Building Community Capacity through Urban Agriculture

A case study of Malmö and Minneapolis' use of Community Gardening for Social Sustainability

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My thesis is on something that must be experienced to fully understand. To most effectively learn about urban agriculture it is best to dig into the soil and collaborate with others – to learn by doing. Therefore, to create 60-70 pages of what should be experienced is a surreal activity. Therefore, I must pay great dues to those who supported me during this time. I want to thank my supervisor Oksana Mont first and foremost. She gave me deadlines that created realistic goals and expectations on my end. In addition her supportive and helpful guidance were reassuring as I diligently handed in each phase of my paper. A thesis is not a venture taken alone, as many may think, and I am appreciative of the time and energy that goes in on this work from others – thank you Oksana.

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Abstract

Urban agriculture is promoted as a tool to meet goals of social sustainability. Although urban agriculture as a whole is a large sector of gardening and farming activities within and near urban areas and social sustainability is most affiliated with how the urban environment has been built to foster opportunities to pursue a "good life" for citizens. This thesis contributes to the application of the community capacity model to evaluate the assets and needs of two case studies: Malmö and Minneapolis to determine how urban agriculture can aid municipalities looking to meet social sustainability goals. The research finds that communities are prohibited or enabled by the programs, policies, and resources provided by the municipality. Therefore, the municipality must take a proactive role in fostering the urban agriculture movement. The ability of the community to capture these resources and address problems is limited by the community's capacity. Malmö has been less able to invigorate a new paradigm of urban agriculture away from the historically grounded allotment (*kolonilotten*), whereas Minneapolis has engaged in community gardening for decades and is able to capitalize on that experience to expand it to urban farms in addition to community gardens. This outcome is most apparent when analyzing it through the lens of the goals or "function" of the urban agriculture movements of the respective cities. In Malmö the focus is on social sustainability, and therefore the largest benefit is from developing more community gardens. In Minneapolis the goal is to grow the local food movement, and therefore the outcome is the development of larger-scale urban farms. Therefore imparting that the goal or "function" must be framed in a way that addresses context specific needs but also does not over-promise outcomes. Community gardens in particular and urban agriculture in general provide an outlet for people to rebuilt a cultural connection to locally produced food as well as connect within the community to those they would otherwise not meet. It therefore is an effective tool to be used to support social sustainability goals as well as to foster a re-newed food culture.

Keywords: social sustainability, community gardens, community capacity, urban agriculture

Executive Summary

"The secret of getting ahead is getting started" a quote by Mark Twain demonstrates well the importance of action when it comes to building community capacity and reintegrating food into cities. It is easy to look at the benefits of urban agriculture and think it must be too good to be true, and in many ways it is. It cannot fix the root cause of social exclusion, poverty, hunger, and malnutrition. Although, to end this discussion here would be an injustice to a movement that has literally sprouted across the United States and Europe. It has done this by keeping its promise to build a community. Through building a community a shared vision is created, leaders emerge, and complex problems like social exclusion, poverty, hunger, and malnutrition seem to connect in new ways and new people come together to think and act on solutions.

The problem identified within the urban agriculture movement is a hesitancy of municipal leaders to take a step forward to foster and direct the movement. The second problem is that there is a broad scope of benefits of urban agriculture, and solutions are over-promised to citizens. There are several reasons for this identified in the research, but in particular there are many barriers for people to engage in urban agriculture. This includes a lack of time or a lack of resources and access.

In order to address the problems stated above, the research analyzed the goals set by municipalities, which were social sustainability and local food production. Therefore, this research needed to first address a clear relationship between social sustainability and urban agriculture, and how the community's capacity can either foster or inhibit the movement. Second, urban agriculture has been claimed by many to build community. Although there should be clarity in how and in what ways it can accomplish this. Finally, how the goals impact the outcome was analyzed. The research questions identified in this research are:

1. How does urban agriculture and community capacity relate to social sustainability?
2. In what ways is urban agriculture building community capacity?
3. How do the goals or "functions" of the community or municipality affect the outcomes?

To evaluate the resilience of a community is to capture the community capacity. Chaskin (2001) has demonstrated how the community capacity model can be used to indicate the resources held within the community and their ability to capture them to solve problems (Chaskin, 2001). Through analyzing six aspects of community: community characteristics, levels of social agency, function, strategy, conditioning influences, and other outcomes one can begin to draw conclusions. Community gardens are hot beds for the practice of democratic process, mixing a diverse group within a neighborhood, and addressing health and wellness concerns.

There is a gap of how to solve the issue of inconsistency in volunteers and how to manage gardens in a way that the community sees as acceptable. A wavering commitment by individuals reinforces perceptions that this is a "fad" and the challenges such as addressing the concerns over using park space for community gardens as a privatization of public space. While some cities decide to dive in and experiment, others prefer to wait for evidence of how this should and could look like. The difference between the two strategies results from the level of capacity within the community as well as the motivation for change.

If our end goal is sustainability, and sustainable cities must be dense, to take developable land and put it into agriculture is not economically efficient. But what is economically efficient is not often environmentally and socially efficient. Externalities are rampant from the current

economic system, and one of these externalities is the loss of green space to development for economic benefits. The health and wellness benefits of green space are quantified, but not always applied in simple economic cost-benefit assessments. Further, green space that also provides the added benefit of fresh, organic, healthy foods can provide added benefits to the neighborhood, but still struggle to compete against economic incentives to develop. There should be a place for food in our cities – whether that's green walls, community gardens (possibly on public land), green roofs, or along boulevards.

The social benefits can be best captured in the teen years or to help transition newcomers to learn the norms of a community. The economic benefits of community gardens and urban farms are the cultivation of entrepreneurship, training kids and refugees alike for jobs, and relieving food deserts (Campbell et al., 2014). Unlikely to become the profit-driven companies currently producing food, urban farms and community gardens can offer a three-fold portfolio of environmental benefits, societal benefits, and a little economic benefit as well.

Today, there is a heavy emphasis on the urban farm. What is seen is that city space is expensive, and growing food on compacted (and sometimes polluted) soils is only good for small yields and educational benefits. The real money is in vertical farms, which are many years off. What is becoming economically efficient and interesting is Community Supported Agriculture (CSAs). These farms are run by a few farmers and volunteers and provide weekly deliveries of fresh produce. Often just outside the city they are local, often organic, and also provide community benefits. When the technology and economic incentives align to create an environment that is favorable for urban farming we know we have hit the threshold of crisis for our global food system. This can be seen in Tokyo with the indoor farming in a country that has to import almost all of its fresh food.

This is not something to look forward to. The community building effects, access to foraging within the city, and multitude of benefits of community gardens on the other hand are something to idolize. These small spaces often produce large amounts of produce, which can either be consumed by the gardeners or donated. These spaces provide homes for insects, small animals, and birds. They can be places for community events and celebrations. They are places where people can practice the democratic process, problem solve, and learn to manage conflicts. Finally, they are places where people can learn how to interact with people who come from different backgrounds, cultures, and generations.

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Abbreviations

CSA   Community supported agriculture

FAO   Food and Agriculture Organization of the United Nations

NGO   Non-governmental Organization

NUP   National Urban Park

UK   United Kingdom of Great Britain

WWI   World War I

WWII   World War II

1 Introduction

An elderly couple stands at the fence watching the garden community bustle around doing weekly chores, mow the lawn, fill a new box with soil, and discuss some artwork. Gardeners bring their dogs, people are there to relax or work, but it is obvious that there is a little bit of "magic" happening. The group is mostly over 40, a few young faces, and a few ethnically diverse faces. It is obvious that this place is a small melting pot; small enough for people to get to know each other but large enough that there is room for everyone.

Over the years cities became places where the cultural connection to the agricultural community was lost, but they were once places where people remained connected to the food they grew. Today, some consider agriculture to be vacant of "culture", and food has become a commodity that is consumed rather than a cultural cornerstone that is enjoyed and shared (Sumner, Mair, & Nelson, 2010). Our globalized food system puts a focus on efficiency rather than nutrition; it is not as easy to find vine-ripened tomatoes and a peach that was harvested at its peak.

Troubles with the current agri-food system are apparent in the United States where contaminated foods can affect over 45 of the 50 states – this shows the vulnerability of concentrated food systems. There is little question over whether or not this is an economically efficient process, but some question the hidden costs of this system. As a result, diverse and local food systems are becoming mainstreamed in the form of farmers markets and Community Supported Agriculture (CSAs). This along with the urban agriculture movement may create the momentum needed to redefine our agri-food system and create healthy and happy communities.

In many places across the world cities are becoming denser, more filled with people, and less and less filled with healthy, fresh food. The question of the degree to which we should provide space for urban agriculture within the urban environment is being debated, and the answer is yet to be seen. If density is a solution to sustainable development planners and communities must decide how food can be integrated into the environment so people can still enjoy a fall harvest of their own making. This is important both for the health of individuals and the community. Access to growing space is important, and has been overlooked in many city plans. Gardeners can tell you the sense of accomplishment of a successful crop, the unpredictability in weather and pests that will kill off a crop, and the joy of eating food you grew and hand picked at its most ripe.

The most recent growth in urban agriculture comes in parallel to an economic recession, and historically this is no coincidence. Since the early 1900s, urban agriculture crops up during most significant historical crises. Especially during the two world wars, but also during harsh economic times, when communities found themselves with little other option than to ease their suffering by growing some of their own food. In Sweden it has a history paralleled with urbanization. As people moved into the city, agriculture came with them. Today, there are still city-run allotments, which are small garden plots available to people in the city for rent. Once you get your hand on an allotment, it is yours for life. These spaces are high in demand with waiting lists that can span over a decade (Archdeacon, 2012). In Minnesota urban agriculture has predominantly been in the form of community gardens. The transitional nature of agriculture to city looks different in American cities than it does in Swedish cities, and community gardens have been used to cure blighted neighborhoods and grow food in times of crisis. These spaces are not well protected in most cities, but as demand for a new agri-food system grows so do new programs and policies around urban agriculture.

Community gardening, a much less formal form of urban agriculture, which is famous in New York, are small plots that are cultivated together within a small group. They are places where people come together over a shared interest in gardening or food and solve local issues like brightening up a neighborhood block or more easily integrate into a new community. Innovative municipalities that recognize the power of community gardens can capture the benefits. By simply allowing citizens to collectively reclaim their city and grow food and flowers together people can take ownership of their neighborhood and develop a strong sense of community.

The future for urban agriculture is undefined, much like the term itself it is ambiguous all encompassing and has great potential – but a great deal of discussion and at times doubt. The power of breaking soil, planting seeds, nurturing those seeds to fruit, and enjoying the work well-done is easy to doubt due to the fickle nature of community gardens (their ability to pop up and disappear in a matter of years) and the fickle nature of the history of urban agriculture.

> The Food and Agriculture Organization of the United Nations (2014) defines urban agriculture as the growing of plants and the raising of animals within and around cities. Urban and peri-urban agriculture provides food products from different types of crops (grains, root crops, vegetables, mushrooms, fruits), animals (poultry, rabbits, goats, sheep, cattle, pigs, guinea pigs, fish, etc.) as well as non-food products (e.g. aromatic and medicinal herbs, ornamental plants, tree products). [Urban and peri-urban agriculture] includes trees managed for producing fruit and fuel wood, as well as tree systems integrated and managed with crops (agro-forestry) and small-scale aquaculture (FAO, 2014).

With this broad definition everything from gardening at your private home to community-supported agriculture on the outskirts of town are included. There are many different people involved in all the different forms of urban agriculture. There seems to be a difference between a gardener and a farmer. A gardener is someone who enjoys making plants grow and possibly sharing their knowledge due to their passion for growing. A farmer is someone who grows plants for money, as a career choice, and is often focused on running an effective business and making a profit along the way. The people who promote urban agriculture come in all shapes and sizes. People looking to turn a profit on vacant land in the city, people looking to build a community lost, or a health advocate trying to help ease the ills caused by the current agri-food system.

1.1 Problem definition

In a world of unlimited choice, the default becomes even more important as the constant bombardment with options makes the default the easiest and most selected choice (Schwartz, 2005). Transitioning to sustainable communities has been an uphill battle, and many cities are not meeting their goals, and this is due to an engrained system that limits people's ability to make more sustainable choices. This is being challenged, and urban agriculture is just one example of a resistance against the current system. People are demanding local, fresh, and often organic produce. They are also demanding stronger communities and more social inclusion and equality in a time of growing disparity and diversity.

Urban agriculture is discussed from two camps: the first looks at food security and the second looks at its social benefits. Today, the social benefits of urban agriculture are the most relevant topic. The restricted urban environment is not conducive to growing large amounts of food. This is because of the limited amount of space and the cost of supplying

urban systems with the resources needed to produce and distribute economically competitive food. The focus on future technologies like vertical farms and rooftop greenhouses is just that, "future technology". Whereas growing food in soil whether it is in fields in rural areas or on rooftops and on vacant urban land is possible today.

Urban agriculture has been identified as a tool by organizations as high up as the FAO and as small as neighborhood groups to address a myriad of social issues such as the obesity epidemic, social exclusion, racial inequity, and ease unemployment. Cities and Universities can establish programs to evaluate how effective urban agriculture is at addressing these issues and how cities can support it to ensure that the community receives the benefits most needed.

The **governance structure** of the city can **impede or support** the development of **urban agriculture**. This is due to the way the community interacts with the city. The social network and cooperation between actors is very important to how natural resources will be managed in the 21st century. "Governance… understood to be structures and processes by which collective action among a diversity of social actors (state, private, and civil society) is coordinated towards upholding certain publicly held values and resources" (Ernstson, Barthel, & Andersson, 2010). Research on how urban landscapes are governed has been in "deep neglect" and the interaction between groups of humans and the urban ecosystems has been poorly mapped and the relationship is not well understood despite humans playing an important role in ecosystem health (Ernstson et al., 2010).

Within the urban environment the community garden is a place to pair the need to provide space for gardening, but also a space for people to come together to share and learn from each other. In effect they become places where community connections are made and a sense of place is established. This is important for building social sustainability. The ability to establish social sustainability through building community capacity is limited in three significant ways. They are:

1. **Cities are hesitant to adopt programs,** policies, and provide resources for urban agriculture due to its history of being a passing fad used during crisis, a lack of experience and knowledge of how it can be structured, and a perceived lack of public support and/or lack of public will.
2. Urban agriculture is often communicated as a **tool for a multitude of social issues** including fixing the broken agri-food system and reducing the growing disparity and inequality in cities. It cannot address all these problems at once, and is also limited in its ability to address these problems at their root cause.
3. **People do not have the time or space to grow their own food in the city**, and must therefore be provided the opportunity in conjunction with broader state and federal policies that address the wider agri-food policy problems that have created the problems that urban agriculture is being used to address.

By evaluating the community capacity built by urban agriculture projects in Malmö and Minneapolis an interesting data set from a geographic region that has not been written in much in English emerges. Further, this can help to address questions of what the future of urban agriculture is and its place in the new sustainability movements within cities. This has been identified as a priority for research. "Urban agriculture practices including home gardening are also beneficial resources to climate change related food insecurity (Dixon et al., 2009) and community resilience (Okvat and Zautra, 2011). Given the insecurity of tenure in the USA – and perhaps elsewhere – how useful can community gardens be for community

resilience and food security? Future research on this topic is vital" (Guitart, Pickering, & Byrne, 2012, p. 370).

There is strong evidence that there should be and can be food production in the urban environment. It can reduce inefficiencies where land is under-used in both public and private spaces. This can then become a community space where social capital is built, crime is reduced, and healthy foods are produced and consumed.

Urban agriculture is in demand. The presence of gorilla gardening as well as the persistent calls for community garden plots at the city of Malmö are creating a situation, which has caused the city to question how to address urban agriculture. The city of Minneapolis has decided to prioritize local foods through adapting policy to promote locally produced foods and urban farms while making community gardens easier to start.

The next question is whether or not the **community's capacity is going to limit the progress** of urban agriculture as a tool to be used in the sustainability mix of urban planning. Some cities are hesitant to become involved in urban agriculture due to its historical context. The impermanence of previous urban agriculture movements and the removal of agriculture and food production within cities has created precedence for the current relationship between food and the city. This must be overcome in partnership between the community and the city, and is limited by the capacity of the community to respond to barriers built into the current system.

Transformative change requires capitalizing on human and social capital in a way that builds up a new paradigm of how we interact with the environment. When citizens are empowered it can help to build the community's capacity to make change or to recover after a crisis. Urban agriculture has demonstrated the ability to build the social capital needed to create change, but not all urban agriculture is the same. This research investigates how urban agriculture meets social sustainability goals and how cities can evaluate their community capacity and create programs, policies, and provide resources that fulfill their needs.

Urban agriculture is both a social innovation and a grassroots innovation. The rise of urban agriculture in recent years can be called a social innovation, which is a novel (rather re-invented) solution to social problems that are more "effective, efficient, sustainable, or [socially] just than existing solutions and for which the value created accrues primarily to society as a whole rather than private individuals" (Phills et al. in Ross, Mitchell, & May, 2012). Further, in its current form, it can be considered a grassroot innovation due to it being driven from the bottom-up and addressing location-specific situations, interests, and values, which is driven by a network of activists (Seyfang & Smith, 2013; Smith, Fressoli, & Thomas, 2014).

Although it would be an over-estimation of the power of urban agriculture to claim that it can fix the problems in the current agri-food system or solve social inequalities at the city level there are many benefits, and research has demonstrated many opportunities for urban agriculture to be used as a tool by city planners to build and/or tap-into community within cities. Despite these benefits, cities are still hesitant to provide the resources and establish the programs that urban agriculture projects need to thrive. Although in the past few years the growth of resources and support systems in cities across the United States and Europe tells another story.

This research will focus on the Swedish city Malmö and the American city Minneapolis. These two cities were selected to **create a contrast** between how different cultures within western society handle, manage, and promote urban agriculture. Malmö has experienced a great shift in environmental priorities as well as economic make-up. The job market plummeted in the 1980-90s and has completely reformed the city into a progressive urban environment that has become a hot bed for clean tech start-ups and smart development practices. The city has also experienced a boom in urban agriculture and has already noticed social benefits (M. Norling, personal communications, 27 March 2014). Minneapolis has fallen in the steps of other progressive cities like Portland and New York to try to meet the demand for urban agriculture by paving the way for urban farms and community gardens at the municipality level. With the mix of strong mayoral support and a large network of NGOs and community organizations makes the political atmosphere for urban agriculture overwhelming in the city. Minneapolis experienced "neighborhood blight" in the 1980s as families moved out of the city into the suburbs. To address this issue the city has been working to make itself a "place to be", and has worked on building the community within the city to create a strong sense of place and sense of being for its residents and deter crime.

This research investigates how communities can better engage with city actors to create a shared vision and management policy for public spaces. This can reduce the expenditures of the city on maintenance and collecting information as well as showing politicians that there is public support as well as including the public in the future of their community.

1.2 Research question

In order to address the problems stated above, research intends to identify how urban agriculture can be used to accomplish social sustainability goals at the municipal level. The outcome of this thesis is an expanded understanding of the exiting urban agriculture movements in post-industrialized urban area, to better identify strategies for intervention as well as to supply recommendations. The application of the community capacity model will be used to identify where and how programs, policies, and resources can be best used to accomplish municipal and community goals.

In order to support the growth of urban agriculture as a tool to accomplish social sustainability goals then a connection between community capacity and social sustainability must be made. Therefore, the first research question of this thesis is:

1. How does urban agriculture and community capacity relate to social sustainability?

Urban agriculture has been claimed by many to build community. Although there should be clarity in how and in what ways it can accomplish this. This leads to the second research question of this thesis:

2. In what ways is urban agriculture building community capacity?

Finally, to better understand how a shared vision can impact the program or policy outcomes an analysis of the goals or "functions" was completed. The third question analyzed is:

3. How do the goals or "functions" of the community or municipality affect the outcomes?

To answer these questions an in-depth analysis using the community capacity model (Chaskin, 2001) will be used to identify how urban agriculture within two municipalities builds community.

1.3 Methodology

The objective of this thesis to demonstrate a process that cities can use to evaluate urban agriculture programs and policies to build community. It is not to establish goals or programs for cities that want to use urban agriculture in their sustainable food and community development strategies. It will investigate how existing programs, policies, and resources can be further adjusted to meet emerging needs. This will be investigated looking at two case studies: Malmö, Sweden and Minneapolis, USA.

This research is based on case study research design. Each case study relies on a literature review and primary data collected through qualitative research methods including interviews and analysis of relevant city documents. The use of case studies is important for getting a depth of information in two specific examples to contrast and compare them. To triangulate the results data will be crosschecked with existing literature.

Data for programs, policies, and resources available to the community for urban agriculture can be found in literature, such as municipal reports, websites, blogs, books, and newspapers. The scientific investigation of the community building effects of urban agriculture can be found in literature and peer-reviewed journal articles. The author collected a vast array of data to identify potential places for bias, and ensured these were taken into account in the analysis.

Interview questions are designed in parallel with the community capacity framework to determine the objectives set out to be answered in the interviews. See Appendix A for a complete list of questions used. The purpose of the interviews is to test findings of the literature for the case of Malmö and Minneapolis. Outcomes of the interviews and literature analysis include:

- A deeper understanding of the structure of urban agriculture (community gardening or allotments) to understand how Malmö and Minneapolis addressing the demand for community gardens and urban farming.
- Identify drivers of developing urban agriculture projects and why and how people participate to understand how cities can use urban agriculture to enhance social sustainability.
- Collect information on how cities can overcome barriers to urban agriculture through programs and policies.

Case studies of the governance systems in Malmö and Minneapolis were completed to **identify the structures, drivers, and support systems** provided by local government. To do this an analysis of community capacity will be used. The primary data used for analysis will be gathered through key informant interviews. Interviews were used to identify municipality priorities and needs to meet demand for community gardens. Four interviews were completed with stakeholders in Malmö and Minneapolis, which included people from the three stakeholder groups identified by Chaskin (2001): grassroots members, bridge people, and resource people. Grassroots members are residents of the targeted neighborhood; bridge people are business owners, professionals in community development, and social services; resource people are representatives from a city's public, private, and

NGO sectors (Chaskin, 2001). Five observations were completed at two gardens in Malmö: Slottsträdgården, Enskifteshagen, and Kids in Town (*Barn i Stad)* Seved.

