

Greens and beans in the city

- Urban agriculture and food security in Jinja,
Uganda



Source: Authors' own photo

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ABSTRACT

This thesis concerns the problems with creating urban food security in a constantly urbanizing world with focus on the role that urban agriculture may have in addressing this problem. The purpose of this study is to investigate if urban agriculture is an important activity for creating food security in the city, using Jinja as an example. It also seeks to explore potential opportunities and obstacles for agricultural activities within the city of Jinja. Three research questions have been used in the study; How does urban agriculture affect the food security situation for households in Jinja?, What conditions affect urban agriculture in Jinja, and in what ways?, How does the urban planning of Jinja affect the conditions for urban farmers and urban agriculture?

In the study two geographical perspectives are being used; a Farmers' perspective and a Planning perspective. By using these two perspectives, the role of urban agriculture in Jinja will be examined by looking from the perspective of both the people doing the farming as well as from the people in charge of land use and planning of the city. The study has been carried out during eight weeks in Jinja and has a qualitative research approach. Semi-structured interviews, observations and document studies are methods used for collecting the data.

The main conclusions that can be drawn from this study are that urban agriculture is of great importance for the food security situation for many urban inhabitants of Jinja today. The climate and natural conditions are favourable for farming in Jinja, but climate changes may cause less rain in the region in the future. Lack of rain leads to less productive agriculture as well as increasing the number of pests who are destroying the crops for urban farmers. Although urban farming is a common feature of urban life in Jinja, many factors are threatening its existence. Unpredictable conditions such as insecure land owning and rent factors for urban farmers make it difficult for farmers to make long-term plans and investments in their farms due to fear of displacement. This may stand in the way for sustainable, efficient urban agriculture in Jinja. The city development planning for Jinja is focused on densifying the city structure with more residential, industry and commercial areas. As urban agriculture is a space demanding activity, low access to farmable land may threaten the presence of urban agriculture in Jinja.

The thesis does not aim at presenting solutions or possible paths to how the management of urban agriculture should be conducted, but rather it is a description of the current situation for urban agriculture, and the impact from urban agriculture on the food security situation for farmers' households in the city of Jinja.

FOREWORD

This thesis is the result of a Minor Field Study (MFS), that was conducted in Jinja, Uganda during the spring of 2017. It was funded by a scholarship from the Swedish International Development Agency (Sida) that was granted through the Unit of Human Geography, Department of Economy and Society at the University of Gothenburg. It is also the result of two students' attempts to combine their two major study areas; human geography and environmental studies and use some of their general methods, theories and goals in a small-scale context.

In addition to all kind people in Jinja that have participated in the study, we would like to express our gratitude to our supervisor Margareta Espling for all the guidance and support that made this thesis possible. We also want to give a big thank you to our interpreter and dear friend Judith for all the help and laughter.

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1. INTRODUCTION

1.1. Background

In January 2016, the United Nations' new set of goals to end poverty, protect the planet and ensure prosperity for all officially came into force. Among the 17 Sustainable Development Goals, goal number two aims at ending hunger, achieving food security, improving nutrition and promoting sustainable agriculture (UN, n.d.a). Achieving zero hunger and food security for all the world's inhabitants is a complex and problematic issue. Today, approximately 795 million people suffer from hunger worldwide, a figure that is likely to increase with the expected population growth (UN, n.d.b). But achieving food security for all the world's inhabitants is not just a question of how many mouths we need to feed, it is also a question of where these people are located and the methods and ways in which the food is produced and distributed.

In 2014, the urban population had reached 3.9 billion people, meaning that more than half of the world's population lived in urban areas. The ongoing urbanization process, that people are moving from rural to urban areas all over the world, in combination with future population growth is expected to add 2.5 billion people to this number by 2050. Roughly 90 percent of the increase in urban population is concentrated to Africa and Asia (UN, 2014, p 2). It is also in these two world regions that the majority of the world's hungry people are living, where Africa is home to over 232 million people suffering from hunger (UN, n.d.b).

In no other region of the world is the urban population growing as quickly as in Africa. By the end of this decade, 24 of the 30 fastest growing cities will be African. The rapid growth of cities is creating immense demands on the urban food supply (FAO, 2012, p 13). The provision of food to cities is putting high pressure on rural areas, and triggers significant transformations in the countryside as an increasing share of the produced food must be directed to feeding cities. The increasing demands for food in the cities as well as the unsustainable transformation of the rural landscape shows the need to find other suitable solutions for creating urban food security (FAO, n.d.a). The awareness about the role of urban agriculture as a way to supply cities with food and create urban food security is growing. Urban agriculture - the growing, processing and distribution of agricultural products is not a new feature in the urban landscape, but it has become a key element in food security strategies. Despite this, urban agriculture mainly remains an informal sector activity, which is problematic to integrate in urban planning and agricultural policies (FAO, 2008a, p 9p).

In Uganda, urban agriculture is important and common in almost every city. The majority of the Ugandan population live along the northern shores of Lake Victoria, mainly between the cities of Kampala and Jinja. Uganda used to be a British colony, but is since 1962 an independent state. Approximately three out of four Ugandans earn part of their income from

agriculture, and as many as two out of five earn most of their income from own farming. The major part of the population living in cities earn their income from the informal sector (Landguiden, 2016).

In the city of Jinja, urban agriculture is one of the most common sources of income (Jinja Municipal Council, 2007, p 6p). Jinja is located 80 km east of the capital city, Kampala, and has a population of about 90 000 inhabitants (Landguiden, 2016). Situated on the northern shore of Lake Victoria and the east shore of the River Nile, the productive soils and favourable climate makes it a suitable place for food production (Jinja Municipal Council, 2009, p 26p).

1.2. Problem statement

The problem with how to feed the growing urban population, and if food security can be created through paths of production within urban areas, is the entry point of this thesis. Achieving urban food security is one of the present problems that, if left unresolved will only continue to grow, especially in the Global South. As the world's urban population is expected to keep growing, the pressure on achieving urban food security will be increasingly important. The climate change due to global warming will make weather conditions for farming more unstable and unpredictable. This may create a need for different solutions to meet the challenges of food security for citizens within the growing cities of the world. Urban agriculture may improve direct access to food through subsistence farming, or more indirect in by increasing household income through sale of the harvest, which makes the food sold at the markets more accessible (Korth et al., 2014, p 2)

The urban space is a valuable asset for urban planners and authorities, and there is a limited amount of urban space inside a city. Therefore, the use of urban space is often strongly disputed and debated and urban planners must coordinate different interests that works within the city (Satterthwaite, McGranahan & Tacoli, 2010, p 2815p). Although urban agriculture is a common feature in many African cities, as well as an important part of urban livelihoods, it has often been restrained or prohibited by authorities who regard urban agriculture as a health and environmental concern or as a remnant of a rural lifestyle that does not fit in to the picture of an urban environment (Foeken, 2005, p 8, Vermeiren, 2013, p 41). In more centralized governed countries such as China, the government has since 1978 implemented policies that prevent Municipalities to exploit farmland. This has been made in order to protect the food security gains from agricultural land (Zhong, Mitchell, Scott, Huang, Li, Lu, 2017, p 1076), but in most African cities urban agriculture is left out of policy or regulation. How authorities provide for, or not restricts access to farmable land affect the conditions for urban agriculture. Both land use planning, as well as legal framework for urban agriculture is therefore crucial for the existence of urban agriculture (Jacobi, Drescher and Amend, 2000).

Studies regarding urban agriculture as a way of achieving food security in Africa mainly focus on and use larger cities as places of study. The focus on urban agriculture in larger cities does not in itself form part of the problem of achieving urban food security. But in the light of this,

we found it to be an interesting angle of view to conduct the study in Jinja, an intermediate sized city in Uganda. Due to the lack of regulation of urban agriculture in Jinja, its contribution to the urban inhabitants' food security situation is today unknown (Jinja Municipal Council, 2009, p 111). This, in addition to that Jinja is a city that has been planned and built up by British colonial planning ideals, and therefore may give clues to on how urban agriculture is being conducted in a city characterized by a British colonial heritage makes Jinja an interesting place to expand the present knowledge on the interaction between urban agriculture, food security and urban planning.

1.3. Purpose and research questions

The purpose of this study is to investigate if urban agriculture is an important activity for creating food security in the city, using Jinja as an example. We also want to explore potential opportunities and obstacles for agricultural activities within the city of Jinja.

In order to fulfil the purpose, and get a wider view at how urban agriculture affect the urban food security situation in an intermediate sized city, two perspectives will be used; *Farmers' perspective* and *Planning perspective*. These represent geographical perspectives on different scales, and each of these perspectives has different sets of research questions. The farmers' perspectives focus on the household level, aiming to see how urban agriculture affects the food security situation within households. The farmers' perspective is also an important component in creating a general understanding and defining urban agriculture in the context of Jinja. The planning perspective focuses on how planning on a local level affects the farming activities, aiming to deepen the understanding of the context and premises that the farmers in Jinja are given on a local scale. Since main focus of the study will be on the farmers' perspective, the planning perspective will be used as a complementary perspective. The intention with using these perspectives is to get a broader view of the possibilities and obstacles with urban farming in Jinja than what would have been possible if just using one of them.

Farmers' perspective research questions

- How does urban agriculture affect the food security situation in terms of availability, access, utilization and stability for households in Jinja?
- What conditions affect urban agriculture in Jinja, and in what ways?

Planning perspective research question

- How does the urban planning of Jinja affect the conditions for urban farmers and urban agriculture?

1.4. Limitations

Due to the great number of farming plots, agricultural activities have been defined and limited to four groups of farming that are typical and common in Jinja. The groups are presented in chapter 6. Common to all categories is that the farming is not done by agricultural corporations

operating in the city. Therefore, this study does not consider commercial urban-agriculture corporations' activities.

In Jinja it is very common with fruit trees. Even though fruit trees in many cases might be considered as part of urban agriculture, this category has not been taken into account in this study. This because of the growing time of fruit trees is much longer than other crops within the frame of this study making it hard to investigate intentions with planting, the purpose with the harvest (for example to sell or use for household) and ownership. Therefore, the study focuses on more structured organized farming plots. Fruit trees have still been included if farmed in an organized way. It is important to highlight that these fruit trees are both very common in the city landscape of Jinja and that often, unlike for example in Sweden, a fruit tree may constitute an important source of additional income for many people.

The thesis concerns how urban agriculture may contribute to the food security situation for the urban inhabitants as an activity rather than how it should be carried out. Therefore, technical details of agriculture and farming will not be investigated or focused on unless it is a crucial factor in some of the cases.

1.5. Structure of thesis

The structure of the thesis is as follows: Chapter 1, the introduction chapter provides a background, purpose, research questions and limitations for the thesis. In chapter 2 and 3 the theoretical framework is presented, starting with a literature review and description of three key themes for the study; food security, urban agriculture and urban planning. This is followed by a presentation of the analytical models being used in this thesis.

In order to give the reader an understanding of the geographical context, chapter 4 will give a brief introduction to Uganda and the city of Jinja. In chapter 5 follows a presentation of the methods that are being used in the study. The results in chapter 6 are presented in three sections; urban agriculture in Jinja, farmers' perspective and planning perspective. This is followed by the analysis in chapter 7 where the models, presented in chapter 3, are used to analyse the empirical data. In the end, it all comes down to conclusions and discussion in chapter 8.

2. LITERATURE REVIEW OF KEY THEMES

This is the first of two chapters that serve as theoretical framework and outline three key themes of the study; food security, urban agriculture and urban planning. In addition to providing a background and definitions of key themes, interesting aspects for this study are presented.

2.1. Food security

Background and definition

Before food security was used as a term, problem with food, or the “food problem” was used to describe having sufficient access of food to cover the need of the population. It was in the early-1970s that the term “food security” began to be widely used (Cafiero, Melgar-Quiñonez, Ballard & Kepple, 2014, p 231). Originally, food security was used in the same way as the “food problem”, i.e. to express if countries had access to sufficient food to meet the dietary needs of their population. Many used the term as another meaning of self-sufficiency, that a country could produce the food it needed to feed the population or the amount of food that the population demanded. In most cases, a clarification was missing of whether food security meant national access to enough food for the citizens or if meeting the economic requirements from domestic production was enough to claim self-sufficiency (Pinstrup-Andersen, 2009, p 1).

At global and national levels, the use of the term food security tended to focus only on the physical ability to deliver food and if there was enough food available where it was most needed. But the availability of food does not assure that all people have access to food. In the same way, getting enough calories to survive does not assure a healthy and nutritional diet. In the mid-1970s, the problems with access to and distribution of available food became widely recognized. Because of this, the definition of food security changed to include access to enough food by all people to be able to live a healthy and productive life (Pinstrup-Andersen, 2009, p 1p). In addition, stressing the idea that food security should be investigated at a household level, the term “household food security” began to be used in the 1980s. Another shift in the definition of food security occurred in the 1990s with the addition of economic, social, nutritional and psychological considerations (Cafiero et al., 2014, p 231).

