "most Cohouses in Sweden have reduced the size of the apartment by about 10%".

"We have a free table here where people put everything on, clothing, appliances, furniture… that's very popular. One of my neighbours is very proud because of the fact that most of the clothing she gets is from the free table" - Maureen Butler (2013)

Although environmentally-conscious green design and building are not defining characteristics of *Cohousing* communities, *Cohousing* assumes to be a solution for reducing environmental impacts, relating to energy, water and waste issues and reducing cost of living. This also increases the social benefits for individuals in a community (Belk 2006; Vestbro 2012; Meltzer 2010).

As *Cohousing* communities are principally urban and operate on a fairly small scale they are generally not able to incorporate large scale sustainable technologies like windmills or biomass-fuelled district heating (Meltzer 2010).

The social, economic and environmental ideas, goals and benefits are largely restricted within individual communities. The responses from surveys, the interviews and the document content analysis indicated that most *Cohousing* communities are self-contained as far as *sustainability* within their community is concerned. The authors could not find any indication that these communities take into consideration the larger system they are a part of when making important decisions.

But it should be pointed out that in some cases *Cohousing* communities schedule open houses and other public events to engage with the larger community and in select cases public events relating to environmental and political issues are also organised (Vestbro 2013, Blomberg 2013, Butler 2013).

"In some ways *Cohousing* is putting a village in a village within a country" (Durrett 2013). It is therefore also assumed by experts in the field that given the social, environmental and economic benefits, *Cohousing* is a more sustainable dwelling model and should be attractive to governments trying to achieve *sustainability* targets (Williams 2005).

Yet, in many cases, city administrations have been known to be hostile to *Cohousing* communities as they lack enough information about them. While interviewing experts and *Cohousing* communities, it appeared that municipalities usually show no or little interest in *Cohousing* projects (Meltzer 2013, Blomberg 2013, Vestbro 2013, Kæphøj 2013, Majbacken 2013).

Success Level

In general, *Cohousing* members share a common vision for their individual community. Depending on the community the vision could be inspired by environmental, social and/or economic goals but usually it does not encompass all of them. In many cases, the vision is limited to making lives more economical, interesting and fun through sharing, knowing and supporting. Each *Cohousing* community creates its own vision which is highly dependent on the people inhabiting the *Cohousing*. The vision often evolves out of many small conversations during the beginning of the planning process (Durrett 2013).

Some *Cohousing* communities define their vision as follows:

- "A residential community in which the members share and work together to create a safe, joyful, and satisfying life. This includes: Dealing with diversity of opinions, expectations and life experience. Learning to discern, respect and balance the differences between individual desires and collective good. Creating a beautiful legacy for future generations." (Sunward Cohousing n.d.)

- At Winslow Cohousing near Seattle, the aim is to have "a minimal impact on the earth and create a place in which all residents are equally valued as part of the community." (Winslow Cohousing 2001).

- "... not a shared goal, but here's our vision and values: Peninsula Park Commons is founded in the belief that the health and enrichment of individuals, communities, and the places in which they exist are inextricably linked." (Rodgers 2013)

- "We have a vision statement and values statement but we do not have a defined common goal. Communities that have had a narrow focus have had to expand this in order to get enough support / interest to get the community built. We have a mission and vision. Basically, respect the inherent dignity and interconnections of the community and members and earth." (Prairie Sky Cohousing 2013)

Strategic Level

There are some guidelines for *Cohousing* communities, but these guidelines are very basic and relate specifically to the creation and designing of *Cohousing* communities.

Decision making in *Cohousing* communities is usually consensus based and community members are welcome to propose topics that need to be discussed. Each community has its own process for handling topics under discussion. Some communities have longer processes in order to involve more people and decide on important issues while others form groups that are given responsibilities and are expected to work exclusively on issues that relate to their areas of expertise. There are communities that draw up a list of criteria for certain decisions and this list could change depending on the community consensus (Butler 2013; Meltzer 2013; Capitol Hill Urban *Cohousing* 2013, Stephenson 2013).

Actions Level

Typical actions in *Cohousing* communities are collaboration, sharing and participation within the community.

Participation is an important activity in all *Cohousing* communities and even if all community members do not participate actively, there are processes that try to ensure that every member's view is included (Blomberg 2013).

Interactions among the members help build trust hence fostering sharing and *Collaborative Behaviours*. For instance, cooking, dining, childcare, gardening, exercising or engaging in other social endeavours are part of everyday life. In some cases this collaboration extends beyond the activities within the community, for example, car and bike sharing have become common practices that extend beyond the *Cohousing* communities (McCamant and Durrett 2011). Sharing of knowledge is a strong characteristic within *Cohousing* communities as is sharing of goods. They are an important part of the community life. Some residents own their own belongings but some paraphernalia are also available via the commonly owned pool of goods (Butler 2013; Meltzer 2013).

Tools Level

Several tools are used by *Cohousing* communities. For the purpose of this paper the authors have chosen the more frequent and commonly used tools in such communities.

As outlined in the Systems Level, *Cohousing* communities usually use participatory and consensus decision-making processes, conflict resolution and a community declaration.

The shared common house and grounds are the heart of the community and ensure that there is a space where everyone can come together and interact. Further, according to the survey all *Cohousing* communities have a common house with a common kitchen, dining room and shared laundry[6]. Most of the *Cohousing* communities also share a meeting room, library, gym, garden areas, workshop, computer room, guest room or a sauna.

[6] Also see survey results in *Appendix B. Cohousing Communities Survey - Results*.

Several communities lay a strong emphasis on green materials and clean energy solutions as part of the design process. Some also take into account tools such as *Green Architecture* or the *Living Building Challenge* (Kim 2013).

3.2. Best Case Scenario of Cohousing Informed by the FSSD

In order to create a best case scenario of *Cohousing* that is informed by the *Framework for Strategic Sustainable Development (FSSD)*, the authors used their knowledge of the *Cohousing* and *SSD* concepts to design and develop an integrated approach to *Cohousing*. Specifically, the *Strategic Sustainable Development* part included the *Sustainability Principles, Backcasting from Principles* and *Systems Thinking* perspectives.

Systems Level

Cohousing communities recognise the relationships between its community and the *socio-ecological system*.

- Communities understand the *Sustainability Challenge* and are aware of the fundamental interconnectedness of the society within the biosphere.

- *Cohousing* communities are part of neighbourhoods which in turn are part of a city. As *Cohousing* communities are intrinsically linked to the city's system they are integrated with the larger urban milieu, communities and ecosystems of which they are a part of. *Cohousing* communities interact and connect with other neighbouring communities and also engage in active collaborations with the municipalities, urban developers and planners and local businesses.

- *Cohousing* communities have a *Systems Thinking* approach, both at the individual as well as at the collective levels. This allows them to be aware of the impacts and consequences of their actions on the *socio-ecological system*.

- *Cohousing* communities keep in mind diversity of culture, income, race, education as well as equality of all human beings in the society and intergenerational community structures. This fosters greater interactivity and trust thus encouraging collaboration and sharing that spreads across communities in the city.

- *Sustainability* is defined and understood within the context of the individual *Cohousing* community's activities and impacts.

- *Cohousing* communities and all their residents have the intention and the commitment to a more practical, inclusive, and social neighbourhood.