Interview data will be bracketed, which provides a framework for the researcher to evaluate qualitative data more objectively.

Janesick (1998) provides the following five steps for inspection of information:

1. Locate within the personal experience, or self-story, key phrases and statements that speak directly to the phenomenon in question.
2. Interpret the meanings of these phrases as an informed reader.
3. Obtain the participants' interpretation of these findings, if possible.
4. Inspect these meanings for what they reveal about the essential, recurring features of the phenomenon being studied.
5. Offer a tentative statement or definition of the phenomenon in terms of the essential recurring features identified in Step four (Janesick, 1998, p. 48).

1.4 Limitations and scope

The geographic scope is limited due to the need to gather in-depth knowledge. Two very different cities with urban agriculture programs in differing stages are contrasted to provide a better image of how urban agriculture is being addressed by municipalities in western countries. Sweden is well regarded for sustainability in the energy sector as well as in urban planning. Therefore, the perspective of a Swedish audience is interesting as Swedes may have a very different outlook in comparison to the most researched countries: United States, Australia, Canada, and the United Kingdom of Great Britain (UK). This perspective will be contrasted with the United States to create a more interesting contrast between two different governance systems and different priorities. Due to the focus on Sweden, language may be a barrier when looking into city policy and during interviews.

The selection of the two cities was used to select cities that were both diverse, but in some ways may be comparable. Criteria for selection of the case studies included population and climate. Both cities have populations within 300,000-400,000, have four distinguishable seasons, and are post-industrial cities. To put these case studies into context some background information about urban agriculture, its history, and its role in building community capacity is necessary. The analysis of the case studies is carried out with the help of a tested analytical framework adjusted by Chaskin (2001) called the community capacity model.

The broad definition of urban agriculture requires a clear understanding of the forms it takes as well as the focus for this research. There are five main forms of urban agriculture: community gardens, allotments, gorilla gardening, residential gardening, and urban farming (McClintock, 2010). The most researched form is community gardening, and the most glorified is the urban farm for its economic relevance.

The type of urban agriculture that will be most investigated is the community garden. Most of the research focuses on community gardening, which is a practice of people coming together to work on the same land to grow food, herbs, flowers, and can sometimes consist of more established meeting spaces with places to sit and even cook food. Generally, the term is poorly defined or not defined at all. "Generally the term 'community garden' refers to 'open spaces which are managed and operated by members of the local community in which food or flowers are cultivated'" (Guitart et al., 2012, p. 364). Although there is no common

definition found in the literature. The reason that urban farming or the more popular "commercial-scale urban farming" practices are not being researched is due to the loss of collective action that is required around them. It is the author's opinion that urban agriculture projects that are scaled for-profit tend to lose many of their social aspects, while they are still important for providing healthy foods and building leadership skills they are often run as businesses and are less communal. This hypothesis will not be tested during this thesis, as there is not a well-established for-profit garden in Malmö that is sufficient to be compared. The level of organization of different urban agriculture activities as well as how individual or collective they are can be seen in Figure 1.
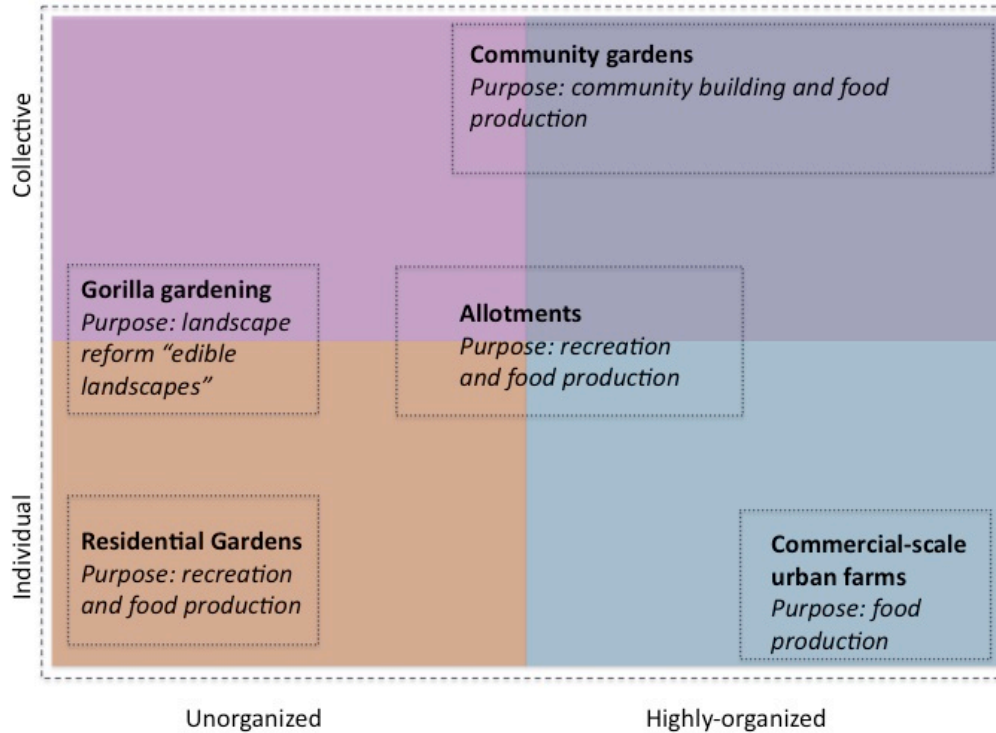
Figure 1. Organization Styles for Urban Agriculture (adapted from McClintock, 2010)

Qualitative research methods can be under appreciated, but when reflecting on human behavior and in gathering perspectives, opinions, and conscious motivators they are an effective tool. Research should more often than not be interdisciplinary, therefore this paper will attempt to address more than just the singular dimensions and try to investigate economic and environmental aspects, but the main focus will be on the social aspects. The larger the pool of knowledge, information, and diverse perspectives provides a better and more reliable research, therefore this research will attempt to collect as many diverse perspectives as well as tapping into established knowledge through interviews, a literature review, and grey literature that has been published by the cities, NGOs, and other relevant organizations. The most pressing needs of the community should be addressed, and as much as possible research should try to align with policy goals to ensure that there are maximum mutual benefits between policy-making and academia.

Quantitative analysis is often challenging to be mixed with social programs due to the complexity of collecting data and a general lack of evaluation. Social programs are usually evaluated based on anecdotal evidence rather than empirical evidence due to the challenges

with collecting data on social programs, but also the lack of knowledge in how to do to this or the perception of the lack of resources to establish, collect, and follow up on data collection. Therefore, as the most practiced and understood data collection method, qualitative data will be collected and reviewed.

1.5 Audience

This paper will be relevant to all cities that are interested in reflecting on current practices in urban agriculture and structures and motivators for participating. There could be lessons learned for other progressive cities in North America and Europe who want to encourage innovation in sustainable consumption and build resilient communities.

The goal of this research is to define how cities must plan for urban agriculture to create programs that improve community capacity. This is done by defining how urban agriculture improves social sustainability and in what ways it does not. There is very little published material challenging urban agriculture at this time, and like any social program it is challenging to monitor and evaluate. Therefore, to provide the baseline of what is "known" and what are "myths" of the future for urban agriculture is important to address. This will help practitioners ensure they are not providing false promises to policy makers and the public.

1.6 Disposition

Chapter 1 presents urban agriculture as applied as a tool for community development and how it is successful in building community capacity in Malmö and Minneapolis. It describes the methodology to answer the research questions. It identifies limitations, the scope, defines the audience who will find this research relevant and interesting.

Chapter 2 is a more thorough analysis of the immediate field of study and is presents the main knowledge gaps in the research field of urban agriculture and community development. Based on these gaps the use of the community capacity model is introduced as the framework to be used to structure the analysis of the data collected. This framework and the relevant theories and frameworks in the field are elaborated upon as well as the current state of knowledge.

Chapter 3 presents the case studies and the main findings from the interviews and data collection through municipal reports, policies, blogs, newspapers, and other secondary sources. The subjects listed under the community capacity model provide a deeper understanding of how urban agriculture is applied to meet social sustainability goals.

Chapter 4 is the analysis and evaluation of the data collected and presented in the findings. The use of the community capacity model provides a clear picture of the state of community cohesion, social and human capacity, as well as the connectedness of the communities under investigation. A comparative analysis is completed of the cases.

Chapter 5 presents the discussion of the research methods and analysis completed during this research. It analyzes the success of the community capacity model and data collection to answer the research questions as well as limitations of the research.

Chapter 6 presents the conclusions of the study including the main findings, contribution to the literature as well as needs for future research.

2 Literature analysis

A literature analysis of peer-reviewed literature is completed to analyze the current state of research regarding community gardening projects, urban agriculture, community development, community capacity, and sustainability. This is done to identify current answers to how urban agriculture and community capacity relate to social sustainability as well as how it can be used to build community capacity.

First, a short summary of the history of urban agriculture in Sweden and the US is presented. The history of urban agriculture has an impact on the movement today and is important for framing the case studies. Second, a summary of how urban agriculture has provided social benefits to communities and the drivers for urban agriculture. Next, a deeper understanding of how the state of the agri-food system has molded the urban agriculture movement will provide a background for how it is being framed in post-industrial cities. Following this are relevant findings for how urban agriculture is used to build community capacity and how that relates to social sustainability. Finally, the community capacity model is explained as a tool to be used to evaluate the community capacity of the two cities selected as case studies.

2.1 History of community gardening and urban agriculture

Community gardening and urban farming have been sewn into the history of both the United States and Sweden. Lawson (2004) broke this into six phases. Somewhat paralleled to the experience in the US is that of Sweden, but Sweden's longer history affords it a much more transitional character from agricultural society to urban life, which had a much stronger history with urban farming as a tool for food production until the industrial revolution. The experience in the US in contrast is much more focused on healing social ills during times of crisis.

Table 1. Applications and growth of urban agriculture since the 17th Century in Sweden and the United States

Sweden	United States
17th Century Prior to Phase One: *Urban agriculture as an obvious source of food in concentrating urban areas*	
During the 17th Century in Sweden urban farming was a part of the way of life, limiting dependence on the country-side, and most of the food grown was consumed in the city and not going to markets. The division of labor did not come until the 19th century when food production was moving in from the country side to supplement the loss of food production by workers moving into the expanding industrial and service sectors (Björklund, 2010).	No data found.
1893-1927 Phase One: *Urban agriculture as a solution to unemployment*	
No data found.	In the US land was given to the temporarily unemployed to give them opportunity to grow their own food and sell surplus produce, which often came in at a high price due to the high quality -- these garden-based poverty relief programs spread to other cities, and remained in Philadelphia shifting to cover the chronically unemployed. The Philadelphia Vacant Lot Cultivation Association ran from 1893 until 1927. The hope was that the land would be donated, but it never was. The motivation behind these programs was to keep the unemployed busy to

	prevent them from organizing unions or turning to socialistic ideals (Lawson, 2004).
1914-1920 Phase Two: *Urban agriculture as a way to teach students more effectively*	
During this time in Sweden there was growth in the allotment movement, where allotments created opportunities for people in cities, and growing spaces were used to strengthen family bonds, create a higher standard of living, and strengthen social bonds (Björklund, 2010).	School gardens started in Boston in 1891 along with the nature-study movement. There was competition with European students, and Americans wanted students to learn with hands-on experimentation and observational learning rather than book learning. It was legitimized in the U.S. Bureau of Education -- Division of Home and School Gardening, which ran from 1914 until 1920 (Lawson, 2004).
1917–1918 WWI Phase Three: *Urban agriculture as a patriotic act to alleviate food shortages during wartime*	
Establishment of allotments.	Herbert Hoover's Food Administration wanted to ease the severe food crisis in Europe by encouraging Americans to grow their own food so the country could export more across the Ocean. It was very successful as farming on all and everything was seen as a patriotic act, and died out at the end of the war (Lawson, 2004).
1930-1937 Phase Four: *Urban agriculture as a solution to unemployment*	
Establishment of allotments.	In the 1930s community gardening again came up to ease the unemployment problem, and was used until 1937 when the food stamp program was established in the US (Lawson, 2004).
1940's Phase Five: *Urban agriculture as a patriotic act to alleviate stress during war times*	
In Sweden evidence of urban farming disappeared until the 1940s-50s, it is thought that allotment gardens had been adopted into Swedish planning practice and therefore there was little debate over it. Gardening was now seen as more of a leisure activity, than something that was done for food and was no longer necessary for society, but during the war there were also gardens used for food production to ease the food shortages (Björklund, 2010).	In the US urban agriculture was promoted under the premise that gardening could give people something to do to keep them busy during the wartime. The food system was advanced enough that it was not necessary for food production (Lawson, 2004).
1960-present Phase Six: *Community gardening emerges as a solution to community development challenges in the US*	
In Sweden starting in the 1970's was the "green wave" which began to look at sustainable city planning and food security (Björklund, 2010).	In 1960s urban agriculture reemerged as beautification projects. In the 1970s the energy crisis and high inflation gave rise to more urban agriculture. In 1976 the U.S. Department of Agriculture developed the Urban Gardening Program (ended in 1993) and two years later the American Community Gardening Association was formed to help exchange information among communities and different stakeholders. "Garden programs like the New York City Green Guerillas (founded 1973) and Boston Urban Gardeners (founded 1977) emerged to reclaim and rebuild communities through gardening." According to Lawson (2004) interest has been consistent and increasing since the 1980's (Lawson, 2004).

2.2 Current literature findings for urban agriculture and social sustainability

Urban agriculture has been promoted as a solution to all sorts of environmental, social, and economic dilemmas. It has been thoroughly researched for its social aspects, and with the

continual movement of people as the world becomes more globalized and people are more open to migrate issues of social cohesion and social inclusion challenge efforts for sustainability.

Further community gardens have been used or have become places where people have revitalized their neighborhood, engaged in the democratic processes to address social issues or to fight to maintain their access to their garden, or as a place for social change to occur and for social learning. Two literature reviews were completed on urban agriculture and community gardening in recent years. One was completed in 2010 as a part of a special issue of the International Journal of Agricultural Sustainability, and the second was in 2012 published in Urban Forestry & Urban Greening. The second was a systematic quantitative literature review of the geographical spread, types of methods used, and types of results obtained of literature on community gardens, urban food production, and urban agriculture. A few lessons collected from these reviews were:

- Urban agriculture is typically practiced in developed nations for recreation and in developing nations for food security.
- Property values are increased by urban agriculture projects.
- Urban agriculture is predominantly focused on low-income areas and with diverse cultural backgrounds.
- People participate in urban agriculture to consume fresh food, to develop social bonds, save money, improve health, and to enhance cultural practices (Guitart et al., 2012). A collective summary of motivations and challenges as well as the number of research studies supporting it can be seen in Table 1.
- Pearson, Pearson, and Pearson's (2010) review indicated that urban agriculture is not identified as an initiative to improve sustainability, reduce carbon emissions, or urban health (Pearson, Pearson, & Pearson, 2010).

Table 2. Motivators and challenges to urban agriculture (Guitart et al., 2012)

	Total	USA	Others
Motivators			
To consume fresh foods	46	26	20
Social development/cohesion	54	29	25
Saving/making money	27	11	16
Improving health	31	16	15
Enhancing cultural practices	20	11	9
Education	23	13	10
Increasing land accessibility	11	6	5
To enjoy nature	14	9	5
Environmental sustainability	10	3	7
Enhancing spiritual practice	46	26	20
Challenges			
Future land access	26	17	9
Soil contamination	10	4	6
Lack of water	10	3	7
Safety issues	10	4	6
Funding	12	6	6
Cultural differences issues	3	1	2
Neighborhood complaints	5	2	3
Waiting list	3		3

The benefits demonstrated in research ascribe mostly to the social aspects of community gardening. Therefore, this is not identified as a place for research within community gardening, unless it is focused on a location that is generally under-researched. See Table 2 for the list of demonstrated benefits of community gardens in current community gardening research.

Table 3. Demonstrated benefits of urban agriculture (Guitart et al., 2012)

Number of journal papers that demonstrated the different benefits of community gardens.			
Benefit	**Total**	**US**	**Others**
Social	33	17	13
Access to fresh foods	37	19	18
Economic	15	7	8
Health	14	6	8
Reduced crime/increased safety	6	5	1
Education	11	8	3
Environmental sustainability	2	0	2
Cultural heritage	6	3	3
Life satisfaction	4	3	1
Environmental equity	0	0	0
Increased biodiversity	0	0	0

The social component of community gardens is well established, and a comprehensive list of motivators has been summarized in the literature review completed by Guitart et al. There are two aspects to the social dimension of urban agriculture that are important to highlight. First what are the perceived individual benefits, and what are the broader social benefits of urban agriculture.

Individual benefits are important to understand and communicate, as local governments begin to create programs to support urban agriculture. Understanding why and how people practice urban agriculture will help decision makers create more effective policies that encourage local food production in the urban environment when it is appropriate. Guitart et al. (2012) make further recommendations for where their research team deemed the priorities for future research. Besides addressing more diverse geographic locations than the United States, Australia, Canada, and the UK the following two recommendations were made:

(i)   A political ecology analysis to determine how social and ecological factors intersect and impact environmental outcomes such as urban biodiversity. The assessment of how urban gardens impact biodiversity is wildly under-researched (Guitart et al., 2012).

(ii)   An assessment of gardening practices and how they interact with the ecological systems such as nutrient cycles, carbon storage in the soil, pesticide and fertilizer use, and other sustainability factors of gardens (Guitart et al., 2012).

2.3 Urban agriculture as a protest against industrial farms

The current urban agriculture movement is in reaction to the current industrialized agri-food system. Urban farms and CSAs demonstrate a protest against an agri-food business that

many feel powerless to confront. Proponents claim that the current farming practices are ecologically sound and more economically efficient than urban agriculture. Ecologists have made it clear that this system is wrought with externalities that make it appear efficient, but capitalizes on the ecosystem services that attempt to manage nitrogen, phosphorous, and pesticide runoff, but are just not able to handle the loads of these substances. Further, this is causing a huge unaccounted for economic cost. The externalities of the current agri-food system do not stop at environmental costs and the associated impacts to human heath, but there are also direct impacts to human health from the system from the food that is produced. Due to the over production of corn a wide array of food goods have been derived from it, especially the replacement of corn syrup. This has become a great source of debate in the United States as to the health impact on the population with the concern that it plays a role in the obesity epidemic.

Although urban agriculture is not a replacement to the agri-food business we have now. It can be a **part of the solution**. Its increasing demand shows that people are ready for reconnecting with the food they eat. Urban agriculture can be seen as an outlet for providing local, organic food and increasing community capacity of cities. Better understanding these systems and understanding where they fail and where they succeed will help us on our path to creating new systems that work.

The solution to today's problems may well be an ingenious set of technological advancements or it could be through recapturing simplicity and low-tech solutions. An example for agriculture is working with nature rather than against it. When monoculture crops begin to fail there is always a high-tech solution on the way. A solution that does not work in countries that do not have access to cheap oil, synthetic fertilizers and pesticides, and patented seeds that are genetically modified to resist herbicides. These high-tech solutions have ingrained a system that is highly vulnerable. Whereas low-tech options such as integrated-pest management and permaculture are more resilient, they are more complex and challenge the current system. Therefore, in some respects making them almost pointless without a radical change to the system. What community gardening and urban agriculture (that is paired with a youth program or school programs for students to come to the farm and learn) do is they teach people about food, how it is produced, and how we can do better.

The social issues that are commonly found in cities are from the increase in poverty and the challenges of helping immigrants integrate into a new society with different cultural norms and often a vastly different governance system. Disparities amongst social groups must be addressed as we continue on our path to sustainability. Without addressing inequalities we cannot create a sustainable society. Society is becoming more and more inequitable, in every direction. This is causing conflicted interests and lack of trust in government and corporations. To build a sense of fairness and equality will create an environment where people are motivated to cooperate and create solutions to social, economic, and political problems (Rogers et al., 2012).

A new paradigm in how we communicate sustainability must be accomplished. This includes creating new participation models that involve the community instead of the old town hall style-meeting platform. This should include messages that incorporate "good for the planet" and "good for me" into one, and not be used as a brand but selling of an idea and values. A leading thinker on sustainability who works for a European marketing firm believes that there should be a clear definition of sustainability that includes fewer than six components which can be used to sell this idea (think the three-arrow recycling icon) (Stoiber, 2005).

Due to the beginning of the antropocene, some researchers have called for the focus to be put on resiliency (Benson & Craig, 2014). Resilient communities are defied by "the capacity of a system to absorb disturbance and reorganize while undergoing change so as to still retain essentially the same function, structure, identity, and feedbacks" (Folke, Hahn, Olsson, & Norberg, 2005, p. 443). To evaluate the capacity to which a community can handle extreme events that push their systems into disorder social scientists including Chaskin have devised the community capacity framework. This framework is comprised of six elements:

1. Characteristics of community capacity, which includes the sense of community, level of commitment of community members, the ability for the community to solve problems, and access to resources.
2. Social agency, which are either individual or organizational and connected through networks.
3. Function, which is the goal that directs a strategy.
4. Strategies, which are the means by which to accomplish a goal and include: leadership development, organizational development, community organizing, and fostering collaborative relationships among organizations.
5. Conditioning influences, which are the outside pressures and circumstances, which affect your policy or program and may not be able to be addressed at the local scale.
6. Other outcomes, which include benefits or unexpected effects other than enhancement of community capacity (Chaskin, 2001).

2.4 Social sustainability and community capacity

To better understand the link between social sustainability and community capacity a definition of social sustainability is needed. Following that an understanding of how urban agriculture has been identified in supporting social sustainability, and then a deep understanding of how aspects of the community capacity model are supported through urban agriculture.

Social sustainability begins to more actively address the issue of equity in the "social" or "human" part of sustainable development. Concepts like social capital, social cohesion, social inclusion, and social exclusion are all used to begin to illustrate what these terms mean, but the social goals of sustainable development remain mostly connected to how the built environment interacts with the social sphere, and does not directly define how we want our communities to work. It is defined by phrases like: places where people want to live and work; meets diverse needs; contributes to a high quality of life; safe and inclusive; equal opportunity and good services for all (Dempsey, Bramley, Power, & Brown, 2011). It is challenging to define for two major reasons:

1. Happiness and well-being are subjective and difficult to compare (it is difficult to set one baseline and judge).
2. Freedom of choice is extremely protected in the US and in many ways the trend exists within all of the western world.