According to Cafiero et al. (2014, p 231), the development of the term food security has been distinguished by three paradigm shifts;

- From the global and the national levels → the household and the individual levels.
- From a food-first perspective → a livelihood perspective.
- From objective indicators → subjective perceptions.

At the World Food Summit in 1996, the following definition of food security was established: “Food security exists when all people, at all times, have physical and economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an

active and healthy life” (FAO, 2008b, p 1). This definition became generally accepted worldwide and is the definition that FAO still uses today. It is also the definition of food security that will be used in this study.

Different aspects of food security

From the definition established at the World Food Summit in 1996, four main dimensions of food security were identified in order to clarify the meaning of the term. The four dimensions are: *availability, access, utilization* and *stability*, and these are described more thoroughly in chapter 3 (see section 3.1) (FAO, 2008b, p 1). The opposite to food security is *food insecurity*, the situation existing when food security is not achieved (Pinstrup-Andersen, 2009, p 2). In trying to express the duration of food security, two general types of food insecurity have been defined by FAO; transitory and permanent food insecurity. *Transitory food insecurity* is short-term and temporary and occurs when the ability to produce or access enough food to maintain a good nutritional status is rapidly declining. It is often the result from short-term disturbances and fluctuations in both food availability and food access, as for example annual variations in domestic food production, household incomes and food prices. Since transitory food insecurity can emerge suddenly, it is relatively unpredictable and makes planning and programming difficult because it requires different types of interventions and capacities. *Permanent food insecurity* is long-term or persistent and occurs when individuals are unable to satisfy their need of food over a prolonged period of time. Long-lasting periods of poverty and lack of both productive and financial resources are examples of underlying factors to permanent food insecurity (FAO, 2008b, p 1p).

In addition to the two general types of food insecurity, there is the concept of *seasonal food insecurity*, which is placed between transitory and permanent food insecurity. Seasonal food insecurity is similar to transitory food insecurity because of the limited duration and the occurrence of cyclical patterns of insufficient availability and access to food. This kind of seasonal food insecurity is associated with seasonal fluctuations in the climate, cropping patterns, labour demands and diseases. However, as seasonal food insecurity usually is predictable and often follows a sequence of known events, it is also closely related to permanent food insecurity (FAO, 2008b, p 1).

Food security at household level

As mentioned earlier, the notion of food security (and food insecurity) as something that should be investigated at a household level led to the establishment of the concept of *household food security*. Even though the term itself nowadays is seldom used, food security at the household level has been widely used as a measure of welfare. A household is regarded as food secure if it can obtain the food required by its members to be food secure. Looking at food security at a household level can show the complexity and the variation of situations. For example, two households with the same economic resources and facing the same food prices, might have different situations with food security if one of them have to pay school fees and the other one does not (Pinstrup-Andersen, 2009, p 2). But even if a household is regarded as food secure, it may not assure food security for all its members. Just because a household can provide enough

food does not mean that the economic assets are used for food purchases. These assets may just as well be put into use for hospital bills or other household expenses. And even if they actually are used for food purchases, the allocation of food within the household may not be fairly distributed or based on the needs of each individual. In addition to this, the individual ability to be food secure, especially with focus on the dimension of utilization and nutrition, depends on different factors that are not directly related to food, such as sanitary conditions, water quality, access to primary health care and several diseases (Pinstrup-Andersen, 2009, p 2).

Estimation and measurements of food security

When analysing the food security situation for people it is important to not only know the duration of the problem but also how critical the impact is and how severe the situation is for the overall food security and nutrition status. The main reason for this is simple, it will influence not only if but also what kind of assistance that is estimated to be needed by the ones that are affected (FAO, 2008b, p 2). There is a general consensus concerning the goals with food security, but opinions are divided on how to achieve these goals and how to operationalize food security into something that can be estimated and measured (Cafiero et al., 2014, p 232). The measurements used should be valid and reliable, but as with many other phenomena within social science that we wish to measure, it gets problematic when what we want to measure is not directly observable. This is something that has been permeated in the political and academic debates regarding food security measurement over the last half century (ibid, p 230).

Another problematic issue in finding measures of food security is the demand to include all of the four dimensions availability, access, utilization and stability. This is something that has not yet been adequately fulfilled. In addition, there is a need for improvement in how to measure food security at different scales and advance the ways of how food security is estimated at household or individual levels, especially the food access dimension. In recognition of the complexity of food security, the measurement issue has received much attention and in the efforts of creating knowledge on food security, and allowing for more accurate estimations and assessments, hundreds of indicators have been proposed (ibid, p 232). With the development of indicators, different classes, scales, grades or phases of food security have also been developed over time. The indicators have been divided into two categories; those that mainly focus on adequacy of food consumption and those that focus on the constraints of food access. The latter one is also called an experience-based food security indicator (ibid, p 234).

One commonly used measure of the adequacy of food consumption is FAO's measure of the *Severity of Undernourishment* (ibid, p 235). This measure refers to the part of the population whose total dietary energy consumption (DEC) is less than a pre-determined limit. The limit used is specific for a particular country and is based on an approximation of the number of kilocalories required to perform still or light activities (FAO, 2008b, p 2). The *Food Insecurity Experience Scale* (FIES) is another example of an appreciated FAO-developed experience-based indicator. FIES is a metric of severity of food insecurity and is based on people's direct responses. It is collected through a survey module consisting of eight questions regarding the

access to food. The result from the questions compose a scale that covers a range from mild to severe food insecurity (FAO, n.d.b).

2.2. Urban agriculture

Background and definition

Common to most definitions of urban agriculture is that it includes production of some type of agricultural goods in urban areas (Vermeiren, Adiyia, Loopmans, Tumwine, & Van Rompaey, 2013, p 41; Zezza & Tasciotti, 2010, p 266). Urban agriculture has multiple roles and functions within urban areas including; enhancing food security, creating job opportunities, urban greening and maintenance of green open spaces, reduction of erosion and soil degradation, and less household waste in the streets if household waste is used to fertilize the crops (Vermeiren et al., 2013, p 40p). The practices of urban agriculture vary from small-scale home gardening or squatting of public spaces for subsistence use, to big commercial market gardens (FAO, 2012, p 19p). Urban agriculture requires relatively small investments, which makes it suitable for poor residents. Even though there are low investment costs for urban farming, it requires access to farmable land which often is too expensive for the poorest part of the urban population, leaving the citizens in most need without opportunities to farm (Foeken, 2005, p 5p). Although urban agriculture has a lot of positive effects, it does not come without complications and obstacles. Urban agriculture may pose a threat to both health and to the environment. The use of poorly treated wastewater as irrigation, bad use of agrochemicals, and the contamination of soils from garbage and traffic emissions may turn urban agriculture into a hazardous health risk for people who eat food grown in cities (Vermeiren et al., 2013, p 40).

This study will use Zezza & Tasciotti's (2010, p 266) definition: "Urban agriculture is defined as the production of crop and livestock within cities and towns", to define urban agriculture.

Urban agriculture in Africa and its impact on food security

Urban agriculture is a widely-spread activity in most African cities. Estimations from the mid-1990s showed that about 40% of the African urban population was involved in urban agricultural activities (Pedzisai, Kowe, Matarira, Katanha & Rutsvara, 2014, p 80). Urban agriculture is carried out by both low- and high-income residents in most African cities (Pedzisai et al., 2014, p 85; Vermeiren et al., 2013, p 40; 48). According to Zezza and Tasciotti (2010, p 271), poor residents are overrepresented in urban agricultural activities. For the poor urban residents, urban agriculture may be a necessity in providing food because insufficient income makes the food on the market too expensive to buy (Korth et al., 2014, p 2). There are two main pathways in which urban agriculture is expected to enhance food security; improved access to food products and increased household income (shown in *Figure 1*) (Foeken, 2005, p 5p; Korth et al., 2014, p 3; Pedzisai et al., 2014, p 80; Simon, 2016, p 85; Zezza & Tasciotti, 2010, p 271p).

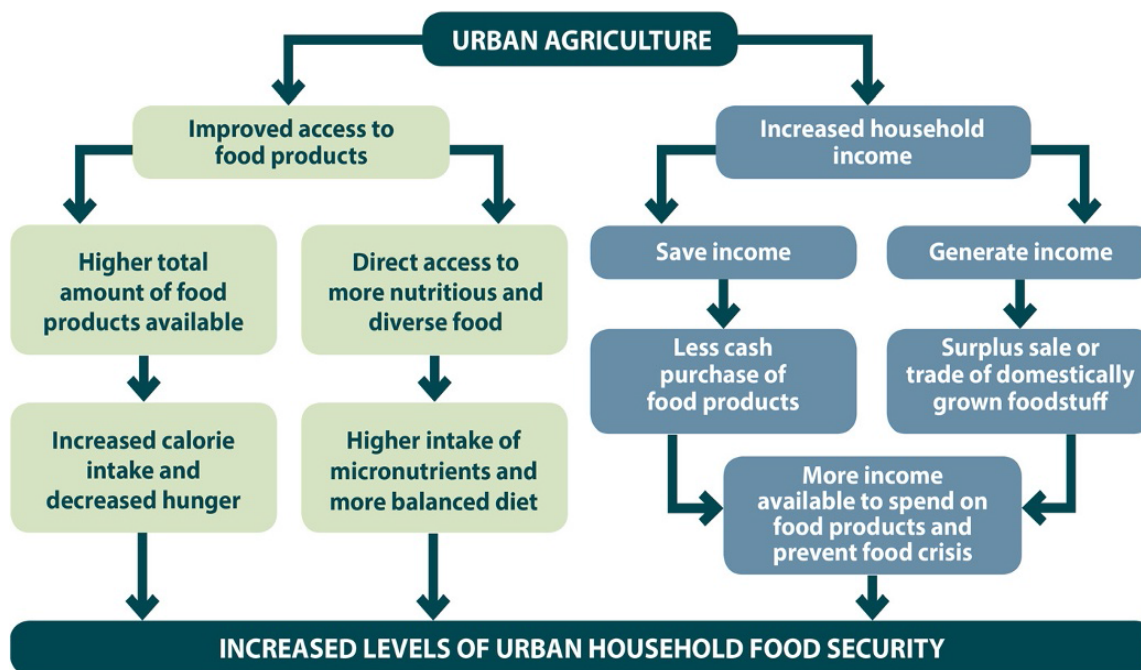


Figure 1. Urban Agriculture's two pathways to increased food security.
Source: Korth et al., 2014.

One important aspect of the food insecurity situation in Africa is the urbanization process. Climate changes are expected to enhance the rural-urban migration in Africa due to ruined rural livelihood situations from altered weather conditions. This will put more pressure on creating food security for African urban inhabitants (FAO, 2010, p 14p). Urban agriculture has been noticed as a way of establishing urban resilience as well as to combat greenhouse gas emissions (FAO, 2010, p 16; Pedzisai, 2014, p 82; Simon, 2016, p 85).

Although urban agriculture is a common feature in many African cities, as well as an important part of urban livelihoods, it has often been restrained or prohibited by authorities who regard urban agriculture as a health and environmental concern. It is also regarded as a remnant of a rural lifestyle that does not fit in what characterizes an urban milieu (Foeken, 2005, p 8, Vermeiren, 2013, p 41). Lack of waste management is common in many African cities. This can cause crops to grow on contaminated soils and thus become dangerous for human consumption (Pedzisai et al., 2014, p 81). In addition, non-existent policies or regulations of urban agricultural technology often lead to an overuse of pesticides or chemical fertilizers, which, in combination with poor quality drainage systems, cause these substances to flow into important water sources and pose a threat to people's health and the environment (ibid, p 41). The insecure conditions for urban farmers that follow from the lack of recognition of urban agriculture as a legal activity does not give incentives for farmers to invest in, for example, irrigation infrastructure or other crop or soil improving investments (Foeken, 2005, p 24; Pedzisai et al., 2014, p 81). Since poor residents are the most common urban farmers, the economic dimension is also an obstacle for investing in various yield-maximizing improvements. The problems of legislative and economic security prevent African urban

agriculture from generating the amount of food that may be needed to create adequate food security (Pedzisai et al., 2014, p 85).

2.3. Urban planning

Definition and focus

Although the term urban planning is defined and used in many ways, the general objective for urban planning can be summed up as making the urban physical environment meet the needs of the urban inhabitants and environment. The needs may change over time, which means that urban planning needs to develop in order to be able to respond to current challenges (Silver, 2014, p 104, 114). Urban planning has traditionally had a strict physical land use focus with the intention of creating efficient economic developing cities (Macdonald, 2014, p 97p; Watson, 2009a, p 2261). The planning ideals of today emphasise creating liveable cities based on the concept of sustainable development with more focus on environmental and social dimensions and creating value for the people living in cities, rather than creating value for the buildings and its property owners (Silver, 2014, p 105, 108; Pacione, 2005, p 179p; Watson, 2009b, p 161). Today, urban planning must also include how to create food security for urban residents (Silver, 2014, p 105), which, with the increasing urbanization, becomes an increasingly relevant and burning topic for urban planners to deal with (Foeken, 2005, p 5). Despite this, how to create a sufficient food supply for the urban residents is often taken for granted (Olsson & Olsson, 2016, p 6p; UN, n.d.d.). Even though there are growing problems for cities in how to feed their citizens, urban land use policy and planning is overall still focused on creating economic growth (Ng, 2014, p 108p). The cities of today are “competing” with each other in attracting investors by creating suitable needs for the investors making place-marketing important for urban planners, which enhances the process of value maximization of the urban land (Pacione, 2005, p 178pp).