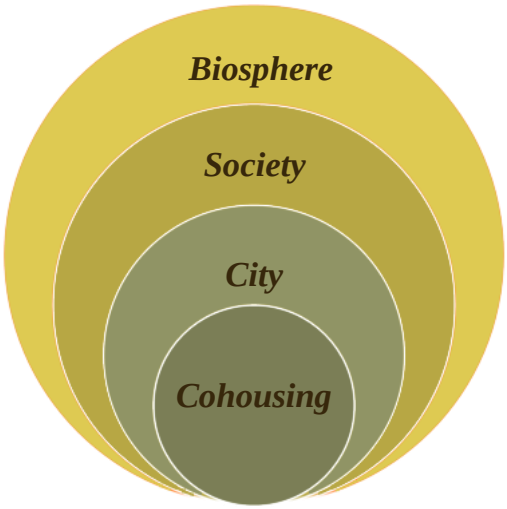

Figure 3.1. Cohousing within the larger system.

Success Level

- *Cohousing* communities have a clear and shared definition of success. An important aspect of defining the success or the common goals of a community is to create a common language and a shared purpose, which evolves during the design process of *Cohousing* projects and continues to evolve during the time the communities spend living together. This also takes into account the goals of the city.

- The vision of success is defined keeping in mind the four *Sustainability Principles (SPs)*. In this context, *Cohousing* communities plan and operate within the boundaries of the four *SPs*.

- Success means *Sustainable Lifestyles* which ensures human well-being and satisfaction ultimately leading to *Sustainable Development.*

Strategic Level

- *Cohousing* communities use *Backcasting from Principles* to guide the overall strategy to reach their vision of success.

- Actions are prioritised using the following *Prioritisation Questions*:

    - Does this action lead in the right direction when all parts of the vision are considered? (the *SPs, Sustainable Lifestyles*)

    - Can the action be a flexible platform for further steps towards the vision?

- Does the action provide an adequate return on investment? (e.g. financial, social, ecological)

- Other prioritisation parameters could be developed depending on the context.

- Collaboration and participation are key elements in the strategic process as are trust and transparency.

Actions Level

- Actions are selected and prioritised using prioritisation criteria, defined in the Strategic Level, to achieve success.

- Based on the fact that each community lays a different emphasis on what they want to achieve the strategic guidelines can lead to different actions. However, there are some actions all communities have in common in order to move strategically towards *sustainability*, for instance:

  - Assess progress towards vision.

  - Assess progress towards *sustainability*.

  - Apply planning frameworks iteratively in order to ensure vision and strategy are updated and actions are effective.

  - Form collaborative partnerships within the community and with the greater neighbourhood.

Tools Level

- *Cohousing* communities use systems tools periodically to monitor damage or improvement based on actions in their individual communities.

- *Cohousing* communities use strategic tools to help the community understand how the actions chosen help move towards *sustainability* and align with the *strategic guidelines*.

- *Cohousing* communities use capacity building tools to help people learn about *sustainability*, group learning, *Systems Thinking* and co-creation.

3.3. Gap Analysis

A thorough analysis was performed to help identify the gaps in the concept of *Cohousing* that hinder the move towards *Strategic Sustainable Development*. This section also enables the authors of this thesis to answer the first sub-research question - **What are the gaps in current *Cohousing* models from a *Strategic Sustainable Development* perspective?**

To identify the gaps, each level of the *Five Level Framework* of *Cohousing* was compared to the best case scenario informed by the *FSSD.*

Systems Level

Most *Cohousing* communities understand the importance of interacting with their immediate neighbourhood. They try and build in practices and features that encourage interactions with them, but, seldom go beyond the immediate neighbourhoods.

On the other hand, city administrations, with a few notable exceptions, mostly operate in a linear fashion. They often lack an awareness of the interconnectedness of a community network within a city, creating a gap within the system. This restricts the ability of *Cohousing* communities to actively move towards a truly *Sustainable Lifestyle*.

Further, most *Cohousing* communities lack diversity in culture, race, income and education and in some cases even age.

Success Level

Although *Cohousing* communities do have individual visions, these visions do not have a clear and shared definition of success as defined by the *FSSD* in the best case scenario.

Most *Cohousing* communities appear not to include a full *sustainability* perspective in their vision of success in line with the four *Sustainability Principles*.

Strategic Level

Cohousing communities do not have a defined strategic approach that helps them move towards *sustainability*. Even though most *Cohousing* communities have consensus based decision making, they fail to include any *Backcasting* approach to reach success. They do not prioritise their actions by following the *Prioritisation Questions*.

Actions and Tools Level

Cohousing communities are action oriented and use an assortment of tools that are aligned with their individual community goals. However, if all communities had a shared vision and a definition of success as defined by the *FSSD* in the best case scenario, as well as a strategic approach to inform their decisions on actions and the tools required to fulfil them, it would strategically lead them towards *sustainability*.

4. Discussion

This section calls attention to the approach followed for arriving at and researching the topic *"Towards Sustainability - Analysis of Collaborative Behaviour in Urban Cohousing"*.

The authors discuss relevant reflections on results by looking at key outcomes of the previous section. This is followed by key learnings from *Cohousing* about *Collaborative Behaviour*, especially the challenges and key barriers, benefits and positive outcomes of such behaviour, which is an attempt to answer the second sub-research question - **What are the patterns of *Collaborative Behaviour* for moving strategically towards *Sustainable Consumption* and *Lifestyles*?**

This section also reflects on the process the authors went through while exploring the research topic as well as deliberations on definitions and the *systems approach*.

Finally, the authors look at limitations of the thesis and possible further research areas as well as the connections to the larger research field.

4.1. Reflections on Results

Interactions and Diversity

Two of the key findings from the results that stand out are the lack of interaction between *Cohousing* communities and the larger urban milieu and the lack of diversity.

Interactions

Even though there is a high level of interaction between members of the *Cohousing* community and in many cases even communities immediately outside the *Cohousing* settlements, the larger urban community is not part of this interaction process. One expert pointed out that this cannot be validated as there are no formal studies that confirm this gap. However, the authors' research, that included interviews, surveys and document content analysis, brings out this gap very clearly.

After engaging with *Cohousing* community members and experts on *Cohousing* it was evident to the authors that these communities remain open for integration. Yet, the research showed that *Cohousing* communities are very self-contained and do not see the significance of engaging with the larger community. This reveals the disconnect they have with the larger system they are a part of.

Graham Meltzer points out in the section "Engagement: From Belonging to Efficacy" in the paper, "Sustainable Community": "Engagement can mean "commitment to, or involvement with, people, place or activity". In cohousing, 'commitment to people' and 'involvement with place' together instil a sense of belonging to a location-based community. Further,

‘commitment to place’ and ‘involvement with activity’ induce participation in community life and a sense of personal efficacy. Belonging and efficacy are components of engagement, both with one’s circumstance and in society” (Meltzer 2005, 147).

This description leads the authors to infer that regular involvement and engagement among *Cohousing* community members prompts them to understand the importance of these actions and deepens their sense of belonging to the place they stay in. As these communities extend this understanding beyond their current individual circumstances to that of the wider society they could see its significance in the larger system.

There are indications that this could be already underway. For instance, most *Cohousing* communities interviewed by the authors talked about having an open house policy where they actively invite people from outside to come and spend time with the members. Some communities also encourage outsiders to participate in the community life regularly.