The combination of these two makes social sustainability very **difficult to define** and move towards, therefore it must be **locally adapted,** but also **fairly compared**. Like community gardens, there is no universal definition of what it includes. According to researchers at Chalmers in Sweden social sustainability is contested and broadly defined (Buser & Koch, 2013).

Social sustainability is defined in a similar way to environmental sustainability. Social sustainability is when people and communities live in a way that is healthy and satisfying. To meet this there must be a baseline of material, social, and emotional needs and a way to limit behaviors that result in poor health, emotional distress, and conflict. This requires preserving family and community structures (Rogers et al., 2012).

Social sustainability is a mixture of fostering a sustainable community and achieving social equity. A sustainable community has the characteristics of being active, inclusive, and safe. When talking about safety you can also connect this with trust which breaks down into security and a sense of identification and pride in one's neighborhood. Social equity is more about effective planning and appropriation of resources in an equitable way – and this has more to do with the built environment (Dempsey et al., 2011).

In the western world this will require changing the focus from material wellbeing to human wellbeing. This takes community driven and locally relevant definitions of wellbeing as well as visions for how people want their community to be. Due to busy schedules and a prioritization on material wellbeing this has not been prioritized. One option for qualitatively evaluating aspects of social sustainability is through Chaskin's community capacity model.

The definition used for community capacity as defined by Chaskin (2001) and applied in this research: "community capacity is the interaction of human capital, organizational resources, and social capital existing within a given community that can be leveraged to solve collective problems and improve or maintain the well-being of a given community. It may operate through informal social process and or organized effort" (Chaskin, 2001, p. 295).

Community capacity is the summation of several community assets such as resources (financial and human), a network of relationships, leadership, and public participation and collective action (Chaskin, 2001). Fostering strong communities and social networks in cities helps build resilient cities that recognize they are a part of "social-ecological" system, which includes interconnections between humans and the ecological systems. The delineation between them is "artificial and arbitrary" (Folke et al., 2005, p. 443). Within the social economy sustainable transformations can take place through active citizenship, which instills democratic ideals and lets people create locally-relevant paths that work towards sustainable development (Seyfang & Smith, 2007). There are four characteristics of community capacity, which are a sense of community, a high level of commitment, an ability to solve problems, and access to resources.

2.4.1 Characteristics of community capacity

By its basic principal urban agriculture builds community capacity through building a sense of community around the joy of gardening. It builds a sense of place for people. It allows people to work through conflicts and learn conflict-management skills (Battersby & Marshak, 2013; DeLind, 2002; McClintock, 2010; Porter & McIlvaine-Newsad, 2014). Some projects hold regular meetings or have a shared vision. These are often set in the beginning of the project, and many gardens also have a set of rules to guide behavior and create a common sense of norms and values (Battersby & Marshak, 2013).

There tends to be a theme of a wavering level of commitment. In the beginning there are often leaders that emerge, but then the excitement wanes and does not always translate to people seeing themselves as stakeholders in the collective well-being of the neighborhood. Further in some gardens it comes down to a few key gardeners who keep up maintenance (Battersby & Marshak, 2013; Birky & Strom, 2013). This is time intensive and without

ownership there is a great deal of people not putting in extra effort, and therefore some cities require formal coordination in an association. Therefore, making this a major issue for many urban agriculture projects that do not involve a formalized structure.

Historically urban agriculture was used to solve immediate problems in times of crisis. Government support and campaigns were often highly persuasive, and the projects quickly died out once the crisis was over. Now, urban agriculture rises up for neighborhood stabilization when communities need intervention due to crime, unemployment, or other social issues (Firth, Maye, & Pearson, 2011). In the case that the community gathered together to improve itself it is a good example of problem solving, although it could be argued that urban agriculture is not solving the root problems, but rather easing discomfort or struggles during especially difficult times.

Resources made available to community gardening projects have grown in the past decades. Initially, Lawson (2004) points out that one of the reasons for this may be that community gardens tend to be a **cheap and easy first step for cleaning up crime ridden and/or vandalized neighborhoods** (Lawson, 2004). Today, almost all large cities have had to address the request for more resources for urban agriculture projects. New York has had a rather strong and consistent trend for urban agriculture, and has a very well established urban agriculture program with significant funds put into establishing community gardens and urban agriculture projects. The organization overseeing the legitimization of these projects is called GreenThumb and in 2012 they had a staff of between 15 and 20 people and a budget of $600,000-800,000 a year (Tortorello, 2012). Although geographical location and other barriers can get in the way of access to resources as written about by McClintock "…despite noble efforts to feed a hungry population. Only those individuals who have access to the services provided by organisations (because of spatial proximity or the ability to participate as a volunteer) ultimately tap into the entitlements of citizenship that these organisations provide" (McClintock, 2010, p. 156).

Community gardens have a capacity to build a sense of community through bringing people around a singular goal of designing and maintaining a garden (**shared vision**), creating rules and **sharing norms** of how this should be done, and **building on values of friendship and cooperation to accomplish their goals**. Next, a level of commitment is demonstrated by the demand for these spaces exceeding the supply. People take ownership of their neighborhood and find some way to help out or support it. Third, the ability to solve problems may not always be possible or easy to quantify, as although these communities are able to solve immediate struggles the underlying causes of their struggle often remain unchanged by their small-scale project. Finally, the access to resources has been a struggle due to the loudest and strongest lead groups getting the most resources, meaning that in some communities there is an ability to foster more resources and attention, whereas in others there is not. Further, this is hard to always say that the community coming together is the reason for additional resources being provided to the community, and it is not due to other policies and plans for the community made at the municipal or regional level.

2.4.2 Levels of social agency

The individual capacity (human capital and leadership) is important parts of facilitating change. Therefore, making leadership particularly important in urban agriculture projects. Leadership is important in the shaping of change and reorganization after a crisis occurs, leaders build trust, manage conflict, coordinate actors, build partnerships, and help mobilize support (Folke et al., 2005). Whether the desire is to improve their community and personal lives by cleaning up vacant lots or to provide a space that was culturally significant to them,

leaders take on the work to coordinate the community and work with the government to make change (Saldivar-Tanaka & Krasny, 2004). People take on this responsibility because of the personal benefit they may receive from it. Urban agriculture keeps people busy and provides them purpose and fulfillment. When there is high unemployment it provides a distraction from the worries of their lives like violence and allows them to connect with God (Battersby & Marshak, 2013). People can also find a sense of status from gardening, because people enjoy seeing it and are impressed by a gardener's skills (Battersby & Marshak, 2013). This empowers individuals, and can naturally lead to those with previous gardening experience to emerge as leaders (Porter & McIlvaine-Newsad, 2014). Not only do there need to be leaders within the gardening groups to work with city planners and other organizations, but there must be leaders within the cities to ensure that barriers are removed for these groups. City planners have a great responsibility for the well-being of people living in their jurisdiction:

> As Morgan (2009) writes though they may not be aware of it, urban planners are arguably the key players in the campaign for healthy cities because modern diseases like obesity will be solved not by the medical profession, which is largely geared to treating illness rather than promoting health. On the contrary, long term solutions to diseases like obesity are more likely to be found in health-promoting planning measures—such more sustainable urban environments where people feel safe to walk, run and cycle; public spaces where healthy food is readily accessible and affordable by everyone, especially in poor neighbourhoods; and where citizens are actively involved in shaping their built environment (Morgan, 2009, p. 343).

Leadership is of key importance, but without followers there is little to no power behind what the leadership says unless they hold great power. **Community leaders need a critical mass of followers to ensure they will be heard and to make an impact**. Urban agriculture has been demonstrated as a tool to build community and engage large numbers of people. This was seen in Cape Town were the connection of people and creation of a community where there had not been one before (Battersby & Marshak, 2013). Community gardening can alleviate poverty through the development of social capital and access to fresh foods as well as the social bonding where people share knowledge on how to grow food (Porter & McIlvaine-Newsad, 2014). When people mobilize to bring about change it can be labeled as a strong community. Firth et al. define a strong community as one that is "built by community members who are engaged, participate and feel capable of working through problems, supported by strong social networks. In these terms, strong communities are defined as those endowed with social, economic, and environmental assets, supported also by organizational structures that work towards their use over the long term in an equitable manner" (Firth et al., 2011, p. 557). Therefore, meaning that individuals with a high level of human capital and leadership skills can mobilize large groups, and make change.

When organizations and individuals join together they develop a network, which is the patterns of social structure between individuals and organizations. **Community gardens bring people together with a common purpose,** provides them new skills, and expands their social network. If a high level of trust and support are developed it indicates high levels of social capital. It provides a space for people to meet and network. It creates bridging social capital due to bringing people who otherwise would not meet together. Last it helps people build links with institutions and authorities.

Social networks begin to build norms of reciprocity that may have been lost in today's society. There are four fundamental ways people interact: communal sharing, authority

ranking, equal reciprocity, and finally market pricing (Fiske, 1992). More and more is taken from the first three forms and a market pricing mechanism is created for it. Due to the efficiency of the market as well as the way capitalism has changed society more and more social interactions move from communal sharing and equal reciprocity to "market pricing" (Schwartz & Sharpe, 2010). Community gardens begin to teach people how to share and come together around a communal resource beginning to rebuild a sense of communal sharing, authority ranking (if there is a "leader" at the garden), and equal reciprocity. These strong networks have shown to improve wellness and security of a community (Dempsey et al., 2011).

Community capacity characteristics and social agency can be built by programs and policies developed at the city, state, or federal level. Policies and programs have goals and objectives and are designed to fulfill these. First, is the definition of the goal, as referred to by Chaskin as a function.

2.4.3 Function and Strategy

Function is the intention or goals that direct the type of strategies deployed to accomplish these goals. The driver or original purpose for the urban agriculture project has an impact on why people participate. Function is adapted to the community's needs and can be framed to resonate better with the community-driven vision.

The goal and vision of a movement are the basis for developing strategies as well as how it is presented to the public. Firth, May and Pearson (2011) found in a garden promoted by the local health care provider people indicated that they were involved to get more active and increase the amount of fresh food they were eating, whereas the one that was community driven had people who wanted to improve their mental and physical health (Firth et al., 2011).

Urban agriculture is extremely **adaptable**, and due to the **breadth of benefits** there are many **different ways it can meet a community's needs**. Armstrong (2000) found that motivators are different for urban dwellers as compared to rural community gardeners. Urban people are focused on the enjoyment of nature/open space, benefits to mental health, food source for low-income households; whereas rural people are more focused on the practice of traditional culture (D. Armstrong, 2000). From the Shambe garden in Toronto, which has many African Canadians and new immigrants from African nations, motivations are: volunteer hours, to meet locals, and to have access to fresh food (Baker, 2004).

To better accommodate the drivers of a neighborhood or community the projection of what the purpose of the garden is will impact how easily it can gather broad involvement.

Research into grassroot innovations has taught us that **people are most motivated by internal factors** like making their life better and are not commonly engaged to "save the environment" (Alexander & Ussher, 2012; Feola & Nunes, 2013). Therefore, the framing of urban agriculture projects is very important, and for many engaged in them they are most focused on the personal benefits, not the environmental benefits. It seems that a collection of urban agriculture projects could be mobilized as a member-base for a grassroot innovation, which needs a diverse and large member base, visionary leadership, a shared vision, and engages in experimental learning (Feola & Nunes, 2013; Folke et al., 2005).

The function is fulfilled through a strategy (objectives and outcomes). Chaskin defines four major types of strategies that include leadership development, organizational development,

community organizing, and fostering collaborative relationships among organizations. These are intentionally designed to accomplish the function (goal). The effect of these strategies is to increase the level of social agency within a community be it individual, organizational, or supporting the network between these two.

Leadership development is a common, but challenging task. These **skills can be learned**, which is why it is a strategy for building community capacity. In the end it comes down to what the priorities are, but whether or not a project has a strong and capable leader can often play a large role. According to Daniel Goleman, who studies and writes on emotional intelligence, there are five major characteristics of great leaders. "People skills" and the ability to convince people to follow us depend on how self-aware, self-regulated, motivated, empathetic, and the breadth of our social skill (Goleman, 2014). Although many leadership programs may rather help people discover their leadership skills and learn how to take action, it takes a great deal of effort to foster these characteristics in a way that creates a great leader. The first step is often having the knowledge and making a decision. Brokers: "Through this, the broker gains what Burt calls adaptive implementation, an ability to navigate in a continuously changing social landscape and coordinate the actions of a network, and learn which actors can be depended on in times of action, knowing whom to connect (and not to connect), how to connect them, and when" (Ernstson, Sörlin, & Elmqvist, 2009). We need to better understand human cognition because people are hard-wired to respond to new circumstances based on past experience (Curtin, 2014).

Organizational development can be captured by encouraging **continued leaning**. One of the most important aspects of this is to learn to monitor and evaluate progress. This is important for implementing feedback loops or other essential elements of effective design and rather "go through the motions" (Curtin, 2014). This style of work also pushes past single-loop learning (modify action to achieve obtained or expected outcomes), which is a short-term approach and rarely solves the root of the problem. One better than this is double-loop learning (assessment of assumptions, policies, or values that lead to new approaches and allows for "safe-to-fail" spaces for experimentation and learn-by-doing). Best practice is to instill triple-loop learning ("learning to learn" generate transformative approaches that allow for innovation – ask three interconnected questions: "Are we doing things right? Are we doing the right things? Is the right approach leading to more effective action? It is transformational by affecting not just our behavior and thinking, but also our identity, the worldview through which we see ourselves and the overall context of the challenges we are addressing" (Curtin, 2014). Through developing monitoring and evaluation as well as progressing beyond single-loop and double-loop learning an organization is setting itself up for success.

Community organizing is a challenging task, but cities can encourage it by **providing resources and allowing for community-driven solutions**. This can be done by creating incentives such as project funding, salaries, or invest in individuals and organizations who are engaged in triple-loop learning and building a network of innovators (Ernstson et al., 2010). By building a collaborative process it builds the cognitive adaptive capacity to respond to change (Curtin, 2014). This should be rewarded, and through this network, community-driven solutions can more easily arise. It seems the more complex a problem; the more informal means are needed to solve it. This is because it takes a greater breadth of knowledge and understanding that is not always held in organizations to trigger leverage points that can create solutions that are long-term oriented and have deep ecological understanding (Curtin, 2014).

Collaborative relationships among organizations can be accomplished through **identifying and supporting scale-crossing brokers**. Scale-crossing brokers are important to sustain and nurture learning arenas and to respond to disturbances by coordinating collective action (Ernstson et al., 2010). They are capable of connecting and sharing experience and knowledge to promote systems that are more efficient.

2.4.4 Co-management as a strategy

Co-management accomplishes to organize the community as well as foster collaborative relations among organizations, which are two of the strategies identified by Chaskin (2001). The definition of co-management has evolved over the years, and has become closely related to adaptive management.

> In Carlsson & Berkes seminal paper on the topic they cited the World Bank, [who] has defined co-management as 'the sharing of responsibilities, rights and duties between the primary stakeholders, in particular, local communities and the nation state; a decentralized approach to decision- making that involves the local users in the decision- making process as equals with the nation-state'(Carlsson & Berkes, 2005)

Their simple definition is that "Collaborative management, or co-management, has been defined as 'the sharing of power and responsibility between the government and local resource users'"(Carlsson & Berkes, 2005).

Today, more or less, it is referred to as adaptive co-management, which combines learning and experimentation of adaptive management with participation and cooperation features of collaborative management. It is characterized by "an emphasis on cross-scale networks; self-organizing institutions and governance arrangements capable of supporting cycles of learning-from-action (adaptive management); decision-making through communication and negotiation; the formation and deployment of social and human capital; and processes of social learning (Olsson et al. 2004, Folke et al. 2005, Stringer et al. 2006, Cundill and Fabricius 2010)" (Smedstad & Gosnell, 2013).

Co-management is touted as the "logical approach to solving resource management problems through partnerships" (Carlsson & Berkes, 2005). It engages neighborhoods and larger communities to become civically engaged and help direct and manage projects that directly affect them. This, namely "civic ecology", helps address issues of diversity, create self-organization, and adaptive learning and management (Tidball & Krasny, 2007).

There are five types of co-management defined: co-management as an exchange system, co-management as a joint organization, co-management as a State-nested system, co-management as a community-nested system, and finally co-management as a network between the state, community, companies and other private actors, other communities, and NGOs and other similar interest groups (Carlsson & Berkes, 2005). It depends on strong social networks (Ernstson et al., 2010), is self-organized, and is most commonly paired with a policy window of some kind. Co-management is a self-organizing process that occurs due to "presence of a real or perceived crisis, policy windows and enabling legislation, and existing system variables related to culture, knowledge, and power" (Smedstad & Gosnell, 2013).

It is clear that humans need nature, and nature is being damaged by human civilization. This is especially visible in urban green spaces. Urban green areas lose their capacity to support biodiversity over time, and this loss is correlated with "habitat connectivity and matrix permeability". This is seen in Stockholm's National Urban Park (NUP). Since the mid-1970's

there has been a decline of red-listed species and approximately half of the species have disappeared from the green areas that are at the center (Elmqvist et al., 2004). Scientists have found that to receive ecosystem benefits, there must be a healthy ecosystem to tap into. There is a close connection between ecosystem health and ecosystem services — the more biodiverse the green space or green infrastructure it is the more benefits will be accumulated (Tzoulas et al., 2007). So, not only do we depend on nature for ecosystem services, we also have an innate drive to be among it. Biophilia is the hypothesis that humans have a biological need to "affiliate with life and lifelike processes" and although there is no empirical basis behind this there is a large amount of logical argument, and there are studies that have identified that many go to green space for emotional regulation and spiritual connection (Tzoulas et al., 2007).

Stockholm National Urban Park as an example

The Stockholm National Urban Park (NUP) has long historical roots and has evolved up to present day. It was developed during the years of 1930-1970s to accommodate population growth in Stockholm. This development was important for the city to make cleaner living conditions and improved quality of life for residents of the city. This broke up the natural area of the NUP fragmenting habitats. Starting in the 1960s and 1970s the environmentalist movement was born, and began to fight to protect the park from urbanization. Finally, in 1995 the National Urban Park law was passed although the park is still under pressure due to urban sprawl (Barthel, Colding, Elmqvist, & Folke, 2005). Today it is a complex social and ecological place, which has drawn a great deal of attention and research.

The NUP is visited by "more than 90% of the urban population in Stockholm [annually]… and 45% visit every week, and 17% [visit] more than three times a week" and is managed by 65 organizations – twenty two of which have management rights – and the rest have rights to make improvements and some have rights for exclusion (Elmqvist et al., 2004). With this mixture of biodiversity in nature and a diverse set of users the social aspect of its management becomes very important. "When conducting ecological research in urban areas, a social inventory is crucial because it provides clues on how to design and stimulate the development of more effective biodiversity management systems. In this context, we emphasize the existence of numerous local stewards and local stewardship associations involved in the management of the NUP" (Barthel et al., 2005).

The movement to protect the NUP is known as the Ecopark (*Ekoparken*) movement. It included 60 civil-society organizations with 10,000 members represented. It is considered a success, and part of this success is contributed to the movement surpassing the local level and becoming national law, protecting the park. The movement started with protests against a set of motorways and development planned within Stockholm. Two defining features that are seen to have made the movement a success is that it started with linking the park areas together under one space unified as the Ecopark and then "jump[ed] scales" from municipal to national. Secondly, the structure of the social network was with a strong core and a large amount of periphery voices. This gave political legitimacy to the core as well as additional eyes and ears to protect the park (Ernstson et al., 2009).

Due to this complex network of organizations management has still been a work in progress. There is a need for inter-municipal coordination to reach regional sustainable development goals, and these formal broad communication procedures are lacking for the NUP due to the diverse stakeholders with differing opinions (Elmqvist et al., 2004). A formal platform is challenging in the face of so many actors. Research has demonstrated that Swedish managers are good at creating visions and management plans, there is a challenge when it comes to

implementation, and further when it comes to monitoring and evaluation there is none. According to Elmqvist and his team, without proper monitoring and evaluation the system can never become adaptive and success cannot be calculated (Elmqvist et al., 2004). Therefore, making co-management a challenging management style for the multitude of reasons. It is challenging to bring actors together, coordinate them, and then the monitoring and evaluation is often lacking undermining the entire system.

Co-management and its application to urban agriculture

Effective management for urban green spaces has been a challenge to many planners. Often goals and plans are easily designed, but the implementation, monitoring, and evaluation is neglected to some degree. Co-management makes many promises, but some lack empirical support. Many benefits have been hypothesized to be outcomes of co-management:

1. Data gathering
2. Logistical decisions for natural resource management
3. Allocation of decisions
4. Prevention of environmental harm and damage
5. Enforcement of regulation
6. Enhancement of long-term planning
7. Inclusive decision making (Carlsson & Berkes, 2005).

Data gathering is an important part of monitoring and evaluation, and can sometimes be expensive and overlooked. Some communities design programs that involve the community to go out and collect monitoring data and report back, and this can be used to improve the connection of resource management to the community as well as support the management organization. Other monitoring data is much more complicated to analyze and collect. Recently a study was completed on the ecosystem services provided by pollinators for the food producing cropland around Stockholm. This was used to analyze land-use changes and development plans by the city. Research showed the impact of land-use change would have on pollinators. A moderate negative impact on pollinators was shown, with a 4.4 magnitude larger impact on solitary bees, but the land use change as planned does not pose a major threat to pollination potential (Jansson & Polasky, 2010). This data is not only important for resource managers to have, but to evaluate and apply.

Logistical decisions such as how the land can be used and the degree to which it can be damaged is more challenging. Parks that are used for concerts and other large events can often be severely damaged by the traffic of people. These impacts must be addressed or accounted for so the environmental degradation is prevented. This requires an interplay between both formal and informal management of spaces, and should be researched and understood by planners and conservationists (Elmqvist et al., 2004). This is especially important as "diverse and new forms of property rights arrangements hold potential to play a much grater role in stewardship of urban landscapes that has hitherto been recognized" (Andersson et al., 2014).