This study will use the definition of the Oxford Dictionary of Human Geography for urban planning:” The strategic conception and realization of schemes and principles for the organization of land use and the built environment at urban and city-region scales” (Castree, Kitchin & Rogers, 2013). The definition provides a holistic view of urban land use, stretching from the policy and planning part to the physical implementation of urban planning.

Urban planning in the Global South

Urban planning in cities of the Global South is to a large extent based on, or influenced by, visions and methods from the early 20th century European planning (Macdonald, 2014, p 97p), but the conditions and challenges for urban planners in the Global South differ enormously from what planners in the early 20th century Europe were facing (Watson, 2009a, p 2264). The rate of urbanization and urban growth of today, as well as the extent of the informal sector in Global South cities, are problems that the early 20th century European planning had no methods of dealing with (Watson, 2009b, p 163p).

The urbanization and urban population growth are expected to be highest in cities in the Global South. These cities are also least able to cope with providing food security, infrastructures and social services for their inhabitants (Watson, 2009a, p 2263). Corruption and bad governance is also a common feature in many countries in the Global South. Consequences of the corrupt public system is often shown in displacement of citizens in favour of industries or other businesses of foreign or national investors. This creates unpredictable and unfair land use practices, which prevent the urban residents from daring to make long-term investments due to insecure land-owning prospects (Watson, 2009b, p 177p).

The number of people living under the poverty line is much higher in cities of the Global South than in the Global North. This creates challenges for urban planning in creating housing for the urban poor. Despite this, the authorities have goals to “catch up” with the urban development taking place in cities in the Global North (Watson, 2014, p 117p). This means that urban development in cities in the Global South often focus on a city development that resembles urban development goals and urban design of cities in the Global North, often leading to a city planning aimed at removing the informal sector, rather than taking care of and developing local urban functions (Watson, 2009a, p 2268).

Urban planning and urban agriculture

Urban agriculture is a space-demanding activity in the urban landscape. Since much of the city development in land use is governed by and/or influenced by urban planning, the degree of incorporation of urban agriculture in planning and policy is essential for obtaining a successful urban agriculture (FAO, 2008, p 75p). Urban agriculture has been a common feature in African cities for a long time, but in urban planning it has traditionally been seen as something undesirable that do not fit in the urban landscape (Foeken, 2005, p 6; Wolfe & McCans, 2009, p 26p). Many cities lack a policy of urban agriculture, meaning that it has been officially declared illegal in many places or just been left out from law (Satterthwaite et al., 2010, p 2815). However, urban agriculture has been allowed to exist, both in cities with prohibition and in cities that lack an urban agricultural policy, as long as it has not been conducted in a manner contrary to local authorities' preferences (Foeken, 2005, p 6p; Vermeiren et al., 2010, p 40p). The lack of recognition of urban agricultural practices is creating insecure conditions for urban farmers in the Global South. In 2009, the UN demanded a paradigm-shift in urban planning to integrate urban agriculture as an important legal feature in the cities of the Global South in order to create better conditions for urban farmers, as well as to enhance the role of urban agriculture as a way of fighting food insecurity (FAO, 2012, p 26).

The urban space is a valuable asset for urban planners and authorities. Therefore, urban land is expensive and often inaccessible for the urban poor. Real estate and other investments that stimulate the economic expansion of cities are often prioritized above the creation of accessible urban farmland (Satterthwaite et al., 2010, p 2815p). Today, much of urban planning worldwide is focused on building compact cities. The idea of compact cities came in response of the urban sprawl that created problems with infrastructure, providing social service to the citizens as well as environmental problems connected with increased need of travel when cities expanded. The

compact city model may pose a threat for urban agricultural activities that require a lot of space (Vermeiren et al., 2013, p 48).

3. ANALYTICAL FRAMEWORK

This chapter contains the analytical framework for the study. The chapter begins with a theoretical context, a section that presents general concepts within which this study and its focus are located. Then, a description of two models follows; *The four dimensions of food security* and *The crisis model*. The description of the models in this study is based on aspects and problems that are relevant in the Global South, due to the location and focus of the study. Furthermore, since the focus of the study is on household and local scales, the models have been adapted in order to focus on the aspects that are of relevance at these levels.

3.1. Theoretical context

3.1.1. Sustainable development

The Brundtland Report in 1987 states that sustainable development is achieved when we meet the needs of today without compromising the ability for future generations to meet their own needs. The concept involves three dimensions; ecological, environmental and social, which should be obtained simultaneously in order to achieve sustainable development (Inkpen, 2009, p 378p). Although the concept has received great criticism for being vague, analysis through the three dimensions of sustainable development allows for discovery of development-conflicts between social, environmental and economic goals (ibid, p 380).

In January 2016, the United Nations established 17 Sustainable Development Goals (SDG) to end poverty, protect the planet and ensure prosperity for all (UN, n.d.a). SDG number two, *No hunger*, states that; “it is time to rethink how we grow, share and consume our food”. Within the goal with no hunger, achieving food security serves as one of two parts of the overall goal (UN, n.d.c.). Another SDG goal related to this study is goal number 11, *Sustainable cities and communities*, that focus on the concept of the three dimensions of sustainable development for urban dwellers. In this goal, attention is being drawn to vulnerable inhabitants such as poor, old people, women and children. It also highlights the importance of good urban planning that encourages sustainable development. Many urban problems are pointed out in the goal, but no attention is given to how to create food security for urban citizens (UN, n.d.d.).

3.1.2. The Global South and Global North

In trying to explain “the world”, a lot of classifications and categories have been made throughout the history. The classification has often been divided based on development or economic factors i.e. the *first*, *second* and *third* world, or the *developed* and *developing* world. The concepts of Global North and Global South originate from the 1980s and are a revision of the concept of the *first*, *second* and *third* world. The *first* world became the Global North and the *second* and *third* became The Global South (Williams, Meth & Willis, 2009, p 1). *Figure 2*

shows the division of Global North and Global South with the so-called Brandt Line¹, as well as countries' financial status. According to Williams, Meth and Willis (2009, p 3p), the Global North-South division is still, without the pure linguistic power relations such as in developed-developing world, characterized by the Global North as hegemony.

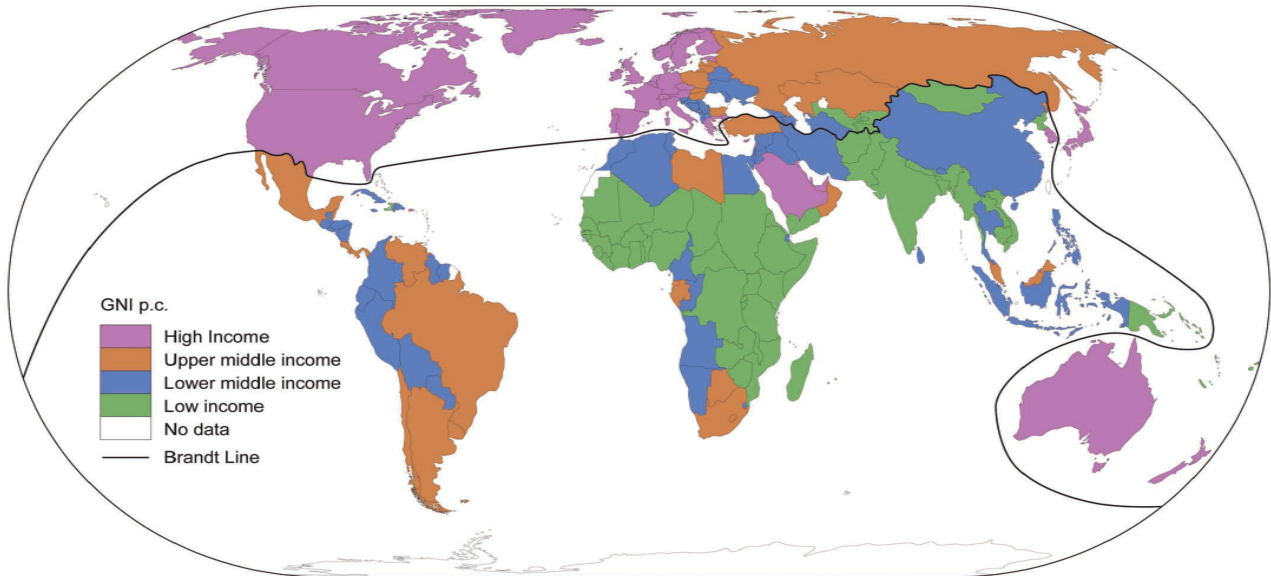
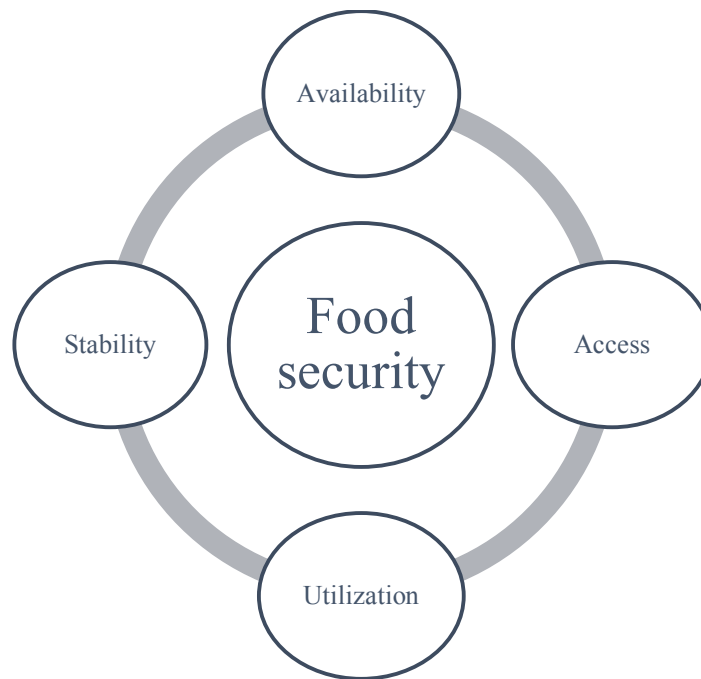


Figure 2. Global North-South Division according to the Brandt Line.
 Source: Williams, Meth & Willis, 2009, p 2.

3.2. The four dimensions of food security

FAO identified four dimensions of food security from the definition established at the World Food Summit in 1996 (see Figure 2). The following description of the four dimensions focuses on the aspects that are relevant at household level, due to the focus of the study.

¹ The name Brandt Line comes from Willy Brandt who led a commission, which with the report *North-South: A Programme for Survival* in 1980 introduced the term and division of Global South and Global North (Williams, Meth & Willis, 2009, p 1).



*Figure 3. FAO's model of the four dimensions of food security.
Source: Authors' adaption based on FAO, 2008b p 1.*

Availability

The dimension of physical availability of food refers to the actual existence of food. It addresses the “supply side” of food security and is determined by the level of food production, stock levels and the balance of trade (FAO, 2008b, p 1). At household level in the Global South, the availability of food comes from own farming or is bought from the local markets (Kuwornu, Suleyman & Amegashie, 2013, p 4).

Access

A sufficient supply of food at national or international levels does not guarantee food security at household level. Economic and physical access to food regards households' ability to obtain food in adequate quantity, quality and diversity for a nutritious diet (FAO, 2008b, p 1). Food access is mainly determined by economic and physical resources as well as food prices. In addition, accessibility is affected by social and political factors. The food should be at the right place, at the right time, and households should have the economic freedom to purchase sufficient food (Kuwornu, Suleyman & Amegashie, 2013, p 4).

Utilization

Food utilization concerns ingestion and digestion of sufficient energy and nutrient intake through a diverse diet of adequate and qualitative food for good health (FAO, 2008b, p 1). In a wider explanation, this means proper use of food, a diet that contains adequate energy and essential nutrients, but also knowledge of how to storage and process food as well as proper illness management (Kuwornu, Suleyman & Amegashie, 2013, p 4).

Stability

Even if households' intake of food may be adequate today, they are still considered to be food insecure if the access to food is on a periodic basis. Stability over the other three dimensions over time is achieved when the food supply at household level remains constant during the year and in the long-term (FAO, 2008b, p 1), including food, income and economic resources. Furthermore, external factors like weather conditions, climate change, political instability or economic events like rising food prices may have an impact on households' food security status. This increases the need to improve the stability and resilience of households (Kuwornu, Suleyman & Amegashie, 2013, p 4).