These interactions have resulted in some positive outcomes. At the neighbourhood level, there are some instances where neighbours who had initially fought against such communities have changed their views after witnessing the positive impacts on their own lives (McCamant and Durrett 2011).

At a national level, in Denmark, *Cohousing* communities have influenced mainstream housing design. It has been pointed out by experts that very little mass housing in Denmark is designed without some *Cohousing* consideration or some *Cohousing*-specific facilities incorporated within it. It is not limited to housing design, *Cohousing* communities also influence other behavioural patterns like sharing of cars and goods and even recycling.

As discussed above, interactions with the larger community could have positive outcomes, but interviews with experts and *Cohousing* communities indicated that municipalities usually show no or little interest in *Cohousing* projects. Some city administrations appear to be hostile to such communities mainly due to lack of knowledge about them, some of them are confused with communes.

While in some instances, municipalities notice that *Cohousing* community members contribute positively to the larger community. Hildur Jackson, one of the experts contacted, emphasised the benefits of *Cohousing* for the larger community by pointing out that people living in *Cohousing* communities usually pay their taxes, the children show positive behaviour in school, have good grades, are healthy, helpful and display a good understanding of group behaviour.

It has also been observed by experts that because *Cohousing* communities follow consensus building processes while making decisions, they are usually adept and competent in organising meetings and exhibit a familiarity with democratic decision making processes that could be leveraged by the larger community. Given all these positives, the authors believe that it would be interesting to explore why city administrations and institutions fail to engage with *Cohousing* communities.

Xavier Fisher of Cohabitat Montreal reinforces the point that a healthy community “is much less expensive to service in terms of water, electricity, social services, hospital services and police services” (Fisher 2013). Ideally, this should encourage local governments and authorities to partner with such communities to reduce costs.

Discussions with Boverket, the Swedish Housing Board, and other experts in the field revealed that though there is a concerted effort to connect with citizens more, existing practices and biases work against broader engagement and integration. For instance, housing companies in Sweden see *Cohousing* as something that disturbs their normal process and are reluctant to accommodate their requirements.

This kind of disconnect can result in projects that have the best intentions but fail to be sustainable from a systems level. An example that fits this kind of disconnect is the sustainable city project "Stockholm Royal Seaport" in Sweden. It is part of the report "Take Action Now" by the Delegation for Sustainable Cities (2008) and it unwittingly illustrates how sustainable communities can leave out a large part of a city's population. The Royal Seaport area is a new city quarter that has ambitious environmental targets by 2030, additionally the area aims at being an attractive and modern living environment. Unfortunately, the Seaport district is only affordable for high-income classes, which makes the area restrictive and goes against the idea of interactive and connected communities within a city. This shows that high-end environmentally conscious building materials and design solutions for community living are not always the best option as they stand in competition with other housing solutions.

As pointed out by experts and *Cohousing* community members, the *Cohousing* concept could be a workable solution for urban communities in more ways than one and city administrations could solve many issues by engaging with these communities and encouraging more of them. Therefore, the authors believe that the collaborative and supportive behaviour and the *sustainability* approaches (recycling, sharing, minimising consumption, community engagement) adopted by these communities make them a great space for families, elderly people, single parents and people with low incomes. Yet, it was observed by the authors that most of these communities remain out of reach for low income families and individuals. The reason is often due to policies related to land and space followed by different city administrations.

Diversity

In general and within the scope of this research, the lack of diversity in terms of income, race, culture and in some cases age, along with the lack of interactions with city administrations, restrict a much wider engagement process.

Some *Cohousing* communities that were interviewed articulated how they often struggle to include low income families and individuals, as they could benefit the most from collaborative communities. This was corroborated by individuals outside these communities who have ties to them through volunteering and other interactions. Although, they also added that other diversity themes are often ignored or not adequately discussed. There are some communities that do not see the lack of diversity as an issue they are required to address.

In cases where city administrations are actively interested and are willing participants, many of these diversity issues are addressed and public policies enable such communities to thrive and connect with each other to evolve and flourish.

Denmark is a fine example as "after initial skepticism, cohousing has won the support of the Danish government and financial institutions. Banks are particularly attracted because most

cohousing units are pre-sold long before construction is completed, a record with which few other housing developments can compete. The ideas from cohousing have filtered into Danish society" (Milman n.d.).

Lack of Common Vision Imperils Sustainable Lifestyles

The interviews and surveys confirmed that most *Cohousing* communities build individual visions that integrate the idea of *sustainability* according to their interpretation of the concept. When planning and living in a *Cohousing* project most communities have a clear individual vision of what they want but it does not necessarily incorporate the vision of the larger community they are a part of. The authors learnt that at the city level, *Cohousing* communities are often not considered or represented in the future vision of a city.

Common Vision and Sustainability Principles

The authors infer that the importance of a clear and shared vision of success, required for articulating strategic guidelines, is not discussed in detail among *Cohousing* communities. A clear and well articulated shared vision is required to *Backcast* from it and to define the *Prioritization Questions* that would help select strategic actions.

Some communities define their visions purely in social terms while others in environmental terms and a few in economic terms. The different visions of the diverse *Cohousing* communities lack clarity when defining clear goals. This is mainly due to the non-consideration of the *Sustainability Principles*.

To truly reach *sustainability* these principles need to be taken into account. The authors would like to point out that the *Cohousing* concept is particularly strong when it comes to the fourth *Sustainability Principle* (social *sustainability*) but *Cohousing* communities are somewhat inadequate when it comes to incorporating elements relating to the other three Principles.

Strategic Approach

It was observed during the interviews and in the survey results that *Cohousing* communities do have certain guidelines but they serve mostly to help during the design and conceptual processes. These guidelines are not strategic in the sense that they do not include a *Backcasting* approach. They also miss out on the important and crucial stage of exploring the *Prioritization Questions* that would help them in planning strategically. Taking into consideration the three *Prioritization Questions* from the *FSSD* approach would help gauge if the actions support communities in moving towards the right direction (*Sustainable Lifestyles*) in line with the *Sustainability Principles*, have enough flexibility to accommodate future potential actions and deliver a sufficient return on investment that takes into account financial, social, ecological, political, cultural and other aspects.

For instance, *Cohousing* communities could validate long term investments in terms of the *Sustainability Principles* in order to avoid bad investments, take into account environmental,

social and other impacts not only on the current community but also future generations and create space for innovations that could fit into the community*'s* future requirements.

Actions and Tools

The lack of a strategic approach also interferes with the ability to assess actions and tools needed for the transition towards *Sustainable Lifestyles*. The research conducted by the authors proved that collaborating, sharing and participation are already practiced extensively within *Cohousing* communities. However, these should also be practiced in collaboration with the larger community to help reach the vision of success.

Possible tools could be those that help monitor strategic actions, improve their understanding of *sustainability* and enhance their systems perspective.

4.2. Cohousing and its Contribution to Collaborative Behaviour

The process of studying and defining the scope for urban consumption behaviours from the social perspective and connecting it to *sustainability* and more specifically *Sustainable Lifestyles*, was initially mind-boggling. It was during the research process that a general behavioural pattern was identified with *Cohousing* communities. *Cohousing* is a powerful social concept and the movement is gaining resonance especially in the developed world. Research indicates that *Cohousing* could have an intrinsic potential to effect a paradigm change in behaviour leading ultimately towards a more sustainable future.