Allocation decisions are said to be more appropriately decided through co-management. This is especially poignant in the agriculture debate. There are two streams of thought: land sharing and land sparing. Land sharing is when food and biodiversity are integrated and land sparing is when there is a separation between "conservation land" and "agricultural land". Researchers Barthel, Crumley, and Svedin support land sharing, because it gets around the possibility of defending monoculture, and pushes farmers back to a system of adapting agricultural practices to the ecological and cultural context (S. Barthel, Crumley, & Svedin,

2013). This is also seen in the debate over how urban green spaces are managed, and a desire to make cities greener to better integrate ecosystem services into the urban environment.

Co-management is meant to increase the protection from environmental damage. This is complex and must be well researched, monitored, and evaluated as contradictory information may present itself. For example, in some landscapes in Europe it was found that when the land was left fallow there was a decrease in biodiversity due to the species who have adapted to live in the landscapes that are influenced by humans (S. Barthel et al., 2013). It is important that we have a handle both on how humans impact nature, and how nature impacts our lives and well-being.

Enforcement of regulation is a persistent challenge, and requires resources and attentiveness. In the NUP that having a large amount of resource users and formal organizations involved there are more eyes on the park to report violations or mismanagement to the management organizations (Ernstson et al., 2009). This requires the building of trust and connections between social networks. Ideally co-management leads to an "increase [in] the ability of groups and individuals to work together more effectively in the long term, and in a number of cases they contributed to the achievement of site-specific management and monitoring outcomes. Although processes supporting the ongoing maintenance of these outcomes were generally not embedded in governance institutions, they may still have resulted in cumulative effects that were undetectable to us considering the array of variables and factors that contribute to and detract from system adaptability" (Smedstad & Gosnell, 2013).

Enhancement of long-term planning is an important goal for enhancing biodiversity. Long-term planning is difficult as priorities change and funding sources are unreliable. Work in the western region of Canada and the US used "Service Trips" to bring an interdisciplinary work group together to develop management goals and approaches. Findings showed the approach created "learning and dialogue [which] often helped facilitate the development of shared understanding and trust. Service Trips have also influenced changes in assessment, monitoring, and management approaches to public lands riparian area grazing. Although these effects often aligned with the immediate objectives of the Service Trip, i.e., to work through a specific issue or point of conflict, there was little evidence of long- term effects beyond the specific issue or intervention; that is, in most cases the initiative did not influence longer term changes in place-based governance and institutions" (Smedstad & Gosnell, 2013). Therefore, not addressing the need for long-term planning due to issues being addressed with a limited time-horizon.

Finally, co-management creates more inclusive decision-making. This is seen through the "Service Trips", which were through a federal agency to create multi-organizational, interdisciplinary teams to create a series of place-based interventions through identifying issues, learning about the issues and other organizations involved, and developing place-based strategies to collectively move forward (Smedstad & Gosnell, 2013). Co-management demands a strategy to "lobby for more local management rights to user groups" (Ernstson et al., 2010). This requires finding ways to overcome barriers to participation in recreational activities. These are commonly: work commitments, overcrowding at facilities or recreation areas, difficult to find others with whom to participate, no opportunity near home, family commitments, price (Searle & Jackson, 1985). Further, it is limited by distance as surveys of park users show that they only want to come if it is within 3-5 minute walk of their home or work (Thompson, 2002). "Few of the case studies exhibited evidence that the NRST's assistance had a lasting effect on the specific processes these groups and agencies used to make decisions, engage stakeholders and work with diverse groups. New or altered long-term

approaches to governance that support ongoing learning and collaboration have typically not emerged" (Smedstad & Gosnell, 2013). To ensure compact cities remain or can become greener there must be a priority put on allowing for conservation to be permitted and zoned for. Second, parks managers must be included on development conversations and their opinions must be put into decision-making. The most efficient way for this to be accomplished is through a good data set of green spaces, their health, and their accessibility as well as prioritization of these spaces (for example "heritage trees") that need to be protected for historical or biodiversity reasons (Jim, 2004).

2.4.5 Conditioning influences

The agri-food system today is complex and has been formed by policy that has prioritized cheap food, and has given rise to convenient foods that are not healthy and have created a rift between the culture we once held to food. Further, the sustainability of this system is a big problem that cannot be addressed by urban agriculture alone. Finally, addressing the issue of social cohesion and social inclusion is also limited. If there is fundamental racism or lack of jobs to supply communities with the resources they need to live a good life, this cannot be addressed with urban agriculture. The scale at which urban agriculture can address these issues is challenging to equate. In some forms urban agriculture can provide limited economic opportunities, provide a sense of accomplishment to the unemployed, and help people find an access point into a community to create a sense of belonging.

Today's agri-food industry is devoid of culture, does not address social issues such as poverty and malnutrition, is harming the environment, and has been **too focused on a limited economic view**. Localizing food systems can begin to address some of the disconnect between food production and the loss of community around food (Sumner et al., 2010). Urban agriculture can help improve the relationships between people and between people and nature. The celebration of local food is a clear expression of culture and can be a part of redefining wellness and as a component of sustainable lifestyles. But it may struggle to address the wider problem of the agri-food system unless these projects are united to lobby for a change in policy, but many of these projects are much more locally focused and not politically charged. Urban agriculture has been seen by some as a band-aid to the real root problems in the agri-food business, and although many urban agriculture practitioners do not see themselves as revolutionaries, they are trying to provide options to those who see the flaws in the "default option" and choose local, fresh foods or just enjoy the physical activity and mental health benefits of gardening.

Delshammar et al (2012) look at the sustainability of urban farming in Sweden, and make a clear distinction between low-tech and high-tech growing. Low-tech is the less controlled conditions which is typical outdoor cultivation, whereas high-tech is the application of technology and changing the conditions (heating or lighting) to improve yields (Delshammar et al., 2012). Without the advancement of vertical farming and carbon neutral greenhouse technology the inefficiency of growing food at the urban scale is going to be counterproductive to the movement. In research on the life-cycle-impact of food grown it was found that the impact was related to the types of vegetables and fruits grown, and that if you are looking to maximize your carbon-footprint reduction from urban agriculture you should avoid growing crops that need high-tech environments (Kulak, Graves, & Chatterton, 2013). As critic and supporter Kaid Benfield from the Natural Resources Defense Council wrote in the staff blog, "If we are to save the rural landscape, and the kind of rural economy that can support true family farming, we need cities to be cities, supporting compact and efficient patterns of land use and living that obviate farmland-eating sprawl" (Benfield, 2010).

Meaning that at this time the real power in urban agriculture is with its ability to build up community, create new visions for how to live life, and to develop strong leadership skills.

Two major arguments against urban agriculture are the presences of contaminated soils in the urban environment and questions of public access and the privatization of parks through using them to grow food. The argument against soils has been adequately addressed by scientists who have demonstrated remediation options to ensure pollutants are not taken up by plants (for example lead is not mobile in soil with a neutral pH, so if the soil is kept above a pH of 6.5 there is little to no risk) or using containers to grow, which is common in cities (Nordahl, 2009). The contention between public and private space is an interesting argument that must be determined by each community. The most important aspect for green space for improving human health in urban spaces is the availability for providing activity for the residents (Nutsford, Pearson, & Kingham, 2013). A beautiful green space that is inaccessible or not available for all is a wasted green space in an urban environment. Evaluating the social benefits is also a challenge as determining the social benefit beyond the community gardeners has been attempted (Firth et al., 2011) but community gardens still tend to be a more private space rather than a public space left open to open access to whoever pleases (Lawson, 2004).

Social programs struggle from **challenges with evaluation**. This is because community development is challenging to quantify and evaluate, but policy makers and the community want to know if social programs are working and achieving their goals. Evaluation came onto the agenda in the 1970s (J. Armstrong & Key, 1979; Moseley, 1971) and can still be a challenge during the implementation of social programs due to financial constraints and a lack of capacity to plan and complete evaluation. This is something that also challenges urban agriculture proponents. The scale to which urban agriculture provides services like fresh food is important to decision makers to understand. Further some city planners are faced with the fear that urban agriculture is just a "fad" that will die out (Halloran & Magid, 2013). This makes proper planning for urban agriculture an important aspect to its execution, and with more structure there is the added benefit of collecting data and evaluating the impact of urban agriculture.

2.4.6 Other outcomes

"We must understand that societies are complex organic systems, not easily broken down into parts" (Kosoy et al., 2012, p. 77).

Urban agriculture is growing for more than its ability to create stronger communities. More and more urban agriculture is being looked at as a component of sustainable city planning. It is written into sustainable urban development plans, but is not always whole-heartedly embraced by city planners (Halloran & Magid, 2013). Some progressive cities like Toronto promote urban agriculture as a solution to environmental protection, protection of native species, environmental and food-based education, urban food production, waste reduction, creating social networks (Levkoe, 2006). Although a lot of the literature suggests community gardening and urban agriculture are a bottom-up activity, the historical timeline would suggest that local or even federal government often promotes it with a specific purpose in mind.

The technology of the future will be fostering healthy soil, clean air and water, and rich biodiversity. A change in one economic sector has an impact on another, seemingly unrelated sector. The very well established example is between energy, food, and water. For example, crop production for biogas takes away land for food production. Therefore, making the

concept of sustainability and its three pillars more important than ever to take into account: social, economic, and environment. A new economic system is important to adopt, and it can be done in a way that builds on what we already have and adapts it by better integrating the three pillars of sustainability (economic, ecological, and social aspects).

Ecological benefits

Urban agriculture can help address the ecological rift that has been created by capitalistic pursuit -- a separation between city and county, humans and nature, and a disruption of nutrient cycles (McClintock, 2010). The environmental benefits of urban agriculture is similar to the benefits of many other green infrastructure projects – it helps to manage rainwater and snowmelt runoff, it increases the amount of habitat within urban areas, it provides a place for pollinators, it provides greenery for people to look at which is linked to many health and wellness benefits. Some of the strongest reasons for advocating for community gardens rather than more parks are the social aspects it provides. It provides often organic[1], fresh produce to people who struggle to have access to it and it links people together improving the resilience of communities. "Through food we can better understand our histories, our cultures, and our shared future. Food connects us to ecological systems and can teach us about the world in which we live" (Levkoe, 2006, p. 89). It re-links people with nature and is especially important for urban kids who suffer from what has been coined "nature deficit disorder" (McClintock, 2010). Further, in the process of re-linking people with nature we are better understanding the anthropocene, how we interact with other species and how we affect them.

With the act of urban agriculture we are pushing the process of cleaning up our contaminated city sites to those who are trying to farm them. Soil contamination is not a limiting factor due to research and lessons learned from the UK and the United States and that unmanaged land should be opened up for urban agriculture (Deelstra & Girardet, n.d.). In many cases land is improved by the people farming it. The most important aspect of urban agriculture is the solution to closing waste streams within the urban environment. Currently we struggle with waste management. It is costly, requires significant resource inputs to do it well, and is not decreasing in quantity. Urban agriculture can be a part of the waste system as currently agricultural and city systems are separate and linear, and there are ways to link them up with proper management. There are limitless creative answers to how urban agriculture can integrate into the social, economic, and ecological systems in urban socio-ecological systems.

Economic benefits

Research on the economic benefits is challenging, as it is a struggle to quantify the social benefits of community gardening projects and urban agriculture. Most community gardens tend to have very little money or profit involved. Armstrong (2000) found that half of the gardens in the 56 counties of upstate New York did not sell produce, further 10% prohibited the sale of produce (D. Armstrong, 2000). If the benefits of community gardens are not direct profits to the gardeners there are still economic drivers that are supporting it.

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[1] In Armstrong's (2000) assessment of gardens in New York state he found that rural gardens were using more synthetic chemical fertilizers and pesticides, which may reflect a different mindset, or it could reflect the greater difficulty with garden pest control in rural areas (D. Armstrong, 2000).

Hidden benefits include the improvement to the neighborhood due to the reduction of vandalism, reduced crime, and the satisfaction of gardening (Baker, 2004; Lawson, 2004). In Toronto property managers used community gardens as a way to differentiate their properties to make them more attractive as well as reduce maintenance costs (as now the residents were doing some maintenance) and residents had longer stay-times and seemed to be happier; however it was not without its challenges – conflicts arose due to cultural barriers and miscommunications on expectations of who would be responsible for what (Baker, 2004).

Negative benefits

Social scientist must ask the question of what the end result of urban agriculture is. To what extent is the gentrification of neighborhoods due to the establishment of community gardens an issue. It is hinted at in the literature and a direct topic for an active community gardener in Detroit named Patrick Crouch (Crouch, 2012; Lawson, 2004). As an area is cleaned up, it may eventually be targeted as a spot for new development or investment.

Urban agriculture is in some cases used for profit. When gardeners become farmers – urban farmers – they are entrepreneurs looking for the niche, a way to make more money falling into the market like everything else. It has been seen as a softening of the harsh realities of poverty in South Africa as well as providing a little extra cash to people in New York City (Battersby & Marshak, 2013; Saldivar-Tanaka & Krasny, 2004). Currently, urban agriculture tends to revolve around "private enterprise, private ownership, and private accumulation" (DeLind, 2002, p. 218). It remains an issue for planners who are focused on providing public goods when urban agriculture (for profit) is excelling while community gardening is falling behind. Written in a 2012 article on urban agriculture in New York City it was stated that "'the urban-agriculture [sites] are flourishing,' he said. 'There's a lot of excitement. They're active eight days a week.' But 'community gardens, as such, where people come in to take care of their own boxes — those are not flourishing'" (Tortorello, 2012). Urban agriculture for profit has been criticized by many of the leading authors in urban agriculture for not challenging the failures of the neoliberal political and economic systems that have allowed for the agri-food system we have today (DeLind, 2002; Firth et al., 2011; McClintock, 2010, 2014).

2.5 Evaluating community capacity

"It's more important that you do something whether it's a big garden with fields or [a few planted pots], it's a matter of letting your inside drive for nature be the force that everyone will follow" (N. Karlsson, personal communication, 16 June 2014).

In the literature it is clear that community gardens foster a sense of place, demonstrate a level of commitment of gardeners and the community to maintain them, and what makes or breaks a garden is if they can solve problems as they come up and access resources to preserve the garden when it is threatened by development. Therefore, it could be concluded that community gardens can provide practice in all these four aspects of community capacity whether or not the group fails to solve problems and procure resources.

Although urban agriculture is not fixing the root cause of social exclusion, poverty, hunger, and malnutrition it begins to build a community that may not otherwise have had the skills and connections to address these problems. The goal of social sustainability is to develop communities that are active, inclusive, and safe. The community capacity model is a good

way to analyze Malmö and Minneapolis's progress in urban agriculture and community gardening for social sustainability.

This framework will be used as it helps for "defining and exploring attempts to build community capacity through planned change efforts…" (Chaskin, 2001, p. 300). There are six aspects of community capacity that will be analyzed through the framework: characteristics of community capacity, levels of social agency, function, strategies, conditioning influences, and other outcomes (see Figure 2).
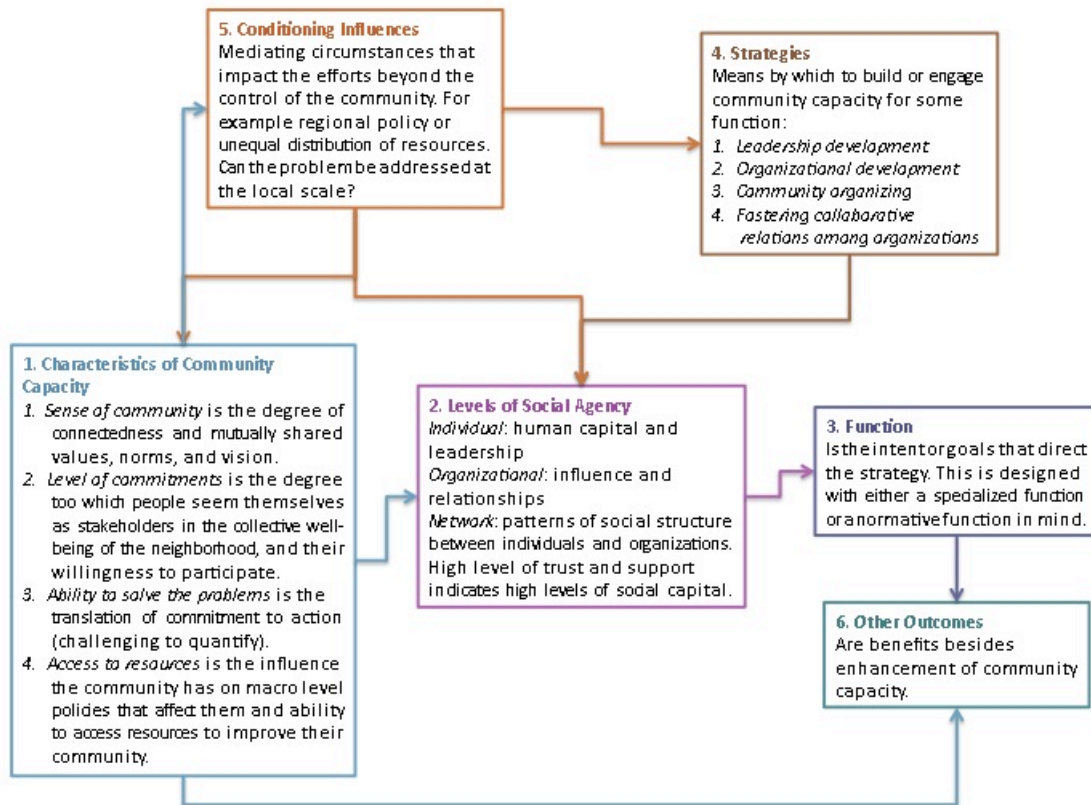
Figure 2. Community Capacity Model (Chaskin, 2001)

Through evaluating these six aspects of a community one can evaluate the potential capacity a community has to solve problems and adapt to new challenges. As demonstrated in the literature analysis there are already many demonstrations of how community gardens can contribute to building community capacity. The main "hole" identified in using community gardens to build community was the inconsistency of volunteers and community members involved to maintain the gardens. This wavering commitment reinforces perceptions that this is a "fad" and the challenges such as addressing the concerns over using park space for community gardens as a privatization of public space.

3 Findings

The findings will present the facts and opinions collected. They are presented according to the community capacity model. There is a focus on the levels of social agency, function, strategies, conditioning influences, and other outcomes of community gardens within the two cities. Data has been collected through policy documents, grey literature, newspaper articles, and semi-structured interviews. This has been done to evaluate where the strategies align with the function and how the levels of social agency are used to address them. There are a large set of conditioning influences that may affect how these policies and programs work, and are challenging to address at the local scale or to address through policy. Finally, there are always multiple other outcomes be they positive and negative that come out of new programs and policies. These are accounted for as well.

3.1 Malmö

Malmö is the third largest city in Sweden with a growing population, there are over 300,000 people living in the city (Malmö Stad, 2013). It is broken up into five city districts: Norr, Innerstaden, Väster, Soder, and Öster. Prior to a reform of these districts it was broken up into ten smaller districts, which are still commonly referred to. They include: Centrum (which contains Hamnen), Fosie, Limhamn - Bunkeflo, Södra Innerstaden, Västra Innerstaden, Hyllie, Rosengård, Husie, Kirseberg, and Oxie. The city underwent a great renewal after the collapse of heavy industry in the 1970s and 1980s. In the 1990s Malmö's leadership set a new path for the city, which included ambitious sustainability goals and redevelopment plans to attract new inhabitants, but social inclusion continues to be a big issue with the city as its population is around 30% immigrants (Yamina, 2010). Further, the city still has an above average unemployment rate, it is now down to ~9% from 14% at its peak (Nyrerod & Croner, 2012). During this turbulent time the first gardening project began within the city: Slottsträdgården. With the success of this project gardening took off in other parts of the city and today and is planned or a part of seven major city areas[2] (Wettermark & Larsson, n.d.). Ambitious sustainability goals of the city have required innovative programs as well as extensive community capacity building efforts. This can be seen with the renewal of Rosengård, named to be the new sustainability district of Malmö.

There is growing pressure from individuals requesting community garden sites, which has created a need for the city to address urban agriculture. It is being planned into the developments of Hyllie and Rosengård's renewal. Therefore the city is trying to place itself within the urban agriculture movement in a smart way. It seems that demand is still growing for these projects despite the recovering economy. "Demand for garden colonies and allotments are large, but paralleled to this occurs farming initiatives which the momentum, rationale, and interest to grow, more and other motives ranging from sustainability and community new visions of the green city" (Malmö Stad, 2014).

Gardening is an important leisure activity, and further provides a great deal of personal benefits. Swedes are gardening to relax and have access to organic foods (Engdahl, 2013). Although themes of motivations found in Gothenburg in research completed in 2012 were that people engaged in urban agriculture as a hobby, interest, or social activity; to belong somewhere; to put good food on the table; as a reaction to urbanization and urban planning policies; as a reaction to unsustainable development; and as a pro-actor for sustainable

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[2] The seven gardens are: Urbanatur in Hyllie, Ecocity in Augustenborg, Innergårdar in Seved, Lindängelund in Fosie, Slottsträdgården in Centrum, Sege Park in Centrum.

development (Rosengren, 2012). This means that in Sweden it is already seen as a part of a more sustainable lifestyle by some gardeners. Creating a stronger community and increased access to fresh, organic foods.

There is a longstanding history for urban agriculture within Sweden. There has been a shift in the motivation for gardening from subsistence to leisure. Within the country two predominate forms of urban agriculture that have sustained throughout the ups and downs of the movement. They are the colony plot and the allotment plot:

- The colony plot (*koloniområden*) are small garden allotments with a small house (these houses can range from 55,000SEK to 395000SEK, based on data from 2010) (Delshammar, 2011).
- The allotment plots (*kolonilotten*) are small garden allotments, and there are usually building restrictions, but these spaces often have public toilets and waste collection.
- More recently urban villas (*urbana villor*) are apartment buildings that have growing boxes already built in on balconies.

The community gardening movement is most closely related to social sustainability within Sweden. In the 1960s the results of the Million-program housing project the immediate housing need was eased, but construction was often done without much consideration of creating inviting and sustainable places for people to live. These areas tend to have bad outdoor areas, and projects to provide cultivation plots for residents began in the 1980s. This resulted in the "Lex Holma" which is the policy for allowing residents to get reduced rents for taking up maintenance responsibilities of the landscape, but these programs provide very little economic benefit for residents (Delshammar, 2011).