3.3. The crisis model

What urban agriculture is, and consequently the effect it may have on living standards for urban households, depends on a variety of factors and even more on the relationship between these factors. *The crisis model* is a model used for assessing the potential of urban agriculture, and demonstrates different influential factors on urban agriculture that occur on different levels. The model combines factors affecting urban agriculture at a global and national level with more basic conditions needed at a local level (Jacobi, Drescher & Amend, 2000). This model primarily focuses on how to develop urban agriculture as a tool for different types of crises. To do this, different factors on different scales should be considered. In this study, the crisis model has been reworked. The focus on the use of urban agriculture as a strategy in crises has been removed in order to get a wider view of the relationship between urban agriculture and food security. The impacts on urban agriculture from international and national scales has also been removed in the adapted model since the focus of the study is on the conditions on a local scale. The adapted model highlights five main areas of conditions that, according to Jacobi, Drescher & Amend (2000), determine the occurrence of urban agriculture in a local context: *natural conditions*, *physical infrastructure and services*, *socio-cultural conditions*, *institutional conditions* and *economic conditions* (see *Figure 3*). These conditions are presented below.

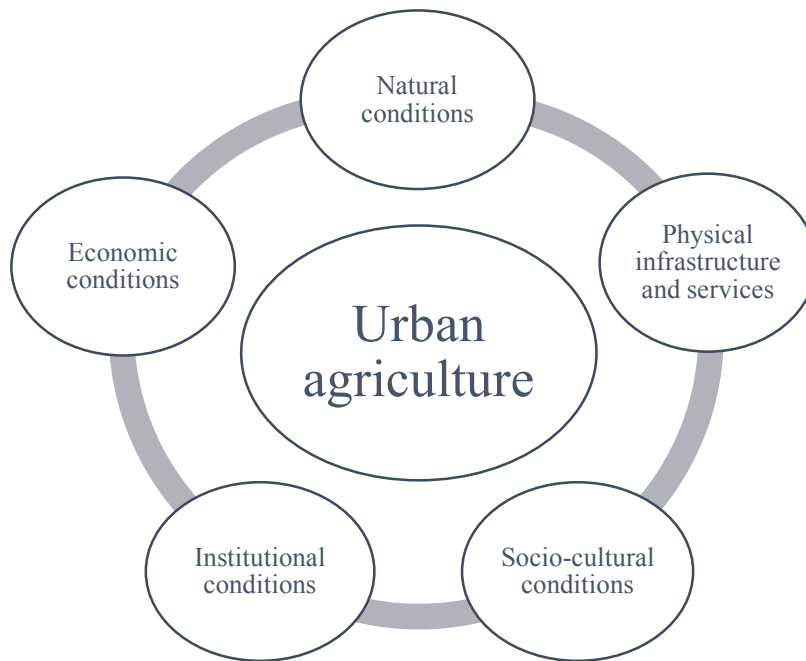


Figure 4. The crisis model.

Source: Authors' adaption based on Jacobi, Drescher & Amend, 2000.

Natural conditions

Natural conditions and climate have a huge impact on urban food production. Access to good and productive soils, the amount and seasonality of rainfall and different temperatures are examples of natural conditions that determine whether and how urban agriculture is performed in cities. Favourable natural conditions are necessary in order for urban agriculture to be available for all income groups. Good conditions mean that no major investments are necessary to start a production (Jacobi, Drescher & Amend, 2000).

Physical infrastructure and services

Basic requirements for food production, even in urban areas, are the availability of space and water. Without them, urban farmers have a hard time starting up any kind of food production. If the natural conditions change, for example lack of rainfall and lower access to water, the dependency on infrastructure such as irrigation systems for sufficing urban agriculture with water will grow (Jacobi, Drescher & Amend, 2000).

Socio-cultural conditions

Socio-cultural conditions refer to farming traditions and food preferences such as how to farm and what kind of crops that are grown. Farming traditions, that agriculture is something that the farmer used to do and know how to do, or that different groups of people culturally have a farming background is often used as an entry point into urban agriculture. Different food preferences, both on an individual, local and national scale, relate to and influence what kind of crops that are grown (Jacobi, Drescher & Amend, 2000).

Institutional conditions

Institutional conditions refer to the capability of institutions to provide for, or not restrict the access to space and water. The institutional conditions for urban agriculture are also highly determined by the land use planning in cities, as well as the legal framework for urban production (Jacobi, Drescher & Amend, 2000).

Economic conditions

The economic conditions refer to all the economic aspects of whether urban agriculture is a common activity or not in cities. The lack of adequate and accessible income opportunities and an unsatisfied demand for food products in quantity and quality are two examples of economic conditions that make urban agriculture common in cities (Jacobi, Drescher & Amend, 2000).

3.4. How the models will be used

In this thesis, the aim with using the four dimensions of food security-model is to enable a clear and delimited analysis of the data in relation to if urban agriculture is an important contributor to urban food security in Jinja. When using the model in the analysis, the starting point will therefore be to look at the four dimensions and then see what results that can be linked to them, focusing on the data collected through interviews with farmers. For urban agriculture to be used as a tool for creating food security, it needs to exist. The second model, the crisis model, will be used as a way of analyzing the conditions for urban agriculture in Jinja. The model will be used both to describe the conditions from farmers' perspectives as well as from a planning perspective.

4. INTRODUCTION TO THE FIELD

This chapter will give a brief introduction to Uganda and Jinja in order to create an understanding of the context in which this study has been made. The aspects that are presented in this chapter are chosen due to their relevance for the study. It should therefore be seen as a brief introduction to the study area.

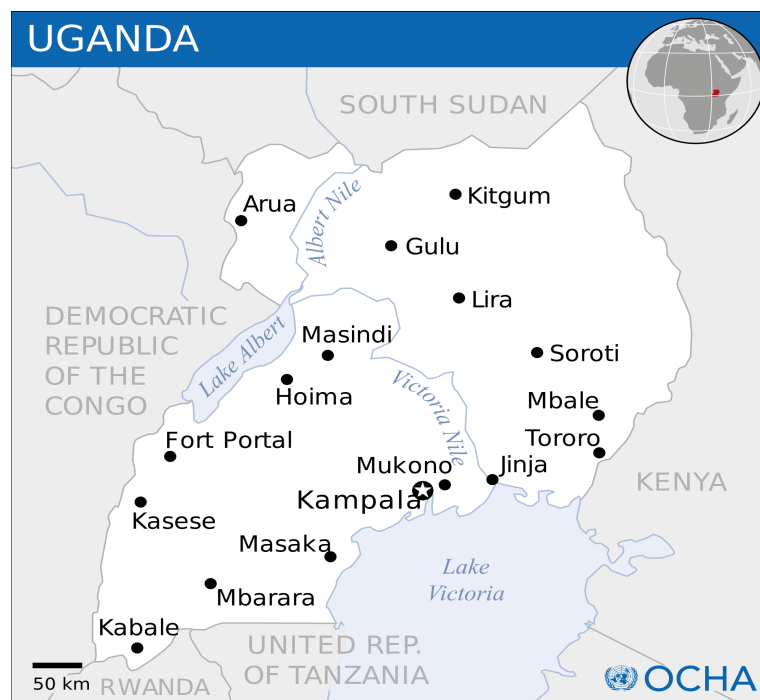


Figure 4. Uganda
Source: OCHA (n.d.)

4.1. Uganda

4.1.1. Geography and climate

Uganda is a country in the “heart” of Africa. It is a 241 551 km² land-locked country with 80 kilometers to the nearest coastline. *Figure 4* shows the map of Uganda as well as its position in Africa. The capital city of Uganda is Kampala, and other major cities are; Lira, Gulu, Kira, Mbale, Nansana, Jinja and Mbarara. Uganda has a tropical climate with two rain-seasons a year, and the most rainy parts of the country lie in the south on the shores of Lake Victoria. In more recent years, the rain-seasons have been more unpredictable and absent. Ugandas most valuable natural resource is the fertile soils. The soils combined with the climate make the country favourable for agriculture. In 2012, an estimated 71.4% of Uganda’s land area was used for agricultural activities (Landguiden, 2016).

4.1.2. History in brief

The favourable climate and productive soils of Uganda has attracted people since the 5th century. Before the colonialization of Africa, Uganda was split in many smaller kingdoms occupying different parts of the country. In the late 19th century, Uganda was colonialized by the British Empire, which proclaimed the territory to be under British protectorate. At first, only the kingdom of Buganda was included in the protectorate but two years later almost all the Ugandan territory of today were laid under British rule. The British colonial rule made Uganda into an agricultural export factory where the southern parts were prioritized and favoured, while the northern parts were seen only as a labour reserve for the agriculture in the south. This division has influenced in which regions development has taken place in Uganda, which is still affecting the country today. The protectorate implemented new rules for land-owning, which resulted in that the former system of collective ownership by clans was replaced by private ownership. Half of the land of the kingdom of Buganda was taken by the British Empire (Landguiden, 2017). An important feature of the land reforms was that foreign citizens were not allowed to own land in Uganda, which in contrast to other similar colonies meant that no European investors could buy big pieces of land in order to make money on large-scale farming. The farming for export was based on the production of small-scale Ugandan farmers (Landguiden, 2016).

The British protectorate lasted until the Ugandan independence in 1962. The years that followed were characterized by political turmoil with takeovers from first Milton Obote, then Idi Amin then back to Milton Obote until 1986 when the present president, Yoweri Museveni took the ruling power by military force. The political chaos had left Uganda in ruins with an industrial sector in ruins, lack of quality institutions and struggle between groups and people. The present president Museveni and his government has managed to keep Uganda in peace and raised the general standard of living. But the country's institutions are deeply corrupt, and Uganda lacks democratic stability and many basic human rights, which hinders development and equal rights to the Ugandan population (Landguiden, 2016).

4.1.3. Demography and education

The population of Uganda is 39 million (2015) with an annual population growth of 3,3% (2014) and almost 50% of the population is below 14 years of age (Landguiden, 2016). Although the majority of the population lives in rural areas, rapid urbanization and urban growth is taking place. Overall, the population is poor, and some 19,7% (2013) lives below the poverty line (CIA, n.d.). There are around 40 different native ethnical groups, all having their own native language. Although the official language of Uganda is English, far from every Ugandan speaks or writes English fluently (Landguiden, 2016).

According to Landguiden (2016), 91,5% of Ugandan children starts school, but seven out of 10 drop out before completing, mainly because of expensive school fees, costs for school material and food, and the need for labour on household farms. In addition, the vast number of Ugandan

children makes the school-classes huge. The number of pupils per teacher in elementary school is 45,6, which makes it hard for teachers to conduct quality education.

4.1.4. Economy

Agriculture is the backbone of the Ugandan economy, employing about a third of the work force and the export income mainly comes from coffee (CIA, n.d). A major part of the Ugandan population also engages in subsistence farming as main occupation or as an additional source of food or income. About three out of four Ugandans get part of their income from agriculture, and two out of five have their own farming as main source of income (Landguiden, 2016). The agricultural activities are mainly small-scale and rely on manual labour (CIA, n.d). Other important income sources for Uganda are tourism and trade in different minerals (Landguiden, 2016).

Uganda is characterized by high unemployment, especially amongst the youth population. There is also widespread discrimination of females in the labour market through lower wages for women and a culture that encourages women to take care of the home. Many of the urban citizens earn their living from informal sector activities (Landguiden, 2016).

4.2. Jinja

4.2.1. Geography and environmental profile

The city of Jinja is located 80 km east of Kampala at the place where the River Nile meets Lake Victoria (Landguiden, 2016). The soils of Jinja are, as the rest of the Ugandan shores of Lake Victoria, highly productive and suitable for agriculture (Jinja Municipal Council, 2009, p 27 p). The closeness to the River Nile and Lake Victoria is important for Jinja in providing food as well as employment.

The shorelines of Jinja are full of wetlands which works as pollution cleansers of drainage water that flows out into the Nile and Lake Victoria. Poor land management and over-use of riverbanks have resulted in the degradation of these important wetlands. Also lack of political will, poverty, institutional weakness and lack of knowledge and awareness of these problems are enhancing the environmental problems (Jinja Municipal Council, 2009, p 28 p).

4.2.2. History

Historically, Jinja has been an important place for trade between the Busoga and Buganda kingdoms since the 1600s. At the beginning of the 20th century, British and Indian traders began to develop the city, which was declared a township in 1906 (Jinja Municipal Council, 2007, p 1). Jinja was transformed from a fishing village into an industrial city with large manufacturing companies owned by British or Indian residents (Jinja Municipal Council, 2009). The city economy was mainly built on the economic incomes from the industry, which meant that the

political and economic turmoil during the 70s and 80s struck the industrial city of Jinja hard. The city lost its main income source and the industrial companies moved mainly to Kampala. This is still considered a problem in Jinja, that is struggling to recover from the economic losses with fewer industries (Jinja Municipal Council, 2007, p xxi; 5).