Cohousing communities have many factors that are essential for promoting more sustainable ways of living and collaborating that have potential for *sustainability* aspects built into them. The question the authors would like to explore with regard to this is how effective and influential are these communities when it comes to the larger urban system. This is one of the most important aspects that this section seeks to discuss that further contributes to answering the second sub-research question.

Key Barriers and Challenges to Collaborative Behaviour

It would perhaps be tautological to mention that human beings are complex to study, but it was something that cropped up continuously while analysing the key barriers and challenges to *Collaborative Behaviour* in the context of *Cohousing* and then extrapolate them to comprehend such behaviour in general. The intention is to understand the implications of these challenges and barriers for *Sustainable Lifestyles* in particular and *sustainability* at large.

Community vs. Individualism

Human beings are social and the idea of community is appealing to some extent. What differs is the intensity of the communal feeling. Frequently, people like the idea of *Cohousing* when they participate in the interactions with the community but many find that the experience of actually living in such a community can be quite challenging.

For instance, a rule in most *Cohousing* communities, which makes it mandatory for every member to take turns in cooking for the community, while choosing not to eat with them, does not resonate well with many individuals. They find this an encroachment on their personal space. Similar kinds of rules have often contributed to many Cohouses being de-collectivized when a majority of members begin to chafe at them.

Individualism is a valid human need and maintaining a balance between this need and the need for community is a delicate endeavour.

Diversity and Affordability

Maintaining a healthy demographic profile could be a challenge in *Cohousing* communities. As these communities get older they need to look for younger members. On the other hand, as members get older and prefer to stay and live in their own community, the number of available housing units becomes limited.

Several *Cohousing* communities have specific policies that ensure a demographic balance. Yet, given the high cost of access to *Cohousing* units, affordability becomes a critical issue. In many cases, it is more difficult to find units in a *Cohousing* community than normal housing. This aspect also draws attention to the fact that access to affordable housing is increasingly getting very difficult for people with limited resources and ever since economies have begun declining since 2008, it is the younger people who have been the hardest hit in most developed markets (Economist 2013 A).

In terms of approaching other diversity issues, the authors realise that most *Cohousing* communities operate on a small scale. It might not be possible for individual communities to adequately address diversity issues. Perhaps, this is where the connection with the larger community could help. By engaging with city councils, businesses and other communities, *Cohousing* communities could encourage mixed neighbourhoods and richer diversity.

Investment of Time and Money

> *"Cohousing doesn't happen immediately."*
> *– Charles Durrett (2013)*

Building collaborations take considerable investment of time as well as financial resources. The process of creating *Cohousing* communities takes a lot of effort and the consensus process could be quite challenging, especially when it comes to financial allocation towards common facilities.

Usually, in the beginning of a *Cohousing* project, the financial allocation necessary to buy land and to start building the houses could be a long drawn out process. Further, the financing of the common units and commonly owned infrastructure needs to be agreed upon.

Cohousing communities are a useful microcosm that showcases accurately the slow and deliberative process that is an important characteristic of democracy. This process continues as the community evolves and matures to incorporate many diverse ideas and opinions and developing processes to accommodate them.

Ability to listen, patience and the art of conversation are important ingredients for success and it is not easy. It could be a challenge to identify a space for interactions to thrive and maintaining the special characteristics that enable such interactions to take place.

The Consumption Challenge

A significant challenge to collaboration is the economic system we have built and nurtured for ourselves. The continuing need for consumption does not foster a lot of space for collaboration and in many instances restricts it. It is one of the challenges for which there has been no real coherent solution. Even *Cohousing* members regularly struggle with this within their individual communities.

During the interviews, it was pointed out that in several *Cohousing* communities, the instances of sharing are sometimes restricted because several members already own their appliances and tools. It was also pointed out that the act of consumption is so ingrained in the human psyche that they do not even recognise it as something odd or destructive.

Politics

Sometimes politics at the city level can act as a serious barrier to ideas espoused by *Cohousing* as political considerations are often dictated by factors that are not in the interest of the city or community. This can sometimes pitch elected city officials in direct conflict with *Cohousing* communities.

High level of social corruption and lack of ethical and moral scruples are also problems that could affect urban development in general and limit the spread of sustainable behaviour (Doucet 2007).

Cohousing projects might not always be consistent with the motives or objectives of developers and city planners, thus limiting their appeal and popularity. It has been observed that often politics favour city or urban developments that enrich individuals instead of benefiting the larger city community. It has the potential to impact the overall *sustainability* of city systems. This is perhaps one of the most challenging barriers that the Cohousing concept faces.

Education, Awareness and Communication

Cohousing like *sustainability* is not a new idea or concept as they are intrinsically tied to our very existence as human beings. Yet, over time both have suffered a similar fate - a loss in relevance. So the challenge currently is to figure out ways and means to reintroduce them, raise awareness about them and communicate their intimate link to our well-being.

> *"...Cohousing is a completely new way of developing a landscape and anything you do that's new requires a great deal of education" – Charles Durrett (2013)*

An individual *Cohousing* community could develop an understanding of the systems perspective in order to affect change on a scale that transcends the community and address the larger community. This understanding could enable them to raise awareness and communicate about their way of life.

Change of Mindset

The authors believe that it is necessary to encourage a shift in mindset to increase sustainable behaviour in society. As discussed already, *Cohousing* movements incorporate aspects that encourage collaboration, sharing and participation among individuals and their immediate communities.

Taking into account a full systems perspective could help them spread the aspects that contribute to collaborative and participatory behaviour in the larger society.

However, when these results were shared with community members and experts, the feedback clearly indicated that they do not see this as an issue at all. In fact, they question the need for the communities to have such wide perspectives.

This led the authors to reflect on the challenges when it comes to addressing the whole issue of *sustainability* from the systems perspective and how that would require a deeper change in mindset. It would involve a thorough understanding of the community's place in the *socio-ecological system* and how interacting with the larger society could widen their impact.

For instance, a single community might develop a marvellous waste management process and the positive impact of this process could increase exponentially when the larger community gets involved.

Even within Cohousing communities, sometimes this kind of mindset could be lacking, as the authors experienced during their research process. In some cases, not all Cohousing members contribute equally when it comes to sustainable practices.

Benefits and Positive Outcomes of Collaborative Behaviour

"Nothing fosters sustainability like collaboration." – Charles Durrett (2013)

Social Benefits

Isolation and lack of trust are common challenges plaguing our society, especially in the context of cities. *Cohousing* offers a potentially workable solution for overcoming this by offering a sense of community that enables collaboration, sharing, trust and general well-being at the micro level. The process, through which these aspects are practiced, encourages a larger sense of purpose and a healthy respect and appreciation for democratic values and systems at the macro level. The community structures are especially supportive of needs of the elderly and single parents by offering a nurturing environment for all.

In the section on results, it was observed that *Cohousing* members have highly developed social sensitivities in terms of understanding and acceptance towards others, which the authors believe is a rather neglected and underrated value in our society but important for human interaction. *Cohousing* can address many aspects of human needs[7] as defined by Max-Neef et al. (1991) and serve as a good repository of knowledge for other communities and individuals that want to learn all about the art of collaborative living from them.

Economic and Environmental Benefits

These interactions that place a higher value on social well-being also encourage lower consumption and accumulation of material belongings, thus bring about economic and environmental benefits.