Today, the question remains of what the future of urban agriculture will look like in the city. The main issue in Malmö is the question of what is the appropriate use for public spaces. The question planners need to address is *how* and *should* growing be done in a public or semi-public environment. Further, the movement is limited by:

- A lack of political will to promote urban agriculture at the municipal level.
- Concerns with a lack of experience or knowledge on how to create these spaces and manage and maintain them.
- No comparable role models that the city can look to.
- Lack of organizations that can take up the responsibility of maintenance if the community group fails to do an adequate job or when the community's interest wanes.
- Other barriers include the issue of theft and vandalism (perceived or real), language barriers, and problems with waste.

Experience with urban agriculture is through the exiting allotment gardens. In 2012 a survey was completed to assess the functioning of how the city was running this program and identifying strategic needs from gardeners. The issues of theft and vandalism, language barriers, and waste are all identified as the key issues needing to be addressed. First, concerns driven from issues experienced at allotments are vandalism and theft. Over half of allotment renters surveyed in 2012 experienced either vandalism or theft, and due to the strong sense of ownership and commitment to the gardening space these experiences are very upsetting. In general people seem to want the city to take greater involvement in the plots with harsher inspection and quicker responses to allotments that have been abandoned. The question is if this is a pattern that will similarly be seen at community gardens across the city as well.

Second, the engagement of immigrants with Swedish as a second language (*andraspråk*) has become a significant barrier, and more translation is needed for these groups. A main communication challenge, the website[3], seems to be chronically underutilized by allotment renters. Third, the issue of waste is a large perceived barrier as well. As gardens produce a large amount of waste. It has been seen at the allotments that there is illegal dumping of household garbage and electronics at allotment sites (Engdahl, 2013).

Three gardens selected to demonstrate the work on urban agriculture in Malmö are Slottsträdgården, Enskifteshagen, and Kids in Town (*Barn i Stad*) Seved. These are the three gardening projects that are run by or in partnership with the city. These were grassroots from the beginning, but have been given extra support or adopted by the city.

Besides the allotments the "urban agriculture movement" can be seen to have started with Slottsträdgården, translated as "Castle Garden", this garden was initiated in 1997, and has been the center for urban agriculture within Malmö ever since. It started as cooperation with a non-profit organization "Vänförening" and the council. On site there is a café and many allotment plots, which include several school garden plots. The garden has become an important place for culture within the city and has held concerts, theater, and workshops.

In 2008 Hidde Iyo Dhaqan (the Somali Association) started Project Kids in Town (*Barn i Stad)* to facilitate the integration of the Somali immigrants into Swedish society. Their goal was to develop and use new models in meetings, collaboration, dialogue and communion in socially vulnerable areas. The organization Odlingsnätverket Seved was a spin-off of Olda i Stan who was originally a part of the project. Odlingsnätverket Seved's responsibility is to manage the project now that it has passed its temporary three-year project support from the city. The project is still running today. Two theses have been written on "Barn i Stad" in Seved, and the summary of how this project successfully built community capacity is in Appendix 2.

In 2011 a small group petitioned the city to start Enskifteshagen. The project officially began in 2012, and was an experiment, completely run by the community. Not a few short years later the project fell apart, and became a problem site within the park. To revive the project it was handed over to Odlingsnätverket Seved. This organization is run by a committed group of urban gardeners and Maria Kim Persson is its only employee. This renewal was supported by the city to try to test out how community gardening can work in this loose way where the city is not involved with the exception of providing the "infrastructure" the garden needs (access to water and waste disposal).

3.1.1 Levels of social agency

Individual
There are several leaders for urban agriculture within Malmö. The urban agriculture within the city today like Slottsträdgården and Enskifteshagen although fifteen years apart were both originally community driven.

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[3] "Unfortunately, we realize that many of our existing colonists not have known or had access to the website. Full 102 people (65%) responded that they had not. Visit the website. A small number (7 persons, 4%) did not know whether they had seen the or not, and 48 persons (31%) had been on the page" (Engdahl, 2013).

John has been involved in Slottsträdgården since its conception. He does the garden management with one assistant and volunteers. He is responsible for garden work, management of the whole project, consults other projects, does press and a gardening show as well as writes for the media (J. Taylor, personal communication, 13 June 2014). This means he has over 20 years of experience with the project and the City of Malmö. He has a large network of friends and fellow gardeners who work together to grow the dream of a city of gardens.

Within the city there are many who support the city taking a larger role in supporting urban agriculture, but there are some who would rather let it stay as a grassroots movement.

A leader within the city staff is Sten Göransson. He envisions a park system that is bio-diverse and community driven. As a landscape architect for the city of Malmö he has been a part of the integration of urban agriculture into many sustainable development projects within the city.

Maria Kim Persson is the only paid employee of the small non-profit Odlingsnätverket Seved. It is a spin-off from Odla i Stan. Maria is responsible for making Enskifteshagen a model community garden to show alternative options to how urban agriculture can exist within the city. In the cumulative experience from Odla i Stan and from Maria's experience there needs to be a leader of some kind at these gardens as there needs to be some authority and as a communication point between different organizations (the city, neighborhood groups, etc.), and to end the conflicts that arise (M. Kim Persson, personal communication, 16 July 2014).

Finally, the individuals gardening within the city cannot be overlooked. Leadership is built through community gardens as well as at allotments where experiences and knowledge are shared among gardeners. Those with the language skills may be natural leaders as they are the only ones who can help connect and communicate between the city and the non-Swedish speaking and Swedish as a second language speaking community. During interviews at allotments in the city the need for bi-lingual leaders was made clear as city staff struggled with language barriers in Rosengård.

> All the people surveyed had major shortcomings in the Swedish language and at some occasions helped one of the growers in the area to interviews with other colonists. It was an Arabic-speaking woman who could talk a bit more Swedish and she followed that with "interpreter" to other people who were there and spoke Arabic but not Swedish. The total amount of 4 of the 14 interviews in this manner (Engdahl, 2013).

Organizational

There are very few organizations at the city level. There are two major gardening organizations. They are Föreningen Slottsträdgården Vänner, Odlingsnätverket Seved, and the smaller Mykorrhiza. The municipality plays a large role in how sustainable development progresses within the city and elected officials who represent the wishes of the community. There are national and international organizations that are important for Sweden as well as for profit organizations like Plantagon and Odla i Stan.

Föreningen Slottsträdgården Vänner is the original organization that was developed to start Slottsträdgården. The garden management was handed over to the municipality and is run by John Taylor who works for the city in the Street and Parks Department. The café was run by

the organization until 2009 when Krögare Tareq Taylor took over management. Today, they are responsible for disseminating information about the garden as well as planning events and activities at the garden making it a lively and a meeting place in Malmö (Föreningen Slottsträdgårdens vänner, n.d.).

Odlingsnätverket Seved was created in March 2011 after the Kids in Town (*Barn i Stad*) completed its three-years. It is a non-profit that bridges the community to the property owners and has a network of over 300 growers of which a third live in Seved. They see themselves as the facilitator for residents to get community gardens started. They provide support, inspiration, coordination, and help train organic gardening techniques (Odlingsnätverket Seved, n.d.).

Mykorrhiza works locally, but is a national movement. It is a Swedish organization started by a group of young people and serves as a network to support local food production as a tool to address issues with the "environment, health, and global solidarity". They do this by reducing the need for unsustainable farming methods that use "energy-consuming machinery, poisonous pesticides, chemically produced fertilizers and huge mono-cultures contribute to the destruction of bio-diversity". Their strategy is two fold, to support the growth of small-scale organic farms or grow crops in the city and to create meeting places so people can share knowledge and inspire each other to create a new way of living (Mykorrhiza, n.d.).

City of Malmö is the governmental body that provides necessary services to residents. There is a City Council, which is Malmö's highest decision making body and has elected officials who manage the city's budget, set visions, and ensure that the will of the people is reflected in the structure of the city. The City Office connects the Council to its departments: City Planning Office, Culture Department, Education Department, Street and Parks Department, Environmental Department, Leisure, Recreation, and Sport Administration, Real Estate Office, Department of Internal Services, Audit Office, and its Chief Guardian Committee. The departments most involved with urban agriculture at this time are the Street and Parks Department, Real Estate Office and Environmental Department. The allotments are run through the Real Estate Office, but Slottsträdgården is run through the Street and Parks Department.

Plantagon is an international "global innovation leader" in urban agriculture (Plantagon, n.d.) and is currently building the first vertical greenhouse in Linköping (Linköpings kommun, 2014). It is a for-profit with offices in Stockholm, Onondaga, Shanghai, Mumbai, and Singapore with the intent to meet the rising demand for locally grown food through resilient food systems that minimize environmental impacts through "minimize the use of transportation, land, energy and water – using waste products in the process but leaving no waste behind" (Plantagon, n.d.).

Odla i Stan was created in 2009 to work on Kids in Town (*Barn i Stad)* and turned into a company in 2011 to spread urban farming outside of Seved. They consult with organizations, property owners, and municipalities to help foster projects like Kids in Town and to share the stories of other gardening projects in Rosengård. They have a focus on edible walls, beekeeping, and rooftop gardening (Wettermark & Larsson, n.d.).

Network

Slottsträdgården has established a strong network with Malmö's schools and with the example of the garden Taylor has grown a strong network with others in Europe as well as

Sweden. This project has spawned many leaders who have spread urban agriculture across the city and all urban agriculture projects in Malmö the people involved started at Slottsträdgården (J. Taylor, personal communication, 13 June 2014). In an interview completed by Karlsson there were talks of a supposed collaboration with Gothenburg and Stockholm to find a more formalized approach to gardening on public lands, which may be able to simplify upcoming grower's cooperation with authorities (Karlsson, 2011). This has begun formulation through The Delegation for Sustainable Cities (*Delegationen för Hållbara Städer),* which works towards sustainable development by stimulating the creation of urban environments that "are attractive and function well over the long term, where high quality of life goes hand in hand with a better environment, economic growth, social cohesion and reduced climate impact" (Delegationen för Hållbara Städer, n.d.). According to Taylor they have taken up the issue of urban agriculture (J. Taylor, personal communication, 13 June 2014).

The two volunteer based organizations exclusive to Malmö for gardeners to be a part of are networking forms in themselves. They both host events and workshops for gardeners and share information. Not only is the demand clear, but also the channels of information seem to work well. As an additional 20 allotments will be available in 2015 at Slottsträdgården and Taylor said he will have no trouble filling them. They are filled exclusively through word of mouth. There are 200 members to the Föreningen Slottsträdgården Vänner, and 60 of these members have allotments. This is a large membership for a non-sports association in Sweden (J. Taylor, personal communication, 13 June 2014).

3.1.2 Function

The goals of each organization are slightly different, but the focus on the municipality's role in urban agriculture directs us to Malmö's new master plan updated in 2012. Although, as of yet, the city has no formal policies for urban agriculture this paragraph is in the document:

> Urban agriculture has taken place for a long time in the form of allotments within the city. Local organic farming, in the city, can support social development and contribute to better health. It creates a greater sense of belonging and attachment to their city, their neighborhood and their neighbors, and therefore also creates conditions for the integration of different groups of society and interaction between generations. (*Stadsodling sker sedan lång tid på odlingslotter och i stadens olika koloniområden. Lokal ekologisk odling i staden kan stödja en god social utveckling och bidra till bättre hälsa. Det skapar en större känsla av delaktighet och samhörighet med sin stad, sin stadsdel och sina grannar och ger därför även goda förutsättningar för integration av olika samhällgrupper och utbyte över åldersgränser)* (Malmö stad, 2011, p. 35).

In 2014 a policy has been drafted to guide the city as it continues to handle requests for community gardens as well as how to manage community gardens that develop without the city's consent. In this document the goal was defined as:

> Malmö city is and will continue to be a role model in terms of sustainable urban development. The ÖP 2012, sustainability is a key word and the vision for the future is to build a tighter and greener city. The term "sustainable" is not just biological sustainability, but also economic and social. *(Malmö stad är och vill fortsätta att vara en förebild vad gäller hållbar stadsutveckling. I ÖP 2012 är hållbarhet ett nyckelord och visionen för framtiden är att bygga en tätare och grönare stad. Begreppet "hållbar" innebär inte bara biologisk hållbarhet utan även ekonomisk och social).*

Malmö works in different ways for a sustainable urban environment. It is both about plan the city's new construction, and to take advantage of the existing buildings and simultaneously seek to reduce environmental impact. *(Malmö stad arbetar på olika sätt för en hållbar stadsmiljö. Det handlar både om att planera stadens nybyggnation, och att ta tillvara på den befintliga bebyggelsen och samtidigt sträva efter att minska miljöbelastningen)* (Malmö Stad, 2014, p. 7).

The city runs Slottsträdgården, and its goal is "to be a meeting place and a source of inspiration for local people and tourists alike" (Föreningen Slottsträdgården vänner, n.d.). John stated that one of the functions of the garden was to demonstrate (specialized function) the possibilities of how people can garden along with providing a space for people to share knowledge, experiences (holding the annual garden show), and actively garden (active allotments on site). With the addition of working with schools the garden now also in some capacity works to provide normative functions by promoting the value of gardening, socializing students and teaching them about growing food and plants (J. Taylor, personal communication, 13 June 2014). Cultivation on public land is fairly unconventional, but Slottsträdgården was opened in 1994 and was built specifically as a communal garden, and a space where people can come to grow (Malmö Stad, 2014).

Urban agriculture is being integrated into the Sustainability Plan for Rosengård due to its ability to integrate people from different social groups. Although the focus of Sustainable Rosengård is climate change, the program is designed to integrate social and economic integration and includes demonstration projects for climate smart food and small-scale urban farming. A sustainability plan has been designed for the urban area with the following two purpose statements:

- Create a world leading demonstration city district with focus on combating climate change that can be a model for future city district renewal projects in Sweden and abroad
- Create a dynamic innovation environment, where the City of Malmö and local businesses cooperate, which benefits the growth of existing clean tech businesses and leads to the establishment of leading clean tech companies (Rubenson, 2012)

Part of the focus on Rosengård is due to it being highly segregated with only a small percentage of Swedes. It has the most immigrants in Malmö, and information is provided in 12 different languages (Cities for Local Integration Policy, 2009). It is a part of the city that feels disconnected, like a suburb, and has a reputation for crime ("Another side of Malmö's infamous Rosengård," 2012). There have been active projects in Rosengård for more than two years now, and the city has plans to establish an even larger community garden within the area (Wettermark & Larsson, n.d.). The community has worked together to mend its reputation ("Another side of Malmö's infamous Rosengård," 2012).

3.1.3 Strategies

The municipality has not yet developed a framework by which it engages the community in urban agriculture. At this time it runs the allotments (*kolonier*) and has established urban agriculture into future planning at Lindängenbiblioteket called Lindänelund, at Sege Park (a sustainable neighborhood) where an apple orchard and urban farm is planned, and in Trädgård i Rosengård as the garden is planted there is a goal to have community plots as well (Malmö stad, n.d.). Therefore, a short summary of some of the initiatives by the other organizations is summarized.

Leadership development

A common focus for community programs is leadership development. Maria and Sten highlight this. There is a formal education program that Odlingsnätverket Seved runs horticulture classes through to build gardener's confidence and foster leadership skills so people can run their own community gardens. The program is loosely translated to study circles; Odlingsnätverket Seved gets 20SEK per person when they hold a class. The organization wants the money, so they have developed growing training courses to help spread information on how to grow and hopefully grow the desire to participate in urban agriculture as well as people growing more of their own food. In the description they let people know they'll learn how to grow organically and learn about soil so people become more comfortable to take on larger plots or do more growing (M. Kim Persson, personal communication, 16 July 2014).

Sten said they do not intend on organizing community gardens for people, but want the people to drive the organization of these projects. They want to leave it open for it to be decided and driven by the community, but make the space for them to do it. This may require hiring one key organizer, who the city can employ, and then the community (NGO or municipality) will work with them, and they act as the community builder who creates interest and does the coordination with the city and the neighborhood (S. Göransson, personal communication, 14 July 2014).

Community organizing

The goal is that the community runs the community gardens. This is being tested at Enskifteshagen and will be implemented into the redevelopment at Rosengård. There will be one community space at least, and one municipally owned and managed garden, which could have space for community gardening. Then they will invite people to come and do with the space as they wish (S. Göransson, personal communication, 14 July 2014).

Fostering collaborative relations among organizations

Despite not having an urban agriculture policy, in other initiatives of the city for sustainable development the city has a very strong focus on collaboration between the public and private. An example is how Malmö works with investors and developers through its eco-building program called Miljöbyggprogram SYD. A dialogue-based approach is used to develop goals, share lessons learned, and transfer experiences to future projects.

The project at Enskifteshagen is a test project for how the city can work with other organizations such as Odlingsnätverket Seved and Mykorrhiza to manage community gardens on public property. The end goal is that each community garden will be self-sustaining with limited maintenance to be done by the city, but someone must manage the site if it goes into disrepair (S. Göransson, personal communication, 14 July 2014).

3.1.4 Conditioning influences

The largest conditioning influence for Malmö is that community gardens alone cannot solve the issues of social unrest within the city. Mukhtar-Landgren says that Malmö today is a segregated and divided city, part of it the "knowledge city of Malmo" and the other called "multicultural Malmo" (Mukhtar-Landgren in Karlsson, 2011). This can be seen in the extreme segregation of immigrants in Rosengård, but Malmö is working to socially integrate immigrants as well as provide them opportunities. There are other programs at the city level to build up the job sector, but whether these fit the needs of the diverse immigrant populations is in doubt. Employment in 2010 for immigrants in Malmö was 48% which is

comparable to Stockholm and Gothenburg ("Immigrant employment rates vary by region," 2010). Sadly, this trend does not seem have changed significantly in the last four years, and Sweden continues to make immigration into the country easier. According to an economist at Confederation of Swedish Enterprise (*Svenskt Näringsliv*) the lack of employment is due to the inflexible labor market that cannot absorb the high numbers of immigrants into the country and that all European countries will have language barriers for new immigrants ("Sweden worst in EU at getting foreigners jobs," 2014). What urban agriculture can do is begin to create lines of communication between the community and the city to build up the trust and connections needed to solve these issues. It can also provide food security for new immigrants, provide access to culturally significant foods, and potentially provide some economic benefits through selling of food goods produced on urban farms. Although it is likely that to preserve the public benefit of community gardens on public land there would be a ban on for-profit sales of foodstuff.

A major constraint for community gardening is a lack of time. Without a restructure to work hours or the pressure to prioritizing growing one's own food there is little to be done about gardening being a lesser priority.

3.1.5 Other outcomes

The garden reconnected new immigrants with home:

> In my country, I had a farm. My dad, my brother and I had a small farm where we grew tomatoes and lettuce. What we can, watermelon, melon. Where we buy every day. There is no freezer; we must get food every day. Available only ice cubes to cool. It gives me the feeling to go back in my background, where I was grown and eaten fresh vegetables. It is fantastic. It's the life I experienced before. There are some who live behind here, Iraqis, Bosnians, they have come and told me that the previous had a farm in his home country where they are cultivated. They say it is reminiscent of their homeland. When they taste on tomatoes or so, they say it tastes like their homeland, as they that grew there. Life is not just about eating and working. You should feel good too (Lööw, 2010).

Gardens are considered impossible due to expected vandalism and theft in high-crime areas despite evidence that they deter crime from the area. This is hypothesized to be due to Jane Jacob's famous "eyes on the streets" philosophy, although her writings were critical of empty green spaces that were dark and could become places for crime (Wekerle, n.d.). When food is being grown in these spaces people have a much greater emotional attachment to it, and it is theirs. They watch it to see how it is doing, and to make sure people are not vandalizing it. Not only this, but there are frequently people in the gardens working, which pushes crime out of the area. The lack of vandalism was surprising to many who participated in the project at Seved, but it was rare and often small acts of harm that were done to the garden (Lööw, 2010).

Staff at Olda i Stan and Odlingsnätverket Seved have noticed that people are not harvesting their food, and people do not seem to steal it either. It may be because that they notice that it is owned and maintained by Odlingsnätverket Seved and everyone else in the community and they do not want to steal from others. Whereas if it were the city's project people are more inclined to take from it because they are tax-payers and feel a certain right to city land and property (M. Kim Persson, personal communication, 16 July 2014). This may be a possible hypothesis due to high theft rates reported at allotments, the city found through surveys that over half of those surveyed had experienced theft (Engdahl, 2013).

The emphasis on food security is much less relevant in Sweden, although Plantagon is working to show how vertical farming is possible to provide fresh, local, organic food with minimal impact (even if grown in a greenhouse). The social aspect of the project at Seved was very important, especially for integrating immigrant community into Swedish society. This was the goal of the project, and therefore was successful at accomplishing this goal. Other benefits identified from the project include:

- Increased amount of green space and activity space in the neighborhood
- Creation of a place to learn about food and nature
- Fostered participation and collaboration in a neighborhood that is described as having problems that people living in social exclusion (Lööw, 2010)

"We've probably had seven or eight that have moved [to Seved] because of that has been growing as an input but also this that Seved not feel ready" (Karlsson, 2011).

Social sustainability is the main drive for urban agriculture right now, but there is a whole other side with the ecological sustainability. There are better ways to manage the land, which will increase productivity (food) and biodiversity. They can then also provide more functions (opportunities to garden) (S. Göransson, personal communication, 14 July 2014).