4.2.3. Demography and economy

The city has around 90 000 inhabitants (Landguiden, 2016), whereof half is estimated to be born outside the Municipality (Jinja Municipal Council, 2009, p 4). The population of Jinja is predicted to increase in the coming years due to enhanced rural-urban migration (Jinja Municipal Council, 2007, p 17). According to Jinja Municipal Council (2007, p 6), 32% of the potential working population are unemployed, the majority of which are women. Lack of employment opportunities in the formal sector has made the informal sector the largest contributor of employment in Jinja (22%) followed by commercial activities (21%) and urban agriculture (18%) (Jinja Municipal Council, 2009, p 111). About 80% of the population of Jinja is estimated to live in poverty, having problems with health, nutrition and low education (ibid, p 112p).

4.2.4. Agriculture

Even though the natural conditions for agriculture in Jinja are favourable, the agricultural sector of Jinja Municipality is not capable of producing enough food to feed the growing urban population, which means that Jinja today is a net importer of food (Jinja Municipal Council, 2007 p 17). The lack of a sufficiently productive agricultural sector is linked to poverty due to insufficient economic situations making investments in agriculture impossible (ibid, p 16). The situation is expected to worsen due to the population increase and high unemployment rate (ibid, p 17). Due to the lack of regulation of small-scale subsistence urban agriculture, it is not included in official statistics and measurements. The contribution to the inhabitants' livelihoods from urban agriculture in Jinja is therefore unknown (Jinja Municipal Council, 2009, p 111).

4.2.5. Spatial layout

In comparison to many other Ugandan cities, Jinja is a well-planned and organized city (Jinja City Council, 2007, 8). The planning ideals of the British colonial era are reflected in the spatial-layout of Jinja. The city centre was planned by the British to accommodate the British and Asian population, but the African population that lived on the outer rim of the city was left out of the plans. Therefore, the city centre is more planned than the outskirts of the city (Jinja Municipal Council, 2009, p 2). The colonial residential areas are low density with big houses and large gardens, making the old colonial residential areas quite un-compact with much unexploited land.

5. METHOD

This chapter contains the methodology of the study and describes the procedures that has been used to answer the research questions. In this chapter, the approaches used in the study as well as techniques for data collection are presented. In addition, a description of the research area and of the farmers' and planning perspectives are given. The chapter ends with a discussion about ethical considerations and a section with fieldwork reflections.

5.1. Approaches to methodology

This thesis is the result of fieldwork that was carried out during eight weeks during the rain-season in Jinja, Uganda in the spring of 2017. The study is based on empirical data collected from fieldwork as well as literature studies. Because research in developing countries differs from research in developed countries² (see Murray & Overton, 2003, p 18p), the literature used for designing research methods has been chosen due to their focus on fieldwork in Africa, and/or in other developing countries. Doing development research and fieldwork differs from conducting similar studies in countries in the Global North. The fact that we as Swedish students did fieldwork in a for us completely different environment, meant that we probably did not always understand certain situations and events, or were not able to "get the whole picture". The collection and analysis of the data has been influenced by the fact that the whole study has passed through the authors' "Swedish lenses" (see Murray & Overton, 2003, p 3).

There are two main approaches used when doing research; deductive and inductive. In a deductive approach, the aim with a study is often to test hypotheses or try ideas, and the theories that are used are set before the empirical data is collected. When doing qualitative research, it is more common to use an inductive approach where theories and ideas are used to explain the results instead of being tested. With an inductive approach, most of the theories that are used are chosen during or after the empirical data is collected and build up throughout the study (Brockington & Sullivan, 2003, p 57). Even though we had some thoughts and ideas on different theories that might be useful for the study before the fieldwork, the approach used is of an inductive character. The aim with the study is not to test any hypothesis, but to have an open approach where the themes, theories and ideas used have developed during the work process. The purpose of this study is not to seek general conclusions. However, by investigating the importance of urban agriculture in creating urban food security and explore the possibilities and obstacles that can be found for urban agriculture, we want to contribute with a case study and accumulate knowledge on the subject so that general conclusions can be drawn in the future.

² Although the concept of Global South and North was earlier presented as to be used in favor for the division of developed and developing world, it is here used because of the referred literature uses the term specifically when describing research differences in the Global South and Global North.

Mayoux (2006) describes three different methodologies to choose between when conducting research with focus on small-scale research projects; quantitative, qualitative and participatory research methods. Each of these have different underlying approaches, tools and techniques. Quantitative methods, which in development research have been the main method due to the large emphasis on economic dimensions of poverty, derive from natural science and the positivistic assumption that reality consists of observable facts. The main concern with quantitative methods is to determine the truth or falsehood of a predetermined hypothesis and the most common tools are large-scale surveys that are analysed by using statistical techniques (ibid, p 116). Qualitative methods, with origins in the humanities, differ from quantitative methods since the aim often is to get a holistic understanding of complex realities and processes. Within qualitative methods, focus is on understanding different meanings, perceptions and accounts of facts. The questions used in qualitative methods often emerge cumulatively as the research process progresses (ibid, p 116p). Participatory research methods emerged from development activism made by NGOs and social movements. The aim within these methods is not mainly to gain or question knowledge, but to encourage social change and empowerment as a direct result of the research process. Small focus groups, larger participatory workshops and diaries of different kinds are common tools within participatory research (ibid, p 118).

This study is based on qualitative methods. The study is an attempt to analyse relationships between food security, urban agriculture and urban planning, as well as opportunities and obstacles that could be found for urban agriculture. The study is not based on hypothesis tests or attempts at providing statistical data for the relationships. This, combined with the inductive character of the study, makes qualitative research methods more suitable to fulfil the purpose of the study. The questions used in this thesis have emerged and developed during the research process. The study could have been carried out in a quantitative way by collecting measurable data such as frequency of farming activities, number of crops in each farm and the use of GIS to show the extent of farming activities in Jinja. However, the aim with the study is not to get a complete picture on the physical, and spatial dimensions of agriculture, or how big yield in exact numbers that farmers in Jinja get from farming.

5.2. Choice of tools for data collection

5.2.1. *Footing it*

When doing fieldwork and research, most researchers have made a detailed plan about how to collect information and why they have chosen certain methods and ways to do it. Newhouse (2012) describes and discusses how the mode of transportation to, between and from chosen sites has an impact on the research and the results, in the same way as the researcher herself. *Footing it* is a definition used by Newhouse for doing walks in the research area. Compared to other means of travel walking takes time. But the slow pace can enable greetings and introductions that had not been possible with other modes of transportation. Footing it also opens the possibilities for detours, side-tracks or occasional conversations which all can be useful and enrich the research (ibid, p 4). In this fieldwork, we chose to “footing it” instead of

travel with Boda-Boda³ or using a car as main mode of transportation. This enabled us to do thorough observations, get a deeper understanding of the cultural context and have meaningful meetings with different actors. By footing it we also got recognized by the locals, which made it easier to reach farmers for interviews.

5.2.2. Observations

Observations are both used for getting to know the spatiality of the area of research, but also to provide empirical data. When the research is being made in a, for the researcher, unknown area it is important to begin the study with field reconnaissance. Observations are useful in getting to know the spatial layout, the whereabouts of possible research objects and other important features in the research area that might be used later in the research process (Barker, 2006, p 132p). To make productive observations, they should be focused on answering determined questions or themes (Esaïasson, Gilljam, Oscarsson, Towns, Wängerud, 2017, p 321p). The researcher should take notes during the observations, and compile the result as quickly as possible after the observation. By taking notes while the experiences are fresh in mind, the researcher is able compile more of the observed information (ibid, p 324).

In this study, the aim with the observations was to find out where farming was taking place, what crops were grown and how they were farmed. Observations also provided a basis for establishing different categories of agriculture found in Jinja. To get a grip of the research area, the study began with predetermined observation walks.

The selection of observation routes was made to cover as many of the streets inside the research area as possible, but also to cover different street sizes, from main streets to small dead end streets in residential areas. The walks did not cover all the streets in the area, but were enough to provide an understanding of key features and differences between areas in the urban milieu, and to create a good picture of the research area. The routes for the walks were marked out on a map in order to keep track of the covered streets as well as to provide a basis for planning forthcoming observation walks.

During the walks, observations were made and documented with both notes and photographs. To maximize the data collection, both researchers took individual notes which were compared during water breaks along the way and at the end of each walk (see Bernard, 2006, p 398; Kaijser & Öhlander, 1999, p 78p). The notes were divided into three categories; methodological, descriptive, and analytical notes. The methodological notes described improvements or problems with the technique for collecting data. The descriptive notes were the main part of the notes that covered observed events, things and phenomena. The analytical notes dealt with thoughts of a more abstract character, which theories could be used for

³ Boda-Boda is the local name for moped taxis, which is the standard way of getting around in Jinja.

describing and analysing the data, or how the collected data could be linked and how that might affect the result of the study (see Bernard, 2006, p 396pp; Esaiasson et al., 2017, p 322).

Although a few days in the beginning were intended for observations, more informal or spontaneous observations were made during the whole time of the fieldwork. Our main mode of transportation during the field study was by walking. Therefore, more streets were covered and more observations were made by choosing to walk on streets not included in the previous designated observation routes on our way back and forth to interview sites.

5.2.3. Interviews

Interviewing is a classic qualitative research method, where the researcher has a possibility to collect data in the fieldwork area as well as to gather information concerning attitudes or opinions of the informants. In many developing countries, information can be hard to obtain from internet or official documents. Therefore, interviews are in some cases the only option to collect the data needed for the research (Willis, 2006, p 146). Interviews are often categorised as structured, semi-structured and unstructured. Structured interviews follow a strict standardized form and may be useful for making surveys where the researcher needs to gather quantitative data or need specific answers. Semi-structured interviewing is based on an interview or topics guide but the researcher has possibilities to follow up or change direction of the interview depending on the informant's answers. Unstructured interviewing is free of interview or topic form and is characterized of a more conversational mode of interviewing, where the respondent is free to choose what to talk about (ibid, p 144p; Bernard, 2003, p 211pp).

Interviews were the main method of data collection in the study. The interviews were semi-structured and were focused on finding out who was farming, the reasons for farming, how farming was carried out, as well as opportunities and obstacles with agriculture in urban Jinja.

The selection of informants for the study differed between the interviews with farmers and planners. The selection of farmers was made based on the four established categories of farming in Jinja from the observation phase. From the categories, possible sites for interviews were chosen. A total of 22 interviews were made with farmers. Although the places of the interviews were determined in advance, some of the interviews could not be performed since some people were unwilling to participate in interviews or that no one was present at the site once we arrived. In some cases, a similar farm was found nearby where interviews could be conducted instead. In some cases, we found farms that were of interest on the way to other interview sites. At these farms interviews were conducted directly or on another day. The fact that urban agriculture activities could be found almost everywhere in Jinja made it easy to find informants and farm sites for the interviews.

The selection of informants was also made to get a geographical distribution in the research area. Even though the main intention was to have an even spread of interviews within the research area, no interviews were held in the eastern parts. This area approximately covers the

area within Main Street, Bell Avenue, Eng. Zikusoka Road and part of Nile Crescent (see *Figure 5*). This area is the busiest district of the city characterized by lots of small shops, wide streets, busy traffic, narrow cross-streets and lack of green areas. During our observations, we found that there was little agricultural activity in this part of the city. The farming made in this area was more of an exception than a common feature in the urban structure. Therefore, no interviews were made in this part of the research area.