Interviews, surveys and the document content analysis demonstrated that residents of *Cohousing* communities consume less energy, own fewer cars and share far more than residents outside of these communities. This could be termed as conservation at the most basic level. Fewer durable goods mean less raw materials, fewer miles travelled to deliver those goods and less energy required for operating them (McCamant and Durret 2011).

The average size of a *Cohousing* unit is smaller and therefore occupies a smaller footprint relative to larger homes and developments[8].

It is important to note that cluster housing, which is quite common in *Cohousing* developments, require less materials and households can combine resources to make the development more affordable and even when initial costs are high, this is compensated by lower maintenance and operational costs. Many communities also

Nevada City Cohousing residents "pour about 1,000 fewer tons of carbon dioxide per year into the atmosphere then they did collectively before move-in". - McCamant and Durret (2011, 34)

[7] Max-Neef's human needs: identity, protection, subsistence, participation, affection, understanding, leisure, creation, freedom.

[8] "Most cohouses in Sweden have reduced the size of the apartment by about 10%." (Vestbro 2013)

use renewable energy products like solar panels, efficient heating and cooling systems and high quality sustainable materials.

For instance green building materials are sometimes expensive, especially when comparing the price of a good quality green product to a conventional one. Tim Taylor, in a section on material use in "The *Cohousing* Handbook", offers a comparison: "Sheet flooring is a good example. You can often find vinyl flooring for less than $5 a square yard, but no one claims it will stay looking good very long. Its design layer is literally paper-thin. Vinyl flooring with through-color design, which lasts much longer, often costs about $35 a square yard. True linoleum, a wonderful alternative made from natural ingredients such as linseed oil and wood, usually costs about $29. It looks great for 40 years or more, and if you do eventually replace it, it will decompose naturally instead of piling up in a landfill that your grandchildren will probably have to clean up" (Scotthanson and Scotthanson 2005, 160).

4.3. Deliberations on the Sustainability Challenge, Definitions and Systems Approach.

Sustainability Challenge

The authors of this paper spent a considerable amount of time reflecting on the most important *Sustainability Challenges* of our time and the discussions would always veer towards consumption. Literature review indicated that the impact of consumption has always found a place in conversations concerning human well-being but it entered public discourse in a more focused manner with the publication of "The Limits to Growth" by The Club of Rome in 1972.

Initially, it was a little difficult to comprehend why consumption remains an issue after so many attempts to study and understand the phenomenon. It became clear with progressive exposure to the topic that consumption is a deeply complicated issue and understanding it is not easy. From the societal perspective, consumption is influenced by many factors. These could include, among others, economic influences, the way products are marketed, technological innovations and last but not the least, how people behave around each other. While exploring the hows and whys of *Sustainable Consumption* in urban environments, it was the subsequent identification of *Collaborative Consumption* as a growing phenomenon that was intriguing as it showcased how people behave within distinct communities.

There is a growing interest in *Collaborative Consumption* as behaviour with ancient roots and most of the research on the current manifestations of *Collaborative Consumption* links it to political, technical and social drivers. It was concluded by the authors that all these drivers interact in complex ways to influence this variety of consumption behaviour and needs to be studied and understood to develop more effective policy solutions at the macro level. At the micro level there are several drivers that combine these factors to contribute to the solutions and one of them could be *Cohousing*. The idea of *Cohousing* appears to be an attractive potential intervention for promoting *Sustainable Consumption* by leveraging the existing *Collaborative Behaviours* leading to *Sustainable Lifestyles*.

Definitions

During the exploratory phase the authors learnt that within the concept of *Cohousing*, especially when looking at consumption behaviour, there is a tendency to simplify how consumers behave. The common perception is that rational decisions on consumption are based on individual preferences when the reality is far more nuanced and complex and frequently irrational.

To fully understand these behavioural patterns and appreciate the socio-cultural and socio-economic context within which these behaviours manifest themselves, requires an interdisciplinary approach that combines sociology, psychology, anthropology and behavioural science. There is a rich body of research that is beginning to emerge modelled on this interdisciplinary line of thought and the definitions used to describe the common concepts associated with consuming sustainably, used extensively in this paper, have been drawn from these sources.

The actual definitions used in this paper have been lifted from validated sources. Considering the fact that several definitions exist for a single concept, the authors, in most cases chose those that best articulated the concepts holistically and for others where this was not possible, combined a number of definitions to describe the concepts. For instance the concept of *Cohousing* itself was defined in various ways. This was the case with *Sustainable Lifestyles* and *Collaborative Behaviour* as well.

Systems Approach

As mentioned earlier, the s*ystems approach* was chosen by the authors because it is highly effective in structuring, categorising and analysing information in complex environments. *Cohousing* communities are part of city systems and to gain a coherent and clear insight into these communities, the city as the larger system and especially its interrelation with *Cohousing* communities needed to be understood.

In this context a s*ystems approach* was applied to understand cities as complex and adaptive systems, composed of multiple and the diverse interconnected agents that are adaptive in their capacity to respond to stimuli. The s*ystems approach* helped determine the overall form and behaviour of a city, the patterns that emerge from the interactions of these interconnected agents and how they are influenced by their contextual forces.

It helped to contextualise consumption, which is an integral part of this complexity and build a best case scenario for moving towards *sustainability* that could be applied to the *Cohousing* model. To be able to make an adequate and coherent analysis, where the goal was to understand how consumption behaviours in a particular community within this complex system can contribute to *Strategic Sustainable Development*, a s*ystems approach* was appropriate as well as necessary.

4.4. Limitations of the Thesis and Further Research Questions

The social aspect of *Cohousing* is fascinating and important as this aspect helped the authors identify the patterns of *Collaborative Behaviour.* This aspect also encourages the strategic move towards *Sustainable Consumption* and *Lifestyles* and helps address the associated second sub-research question. In this context, the main limitation of this research is limited access to more qualitative data to better inform the research content with respect to the social aspect.

Supplementing the findings with the architecture part of *Cohousing* would have added value to the importance of design and planning aspects that could have been relevant to the research. For example, how the planning and design of the common house impact engagement and interactions among community members and between community members and the larger neighbourhood and how common houses need to be planned in multi-storeyed buildings are interesting and important aspects for study.

Only two *Cohousing* communities could be visited which probably limited the ability to observe the rich assortment of social behaviours and customs unique to these communities.

Interactions with other important stakeholders like housing companies and city administrations or municipalities would have added different historical, political and ideological perspectives in terms of answering the first sub-research question with more depth and additional background. Future research in these areas would help in articulating the cultural differences between the countries studied.

Further research questions could be:

1. How does the role of city administrators and councils impact *Cohousing?*

2. How should *Cohousing* communities design stakeholder engagement processes in the move towards *sustainability?*

3. Why is diversity important and what kind of diversity works best in *Cohousing* communities?

4. Do the financial and material savings as a result of *Collaborative Consumption* and *Cohousing* lead to spending that might erode the *sustainability* benefits of the said savings?

Finally, as the authors are aware of the fact that the final recommendations were not tested. Instead, they were discussed within the feedback sessions with experts.

The authors would like to propose that *Cohousing* communities could adapt these recommendations according to their individual contexts and record the results. This could be developed as a case study for further research to refine the recommendations.

4.5. Connections to the Larger Sustainability Field, Further Research and Evolving Models

In the field of *sustainability* research, any topic that explores the issue of consumption has a special significance. As it has been pointed out several times in this thesis, consumption is at the core of the *sustainability* problem and to address it effectively we need a very well rounded understanding of not just what is going wrong but also what is going right. In this context, the current thesis gains prominence because it shows how *Cohousing* could help address this issue, perhaps not solve all the challenges but show a way forward. This is also the first time *Cohousing* has been looked at from the systems perspective and analysed through the *FSSD* lens.