3.1.6 Summary

Overall Malmö is currently on a path towards the establishment of more community garden spaces. This is particularly apparent within neighborhoods that are being invested in like Rosengård and in the planning of new developments. The movement towards edible landscapes is not as clear-cut, and although would clearly align with policy goals for biodiversity and green space it may not be politically feasible at this time. This movement can be strengthened, but is still in its infancy. A larger growth in formalized organizations would assist in this process, especially with students at surrounding Universities. See figure 4 for a summary of the community capacity for urban agriculture within the city of Malmö.
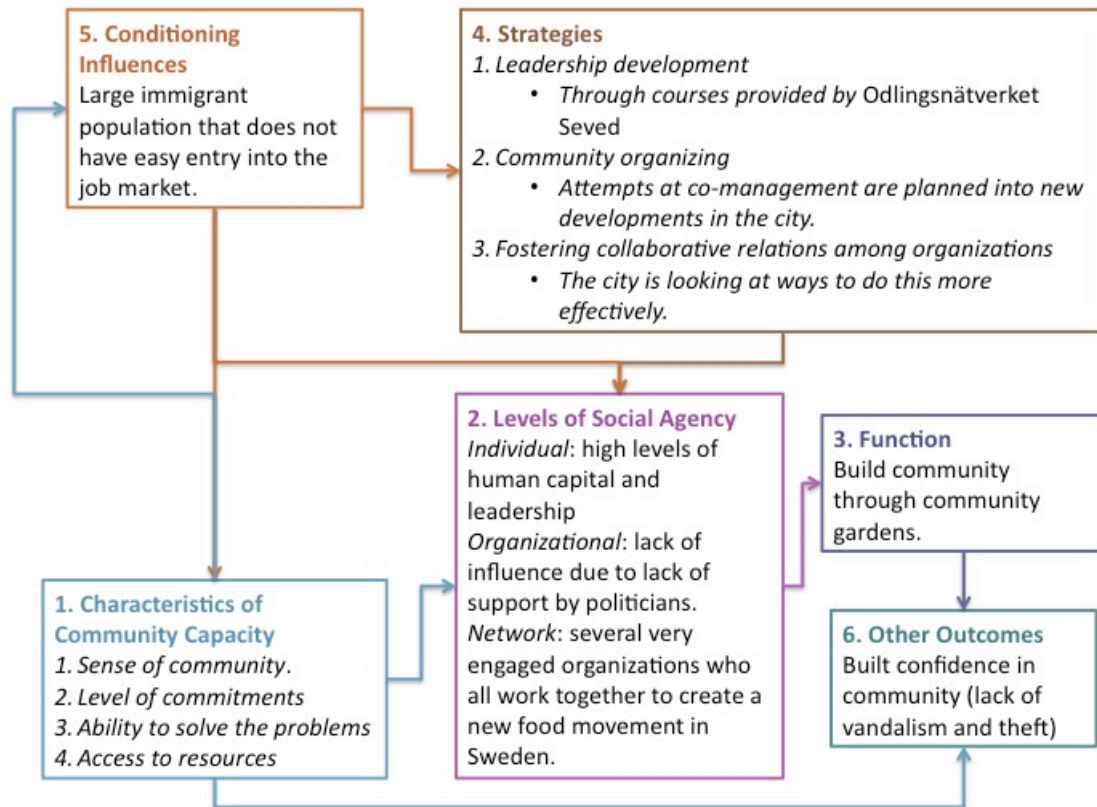
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┌─────────────────────────┐   ┌──────────────────────────────────────────────┐
│ 5. Conditioning         │   │ 4. Strategies                                  │
│ Influences              │   │ 1. Leadership development                      │
│ Large immigrant         │   │    • Through courses provided by Odlingsnätverket │
│ population that does not│   │      Seved                                     │
│ have easy entry into the│   │ 2. Community organizing                        │
│ job market.             │   │    • Attempts at co-management are planned into new │
│                         │   │      developments in the city.                 │
│                         │   │ 3. Fostering collaborative relations among organizations │
│                         │   │    • The city is looking at ways to do this more │
│                         │   │      effectively.                              │
└─────────────────────────┘   └──────────────────────────────────────────────┘
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┌──────────────────────────┐   ┌─────────────────────────┐   ┌──────────────────┐
│ 1. Characteristics of    │   │ 2. Levels of Social Agency│  │ 3. Function      │
│ Community Capacity       │   │ Individual: high levels of│  │ Build community  │
│ 1. Sense of community.   │   │ human capital and         │  │ through community│
│ 2. Level of commitments  │   │ leadership                │  │ gardens.         │
│ 3. Ability to solve the problems │ Organizational: lack of │  └──────────────────┘
│ 4. Access to resources   │   │ influence due to lack of  │  ┌──────────────────┐
│                          │   │ support by politicians.   │  │ 6. Other Outcomes│
│                          │   │ Network: several very     │  │ Built confidence in │
│                          │   │ engaged organizations who │  │ community (lack of │
│                          │   │ all work together to create a │ vandalism and theft) │
│                          │   │ new food movement in      │  └──────────────────┘
│                          │   │ Sweden.                   │
└──────────────────────────┘   └─────────────────────────┘
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Figure 3. Summary of Malmö's Community Capacity

3.2 Minneapolis

The Twin Cities Metropolitan Region is the eight largest metropolitan region in the United States with its largest city Minneapolis, which has approximately 400,000 people and second largest St. Paul with just under 300,000 people. These two cities are known as the "Twin Cities" and are surrounded by a vast metropolitan area, which is also expected to continue growing over the next decades. The urban agriculture movement has been growing in momentum for some time. There are already several for-profit urban farms within Minneapolis and St. Paul as well as several local ordinances to support the development of community gardens. Outside of the two major cities in the suburbs policies to allow for chickens are being adopted. Community gardens have been around for some time within the city, and with the creation of the non profit Gardening Matters in 2008 the goal was to allow community gardeners to have an outlet to share information and stories to expand the movement (Gardening Matters, n.d.). This organization continues to be a key stakeholder in developing programs that promote urban agriculture despite the focus on community gardens.

With the obesity epidemic, the frequency of e-coli and salmonella contaminated food there seems to be a large push for locally grown, organic produce. There are many school gardens through out the community to promote healthy eating. There are also community gardens to help ease the food desert problem. The city has been working on providing healthy food to disadvantaged neighbourhoods through their enhanced corner store program The Healthy Corner Store Program, where cornerstones in North Minneapolis, which usually just sell junk-food, have fresh produce. This program is being scaled back due to a perception that it

has been unsuccessful in changing diets, and struggles getting the storeowners to promote fruit and vegetables (Rao, 2014).

An example of a community garden to support a struggling neighborhood in Minneapolis is at the Kwanzaa Community Church. Its garden began in 2009 with the vision "to provide access to healthy organic food to the community". The garden is coordinated for the church and community by Beverly Larkin, who is an elder at Kwanzaa Community Church and a certified Master Gardener. Master Gardeners are certified volunteers through the University of Minnesota's Extension program. Community members are encouraged to help care for the garden and eat the vegetables and fruits. "The garden reminds people of where they came from as children," she said. "People stop by and say, 'I remember when my grandmamma had a garden like this and she would make us fried green tomatoes from our garden!' It allows us to connect with people and gives us the opportunity to invited them to garden with us" (Kwanzaa Community Church, 2014).

Outside the Twin Cities the movement is also growing. An example of a school garden to promote healthy foods is the Farmington Area Community Garden, which is a joint effort between Farmington Area Public Schools and the City of Farmington. It started with a group from the District wellness committee, which includes (representatives from each building from the district, administration, food services people, and then the county) to make healthy lunches, healthy snacks. They wanted to start a community garden. It is housed in the community education department (she works with the adults in the community so they came to her). There are ten individual plots, and only one is the "school" or "community" garden, which is donated to the food-shelf (300 pounds went to the food-shelf last year). The community garden is located at Meadowview Elementary School, aiming to connect residents throughout the District 192 community, educate students and residents about healthful food options, and provide fresh produce to families in need. We have 22 garden plots in use by community members. There is one plot maintained by volunteers and the entire community garden community, with its produce being donated to the 360 Communities food shelf in Farmington (B. Pierce, personal communication, 9 July 2014).

To support community gardens like these as well as for-profit urban farms both the City of Minneapolis and the City of St. Paul have taken large steps to support urban agriculture. Minneapolis is the most widely known city in Minnesota, and is better known for its sustainability programs and efforts than St. Paul. This is in part reason to its larger population, but also due to it housing the majority of art centers and museums within the state.

The city officially began to support urban agriculture through policy in 2004 when the City Council approved a change to make it easier to file contacts with the city. Shortly following this the City of Minneapolis Real Estate Lease Policy was adapted to allow for relevant City Department Directors to approve of short-term leases (one year), which made it much easier for land to be used for short-term community gardens and urban farms. Following this in 2009 the City Council adopted City Resolution 2009R-283, which states:

> Recognizing the Importance of Healthy, Sustainably Produced and Locally Grown Foods and Creating the Homegrown Minneapolis Implementation Task Force, directing City staff among other things to develop a community garden program that allows community organizations to lease non-developable city-owned properties for community gardens (Porte, Lutz, Streitz, & Berkholtz, 2010).

Creating Homegrown Minneapolis was the first step in solidifying the urban agriculture movement within the city's goals in 2009. Now the Minneapolis Park and Recreation Board, which oversees the management of parks and surface water amenities within the city joined and are in the process of approving of their own urban agriculture policy that will include allowing community gardens on public property as demonstration sites, sourcing locally produced food into the cafes on public property, and integrating locally produced, healthy food into the education programming the Park Board provides.

3.2.1 Levels of social agency

Individual

There are several for-profit urban farms within the city that have a strong voice and will to survive. Several of these urban farms are community-supported agriculture (also known as CSAs), meaning that people buy a share and get crops in return. These systems work quite well, but are often in higher demand than they can supply. Each of these farms often has one or two key staff that drive the whole organization, and some rely on volunteer support.

The city of Minneapolis and its new urban agriculture program Homegrown Minneapolis has a coordinator, although due to the project being grant funded and due to the nature of the city there have been three main authors of Homegrown Minneapolis documents over its five years. This past spring a new coordinator was hired, but the structure of this position is not secure at this time. Like at the Minneapolis Park and Recreation Board the City of St. Paul both have a Senior Planner running the urban agriculture programs. This means that they do not have a dedicated staff like at the City of Minneapolis, but that does not undermine the ability to lead and make change.

There are some Master Gardeners who are solely focused on community gardens. Master Gardeners are required to put in 50 volunteer hours a year, and many of them work hard to spread information on how to grow a healthy garden.

Organizational

The City of Minneapolis and the Minneapolis Park and Recreation Board work together to manage the city. They both play a very active role in shaping the urban agriculture movement within the city. Homegrown Minneapolis, a program from the City of Minneapolis, is run through their Sustainability department. At this time, the department is two full time employees and an intern. The intent of this limited staff is to have sustainability be a goal of all departments. Therefore, they are responsible for monitoring the progress of the sustainability indicators, make priorities, and now to run the Homegrown Minneapolis program.

The Twin Cities Metro region has a large amount of organizations that work together and independently to promote urban agriculture. The most vocal and strongest of these organizations is Gardening Matters. It is a rather small NGO started by the Twin Cities Greening Coalition and lead by Kirsten Saylor. They received grant funding to create a Sustainability Plan for community gardens within the Twin Cities metro. The key aspect of this plan was to connect gardeners into a community (originally GardenWorks which was run through the Green Institute) and in 2008 Gardening Matters spun off of this and became an independent organization to help connect gardeners around the metro. (Gardening Matters, n.d.) Today, Gardening Matters is under a change of leadership, but is still the main touchstone for community gardens in the metro.

The next most influential organization is the Minnesota Institute for Sustainable Agriculture. It is a partnership between the College of Food, Agricultural, and Natural Resources at the University of Minnesota, the Sustainers' Coalition, and University of Minnesota Extension. They promote sustainable agriculture, which encompasses farming systems that balance economic profitability, environmental stewardship, and quality of life for farmers and their community. Minnesota Institute for Sustainable Agriculture runs a listserv for those interested in urban agriculture. Through this outlet workshops, garden tours, and other information is shared (Regents of the University of Minnesota, 2014).

The next group that works closely with Minnesota Institute for Sustainable Agriculture is the Permaculture Research Institute: cold climate. They coordinate workshops and tours of gardens to promote urban agriculture. They also run an urban agriculture certification program and provide a large amount of education resources. They are a member based non-profit organization and rely on donations. Their mission is to design and demonstrate permaculture systems (Permaculture Research Institute, n.d.).

The last organization that has a strong urban agriculture program is the Women's Environmental Institute. It is another non-profit and focuses on food justice and includes organic farming workshops and foster civic involvement. They run a retreat center where they run a CSA (Women's Environmental Institute, n.d.). They are now the Regional Outreach Training Center for Growing Power inc., which is a national nonprofit and land trust to establish community food systems that build human capital as well as more sustainable food (Growing Power, 2010).

Network

Homegrown Minneapolis has a Food Council, which is a meeting place for many different community organizations throughout the city to shape urban agriculture policies at the municipal level. The organization Gardening Matters is at its core an organization deigned to support networking of community gardens. The Minnesota Institute for Sustainable Agriculture has a listserv that is open to the public and whoever signs up for it can post to it, making it a free information sharing resource for those interested in urban agriculture. Finally, the Master Gardeners meet annually.

Minneapolis has been a part of a national study to evaluating city food policy and programs. The project was run by the City of Portland and included a key staff member from thirteen cities[4] in Canada and the United State (Hatfield, 2012).

For organizations involved in urban agriculture there is also the Twin Cities Urban Ag Connection, which is a website to use as a networking tool to provide information about urban agriculture activities.

3.2.2 Function

Homegrown Minneapolis is a citywide initiative to expand the growing, processing, distribution, eating and composting of healthy, sustainable, locally grown foods in the city and the surrounding region (Minneapolis Department of Health and Family Support, 2012). The purpose of the Food Council is:

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[4] All thirteen cities were Toronto, Ontario; Portland, Oregon; Los Angeles, California; Baltimore, Maryland; San Francisco, California; New York City, New York; Seattle, Washington; Vancouver, British Columbia; Boston, Massachusetts; Minneapolis, Minnesota; Newark, New Jersey; Philadelphia, Pennsylvania; and Louisville, Kentucky (Hatfield, 2012).

- Develop innovative policies and strategies to improve the growing, processing, promotion, distribution, consumption and composting of healthy, sustainable, locally grown foods in Minneapolis.
- Advise the Mayor, City Council, and Park Board on food system related opportunities and challenges;
- Advance the food system in directions that are health promoting, environmentally sustainable, local, resilient, inclusive, equitable, fair and transparent;
- Assist in development, implementation, and evaluation of Homegrown Minneapolis recommendations; and, where necessary, convene additional expertise to innovate around challenges;
- Provide technical expertise and recommendations in the ongoing development of the City's Local Food sustainability targets;
- Support, participate and provide leadership in development of regional food system work; and
- Assist with opportunities to celebrate food and its role in strengthening the connections of Minneapolis' many communities and cultures

The Minneapolis Park and Recreation Board has three goals, which are:

- Park programs and services provide public education, access to healthy foods, and economic support for the local food system;
- Park facility renewal and development fosters urban agriculture activities;
- Food available on parkland benefits residents, park visitors and the environment (Minneapolis Park and Recreation Board, 2014).

3.2.3 Strategies

Leadership development

The Master Gardener program in Minnesota has been around for 37 years. The gardeners are trained volunteers through the University of Minnesota Extension, which is a branch of the University that works to bring science to the community. Master Gardeners mission is to "support Extension by providing volunteers trained in horticulture to educate the public with research based information on the best practices in consumer horticulture and environmental stewardship" (Regents of the University of Minnesota, 2012, p. 3).

The city has a STEP-UP program for teens of disadvantaged backgrounds to get a paid internship at a local business or nonprofit and covers working at urban farms (Wolfe et al., 2013).

Organizational development

The Minneapolis Park and Recreation Board is working on creating edible landscapes, encouraging local sourcing of food for cafes and restaurants on Park Board land. This will take effort for their current staff to change their procedures to manage edibles within the landscape, manage community gardens on public land if they go into disrepair, and to develop education programs on local food.

Gardening Matters evolved through the need to protect community gardens in the early 2000's as the development of city land began to pick up. There had been an organization that provided services to community gardens to make them easier to establish, but as this organization dropped its urban agriculture program a need arose to fill the gap.

Community organizing

The Minneapolis Park and Recreation Board is taking the step to allow for community gardens to start on public land in cooperation with them. Therefore, allowing their park space to have an added activity included beyond the "typical" park options.

Community organizing is a common feature in Minneapolis and St. Paul. Minneapolis is well known for its neighborhoods, which are all established organizations throughout the city. They are small and are well known for influencing policy at the municipal level. It was a neighborhood organization that started the organics composting project with the city (Herberholz, 2014), and it is now growing as it is seen as an aspect to meet the city's sustainability goals. The city has taken up community involvement and has developed a new department called Neighborhood & Community Relations, which has a focus on equitable engagement (City of Minneapolis, 2014).

Fostering collaborative relations among organizations

Homegrown Minneapolis's main role is to bring together experts on food systems and local food to create policies and promote urban agriculture at the city level. At this time, it is a body that advises policy rather than programs. Trying to help facilitate a local food system and community gardens rather than actively developing projects and programs to spread the initiative.

The Local Food Resources Hubs Network is run through Gardening Matters and the Minneapolis Department of Health and Family Support, and provides new gardeners seeds and seedlings as well as connecting them to other gardeners and information to help them start their garden (Wolfe et al., 2013).

3.2.4 Conditioning influences

"By seeing urban agriculture as the only solution to the urban food challenge avoids considerations of the imbedded drivers of the food system challenge and could precipitate greater ecological and food system instability" (Campbell et al., 2014).

In the United States community gardens are seen as a solution to mend blighted neighborhoods. Urban agriculture is seen as a way to redefine our food systems through providing access to local food. The philosophy of local food has been widely contested, and is in many ways not an appropriate approach to fixing the agri-food system. Since the focus is on urban farms in many cities in the Unted States, and particularly in Minneapolis as well there are challenges from a lack of funding and awareness of the benefits of urban agriculture. There is a need to create effective urban agriculture business models (for-profit and nonprofit).

Minneapolis especially struggles with a lack of trust and knowledge for engaging with underprivileged communities (cultural and linguistic barriers). They are attempting to address this issue with the development of their Neighborhood & Community Relations Department, but without a new engagement platform it is unlikely to succeed (City of Minneapolis, 2014). While researching community needs for water resource management Pradhananga and Davenport found that there were significant barriers to community members attending community meetings citing a need for transportation and childcare since many meetings take place at night (Pradhananga & Davenport, 2013). Therefore, there must be a new way for the city to communicate and interact with citizens beyond the use of community meetings.

Until this year there was no policy for how community gardening could be done on public land, and it has always been put on undeveloped land within the city that is leased short-term. This causes conflict when the city then moves to sell the land when the economy picks back up. This spawned the creation of non-profits and other organizations to help community gardens organize and fight for their land (Saylor, 2005).

There is also a requirement for the city for gardens to be covered by insurance. This causes a cost to farmers as well as gardeners who are required to sort out all these systems for themselves (Wolfe et al., 2013). The city has taken great efforts to map out access to food processing equipment and space for community gardeners and urban farms as well as other small entrepreneurs to take advantage of and produce goods (City of Minneapolis, 2012).

Finally, there is the ecological constraint of contaminated soils. Although this is often a myth as many of the common pollutants in soil can be easily managed by gardeners to prevent mobility in soil (Wolfe et al., 2013).

3.2.5 Other Outcomes

The "other outcomes" are the focus of urban agriculture in Minneapolis. Although the push for community development is strong within the city it is mostly being done through other programs. There is the goal that these urban farms can be profitable and begin to grow the "locavore" movement within the city, there is great pressure for increasing food access, but also food literacy. This is the main focus of the urban agriculture in Minneapolis. The need for people to adapt their diets to reduce obesity in the city.

3.2.6 Summary

Minneapolis has a strong momentum towards urban agriculture. It is actively exploring how to integrate edible landscapes into public land as well as influencing policy through the Homegrown Minneapolis Food Council. The pressures that have made urban agriculture so predominant within the city are not going to disappear quickly, and therefore it can be predicted that in some form there will be community gardens and urban farms in Minneapolis indefinitely. See figure 4 for a summary of the community capacity for urban agriculture within the city of Minneapolis.
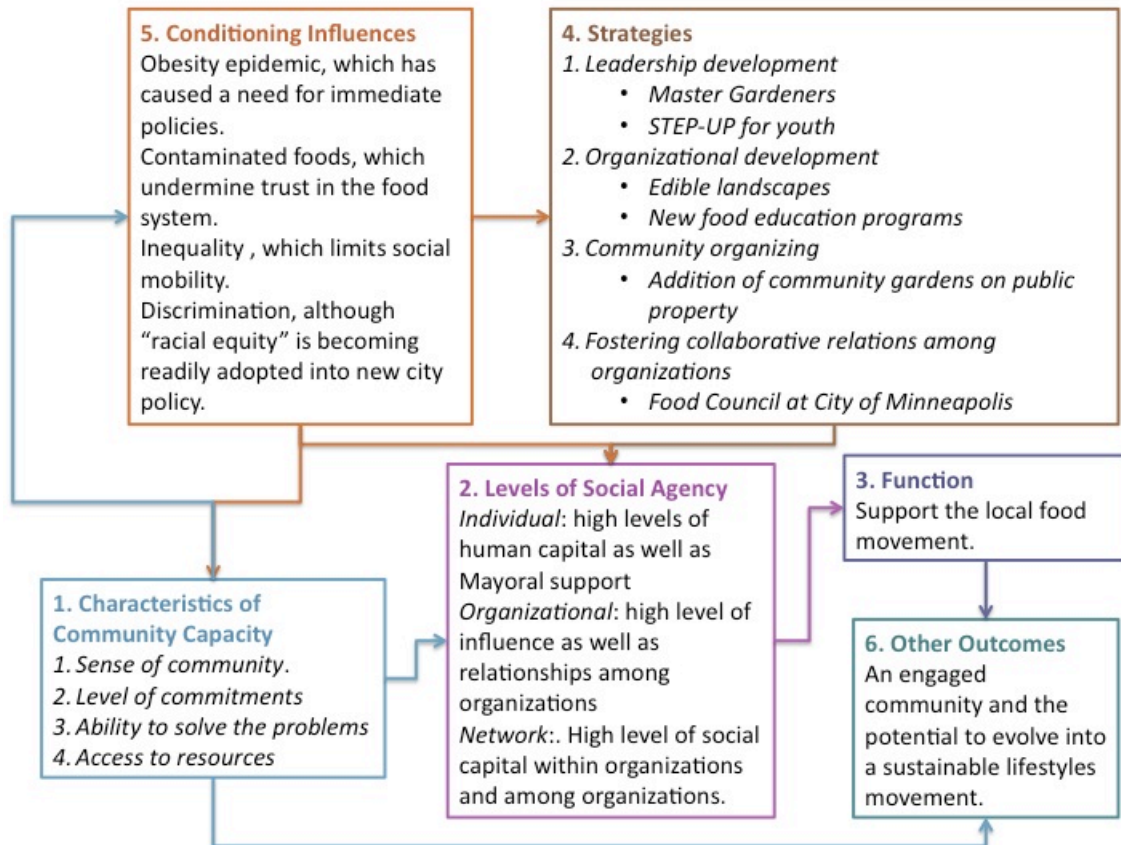
Figure 4. Summary of Community Capacity of Minneapolis

4 Analysis

The following section is an analysis of the data collected using the community capacity model. A comparative analysis of the two case studies: Malmö and Minneapolis is used to compare and contrast two different cities. First an overview of the respective policy windows in both Malmö and Minneapolis are given to frame the discussion of the two urban agriculture initiatives. The author has determined that the cultural and political drives have deemed very important in the way the movement has grown in each city. Following that, a comparative analysis of the two cities based on the community capacity model to analyze the differences in their levels of social agency, function, strategy, and conditioning influences. Other outcomes will not be assessed, as a full community capacity assessment was not completed as this analysis focuses on the municipality's role in the urban agriculture movement. Following this, a review of how co-management as an option for managing public spaces with urban agriculture is reviewed.