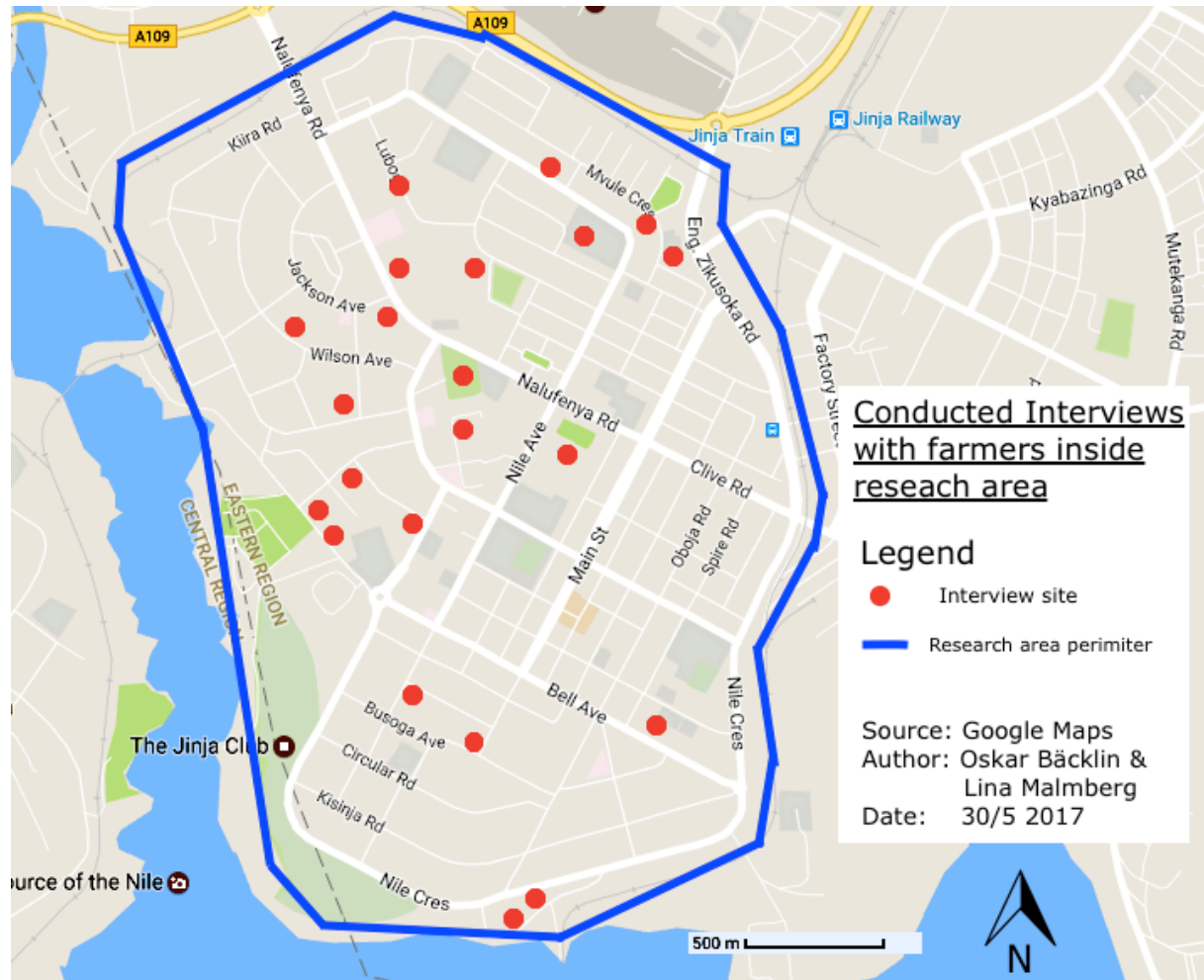


Figure 5. Conducted interviews inside the study area.
 Source: Authors own elaboration based on Google Maps

The selection of informants for the planning perspective was made by visiting the Municipal Council and explain our intention and purpose with our study. We were able to interview the Environmental Officer and the Physical Planner of Jinja Municipality. The interviews for the planning perspective were semi-structured and were made at the Jinja Municipal office. Even though the interviews were conducted in similar ways as for the farmer perspective, our approach towards the interviewee was different. To get a more serious appearance we dressed in a more formal and proper way, presenting ourselves and our research aim more thoroughly than when doing the farmer interviews (see Willis, 2006, p 148).

Interviews were also made with a university lecturer in agriculture from the Uganda Christian University, an NGO-member from the agricultural organisation Afri-Sol, and an agronomist and NGO-member from the agricultural organisation PREACH⁴-Uganda living in Jinja. These interviews were semi-structured and focused on understanding the role of farming activities for the urban inhabitants, as well as answering general questions concerning urban agriculture that arose during the fieldwork. These interviews happened by chance rather than being a part of the selection process, but they were a crucial source of information for the study. They will therefore from now on be referred to as key informants.

During the interviews, both researchers took notes. One of the researchers was also the main conductor and did most of the questioning. Thereby the person leading the interview was more focused on the interviewee, while the other person focused on taking notes (see Willis, 2006, p 150). The roles were established at the location for the interviews and based on the specific situation. At an early stage of the interviews it became clear which one of the interviewer that the interviewee tended to talk to and look at. Most of the times, this was the person that did the main questioning. A few of the interviewees were uncomfortable being questioned by the opposite gender. In these cases, the person with the same sex conducted the interview. The fact that the authors have different sexes turned out to be helpful in these situations (see *ibid*, p 148p). For the interviews with farmers, an interpreter was present. Judith, the interpreter that was used throughout the whole study, was recommended by acquaintances in Jinja and had no links with the municipality or any organization. Using an impartial interpreter was important to increase the ability to get honest answers regarding the perceptions of the farmers' situation. The interviews were, in cases where the respondent approved, supplemented by photographs of the farm site.

5.2.4. Document studies

A useful method for understanding underlying meanings in texts, is by qualitative text analysis. By intense study of a text, intentions and power structures in the written word may appear (Esaiasson et al, 2017, p 211). Qualitative text analysis can be divided into *systematizing* and *critical review*⁵. The systematizing analysis focuses on thematically bringing forth key aspects in texts while the critical review focuses on, as the title implies, critically reviewing texts. This method is used to find power structures, or to find discourses inside the used texts (*ibid*, p 213pp).

The method for analysing the texts has been *framing*. The method focuses on how a problem or subject is framed. How different actors choose to represent and describe phenomena may differ due to the purpose or will of the addressing actor or who she/he is. The intentions of the writer also affect what phenomena that may be a problem, and how it should be solved (*ibid*, p

⁴ PREACH is an acronym for: Promoting Rural Environmental and Community Health.

⁵ Authors' own translation of, *systematiserande* and *kritiskt granskande* (Esaiasson et al, 2017, p 213).

218p). The text analysis in this study has been done with the intention of finding out the position of the Municipality of Jinja on urban agriculture.

The selection of documents used in the study was made through our contacts at the Municipal Council of Jinja that were established during interviews. We asked for specific documents and could get some, but not all. We also tried to get hold of policy documents through the official e-mail address of the Municipality, but got no answers. Therefore, we were not able to choose freely which texts that we were able to study. The studied texts and documents have mainly been policy documents, maps and other official documents addressed by the Municipal Council of Jinja.

5.3. Research area

The geographic area for our field study is the city of Jinja, Uganda. An area limitation was made within Jinja shown in *Figure 6*. Inside this perimeter lies most of the urban area of Jinja. The area contains a wide variety of different types of buildings, settlements and surroundings, as well as including inhabitants with different types of economic situation stretching from very



Figure 6. Research area inside the city of Jinja.
Source: Authors' own map based on Google maps

rich to very poor. North of our perimeter, the city structure swiftly passes to more peri-urban or rural. East of the perimeter lies the industrial areas. We therefore consider the geographical limitation that has been made within the city to be a good representation of the urban area of

Jinja. The geographical limitation has also been made based on the possibility to cover it by walking, as well as to match the timeframe for the field study.

5.4. Ethical considerations

The names of the named informants are fictional in order to increase our informants' privacy. Although the respondents did not see any problem with using their real name in the thesis, we choose in good research ethics spirit to use fictional names for all our informants.

5.5. Fieldwork reflections

Murray and Overton (2003, p 3) describe four points where development research is different from research in developed countries; *cultural differences*, *language barriers*, *time limits in the field* and *social and economic structures*. With *cultural differences* attention is paid to the fact that the research is carried out in places and cultures that to different extent are unfamiliar to the researchers. This may affect the research data by distorting or not obtaining the wanted information due to differences in behaviour, manners or other cultural aspects. Without knowledge about the local customs, the research may encounter problems with carrying out the fieldwork. *Language barriers*, which is strongly related to the first point, concerns communication problems. Difficulties in communication during interviews or other type of fieldwork is common when doing research in a foreign country. *Time limits in the field* concern how research activities in developing countries often are carried out during a specific period with small or non-existent possibilities to collect more information from the field. In "regular" research, the researcher often has possibilities to fill gaps that may occur from interviews by phone or e-mail. To do so can be more complicated when working in developing countries. *Social and economic structures* regard the fact that researchers from the Global North often will raise to higher levels in the social hierarchy than the position they have at home. A common example is that informants give answers based on what they think the researcher wants to hear or are expecting payment for participating in the studies. This phenomenon of being seen as an important person may also work as a tool for reaching different persons or gaining access to places or areas that are off limits for local citizens.

During the fieldwork we came across things and events, some of which we expected and some that took us by surprise. The four points that Murray and Overton (2003) describe are something that we can relate to, and they include many of the phenomena and aspects that have affected or influenced our work in the field or the collected data. Therefore, we have chosen to present our reflections based on these points, as well as to add some themes that we feel are important to highlight based on our fieldwork.

Cultural differences

This fieldwork has been carried out in a different city and country than what the researchers are familiar with in Sweden. Because of this it was hard to know what kind of phenomena and activities that were common or not, and how to behave in different situations. In the new social

context, it was for example hard to know how to greet people or what kind of questions that were appropriate to ask or not. One clear difference was the perception of time and what was considered to be acceptable in terms of for example being late to a meeting. This resulted in a lot of waiting time on our part. These types of cultural differences have affected how the fieldwork has been carried out.

Language barriers

Though the official language in Uganda is English, it is common to have little or no knowledge of the English language. The main language spoken in Jinja is Lusoga, and some Luganda. Therefore, an interpreter was used in all interviews with farmers. The interpreter used in the fieldwork spoke Lusoga, Luganda and English. Although we used the same interpreter during the interviews, and she knew what type of study we were doing, the questions and answers from the interviewees may have been distorted by the interpreter. The fact that English is not our main language is something that also may have affected the understanding of the interviews. To use an interpreter during the interviews made it easier to encounter people. Our interpreter, Judith, was good at greetings and creating contact. She was also met with less scepticism from the respondents than if we had made the interviews on our own, which we tried out making two test-interviews on our own. We also found it helpful to be able to ask the interpreter about some of the cultural differences or questions about agriculture that appeared during the interviews.

The interviews with officials and key informants were carried out without the interpreter. All of them spoke very good English. But because of the English spoken in Uganda is not the same that we learn in Sweden, it was sometimes difficult to understand all what the respondents were saying. In general, many of the respondents in the study spoke quietly, which sometimes made it hard for us to hear what they were saying.

Time limits in the field

As mentioned earlier, this study was carried out during the rain-season in Uganda. Even though we consider this period of time to be convenient for doing this type of study, the results may have been different during the dry-season. The fact that the last rain period did not give sufficient rain to be considered as a rain-season may also have affected the common opinion on urban agriculture. Despite this, the phenomenon of missing rain-seasons may be more common in the future due to climate changes. Therefore, the period for the fieldwork may be suited to investigate future needs and problems of urban agriculture.

During the eight-week timespan for the fieldwork we encountered different stages of agricultural activities throughout our time in the field. Even though we only had small problems with finding respondents for our interviews it was a bit harder during the later weeks of the fieldwork. During the first weeks of the fieldwork, the agricultural work of the farmers consisted of activities that required manual labour, whilst during the later weeks consisted of a growing period which did not require the farmers' presence at the agricultural sites. This had some effect on the choice of informants, as there were fewer farmers to interview during the latter part of field work.

The cultivation process for crops in Jinja is fast. The easiest spotted crops were maize and matoke⁶ because of their great height and size, and the selection of interview-sites was primarily based on that we spotted the existence of crops. Many houses in Jinja are surrounded by high walls. This meant that many residents that in the early stage of the fieldwork were classified as households without farming had visible maize crops above the high walls during the latter part of the fieldwork period. This phenomenon affected the selection of interview sites since we missed some of the “hidden” farms.

Social and economic structures

Being a white westerner in Jinja is not uncommon. The city is inhabited by a lot of Europeans and Americans. During the fieldwork, we encountered many people whose main purpose with talking to us was trying to get different kinds of support, primarily money. Some of the respondents wanted some money or support from us as payment for participating in our study, which may have had an impact on the interviewees answers by changing them to the answers they believed would increase the chances of us giving them support. No payment was made to any of the respondents.

That we come from the Sweden also had a big effect when we tried to reach officials at the Municipality. We had been told that we probably would have to wait for several days to get time to speak with someone. Despite this, we felt that we were highly prioritized and might even have taken time from someone else while conducting the interviews. We also felt that many answers we got from officials were customized to fit what they wanted us to hear about their work. The notion of Jinja being a good place for investments was mentioned repeatedly, making us feel like they thought of us as possible investors. This probably had an impact on some of the answers we got from the interviews at the Municipal office. The studies of the official documents were therefore important and useful in order to examine the actual work and plans for the city of Jinja.

Using Jinja as a place for the field study

Jinja is a city highly influenced by the British colonial heritage. The spatial layout of the city is organized and planned based on the main ideas from that era, and the residential plots are often big with large gardens. This has made the city very suitable for urban agriculture, but it is not a common spatial layout in other Ugandan cities. Therefore, Jinja may not have been the best city for collecting general information concerning how urban agriculture is carried out in the whole of Uganda.

Many of the residential plots in Jinja are surrounded by high walls to hold out trespassers. This has affected which homes and farms that we had access to for making interviews. The most “hard to reach” homes have been high-income homes, surrounded by high walls and hired

⁶ Matoke the local name of a cooking banana that is common in Uganda.

guards. These gardens are in many cases also being maintained by a hired gardener who had to get permission from the house owner to let us in or to answer our questions. Because of this, the interviews have mainly been done with middle or low-income residents.

What is agriculture, farming and urban for people living in Jinja?