In the future, this research could be broadened to include communities in cities in other developed markets and explore the idea in the context of the megacities in developing countries. The *Sustainability Challenges* in those metropolises are very different. It would be quite interesting to see how and in what way *Cohousing* can help address challenges and issues that are typical to the developing world.

This research could also look at other models that are developing intuitively in cities and urban areas and contributing to *sustainability* through urban renewal and development of inner city areas.

The Downtown Project Las Vegas being spearheaded by Tony Hsieh, the Internet entrepreneur, venture capitalist and founder and chief executive of Zappos.com, would be an interesting project to study. The project is taking into account entire neighbourhoods and transforming not just how people live but also work and shop and run their local businesses. The team executing the Downtown Project Las Vegas is trying to design the neighbourhood in a way that facilitates learning through what they term as "serendipitous interactions".

By encouraging population density and ground level activities such as shops, cafes, galleries etc., they are creating ways and means for people to interact with each other. They feel that interacting in new and different ways will lead to innovation, productivity and ultimately, happiness. The term that is used frequently by the project team is "Return on Community" and they feel that the *Collaborative Consumption* models that they are working to employ will encourage further interactions between the community members (Schaefer 2013).

"Can Cohousing develop from the margins into something with the ability to challenge the prevailing ways of distributing housing and create new social practices within cities?" (Krokfors 2012, 309). This could perhaps be worth exploring more deeply by studying *Cohousing* projects that are at a conceptual stage and are experimenting with new approaches.

Cohabitat Montreal is an example of a project which is trying to create a *Cohousing* model that can be replicated anywhere in the world; a model that is decidedly urban, interconnected, open and progressive. The project is still evolving and it is interesting to note the wide engagement process that is being employed to design it.

> *"Building a strong and vibrant community is a core objective of each project. It is important for us to be active participants in building this community. Creating community includes an uplifting building design and use of space, multi-generational residents, shared spaces for our common enjoyment, participatory decision-making, social links with neighbouring community groups, economic links with local service providers, educational links with local schools and ties with local and regional food producers. We are confident that this co-housing project will have a positive impact on the environment, on our quality of life, on the communities around us and that it will be economically sound for its residents and its stakeholders" – Cohabitat Montréal (n.d.)*

The engagement process is helping the project incorporate many aspects of greater community involvement. This is reflected in the way the project is making local businesses an integral part of the development process. "The idea is not to create an oasis, the idea is to create a mushroom that spreads. Just like you decontaminate isolated heavy metal sites with certain types of mushrooms, we want to start decontaminating isolated, nuclear and individualised living into more of a shared neighbourhood living" (Fisher 2013).

The relationship between local businesses and communities in urban areas is an important dynamic that this research has not been able to explore. Another interesting area to study would be how global retail businesses are going to deal with communities that are increasingly gravitating towards local businesses, local produce and locally sourced products and services.

5. Conclusion: Recommendations and Deliberations

5.1. Recommendations

Some things are difficult to put in practice unless they provide any real benefit to the user and if it involves a change in mindsets it is tougher, this insight was provided by an individual who has no experience or connection with *Cohousing*.

This observation brought an element of practicality to the whole discussion and helped the authors connect to an important gap in the *Cohousing* model while answering the main research question - **What should *Cohousing* communities do to move strategically towards *Sustainable Lifestyles*?**

The authors of this paper expect that following the recommendations[9] below could enable *Cohousing* communities to integrate themselves better into the urban milieu they are part of and engage on a more practical level to move strategically towards *Sustainable Lifestyles*. This could be achieved not just at the individual community but at the larger city system level.

Engagement & Visioning

The engagement and visioning process is the first and most crucial step for communities willing to take a decisive step towards *Sustainable Lifestyles*. This will involve drawing up a list of critical stakeholders and reaching out to them. Potential stakeholders could be municipalities, local communities, housing companies, urban planners, local businesses and public and private institutions. *Cohousing* communities could design the communication process to reflect the requirements and interest of each stakeholder adequately.

As the engagement process matures, a group dynamic should evolve that brings about a common understanding of the urban system within the *socio-ecological system* and its requirements. This shared understanding should help build a platform for a visioning process to find a common vision of success which is in line with the *Sustainability Principles* and core purpose and values of the community at large.

However, detailed and clear strategic goals have to be agreed on by every single stakeholder that is part of the process in coordination with the larger community.

Strategic Planning

The strategic planning should involve a process where the stakeholder community reviews the current situation to identify the ecological, social and economic trends that are threatening to undermine the ability of the urban community to create and manage healthy and prosperous ecological, business and social systems.

Understanding the current situation and with the shared vision previously developed, the community should use a *Backcasting* approach to deliberate on a range of actions.

[9] For an overview of the recommendation please see *Appendix E. Recommendations for Cohousing communities to move strategically towards Sustainable Lifestyles*.

These actions should be prioritised based on a selection process that includes the three *FSSD Prioritization Questions* and optimally also acknowledge further strategic guidelines that could help the community reach their vision.

After conducting a list of prioritised action the community and its stakeholders should elaborate on necessary tools that are needed to take actions into practice.

Strategic Action Plan

Finally, a strategic action plan should be created to formalise the process.

It needs to be stressed that the vision as defined by the community sets the stage for the implementation of the strategic plan. Further, the plan should include strategic goals, a list of all prioritized actions, an implementation plan for these actions and the tools required.

It is at this stage that responsibilities and budgets are allocated and a time-line is defined.

5.2. Deliberations on the Research

Innovations for the Future

It is the conclusion of the authors of this paper that *Cohousing* is a fine starting point for communities in urban environments to move towards *Sustainable Lifestyle*s. They offer a potentially workable model of sustainable living.

Nevertheless, *Cohousing* alone is not a solution, it is just one of the many and to effect real change in order to address the S*ustainability Challenges* associated with urban living, a real change in mindset is needed. Public policy needs to be motivated enough to evolve to a level where urban populations are given enough incentives to make informed choices for adopting *Sustainable Lifestyle*s. On the other hand, urban city dwellers also need to get more involved in the running of city administrations and participate in the local political process. As the study progressed these aspects or the lack of them became apparent in the larger context and appeared to influence the gaps and outcomes indirectly and sometimes directly.

These kinds of collaborations and engagements among various stakeholders at the local city level could extend beyond and engage communities across countries. There are already such movements that are taking shape, for instance, in Geneva, Switzerland, a grassroots movement, "Exchange Between Neighbourhood Boxes", has been taking shape since 2011. The movement aspires to build social and cultural links and interactions between residents and encourage *Collaborative Behaviour*. The local municipality extends full support to this movement.

The "100 På 1 Dag" is a project by Orange Innovation, an organisation in Copenhagen. It is based on a simple idea that encourages citizens' participation. The idea is to get people to come out and do something that contribute to the development of their cities in one day and

the target is 100 unique actions. The organisation plans to launch this project in other cities across the world and build a movement.

Another interesting initiative, "Play the Call" by Brazilian urban specialist, architect, activist, and social media game designer Edgard Gouveia Jr., empowers communities by bringing together residents and young professionals to create public spaces that are relevant and useful to their contexts. Gouveia Jr., specialises in developing programs like the Oasis Game and Warriors Without Weapons, that enable change through play.