4.1 Comparative Analysis

Sweden and the United States have very different governance structures, a different food culture, and a different political atmosphere. The power of industry in the United States has prevented new environmental policies, and rather created policy in their favor. Sweden has had the goal of being a leader in environmental policy hoping to set the trend, but also accepting that the economy and environment are intrinsically linked. Although at the national level and overall, policies intend to create environments that allow people to live healthy and happy lives.

Cities learn from each other's successes and failures. Malmö is a part of Delegation for Sustainable Cities, which works with other cities in Sweden to create platforms for sustainable development. Minneapolis is a part of ICLEI–Local Governments for Sustainability, which is the coalition of cities to address climate change. Cities hold a great deal of resources and are the closest link to human capital that governments can easily tap into for their benefit and the benefit of all.

It is challenging to compare who has a "more advanced" urban agriculture movement, it depends on what perspective you take. Malmö has over 6,000 allotment plots within the city and is trying to expand into more community gardens. Minneapolis has over 85 food-producing community gardens, and hopes to support local food producers through urban farms. What Minneapolis does have, is a much more robust non-profit market that supports these community gardens. If Malmö's goal is to create more community gardens or urban farms then they may have a lesson to learn from Minneapolis. If Minneapolis wants to learn how to create environments that make sustainability the default, they have a lot to learn from Malmö. A formal arrangement between Sweden and United States to share knowledge through the Swedish American Green Alliance (also known as SAGA) between the U.S. Embassy in Sweden and the Government in Sweden. This can help foster better communication and networking over policy and governance over urban agriculture projects and programs.

To determine the capacity of building social sustainability through current and future urban agriculture programs the community capacity model will continue to be used to guide the analysis of Malmö and Minneapolis. By looking at the social agency, functions, strategies, conditioning influences, and other outcomes of each city's initiatives a better understanding of how social sustainability is being conditioned through municipal efforts.

4.1.1 Levels of Social Agency

Social agency is the capacity of individuals, organizations, and networks. Individuals and organizations connect through networks, which take many different forms and arrangements.

Individual or human capital and leadership is well accounted for in both case studies. There are several motivated and well-connected individuals in both Malmö and Minneapolis. This means that the **individual capacity is not the limiting factor within either city**.

In both cities, the urban agriculture movement has been community driven. In Malmö the problem of consistency of volunteers is highlighted as a barrier. In Minneapolis it is seen that as development threatened the gardens the community came together to protect them.

In Malmö the community is involved in both Slottsträdgården and Enskifteshagen through formalized gardening associations. There is continual interest in developing new projects, but not all new projects survive (J. Taylor, personal communication, 13 June 2014). A common problem seen in the literature is that **activity in the garden is not consistent**. Many projects go by the wayside when leadership is burnt out or moves away and the project fails (Battersby & Marshak, 2013; Birky & Strom, 2013). This is identified in Malmö in both the community garden Enskifteshagen as well as at allotments. Göransson and Kim Persson reinforce this by saying that volunteering is too inconsistent to manage community gardens (S. Göransson, personal communication, 14 July 2014; M. Kim Persson, personal communication, 16 July 2014). What they have seen with these projects is that the energy is like a rollercoaster. At times there is more than they can handle, and at other times there is almost no one to take care of the site. For example, Maria's colleague did most of the hard work at the garden [Barn i Stad in Seved] to keep it tidy, and to solve this problem they began giving people individual boxes at Enskifteshagen (M. Kim Persson, personal communication, 16 July 2014).

In Minneapolis during the 1980s and early 1990s there was noticeable decline in the city, and many people were moving out to the suburbs. Vacant land was taken up for community gardens, and these gardens remain today due to the grassroots efforts to continue to secure them over the years, and especially in the 2000s when the market picked up (Saylor, 2005). This tendency to use community gardens to reinvigorate a community is common in the United States. The ability of the neighborhood to take claim of vacant land and refresh community spirit is also well documented in literature (Firth et al., 2011; Saldivar-Tanaka & Krasny, 2004).

Organizational expansion is occurring in both Malmö and Minneapolis. In Malmö there is a growing creation of more organizations, whereas in Minneapolis many organizations are adding urban farming into their programming.

In Malmö the example most prominent is the split of Odla i Stan into the non-profit Odlingsnätverket Seved. This was done to allow Odla i Stan to work with other cities who wanted their expertise in establishing urban agriculture projects but allowing a non-profit that could be close to the neighborhoods to manage existing projects.

In Minneapolis the organization Women's Environmental Institute recently added urban agriculture into their programming due to the success of Growing Power in Chicago. Without the dynamic leader Will Allen this program would most likely not have spread out of the city into Minneapolis, which already had its own organizations partnered with the University of Minnesota. The relationships between organizations has not been as well

established within the research, but has been well mapped for the NUP in Stockholm. It is seen here that the way the multiple organizations that manage the NUP have affected how the governing body was both created and currently oversees the land (R. Barthel, Nickel, Meleg, Trifkovic, & Braun, 2005; Elmqvist et al., 2004; Ernstson et al., 2009).

Finally, the networking between individuals and organizations is extremely important to how efficiently human capital and social capital are mobilized in times of need. Without a high number of ingoing and outgoing links into a central broker there is less ability to mobilize resources and share knowledge (Ernstson et al., 2009).

> Ernstson, Sörlin, and Elmqvist defined four types of movements: "A "clique" movement requires all actors to invest a lot of time in networking with each other, thus drawing resources from interaction with outside actors, possibly leading to more closed communities with strong ideological or cultural affinities. The "wheel/star," or "core-periphery" structure, exhibits the contrary, where most actors can invest little time in networking but still remain close to others through the core actor. "Policephalous" structures suggest efforts to engage in collective action without delegating important tasks to a few centrally positioned actors, and "segmented-decentralized" structures reject any leaders to coordinate action on broader overarching concerns" (Ernstson et al., 2009).

Malmö is a part of the Delegation for Sustainable Cities (*Delegationen för Hållbara Städer),* but within the city there are only the two non-profit organizations: Föreningen Slottsträdgården Vänner and Odlingsnätverket Seved who coordinate volunteers for community gardening and garden-related events. They cover different parts of the city, and are not well interconnected between themselves. They have separate listservs to spread information through, and do not have representation at the city yet. Therefore, creating a gap in the network. One of the reasons Malmö may have such a more dispersed network is due to the high level of allotment gardens, which creates smaller "segmentation" networks that are not closely linked into the core and semi-core actors. This was seen by Ernstson, Sörlin, and Elmqvist in Stockholm during research of the NUP.

Minneapolis has a very strong network due to the large number of organizations the need is more present. The city has also taken an active role to bring together representatives from different communities within the city as well as representatives from urban agriculture organizations to better plan and support them. There is also a listserv for both the city's Home Grown initiative as well as urban agriculture in general through the University of Minnesota.

4.1.2 Function and policy windows

Function, or the goal, that is created to direct the program or policy affects the strategies applied. This makes the original function very important. This was seen by researchers in England, when research was done on different community gardens people reported motivations that were closely linked to the "goals" of the garden. For example, at the garden where the goal was to improve people's health and provide access to fresh produce the gardeners cited the health benefits of getting active and increasing the amount of fresh foods consumed. When the garden was created by community members who wanted to have a place to meet and grow the gardeners cited the drive to improve their mental and physical health (Firth et al., 2011). There are different functions for urban agriculture in Malmö versus Minneapolis.

Table 4. Functions set by Malmö and Minneapolis

Themes from Malmö	Themes from Minneapolis
• Can support social development and contribute to better health. • Creates a greater sense of belonging and attachment to their city, their neighborhood and their neighbors, and therefore also creates conditions for the integration of different groups of society and interaction between generations. • Malmö city is and will continue to be a role model in terms of sustainable urban development. • The term "sustainable" is not just biological sustainability, but also economic and social. (Malmö stad, 2011; Malmö Stad, 2014)	• To support healthy, sustainable, locally grown foods in the city. • Support, participate and provide leadership in development of regional food system work. • Assist with opportunities to celebrate food and its role in strengthening the connections of Minneapolis' many communities and cultures • Public education on food, access to healthy food, and provide economic support for the local food system (through procuring local foods at food stands on public property) • Foster the urban agriculture movement (through establishing community plots on public land) • Create opportunities for foraging by making food available on parkland. (Minneapolis Department of Health and Family Support, 2012; Minneapolis Park and Recreation Board, 2014)

As seen in Table 3, Malmö's urban agriculture policies are more related to social sustainability whereas Minneapolis is focused on fostering a local food movement and healthy foods. This is in part due to the difference in "policy windows" as discussed later in this section. The different food culture, relationship with local government, and motivations for urban agriculture affect the programs and policies within these cities. Cities can learn from each other, but almost always have to adapt programs and policies to fit the local needs and context. This creates a challenging situation for cities who must experiment and practice being frontiers. The two major goals outlined in urban agriculture programs at the municipal and organizational level are social sustainability and local foods.

In many cases system changes after a disruption, and this disruption is often referred to as a "**policy window**". The policy windows that are being captured are very different in the United States and Sweden. In Sweden it is the need to address social exclusion and social integration as well as begin to address sustainable lifestyles. In the United States it is driven by the need for healthy food to address the obesity epidemic and the drive for locally produced food due to the desire to know where your food comes from. This is in part due to the frequent food contamination in recent years as well as a desire to eat healthier.

In Sweden there are pockets of crime that are in need of attention and also a less than perfect distribution of health and welfare in the city. Malmö recently decided to focus on social sustainability in the city against the background concern over indications that health and welfare were not equally distributed in all areas in Malmö (Karlsson, 2011). In areas that are of particular trouble urban agriculture can be integrated to create safe spaces to battle those pockets of crime.

The relationship between Americans and their food seems to be changing. The drive for CSAs and urban farms is just an example of how much pressure is being put on communities

to provide local foods. The growth of Trader Joes and Whole Foods[5] as well as a very strong Cooperative movement within Minneapolis shows that there is the need and desire for access to organic, healthy food. Although there may be confusion over what "healthy" is for consumers who are continually mislead by advertising and a lack of knowledge of food. This policy window for healthy food to schools was taken up by the Farmington Community Garden which hopes to begin getting students more involved to teach them about food and health eating habits (B. Pierce, personal communication, 9 July 2014). Research completed in rural Minnesota to gauge the access to food uncovered that many are beginning to mistrust the food system due to the frequent occurrence of produce and products contaminated with e-coli and salmonella (C. Smith & Miller, 2011). It turns out that these contaminated food goods are often coming from one factory or supplier, and due to the sheer size of these processing plants there is no decentralization and products go across all fifty states. A decentralized system would prevent much of this problem and create more localized and controlled issues when they come up, but may even have the possibility to prevent them from coming up due to less volume and more care being put into products. This system has been established to maximize profits, but it is only within the past sixty years that food has been solely about profit and less about community and health.

Social Sustainability

The ability for community gardens to create a sense of place, ownership of the community, and make connections among individuals is well established (see Appendix 2 for a summary of Swedish-specific examples). The only down side is how **pushing governance down to the neighborhood level could leave behind those with less community capacity or those with less access to resources**. This is seen in urban agriculture projects where the community gardens who are the loudest and most organized succeed in securing resources and ensuring their survival, whereas those who are unable or lack the community capacity to do so fail.

The availability of free time is an often forgotten barrier that cities forget when making programs. Empowered citizens who take ownership of the community and their future is a very common picture promoted by cities very little focus is put on how those in the western world are exceedingly busy and may not prioritize community action. There are many competitions on time, and selecting what is best in the long-run over the short-run is often a challenge.

The proof of urban agriculture's ability to create cleaner, healthier, and happier cities will come only when the movement has been fostered by government as well as by the community. An experiment that seems to be portrayed as riskier than it really is. The perception and norms of what public green spaces are and should be is evolving, and when people stop looking at community gardens as messy and ugly, but as inspiration of how cities could be is when there will be change. What urban agriculture practitioners notice is once there are flowers no one complains (M. Kim Persson, personal communication, 16 July 2014).

Local Foods

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[5] Trader Joes and Whole Foods are both grocery store chains in the US that have branded themselves as health food alternatives, and both carry organic produce and food items.

The movement for localizing food systems is often referred to as the "locavore" movement. This has been highly contested for its ability to achieve sustainability for many reasons[6]. Despite these, the urban agriculture movement continues, and cities must be able to address community demands for food being re-integrated into the urban ecosystem. This is present both in Malmö and Minneapolis.

Sweden prides itself on public-private communication and coordination. When it comes to food, a dialogue should begin about helping consumers better identify SMART food choices at the grocery store. Since the food we eat is a large part of our individual climate impact, the grocery stores must take responsibility for ensuring that foods with high climate impact or are extremely unhealthy are promoted. These are things like candy, red meat and lamb products, and other processed foods or produce that has been shipped from far away, stored for extended periods, or grown in greenhouses that have a high carbon footprint.

In the United States the picture is very different for food security within cities and even within rural communities. Minneapolis has taken large steps to begin to address "food deserts" and try to fix them, but what has been noticed is that even when there is access to produce that is no guarantee that it will be purchased. This has created conflict between the city and convenience store owners who are being asked to sell fruit and vegetables (Rao, 2014). **It seems that both access and preference needs to be addressed in a more holistic way**.

A focus on organic foods is also contested. Although, not explicitly required, many urban farms in the United States do apply organic techniques, while in Sweden it is often a requirement. Not only does growing organically in the city support a more holistic view, but growing within the city will provide access to freshly grown produce that was previously not available. This has two benefits. First it increases health of residents who consume more organic, fresh produce and second, it can help educate people about seasonality of fruits and vegetables. In partnership with the grocery stores this can be used to influence consumer choices to prefer in-season foods that have lower transport costs.

4.1.3 Strategy

Minneapolis seems to have tapped into all four strategies for accomplishing their goals in urban agriculture. Therefore, the largest impact is what Malmö can do to better facilitate the urban agriculture and create a network that fosters local organic produce. In the goal of creating socially sustainable communities that are vibrant and good places to live Lööw in her thesis supported this with the perceptions of residents in Seved. With cultivation, there has been a change in Seved, a change that led to a more vibrant urban environment and more positive feelings among the residents faced the place they inhabit (Lööw, 2010).

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[6] The debate over food-miles is complex. The results of Life Cycle Assessments depend on the scope that is taken during calculations. What has been found is that the way the food is produced carries a much larger impact than how the food is shipped (Kulak, Graves, & Chatterton, 2013). The focus on how and where fruits and vegetables are grown in the big picture comes second to meat consumption. Research for the UK found that when focusing on produce how it is shipped will drastically change its footprint, and foods that are flown have a very high carbon footprint whereas foods that are sent by ship have a much lower carbon-footprint (Coley, Howard, & Winter, 2011). The world average meat consumption in 2009 was 41.90 kg per person, per year. In Sweden the average is 80.2 kg per person, per year (which has gradually increased about a kg a year since 69 in 2000) and in the United States it is 120.2 kg per person, per year (which is down slightly from pervious years, just below 122.6 in 1990) (FAO 2013, n.d.). Therefore, people who are concerned about eating sustainably produced food should look for organically produced food that is not grown in a green house, and should focus on eating a more vegetarian and vegan diet.

What is missing in Malmö is a **more direct connection between local universities and the city**. There is room to expand on this market for other non-profits or the Swedish University of Agricultural Sciences to get involved in the urban agricultural movement through hands-on learning projects placed within cities who request it. This can be demonstrated through Minnesota's Master Gardener program but also University of Minnesota Extension, which hires staff to work with communities to establish projects that are scientifically grounded.

Second, both **cities struggle with cultural and linguistic barriers**. In Malmö this is particularly apparent within Rosengård. During interviews in 2012 on the allotment garden program the interviewer found a great deal of mistrust and concern over someone dressed as an official showing up at the garden (Engdahl, 2013). This lack of trust is also apparent to organizers for Odlingsnätverket Seved, who said that there is a lack of trust of new NGOs. The biggest challenge is getting people's confidence (M. Kim Persson, personal communication, 16 July 2014).

Leadership development is a very important tool to address these issues. The ability of a garden coordinator or someone working with the community to have a "certain way with people" that makes people feel welcome and comfortable to ask questions is important (M. Kim Persson, personal communication, 16 July 2014). At this time at Enskifteshagen the main information flow is when people are on the site and someone walks by. Although there is a listserv for Odlingsnätverket Seved as well as a facebook page, the coordinator Maria says "the magic happens when you're on site" (ibid).

4.1.4 Conditioning influences

It is important to address issues at the appropriate scale. A promise of permanent efforts and continual improvement are important to **maintain the trust** of distraught neighborhoods. A sense of mistrust is fostered when the community feels there is a never-ending list of new projects that will help, but never feel the relief. Therefore taking a deep look at the conditioing influences and understanding if a program or policy can address the root cause is an important step for communicating goals and outcomes. Community gardens provide a place for people to connect with nature, grow a small amount of their own food, and provides a distraction from the stresses of daily life (such as unemployment) (Battersby & Marshak, 2013; Saldivar-Tanaka & Krasny, 2004). Larger social disparities, racism, and unemployment cannot be addressed with urban agriculture, or urban agriculture can only be a part of the solution.

A second conditioning influence identified during this study was the influence of human behavior and psychology. The **psychology of ownership** impacts how people perceive community gardens and how people want to split up or control the area. This creates conflict for community gardening on public property due to the personal connection and desire to cut off and protect the community garden from trespassers. As long as clear rules are set and there is communication that it is a communal space this can be discourage. This may be an important cultural shift for Swedes who are accustomed to allotments. It has been demonstrated by the allotment gardeners that their space is considered to be very private and self owned and want to limit access to others who threaten their garden (Engdahl, 2013). The psychology of ownership is comprised of three interacting reactions including attitudes towards the "target", the inclusion of the "target" into the self-concept, and creating a sense of responsibility for the "target". People feel more positive about (tangible or intangible) "targets" that they have a sense of ownership of, that is because this ownership is an extension of their self and is liked to "me", and finally this creates a sense of responsibility

for this "target" and the desire to limit access to others (VanDyne & Pierce, 2004). If there is a strong sense of ownership and a sense of communal sharing is neglected it can leave people frustrated and upset when their food is removed from the plant. This resonates in a fear of theft, which discourages people from participating. Many community gardens in Minnesota overcame this barrier by making their garden a "donation lot". This reduces the sense of ownership over the food.

There are cultural barriers that prohibit some community members from participating in urban agriculture, but there are also **constraints of time and interest** by others. The literature suggests that there are several reasons people do not participate. Baker in Toronto discovered that there are "geographical and cultural barriers to participation in place-based social movements, the need for food-systems education, and the challenges of organizing cross-culturally in a dynamic, diverse city" (Baker, 2004, p. 306). Barriers to urban agriculture in Cape Town have been the perception that it does not involve the social aspects and is an out-dated cultural practice, as people left for the city so they wouldn't have to farm -- "playing with soil". Further, that without an emphasis on the social benefits the economic benefits are not enough to motivate involvement (Battersby & Marshak, 2013). Issues identified included the lack of secure land tenure, robbery (tools), complaining neighbors (Saldivar-Tanaka & Krasny, 2004). These barriers can be disheartening and limit the persistence of volunteers to continue to show up.

4.2 Integrating Co-management

Co-management has been identified as a tool municipalities can use to better manage parks that create greener and more biodiverse spaces that empower the community to foster problem solving and effective management. It provides the community an opportunity to design their surroundings based on their needs and desires, and in exchange they share the responsibility of managing the space. The process by which change can occur requires two essential components according to Smedstad and Gosnell:

> "Our results suggest that the success of interventions aimed at catalyzing the transformation of governance arrangements toward [adapive co-management] may hinge on factors external to the collaborative process such as the presence or absence of (1) dynamic local leadership and (2) high quality agreements regarding next steps for the group" (Smedstad & Gosnell, 2013).

This management system could allow the cities to **meet their biodiversity goals** and improve the biodiversity of their parks. This could in part be accomplished by allowing the community to take responsibility for the management of plants within the park and encourage them to grow food producing plants and flowering plants that can support pollinators and other bird and wildlife species. This will be important, as cities need to become more compact to meet sustainability goals, but also will want to remain green.

The other benefit of co-management is the way it **brings the community together** to discuss their values and opinions as well as creating a shared vision. They will have to pool their resources to solve problems and limit conflict. What has been seen in other cases of co-management is the growth of informal networks, which consolidate information, identify knowledge gaps, and identify resources (expertise) (Curtin, 2014). In addition this creates a space for people to learn about and interact with nature. It also makes people responsbile for the health of the plants and animals living within the park providing an incentive to keep it clean and healthy.

Formal organizations often result from these processes as the need for someone to take responsbility and ensure that goals are met, and **formalize processes for problem solving and management**. These organizations can be neighborhood level with municipality oversight. At its core, solving complex and uncertain problems, or at least finding effective compromises, requires eliminating barriers and enhancing connectivity. Key facets of this process are: "(1) an understanding of individual and group cognition, or the way we perceive problems and their solutions; (2) the principles of effective collaboration, or the way we collectively solve problems; and how we learn, both individually and collectively; and (3) to develop and sustain the feedback loops for creative and innovative responses to social-ecological challenges" (Curtin, 2014).