One problem we encountered during the fieldwork was how to make ourselves understood trying to describe what we were asking for. Many people that we asked about agriculture told us to leave the city border because there was more agriculture in rural areas. Problems also arose when trying to explain what we meant with urban agriculture, and what urban means. The fact that many respondents did not consider their home garden as agriculture or farming, made them confused in what information we were looking for. We also experienced this problem with our interpreter who said that we should leave city to see “real” agriculture. These differences in what agriculture, farming and urban means, made the research more difficult than we thought. After conducting some of the interviews we tried to make clear in every case that their farming was exactly what we needed for our study

6. RESULTS

This chapter presents the empirical data collected during the field work. The first section is a description of general findings regarding urban agriculture in Jinja and is largely based on information from our key informants, but also from the interviews conducted with farmers as well as from observations. The key informants are: the agronomist Peter, the NGO-staff Stephen and the university lecturer Deborah. Thereafter follows a section with the Farmers' perspective which is based on 22 interviews that have been conducted with farmers in Jinja. That section is presented in four groups based on frequent places for urban agriculture; *home gardens*, *farming on semi-public land*, *big open farming areas* and *small-scale roadside farming*. The third and last section concerns the data collected from the planning perspective in which findings from two interviews with officials and document studies are presented.

6.1. Urban agriculture in Jinja

6.1.1. Occurrence and spatiality

Urban agriculture is a very common activity the city of Jinja. In fact, it was so common that the geographical limitations that were made in the study constitute a smaller area than was first intended. Jinja is generally a green city and a big part of the visible greens consisted of crops for food production or fruit trees. Through observations and interviews made the area, it became clear that virtually everyone who had access to land made sure to use it for urban agriculture. Early during the fieldwork, it also became clear that lawns were uncommon in Jinja and could be seen as an indicator of economic prosperity. According to Deborah, the vast majority, especially the poor part of the population used the land to grow crops instead of having a lawn as it takes a lot of time and resources to attend to. It was both cheaper, created more resources and was more time efficient to grow crops than to take care of a lawn. Deborah said: "If the opportunity exists, you always grow edible crops". This was evident in the city of Jinja, as urban agriculture was found almost everywhere.

Rather than being concentrated in particular areas, urban agriculture was dispersed throughout the city and continued to be a very common activity in the peri-urban areas on the outskirts of Jinja. In the city centre, there was an absence of urban agriculture. Within this relatively small area, many activities took place, mainly in the form of trade and transport. The buildings with apartments and business premises usually lay wall to wall without the possibility of free and cultivable spaces. The streets in these areas, were also some of the few streets in Jinja that had sidewalks in the city of Jinja, making it impossible to conduct roadside farming.

6.1.2. Common crops

The most common crop, both in quantity and in area being used for cultivation, was maize, which many people in Jinja were dependent on as a staple crop. The farming of maize could be

found along almost every street in Jinja, except in the city centre. According to our key informant Peter, maize has a high nutritional value with elevated levels of starch and valuable proteins and oils. Despite this, maize lack in two of the amino acids that are regarded as essential for humans, which make it unfit as the only source of nutrient income. When the maize is ready to be harvested, it is dried and then grounded to maize flour, which together with water is cooked into the very common staple food called posho. To give an example of how common posho was, Stephen described that most of Uganda's schools serve posho, sometimes with beans, to students every day, six days a week. Roasted maize was a very common street food that could be bought on corners of the streets in the city centre and maize could also be used to feed animals and other uses. Peter said: "Maize is very common as it is easy to grow. If you find a spot, you can just throw some maize corns there and it will probably grow".

All of our key informants described three things that made maize the most common crop; it is cheap since you can save seeds from the previous harvest, it is one of the most easily grown crops, and the time between sown to harvest is short which allows you to harvest up to three or four times a year and gives a high yield. However, all three were concerned about how the maize cultivation was done in Jinja. Growing maize, often in combination with beans, on the same spot year after year will eventually deplete the soil of nutrition. In order to get a sustainable agriculture, more long-term planning will be needed, instead of just growing short-term crops such as maize.

One other very common staple crop was the cooking banana, matoke, which was almost as common as maize. It was very common with two or more matoke trees at the farms. Unlike maize, matoke takes longer time to grow and is usually ready to harvest after about a year. The plant only gives harvest once and is thereafter cut down to allow for new sprouts that shoot from the old root. According to Peter, matoke is a good crop to grow since it is cheap, easy to store and you can plan so that you can harvest matoke all year around. The matoke plant also provides shade and is an advantageous crop to combine with many short-term crops, such as tomatoes, groundnuts, cassava or beans.

In addition to maize and matoke, different kinds of beans and cassava were the most common crops in the field area during the study. Other frequently planted crops were potatoes, groundnuts, sweet potatoes, tomatoes, and aubergines. On many of the farms it was also common with fruit trees like avocado, mango, sweet bananas of different kinds, jackfruit, guava and passion fruit. According to Deborah, the possibility to grow diverse crops was something that many people could not afford. Furthermore, she described that many of the seeds that were used were of bad quality and that this had big impact not only on the quantity of crops but also of the crops' nutrition value. Deborah also explained that there were many indigenous crops, such as ejobyo, nakati or ggobe, that were easily grown in Jinja, but were not being cultivated by urban farmers. These plants had less problems with insects than maize and beans and were highly nutritious. According to Deborah, these plants had been "forgotten" by the locals, who rather grew maize, beans or any of the other earlier mentioned crops.

6.1.3. General circumstances for urban agriculture in Jinja

This fieldwork was conducted during one of the two annual rain-seasons in Uganda. According to both Deborah and Peter, the rain is in many ways crucial for urban agriculture. The previous rain-season, the one that usually occurs between September and November, gave very little rain. This, along with the difficulty of getting water elsewhere for irrigation of crops, was something that almost all the interviewed farmers were worried about. Some related to global warming, others described the situation as something that occurs once in a while and that it always has been that way. Lack of rain will not only give less harvest, but also higher food prices. On the other hand, if the rain-season is generous it provides very good conditions for urban agriculture, according to Peter. He also added that the soil in Jinja is among the best and most nutrient in the world and provides excellent conditions for agriculture, especially in combination with the favourable climate. The beneficial natural conditions for agriculture were something that many of the farmers described as one of the biggest and most important opportunity for urban agriculture in the city of Jinja.

Another circumstance that that was visible and evident during our field work, not only during the collection of data but also recurrently described and mentioned in newspapers and television-news as a major and very serious problem was what was commonly called “army worms”. According to Peter, this was not a worm at all but a butterfly that had become much more common due to drought in combination with increased resistance to the most common varieties of pesticides. The number of army worms had increased significantly, especially during the previous dry season. Furthermore, Peter described that there are no scientific studies made about the butterfly and that it therefore has no name ⁷, neither is there any general information about how it lives which in turn makes it difficult to fight. The butterfly can fly and move fast and far, which is a major problem as it spreads from farm to farm in high speed. The biggest problem with the army worms is not their existence *per se*, but that they attack the most important of crops; maize. Peter said: “Maize is the largest and most important crop. When the maize is attacked, it means people will starve”.

During the 22 interviews conducted with farmers scattered across the field study area, every single farmer described army worms and that the maize was attacked as the biggest problem. From the middle to the end of the field work, the maize had grown so large that many of the interviewed farmers showed how the butterfly larvae eggs were lain in the upper trunk of the maize plant, killing the flowers and thereby also the maize cob (see *Photo 1*). Others showed crops where the maize plants were completely eaten and destroyed. Some of the farmers used pesticides, some of which were successful killing the pest and others not. Many of those interviewed could however not afford pesticides. According to Peter, most people of Jinja were not aware of how to use pesticides in an efficient, un-wasteful manner. Therefore, much of the use of pesticides in Jinja was in vain, and was mainly a threat to people’s health.

⁷ For the sake of simplicity, the butterfly will still be called army worm in this thesis.



Photo 1. Maize attacked by army worm.

Source: Authors' own photo.

There was a general attitude, shared by most people we encountered during the study, that urban agriculture was an activity that could not be counted for as “real” agriculture. Many people did not understand why the study focused on urban agriculture and thought that we should travel to rural areas where the real agriculture could be found. During one of the interviews with Peter the question arose as to whether there was a need for urban agriculture at all, to which he answered; “We need it, we just need it to be organized. It’s the poor planning that is the problem”.

According to Peter, the lack of planning was a problem both at the individual and at the municipal level. At the individual level, he described poor planning and use of land, lack of knowledge and not having access to land or only short-term access as examples of problems that need to be addressed in order to achieve long-term sustainable urban agriculture. He also emphasized time, money, access to land, knowledge in how to storage and process food, access to information, commitment and a more positive attitude towards change as factors that often were missing in order to achieve a sustainable urban agriculture. According to Peter, there was a general negative attitude towards change and an unwillingness to listen to knowledgeable people in the area. This he believed, to a certain extent, was created by the agricultural and farming traditions of the past and that many had the mind-set that “my family has farmed in this way forever, we know what to do and will keep farming like that in the future as well”. Peter also believed that many people had too short-term individual goals which was a disadvantage for long-term sustainable agriculture. Peter described it as: “If you need to survive today, you don’t plan for tomorrow”.

At the municipal level, Peter described three problems regarding urban agriculture. Firstly, the laws and policy regulations about what and how to grow crops in the city were not clear enough, and were not respected by the citizens, which led to that tall plants could be planted by dangerous road curves or underneath electrical wiring causing, or risking of causing, serious accidents. Secondly, a major problem for urban agriculture is the non-working waste disposal as it both destroys the soil, degrades the quality of crops, and can make them health hazardous to consume. Thirdly, Peter described that many of the green areas existing in Jinja today are facing displacement problems as the city develops and that new buildings are going to be constructed in areas that have been used for urban agriculture.

6.2. Farmers' perspective

6.2.1. Home gardens



Photo 2. Home Garden.

Source: Authors' own photo

Home gardens are *farms that are located on residential plots*. Of the 22 interviews that were conducted with farmers, 11 of them were conducted with farmers within this group. Home gardens are by far the most common form of urban agriculture in Jinja. In the group of farmers with home gardens, interviews were conducted with five women, four men and two children⁸. Among the men that were interviewed in this group, one of them was an employed gardener and two of them farmed partially for selling on the market. These farms operated by men were more income-oriented than the farms that were handled by women and children, but one interviewed woman grew crops that were for sale only, but her farm was also the smallest farm

⁸ The children were approximately between 12 and 16 years.

consisting of very few crops. The vast majority of the farmers with home gardens farmed for consumption within the household. If the harvest was good, many said that they sold the surplus on the market or by the street. Some of the farmers cultivated partly for selling and partly for home use.

One factor that differentiated the interviewed farmers in the group was the housing situation. Firstly, the standard varied considerably between the low-, middle- and high-income residents and farms. This was reflected, among other things, in the standard of the house, if the plot had a lawn or not, but also if the plot was protected with walls or fences, or if it was open and unprotected. The farmers with better economic situations could use more and better pesticides, had a wider variety of planted crops and had little or no problems with theft, while farmers with low income only farmed one or maybe two different crops. Secondly, the housing situation differed in terms of whether they owned, rented or borrowed the residence. The majority of those who were interviewed in this group rented or borrowed their residences and only two owned the property themselves. Some of those who rented or borrowed the residential plot knew that they were allowed to stay for a long time while others were worried about having to move from their homes at any time. For many of the farmers with home gardens, the long- or short-term residential situation was an important factor when it came to what kind of crops that were cultivated, and those who were living under uncertain conditions often chose to only cultivate short-term crops.

In addition to the general problems with pests and too little rain as mentioned earlier. The uncertainty regarding the housing situation for many farmers, poor shade possibilities which caused the crops to dry out, theft and excessive prices of seeds were some of the obstacles mentioned. Besides the advantageous climate and good soils, to be able to save seeds from previous harvest and the location close to Lake Victoria and the river Nile was mentioned in this group to be possibilities for farming in Jinja.

6.2.2. Farming on semi-public land



Photo 3. Farming on semi-public land.

Source: Authors' own photo

Farming on semi-public land is *farming that is being made by individuals or families on plots owned by businesses or organizations such as hospitals and schools*. This was a common feature in Jinja and farming could be seen taking place behind the police station, by the hospital and on school grounds. Within this group, five interviews were conducted with two women, two men and one child. Two of the interviews were conducted at hospital areas, two at schools and one on a plot that was owned by a cleaning company. Like the farming that was conducted in home gardens, most of the farmers that farmed on organizations' plots used the crops for their own home consumption.

The conditions for farming on semi-public land differed between the interviewed farmers. Three of the interviewed farmers were able to farm on the plot because they, or someone in their family, worked for that organization and they were therefore given accommodation and land to farm on. A fourth one was given an area on a school ground to farm on because he worked at the school but did not live there. All these four farms existed because of employment at the organizations, but this also meant that if any one of them or their working family members lost their job, they would also lose the farm. The fifth farmer in this group was a woman who rented a part of a cleaning company's plot along with a small house in the backyard. As long as she paid her rent, she was welcome to stay as long as she wished. The majority of the farms within this group were protected with walls or fences.