Such grassroots citizens movements along with the political conversations that are happening at the international level through the United Nations as mentioned in the introduction present many unique opportunities to move towards *sustainability* and that is probably the most interesting future to look forward to.

Sustainable Living

In order to answer the main research question, the authors needed to address the sub-research questions first.

As elaborated in the previous sections, mainly Results and Discussions, *Cohousing* communities can and do offer fair amount of learnings in terms of sustainable behaviour to urban communities. As pointed out earlier, it has been observed that communities around *Cohousing* settlements mimic their behaviour. Yet, while addressing the first sub-research question it has been concluded that *Cohousing* communities exhibit a lack of interaction with the larger community and diversity. *Cohousing* communities do not have a common vision that is shared outside the individual community. Often the common vision is not clearly defined and this poses a challenge when defining strategic guidelines.

To address the second sub-research question, the authors elaborated on the identified gaps and pointed out barriers and challenges of the current *Cohousing* concept. An issue that is often stated is the inability to define a fine balance between community life and individual privacy within the *Cohousing* community. Other challenges include investment of time and money which can act as a barrier to the development of such communities. Further, the consumption challenge is still not addressed in many communities along with political challenges that limit the development of more *Cohousing* projects. Finally, education and awareness about *Cohousing* could play a significant role in the spread of *Cohousing*.

When reflecting on the benefits of *Cohousing* it is encouraging to note that the important elements of *Sustainable Lifestyles,* as defined in the introduction, are partly addressed within these communities, mainly in terms of collaboration and sharing which foster trust and general well-being within the communities. People that are in need of support, like the elderly or single parents, find it within these communities. These elements could encourage lower consumption and accumulation of material belongings. Consequently, the social behaviour also has a positive impact on the environment and has economic benefits.

Therefore, the authors conclude that a *Cohousing* concept that incorporates S*trategic Sustainable Development* could offer a comprehensive plan for sustainable urban development.

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Appendix

Appendix A. Cohousing Communities Survey

The following questions are part of the survey conducted in the *Cohousing* communities, which addressed each of the five levels of the *Framework for Strategic Sustainable Development (FSSD)* in an indirect manner:

Basic information about the Cohousing community

- When has your *Cohousing* community been founded?
- Has the community been designed and planned by the community members?
- How many people live in your community?
- How many housing units does your community offer?
- What type of housing does the community mainly consist of?
  (Apartments, Single houses, Row houses, Others…)
- How is the community organized?
  (One Street, Cluster, Courtyard, Others)
- What is your legal structure?
- What are the common facilities and tools you share?
  (Common house, Common kitchen, Meeting room, Library, Gym, Laundry, Garden, Child care, Workshop, Other)
- What else do you share?
  What do community members share amongst each other and if they share spaces/stuff/things that are not commonly owned?
- What have been the biggest challenges your *Cohousing* group has had to face?
- What are the benefits of *Cohousing* for the community?

Common Life

- How would you define the relationship between the community members?
- Do you want all members to actively participate in the community? *If yes, how do you ensure that everyone is actively participating in your community?*
- How do you interact with the neighbourhood outside the *Cohousing* community?
- What kinds of common activities, initiatives or projects are undertaken by the community?
- What kinds of environmental friendly activities, initiatives or projects are undertaken by the community collectively?
- What do you think are key factors that could encourage or discourage members to get involved in the *Cohousing*?

Common Goal

- Do you have a shared goal for your community? If yes, what is it?
  Please explain what you actually do to fulfil this shared goal.
- How does that tie in with your own individual aspirations?
- To what extent did you get together for environmental reasons? What were they?
- To what extent did social reasons play a part in your deciding to get together? What were those reasons?
- Were there reasons other than environmental or social for you? What were they?

Decision Making Process

- How is the decision making process in your community structured?
- How do you engage and encourage people to act more social and environmental friendly?
- How do you prioritize actions?
  How do you assess what decisions or actions are more important?
- Do you do a cost benefit analysis while taking important strategic decisions relating to your actions?

Your thoughts...

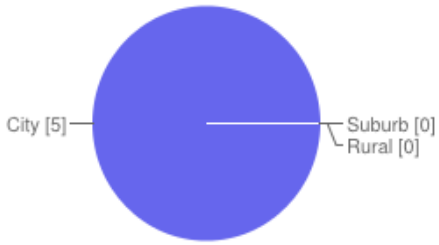
- Are you happy living in a *Cohousing*?
- Do you have anything else you would like to share with us?

Appendix B. Cohousing Communities Survey - Results

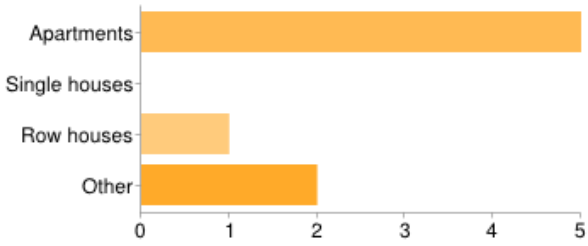
Survey responses: 5

Names of *Cohousing*s:
Peninsula Park Commons,
Kollektivhuset Färdknäppen,
Prairie Sky *Cohousing*,
Kollen
Unknown name

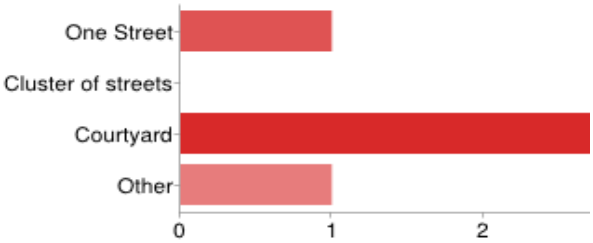
All *Cohousing*s that responded are *Cohousing*s in cities:



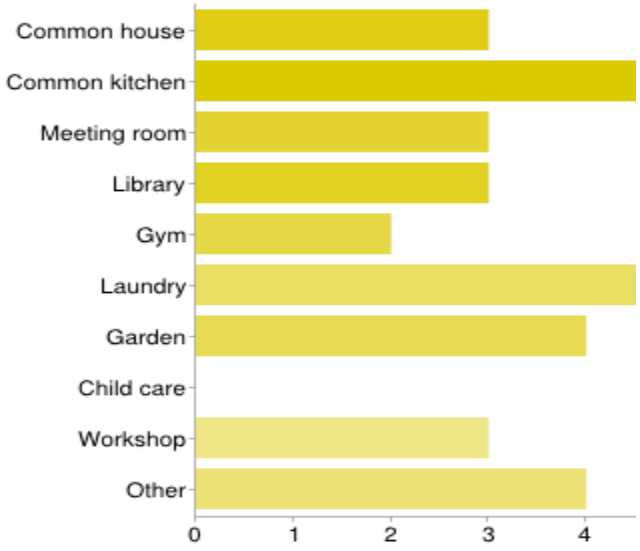
The most common types of housing are apartments in one building or in several houses.



The most common organizational structure of urban *Cohousing* is a courtyard.



Depending on type of housings not all communities have a Common House, however all of them share a common kitchen and shared laundry.