Conflict is inherent, and must be managed in a way that is not disruptive, but rather constructive. This is why leadership can often be singled out as such an important ingredient. As a good leader can diffuse angry or upset neighbors and convince them to come to a new or collective decision. This can be within gardens among individuals or within organizations within a network. An example of a conflict in the neighborhood due to Enskifteshagen was when people of the garden made it into a meeting place and used it at inappropriate times of day – a party was held late into the night that upset the neighbors. There have to be places for people to come and meet and do things, but then it creates noise and disruptions (S. Göransson, personal communication, 14 July 2014).

Within organizations there is also conflict. But this does not outweigh the benefits according to Odlingsnätverket Seved's Maria. She believes if urban agriculture spread it would help glue people together in the neighborhood.

> It brings people together who have no common background. There are fights and arguments over how the space should be run or should look, but that part is refreshing. There is nothing like it, we are segregated by background but also by age. And urban agriculture brings people together who would otherwise not meet, and they all share gardening. These conflicts are good because people get to say what they want, but they are all in it together, and they grow as a group. Conflicts are squashed because they have to come together as a group and make decisions. The city of Malmö paid to fix up the site again, but it is now up to the farmers to maintain. The farmers and the people walking by need to take ownership, and once you become a member you are a part of the growing network (M. Kim Persson, personal communication, 16 July 2014).

Conflicts within the network may also arise. There was conflict between Odlingsnätverket Seved and Hidde Iyo Dhaqan (the Somali Association) because they felt that Odlingsnätverket Seved took over the project and made it their own (Karlsson, 2011).

This sort of conflict is inherent in all projects to some extent, but especially when a new way of working is introduced. Lessons learned from Miljöbyggprogram SYD, described in the Findings section, can be a good way for the city to think of how to be creative in working with the community and diverse stakeholders with different motivators. If you compare with NGOs like in the UK and United States, there is a much different relationship among stakeholders than in Sweden. It is hard for Sweden, because they never had this and it is hard for them to work out how the system will work (S. Göransson, personal communication, 14 July 2014). Although drawing lessons from different governance systems may not be needed due to Malmö's history of taking risks. At Bo01 and Augustborg as well as current efforts at Sege Park a new way of sustainable development has been tested, and food and green

infrastructure are prominent. These lessons are relevant to urban agriculture as well. What has been noticed is that green infrastructure is often difficult to maintain due to the lack of knowledge about how to keep the plants healthy. Typical "grey" infrastructure like pipes have limited or simple maintenance needs, and when they are broken you replace them. A similar logic is applied to landscaping. Plants that are easy to maintain and "tidy" are selected. This planning style is outdated and does not meet the needs of cities any more. Increasing pressure for providing ecosystem services that are lost due to urbanization as well as the need to support more biodiversity within cities requires a new planning paradigm. You need something new to have to be more holistic in planning and management (S. Göransson, personal communication, 14 July 2014).

Another example of conflict can be at the policy level. In Malmö the consideration of what is private or public creates a great debate when it comes to community gardens in public spaces. Although it may begin to address some of the key issues with placing community garden sites within public parks, as it would be a devolution of power to the community to determine how the space should be used. There are two problems. First, this is a public park, which is free for everyone. Second, gardens will become semi-private by their nature. In legislation, the question is what is a "public park" and how public does it need to be (S. Göransson, personal communication, 14 July 2014). Within the community it is to be expected that conflicts arise. There is a balance between making it an enclosed space and not shutting people out. Everyone is welcome, even if there is no room for him or her to grow. They can come and look, enjoy the space, and harvest from the community areas (M. Kim Persson, personal communication, 16 July 2014).

4.3 Governments role in sustainable lifestyles and food choices

Granola is the term used by trendy American youth to label someone who changes their diet and lifestyle to align with their environmental and moral values by eating a vegan or vegetarian diet and limiting their environmental footprint, and most importantly consuming lots of natural foods like granola. Cities like Malmö in Sweden have decided that their priority is creating an environment where choosing the more sustainable option is the easiest option. Other cities like Minneapolis and St. Paul in Minnesota are up against competition of other attractive urban regions and are trying to reduce their footprints to produce cleaner, safer, and smarter cities. This means changing the "defaults" by which people move around in their daily lives.

Guiding consumer choices based on science is a large task. Advertisement is often one step ahead of legislation and labels like "natural" mislead customers into thinking some sort of action has been taken to make the food healthier or that "natural" has any weight. Food labels like KRAV and organic both direct people with confidence to food that has been grown with a more holistic perspective, but these labels have been around for over a decade and have not taken over the market.

Government is looking out for the collective good of all, and therefore may engage in trying to persuade behaviors. Although, unlike large corporations they do not have huge budgets to find the perfect message, hire actors, and place their message in places that are repeatedly seen. Further, people are most likely to adopt "good" behaviors when they have seen them modeled and have first-hand experiences with the benefits (Plante, 2014). The diffusion of residential gardens in Michigan are attributed to a shift in the norm of what a yard should look like (Hunter & Brown, 2012). These pathways for social change take time, but they also take root when success breeds success. No food culture remains stable or uninfluenced by

changes in availability of foods, food price, as well as media and other influences on our choices (Carlsson-Kanyama & Lindén, 2001).

A change in how we produce food must come both at the technological stage, but also must come with behavior change. "Even the more moderate goal of increasing the resource efficiency by a factor of four hardly seems reachable by technological means only. Dietary changes towards food that is 'by nature' more efficient to produce is called for" (Carlsson-Kanyama & Lindén, 2001). Meat and vegetables grown in greenhouses are among the most energy-demanding food products, and by switching to diets with less meat and farmed fish and eating vegetables in season and locally produced (as well as fewer foods with low nutritional value like soft drinks and snacks) we can reduce our impact (Carlsson-Kanyama & Lindén, 2001).

Next, the message must emphasize health and start young. In a survey completed to gauge the access to fresh produce in rural Minnesota results showed that many were familiar with organic food, but did not have any opinions or thoughts on sustainably produced foods, and the main motivator for organic foods was health (C. Smith & Miller, 2011). The values and norms engrained in the first 20 years of life tend to set your patterns for the rest of your life (Carlsson-Kanyama & Lindén, 2001).

5 Discussion

Limitations from the methodological and analytical choice and how they affected the study, the legitimacy of the research questions, and how generalizable these results are is discussed below.

The community capacity model is limited in scope and has many aspects that tend to overlap. This allows it to be flexible in how it can be applied so that it covers a wide range of factors that impact community capacity in a specific way. This context directs how it is applied and the impact it can have. In some ways, it may seem that this framework is best applied to American contexts, as it did not always seem to directly translate to Swedish applications.

The use of other case studies would have been able to provide a more conclusive picture on if the model can easily adapt to diverse cultures. For example, how it applies to a very complex case like the NUP would have been interesting to see if it would have demonstrated strong community capacity within this network. To have tested a very successful initiative against a less progressive initiative allowed for it to demonstrate the usefulness of it as a model to demonstrate the level of capacity within a community. The choice of case would have been interesting to contrast two cities within the same cultural and political context in addition to UK or United States examples. Both of which have a strong volunteer and gardening history that can be more easily compared than between the United States and Sweden.

Additionally, as the research needed to analyze the impact of municipal actors in more detail additional analytical frameworks could have supported the community capacity model to demonstrate how political factors can impact the way a community organizes itself. The community capacity model attempts to integrate this into conditional factors, but this requires a more in-depth analysis to discover where the power lies within a community as well as how resources are made available. One such framework would have been the Institutional Analysis and Development framework (Whaley & Weatherhead, 2014). Due to the complex nature of community capacity and how it evolves to take ownership and manage resources, it seems applicable to take it to the next level to determine how institutions develop, allocate resources, and make decisions. This can be done with the Institutional Analysis and Development framework.

This framework in addition to the community capacity model could have better demonstrated how Malmö and Minneapolis address the demand for community gardens and urban farming through their governance structures. This was addressed evaluating the goals of policies by both cities in contrast with how engaged they are in co-management as well as how they currently allow for and manage community gardens.

How urban agriculture practices enhance their social sustainability was well established within the literature analysis by other studies, but the application of how it is applied in both cities is adequately demonstrated through the community capacity model. It was demonstrated by analyzing the policy windows and functions of urban agriculture policy within the respective cities and completing interviews to identify how people participate.

Finally, through collection evidence to demonstrate the respective community capacity of both cities it can identify gaps and barriers. This can help city managers and community organizers to better create urban agriculture programs and policies that meet their needs. Although time consuming and often expensive an interview and survey should be collected

among neighbors in areas with community garden plots and without to get a complete picture of community capacity by collecting the indicators of community capacity: sense of community, level of commitment, ability to solve problems, and access to resources.

The results of an analysis using the community capacity model is very specific to the city and community being evaluated, but general lessons can be drawn from research on how a community can evaluate its capacity to create change as well as organize to manage problems. The research demonstrates the importance of having context specific information as well as adapting policies and procedures to the specific context.

6 Conclusion

Demand for urban agriculture is continuing, and seems to be unrelenting as communities begin to define what a good life means to them, and to struggle with finding local systems that are both in accordance with the globalized economy, but also provide opportunities and benefits to those at the local level.

The problem this research attempts to address is the reason behind the hesitant nature of the city of Malmö to adopt a new urban agriculture policy and integrate food into the urban landscape. Second, it attempts to address how the city of Minneapolis successfully accomplished this policy shift. The second problem is that there is a broad scope of benefits of urban agriculture, and solutions are over-promised to citizens. There are several reasons for this identified in the research, but in particular there are many barriers for people to engage in urban agriculture. This includes a lack of time or a lack of resources and access.

In order to address the problems stated above, the research analyzed the goals set by muncipalities, which were social sustainability and local food production. Therefore, this research needed to first address a clear relationship between social sustainability and urban agriculture, and how the community's capacity can either foster or inhibit the movement. Second, urban agriculture has been claimed by many to build community. Although there should be clarity in how and in what ways it can accomplish this. The research questions identified in this research are:

1. How does urban agriculture and community capacity relate to social sustainability?
2. In what ways is urban agriculture building community capacity?
3. How do the goals or "functions" of the community or municipality affect the outcomes?

To answer these questions an in-depth analysis using the community capacity model (Chaskin, 2001) was used to identify how urban agriculture within two municipalities builds community.

Throughout the literature analysis, findings, and analysis it has been demonstrated that urban agriculture activities are very successful tools in engaging social sustainability. This is because these become shared spaces that bring community members together; these community members must come to a shared vision and define norms and rules that guide how the space is used. Its civic ecology system helps create democratic and locally relevant systems.

General findings from this research are that essential to any change or social innovation is **strong leadership and a shared vision**. Secondly, that **food belongs in the city**. These two findings are supported throughout the paper, and are beginning to be better understood and researched.

Leadership is important for helping come to a consensus on a shared vision, but also for the management of the movement. This includes reducing and managing conflict, bringing together the human capital and social capital needed to accomplish the goals, and making decisions. A shared vision is important because as was seen in the Findings and Analysis the function (or goals) set end up directing how the movement goes forward and the results of the movement. Both leadership and a shared vision are interwoven throughout the community capacity model, and the model provides an opportunity for planners to assess the assets of the community to build what is missing and capitalize on what it has. It also allows

for creating programs and policies that are relevant and create a direction for the movement that are successful in reaching the goals.

Co-management has mixed reviews; it has evolved into adaptive co-management and is not always applied with success. Individuals have a limitation on their time and small organizations have limited resources. Therefore, making the city a very important role in management of green spaces. Although these small organizations can support the collection of data only one overseeing body can evaluate it and prioritize how resources are allocated.

People demand the right to grow food in the city. In Sweden it comes in the form of allotments and in Minneapolis community gardens. Although these clearly are not going to address societal problems they do build up community capacity and provide a plentitude of other benefits to make people's lives better. Further, they produce the space for people to practice and develop their skills that are needed to build community capacity.

This work begins to address the serious impact that planners have on our wellbeing and challenge city policies that do not provide the flexibility or resources needed to foster community-led initiatives like community gardens. Not only does this allow the city to tap into a larger pool of human and social resources, but it **allows the community to build up its resilience for when a change creates the need for a deep and wide pool of knowledge and skill**. Therefore, adding to the community development research as well as the argument for cities to take on urban agriculture as a part of their policy and interweave food into their planning in a more aggressive and proactive way.

Malmö is still working to come up with a vision for urban agriculture, as there is disagreement at the policy level of how community gardens and demand for allotments should be addressed. In April of 2014 a general policy was written, but it is still in the very early stages of exploring this arena. In Minneapolis the city has been under pressure since the city has begun to recover from the economic downturn in the 1980s and suburban flight. The city has established a Food Council to manage food related policies and promote change. Following suit this summer the Park and Recreation board, who is responsible for the management of all parks and lakes within the city to also created an urban agriculture policy and integrate food into their programs and planning.

The **choices at the municipal level make a big difference in how the community goes forward with urban agriculture**. The city sets the plans and directions for how space should be used and does this both through hard policy (zoning and policing) and through soft policy (norms and values). This means that changing a city policy can make a large difference in how space is used, and further through holding and being the most organized to procure resources the city can play a large role in starting and directing an urban agriculture movement. In Malmö the city has provided little direction to community groups who are looking to create community gardens and is at the beginning of the process of developing policies and programs to establish them. They have already planned to integrate growing spaces into new developments and redevelopments in the city to allow for this desire. Whereas in Minneapolis there are now policy and plans to establish that the city will be integrating food-producing plants into the urban landscape.

The most important thing cities can do is to **show that food is and can be a part of the urban environment**. This is by integrating food producing plants into the urban landscape as well as providing, protecting, and promoting urban agriculture within the urban environment. Due to the volatility of community gardens there must be a formal structure to

ensure that when they devolve there is some sort of system for reorganizing them or allowing them to fade and redevelop in another area where the demand has grown. Cities are "living and breathing" organisms that change and evolve over time, and allowing them to do this means having a flexible enough policy and vision that allows for this sort of change. That is identified in the literature by allowing for co-management, which requires a high level of social agency in both organizations and networks to ensure that the human resources needed to support this sort of work is established.

Cities and governments are meant to reflect the needs and desires of the community, and a conversation between the community and elected officials should span beyond the election. Cities are very familiar with going directly to the community and requesting their opinions and direction. This is a legal requirement, but often these meetings are sparsely populated unless it is on a very relevant topic or has become very controversial. As social sustainability becomes a more central goal for cities the demand for a **new way for the city to interact with the community** will be more important. That is why taking a deep look into what a community's assets are at any given time will help a city direct how and where it needs to focus its efforts.

Each city, although unique, often shares the same burdens. The challenges of how to arrange space in ways that produces healthy and happy communities as well as provide services that are in demand and support these goals. This is a challenge that can be shared and lessons learned help other cities to understand where the context must be addressed within a new program or policy and where universal truths hold.

Future research that should be done is evaluation of the ecological impacts of urban agriculture as well as community gardens. The research is very sparse on how it can support pollinators and other insects, small animals, microbes in the soil and how they are impacted, as well as bird species. The biodiversity argument can be augmented with scientific inquiry, which is underway at the Cleveland Botanical Gardens. Further, interviews should be completed with gardeners on a more regular basis and a more formal way of collecting community perspectives should be done so not only the people who complain are heard.

Urban agriculture is being used as a tool by cities to help empower citizens who want to reconnect with their food and begin to fix the "broken" agri-food system. It is also used as a tool to help address the growing disparity and inequality that causes social problems. Other problems that can be addressed through urban agriculture are the obesity epidemic as well as the social exclusion, racial inequity, and unemployment. Urban agriculture can be an effective tool to address these issues, but cities play a large role in how it develops and can direct which benefits are emphasized (food security, healthy foods, nature, etc). Secondly, the governance structure of the city can impede or support the development of urban agriculture, and a deep understanding of how this occurs follows. This is demonstrated through understanding how both cities run, and then contrasting the development of their urban agriculture programs.

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Appendix 1: Interview Questions

Interview Questions for semi-structured interviews with staff and gardeners

1) What has been your role as [position/]?

2) What have been some of the most challenging things about the work you do in Malmö?

3) Is the community actively engaged in managing urban agriculture projects?

4) Why do you think people participate in urban agriculture?

5) Why do you participate in urban agriculture?

6) What success has the urban agriculture project you're engaged in experienced? Please explain.

7) What do you see as the future for urban agriculture in your city?

8) What part do you think urban agriculture plays in sustainability in your city?

9) What do you see as the 3 biggest barriers to better engage this community in urban agriculture?

10) What do you see as the most promising opportunities to better engage this community in urban agriculture?

11) Is there anything else you would like to share with me about urban agriculture in this area?

12) Is there anyone you think I should talk to?

Appendix 2: Community Capacity Indicators in Malmö

Sense of community

In summary from the interviews completed with allotment renters in 2012 done by the city of Malmö the major themes that came out in the interviews was that gardening was good for people's health, was socially integrating, provided a sense of belonging, and gave meaning to their life or a sense of purpose. This sense of purpose was especially present in the interviews at the allotment site in Rosengård, which has had a great deal of focus on it due to it being a segregated area with high unemployment and social problems, but the residents in these communities (Seved especially) often feel that the focus on their community is not helping to create solutions to these problems. (Engdahl, 2013)

The most overwhelming support for the development of sense of community is in how it brought together people of different cultures, people who would otherwise not stop to talk, and created excitement around taking ownership of the neighbourhood. Lööw found similar results in her research at Seved, where she concluded that the urban agriculture project was a great tool for integration. It brought people from "15 different nationalities" together talking about recipes and food, what some people ate of a plant and what others didn't (an example is squash flowers). It also allowed for people to have access to fresh herbs that can often be expensive such as cilantro. (Lööw, 2010) The projects displace "mischievous gangs" from the area where the cultivation is taking place. Karlsson in her thesis also supported the socially integrating phenomena occurring at "Barn i Stad" in Seved. (Karlsson, 2011) Maria from Odlingsnätverket Seved emphasized the opportunity to create roots to the community and claim space beyond your apartment. She expressed how we become so much in our own lives and our own space. You go out and meet your friends and then they have the same interests and background. At the community garden young and old, and people of other cultures mingle and create new bonds (M. Kim Persson, personal communication, 16 July 2014).

Level of commitments

It is clear that urban agriculture projects in the short-term provide people with a collective well-being and ability to take ownership of the project and commit time and energy to it. Although this willingness to participate is the most inconsistent variable when it comes to urban agriculture. It is both noticed by practitioners in Malmö as well as in the literature that interest or available time for the gardens waxes and wanes. Therefore, some sort of system to either sustain demand or to support the garden at times of low interest is necessary. When talking of resilience, it is important to remember that consistency is not necessary, and that sometime is may lie "dormant" until need calls upon it.

Further, the concern that people can become exclusive and create gardens that are private becomes a significant concern for practitioners. It is clear that people become rooted in their allotment gardens (Engdahl, 2013), but the extent to which community gardens stay open to all is still under investigation. When the goal is to make the space a meeting place, open to all, it is most likely that structure of the garden and communication to those involved must reinforce this need. Further, it is important that these projects work with the media to ensure that the message that these spaces are community run, and inclusive not exclusive is important, but this is not always possible.

Ability to solve the problems

Movements to establish urban agriculture within the city are slow. There is a lack of drive at the municipal level. This is perceived by John Taylor due to the slow "machinery" of the council as well as doubts of permanency of small urban agriculture initiatives in Malmö (J. Taylor, personal communication, 13 June 2014). Slottsträdgården is the only long-term project within the city, and a great deal of speculation over the project Enskifteshagen is to "show" how these community gardens work. The lack of reward from harvesting crops was why Maria hypothesized that the project fell apart (M. Kim Persson, personal communication, 16 July 2014).

In Rosengård during the 2012 allotment survey it appeared through the interview summaries that there was initial fear of the official coming by the garden, which indicates a lack of connection with the city and their plans for the neighborhood. They feared the allotment being shut down due to the work being done in the area, and they seem to have little knowledge of what's going on in the area (Engdahl, 2013). This indicates a low capacity to solve problems within the neighbourhood, but could also have been a demonstration of how the community could have banded together to protect something very dear to them.

It was clear that Kids in Town (*Barn i Stad)* in Seved was an eye-opener as to what is possible. People were impressed at the success of plants within the city, and the lack of vandalism and theft. The project seemed to build residents confidence in how they can affect their community and contribute to improving their neighborhood. Further there has been growing interest due to the project's success, and several property owners in Seved have shown interest to start growing similarly to Kids in Town (*Barn i Stad)* does reflect the project was successful with something more to achieve (Lööw, 2010). Community gardens can be used to create a "counter image" of a community that is often negatively portrayed in the media, like Seved. It can also be an important source of empowerment to the community, and this cannot come directly from the city as a program because then it looses its power. An important component of a neighborhood garden (*Utlä ndska stadsodlingar*) is that it is driven by the active themselves and not by an authority which requires new kinds of forms of collaboration between authorities and farmers. If this is met, creativity and community arise and the nature of the garden is then shaped by growers thoughts and ideas. (Karlsson, 2011) This is not to say that the city should not actively support these projects by making resources more available and policies that encourage and allow rather than discourage and prohibit.

Access to resources

The city is looking at a citywide plan for how to better integrate urban agriculture into city planning as well as how to meet requests for new citizen-driven urban agriculture projects. A framework will be designed based on the successful Slottsträdgården project. Two "pilot projects" have been engaged in one at Seved and the other is Enskifteshagen. Growing spaces are planned into new sustainability projects already. (Malmö Stad, 2014) So how will community gardens look in the future? That depends on the people. Due to linguistic challenges that limit the ability to access resources there seems to be a lack of knowledge at the allotments. Languages identified were Arabic, Persian, Serbo-Croatian, and Albanian (Engdahl, 2013). Second it seems that those who do not have the time or loud leaders do not receive resources and attention. Sten Göransson pointed out that it is a problem that always will arise is that the loudest and most coordinated leaders get all of the money (S. Göransson, personal communication, 14 July 2014). First there must be resources for the community to mobilize and second there must be access provided that addresses a multi-cultural, multi-lingual, and equitable distribution of the resources.