Other tools that are shared:

Tool shed, common dishes and pots, Computers, copy machine, daily newspapers, equipment in the workshop, gardening tools, garden equipment, a bicycle, two daily newspapers, television set, car sharing,

Common activities:
House concerts, chores, hiking, skiing, theater, ping pong, games nights, school rides, airport pick-ups, food

Founding year (range): 1993-2010

Average age of residents (range): 28-73 years

Number of Households in *Cohousing*: 9-43

Designed and planned by the community members: all

Legal Forms: Condominium, Strata, Tenancy

Appendix C. Future Cohousing Communities Survey

Basic information about the Cohousing community

- What is the story behind your *Cohousing* project?
- How did you start the project? Could you explain how the community came together?
- Do you have any criteria for people who want to become part of the community?
- Has the community been designed and planned by the community members?
- What is the legal structure of the *Cohousing* community?
- What will be the common facilities and tools you will share?
- What else will you share?
- What will community members share amongst each other and if they will share spaces/stuff/things that will not be commonly owned?
- What have been the biggest challenges your *Cohousing* group has had to face so far? - From a social, environmental and design perspective.
- What are the assumed benefits of *Cohousing* for the community?

Common Life

- How would you define the relationship between the community members?
- Do you want all members to actively participate in the community? If yes, how will you ensure that everyone is actively participating in your community?
- Are you designing the project to ensure maximum interaction between the members of the *Cohousing* community and would the design elements also take into account the rest of the neighbourhood that is not part of the *Cohousing* plan?
- What kinds of common activities, initiatives or projects are you planning to undertake by the community collectively that help build social connections?
- What kinds of environmental friendly activities, initiatives or projects are you planning to undertake by the community collectively?
- What do you think are key factors that could encourage or discourage members to get involved in the *Cohousing*?

Common Goal

- How do you want to achieve the shared vision for your community?
- How does that tie in with your own individual aspirations?
- To what extent did you get together for environmental reasons? What were they?
- To what extent did social reasons play a part in your deciding to get together? What were those reasons?
- Were there reasons other than environmental or social for you? What were they?

Decision Making Process

- How is the decision making process in your community structured? How do you prioritize actions?
- How do you assess what decisions or actions are more important?
- Do you do a cost benefit analysis while taking important strategic decisions relating to your actions?

Other comments

- Do you have anything else you would like to share with us?

Appendix D. Interview questions for Cohousing Projects

Note: Questionnaire was adapted to expertise area of the different interview partners

Introductory questions

- How would you define *Cohousing*?
- How do you connect *Cohousing* with *sustainability*?

Design elements

- Please define the most important design elements for a *Cohousing* project?
- What elements are you incorporating and focusing on during the design process?
- To what extent is the community involved in the design process?
- Are you designing the project taking into account the rest of the neighborhood that is not part of the core *Cohousing* community?
- Are you designing the project to ensure maximum interaction between the members of the *Cohousing* community?
- What elements are necessary to build social cohesion?
- What are your thoughts on retrofit solutions for urban *Cohousing*s?
- How would you see the difference in *Cohousing* in rural and urban areas?

Collaborative Behaviour/ Sustainability

- How are you incorporating *sustainability* in the building process?
- Do you think *Cohousing* encourages *Collaborative Behaviour* and *Sustainable Consumption*?
- Does *Cohousing* help encourage *Sustainable Consumption / Collaborative Consumption?*
- What could be improved to encourage more *Sustainable Consumption*?

Larger community

- When designing the *Cohousing*, are you taking into account the rest of the neighborhood that is not part of the core *Cohousing* community?
- Who or what are the different stakeholders that can play an important role to improve collaboration amongst community members and different communities?
- In an interconnected network of neighbourhoods, how can a *Cohousing* community influence the larger the community to become more sustainable?

- What is/could be the role of the municipality? How would support from the municipality look like?
- What are the things they can do to foster more *Cohousing***?**

Visioning

- How do you connect this vision to the lager objective if the city or the lager community?
- How do you accommodate different cultural perspectives?
- How do you address diversity?
- Is there an environmental awareness before *Cohousings* start living together or is that evolving later?
- Would collaboration and sharing also lead to more *Sustainable Lifestyles* for people?

Decision making process

- How do *Cohousing* communities decide on actions/ common activities etc?
- Do you have your vision in mind when you make decisions?

Country differences

- How do *Cohousing* arrangements differ from one another? How different would a community in Denmark be from Sweden? And how would North American *Cohousing* communities be different from Scandinavian ones?

Benefits and Challenges

- What are the main benefits and negatives of *Cohousing*?
- This concept has been experimented with for quite a while yet, it has not been widely adopted, why do you think that is the case?
- Why do you think more people don't embrace the idea of *Cohousing*? What would encourage people to adopt this idea more readily?
- What would you say are the main reasons people in Sweden join a *Cohousing* project? How are these reasons different from Denmark and North America? (always adopted to country background of expert)
- What are the common goals for *Cohousing* communities in Sweden? Are there common themes? (always adopted to country background of expert)
- Is *Cohousing* affordable? Do you think it could become very exclusive, like a gated community?
- What do you think has to be changed to make it easier for more people to enter *Cohousing* projects?

Further questions

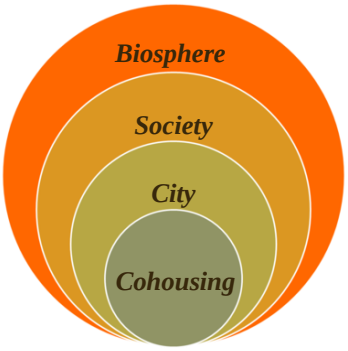
- Would you have interesting material that could help us explore the topic of *Collaborative Consumption* in *Cohousing* projects?
- Is there anyone else you think we should get in touch with?
- We mainly look at the social part of *Cohousing*, in what way would our research be influenced if we also include the architectural part, do you see any differences?
- What are your experiences of living in an Eco-village? – Main benefits and challenges.

Appendix E. Recommendations for Cohousing communities to move strategically towards Sustainable Lifestyles

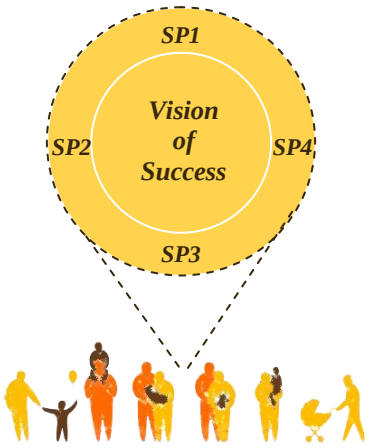
Engagement & Visioning…

> Reaching out the stakeholders

> Common understanding of the urban system within the socio-ecological system



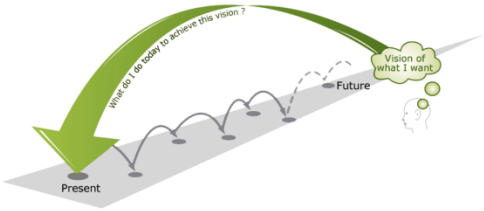
> Common vision of success in line with the 4SPs



Strategic Planning…

> Stakeholder community reviews the current situation

> Backcasting approach



> Prioritisation Questions

- ***…Right Direction ?***
- ***…Flexible Platform?***
- ***…Return on Investment?***

… further strategic guidelines…

Strategic Action Plan…

> Vision

> Strategic goals

> List of all prioritized actions

> The tools required

> Implementation plan

> Timeline

> Responsibilities

> Budget

> …

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