Even in this group, the problem with army worms and the other general circumstances were issues that all the farmers mentioned. Theft, littering, mischievous neighbours and absence of seeds with good quality were other obstacles that came up during the interviews. One of the

farmers wanted to expand the farm but was not allowed to do that by the organization. No other possibilities were mentioned besides very good soils and climate.

6.2.3. *Big open farming areas*



Photo 4. Big open farming area.

Source: Authors' own photo

Big open farming areas are *large open farming areas without visible connections to residential or organisation plots*. These areas were common in the city, and because of the size they were very visible. Three interviews were conducted within this group, two on larger plots distributed among many farmers and one plot with only one farmer. In this group, two women and one man were interviewed. The first plot was owned by a company in the city that gave employees and their families bits of land to farm on. The second was a plot owned by the municipality, but which was not used at the moment. This bit of land was borrowed from the municipality free of charge, but could at any time be used for something else. The third plot was rented on short-term from a school that owned land outside the schoolyard boundary. The farmers' interviewed on the first two plots used the harvest for home consumption, while the third farmer, a woman, sold most of the harvested crops on the market. All farmers in this group were farming under insecure conditions. The farmer who was given land to farm by the company he worked for only cultivate short-term crops due to insecure situation at work. The one who borrowed land from the municipality could be turned away at any time and therefore she too only cultivated short-term crops, maize. The woman who rented land from the school had used the plot for many years and had a variety of crops, but since the lease period expired in a few months she also only cultivated short-term crops.

The uncertainties about how long the farmers would be able to use their plots were, along with army worms and the uncertain weather conditions, obstacles that all the farmers in this group described as crucial. Loose cattle that eat the crops, theft, too small farming plots, expensive rents for farming plots in the city and age was other obstacles mentioned in the interviews with farmers in this group. To farm on land that was not used to anything else was, besides the fertile soils and the appropriate climate, something that was mentioned as an opportunity.

6.2.4. Roadside farms



Photo 5. Roadside farm.

Source: Authors' own photo

Roadside farms are *small-scale farms that is taking place in the space between roads and plots*. In Jinja, most of the streets had no sidewalks. The area between the plot borders and the streets, which was mostly a few meters wide, were instead often used for farming. Within this group, three interviews were conducted with two men and one woman. One of them was using the plot as a complement to his home garden that he had outside Jinja. One farmer was hired to take care of the plot for another person for whom the crops would later be sold on the market. The third farmer borrowed a part of a neighbour's land to provide to the own household with food and money by both using the harvest for home-consumption as well as for selling. No one of the interviewed farmers in this group knew how long they would be able to use the land and all of them planted short-term crops.

In addition to army worms and uncertain farming conditions, too long distance between the home and the farm, that the farm was unprotected and theft were obstacles mentioned by the farmers in this group. Besides the good soils, knowledge and experience about how to use the

soil and cultivate in an effective way was something that one of the farmers in the group saw as an opportunity.

6.3. Planning perspective

6.3.1. Policy documents

Jinja City Development Strategy 2007-2012

The Jinja City Development Strategy (JCDS) is the strategic document that guides the development of Jinja⁹. The overall vision and mission of the future development of Jinja is summarized as:

The vision of Jinja is to be a sustainable and prosperous city with excellence in tourism, commerce and industry. The mission statement is to improve the quality of life of all residents through tourism promotion, commercial rejuvenation and revitalized industrial economy with equitable access and enhanced service delivery in an attractive and sustainable environment. (Jinja Municipal Council, 2007, p 24)

Furthermore, JCDS has seven goals, of which four can be related to urban agriculture; to promote local economic development, to reduce poverty and improve livelihood status of the community, to promote tourism and cultural development, and to enhance environmental management and physical planning¹⁰ (ibid, p 24).

The JCDS states that there is potential for urban agriculture in Jinja, and that it is a possible path to poverty reduction and livelihood improvement (ibid, p 23). Urban agriculture is the third biggest contributor to employment in Jinja, and therefore an important part of the urban livelihoods (ibid, p 6). But at the same time the JCDS states that one of 16 challenges facing Jinja Municipality is: “Development of a local framework to guide and regulate urban agriculture” (ibid, p 19). The need for regulating the urban farming practices is continuous throughout the JCDS. There are five major environmental challenges for Jinja described in the JCDS; solid waste management, sanitation, water and air pollution, sustainability of the natural environment, and urban agriculture (ibid, p 10). The problems linked to these challenges are described in the JCDS, but no explanation to why urban agriculture is a problem is mentioned in the document. It is therefore hard to understand why urban agriculture is an environmental problem in Jinja. But urban agriculture is in the JCDS described to use rural farming practices that are destroying the urban aesthetics (ibid, p 18). The urban farmers are also letting their animals roam in the city which creates traffic risks as well as earlier mentioned decay of the urban aesthetics (ibid, p 26). Furthermore, in the section where the JCDS describes the land use and urban development profile for Jinja, there are four classes of land use; residential,

⁹ The JCDS is comparable with the Swedish *Översiktsplan*.

¹⁰ The remaining three goals are: to reduce poverty and improve livelihood status of the community, to foster education and human development, to improve governance and management (ibid, p 24).

industrial, government and agricultural/undeveloped (ibid, p 8). To classify farmland as undeveloped land may indicate that the agricultural land currently found in Jinja faces an equal risk of exploitation as does undeveloped land.

It is clear that the JCDS sees potential in urban agriculture, but not in how it is practiced today. There is a plan for creating a policy for *clean* urban agriculture that will guide and regulate urban farmers to cultivate in a way approved by the Jinja Municipality. At the same time, the JCDS states that there are problems with poor and weak enforcement of development regulations and environmental laws, as well as lack of awareness of value of planning and policy among the residents of Jinja (ibid, p 26).

Jinja Municipal Council Proposed Structure Plan Report (2009 – 2019)

The Jinja Municipal Council Proposed Structure Plan Report (JPSPR) is a report that presents the features of the present land use plan for Jinja Municipality. Urban agriculture is not mentioned much in the JPSPR, but amongst very many objectives, the JPSPR states that one of the objectives of the Structure Plan is to: “protect and enhance urban agriculture and forestry activities within the municipality” (Jinja Municipal Council, 2009, p 121). The JPSPR concludes that: “a reasonable proportion of the Town dwellers practice urban agriculture” (ibid, p 131), and that urban agriculture accounts for about 4% of the total land area in Jinja (ibid, p 131). But as in the JCDS, the JPSPR indicates that there are several problems with how urban agriculture is practiced today. The main problem with urban agriculture, according to JPSPR, is the absence of legal support (ibid, p 37; 131). The lack of regulation causes two major problems; degradation of the urban aesthetics and dangers for motorists. The first problem derives from absence of regulation in what types of crops allowed to farm in urban areas. High-growing crops like maize and matoke are not desirable in an urban milieu according to the JPSPR, due to negative effects on the urban aesthetics. Instead, low-growing crops like onions, tomatoes or cabbage are preferred as they are expected to bring forth a win-win situation where the urban farmers can enjoy the benefits of urban agriculture without degenerate the beauty of the urban landscape (ibid, p 131). The lack of regulation of crops also relates to motorist dangers when high-growing crops, such as maize, obstruct the line of sight of road users. The absence of regulations for rearing animals also create traffic hazards when animals are grazing on roads and on roadsides (ibid, 37).

6.3.2. Municipality Officials

The Environmental Officer

The environmental officer, Josef, oversees the environmental issues in the Municipality. Josef was working for making Jinja a green sustainable city. According to Josef, it is important to have lush green areas in the city in order for the urban inhabitants to have a good life. Urban agriculture could in some ways provide for these green areas as well as being an important part of the urban livelihood. Josef meant that the urban agriculture in Jinja could be much more productive if it was conducted on a larger scale. This would enable farmers to invest in irrigation systems that are not possible to put into the small-scale farms of today. Despite this, Josef meant

that there is a struggle for the urban land between different interests where urban agriculture often was low-prioritized in favour for other uses, such as housing or industry. Therefore, large-scale urban agriculture could prove difficult to establish in Jinja.

Jinja has had problems with squatting and illegal land grabbing of green areas. Land that was planned to be open green areas was often seized illegally by land-grabbers who used the land for agriculture or housing. The land-grabbing was also made at environmentally important areas such as wetlands and riverbanks, which causes environmental degradation in the municipality. Josef also mentioned that people are farming at road reserves and road sides which causes damages the roads. The crops that are farmed at these places are also often maize which due to their great height obstructs the line of sight for motorists. Goats and other cattle were also a problem that arose from urban agriculture, as urban animal farmers often let their cattle graze in parks, golf courses or other green areas. Josef said that: “Goats are a menace if you are a planner”. With this, Josef meant that goats both destroy the physical environment by grazing as well as undermining the Municipality's idea of what a city area should be like. According to Josef, this problem could be solved by implementing regulations regarding “zero-grazing”. The idea of zero-grazing is to keep cattle in an enclosed pasture and provide cut grass to feed the animals. But at the same time this method would face the same problems of obtaining land as for large-scale urban agriculture.

Even if a policy regarding urban agriculture was to be established. Josef meant that the urban waste problems needed to be addressed simultaneously before urban agriculture could be sustainable in Jinja. Today, there was no effective waste disposal, which meant that people who were farming close to roads often got their farms contaminated by all sorts of garbage. The people of Jinja did not know or care about the dangers of contamination from garbage. Neither did they have much trust in the Municipality, which impeded the effect of regulations or policies that came from the Municipality, according to Josef. He further said that the Municipality would need to work on the relationship with the citizens of Jinja in order to make policy implementation efficient. The planning should also focus more on poverty reducing actions. Many of the problems mentioned with urban agriculture could be derived from poverty, according to Josef. The illegal land grabbings that were taking place in Jinja, were often made by poor people who needed a source of income or food in order to survive. According to Josef, poverty also affects the tax revenues for the Municipality. High employment in the informal sector combined with high unemployment do not generate tax payers in Jinja.

The Physical Planner

The role of the Physical Planner, Robert, in Jinja is to be responsible for land use inside the Municipality. Urban agriculture is included in the structure plans for Jinja, and is recognized as a land use category like housing, industry or institutional land use. But there were problems with keeping the land allocated for urban agriculture to actually be used for urban agriculture. This problem was really upsetting Robert. It is the District Land Board (DLB) that manages regional planning. The DLB is a higher instance of authority, that is systematically discouraging

the physical planning of Jinja Municipality, according to Robert: “The Land act¹¹ allows the DLB to allocate or give away land that is not owned by anybody to anyone. Often for residential or industrial use”.

The DLB did not share the same vision as the Municipality, and was constantly working against them in giving away green open areas to income generating land uses. Even though Robert had many times tried to explain the importance of agricultural land or green open spaces to the DLB, it had not yet given any result.

Although Robert said that he was concerned about the preservation of the urban agricultural land, he did not see it as unproblematic. His view was clear that urban agriculture must be planned, and that a policy regarding urban agriculture was coming soon. Unlike the JCDS, the JPSPR and the environmental officer, Robert did not support the idea of regulating what kind of crops to be allowed to cultivate. Instead, Robert thought that the main issue was to regulate where and how urban farming should be conducted. Robert mentioned that there were a lot of actors fighting for the right to use and exploit the urban land: “Everybody wants to have a small garden, but the competition for urban land is fierce!” The urban farmers or a recreational park had in these discussions a rather weak voice. Therefore, the physical planning has an obligation to speak on the farmers’ behalf. But regulation is also needed because today farmers are cultivating in unsuitable places, such as along roadsides and in wetlands.

¹¹ The Land Act 1998 is the Ugandan Law that regulates management of land in Uganda

7. ANALYSIS

This chapter is divided into two sections. In the first section, the analysis is based on the four dimensions of food security-model. The four dimensions are presented separately, and are divided based on the findings on a household level and more general findings regarding the city of Jinja on a local level. In the second section, the analysis is based on the five conditions in the crisis model. For the conditions that the authors find relevant, a division is made between the farmers' perspective and planning perspective. Both sections end with a discussion where the empirical findings are connected to the theoretical framework.

7.1. Analysis using the four dimensions of the food security-model

According to the description used by FAO (2008b), food security exists when all people, at all times, have physical and economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life. To create food security, the requirements for the four dimensions' availability, access, utilization and stability need to be achieved. The empirical findings in this study have given clues on how well these dimensions are fulfilled, and what it is that is problematic in achieving food security. The following analysis focuses on urban agriculture as a way to create food security, and therefore do not consider more general circumstances regarding the four dimensions of food security.

7.1.1. Availability

Since all interviews conducted on a household level were with farmers, and at plots where farming activities were taking place, food was available through urban agriculture for the households in this study. Food was also available at the local market, in the streets, at supermarkets or at small street kiosks. However, the availability of food today does not mean that the availability of food exists tomorrow or in the future. For many of the farmers and their families, the availability of food coming from their own farming was not long-term, even if the availability of food was still present due to the closeness to the markets.

At a local level, if the Municipality's expectations that the population of Jinja will increase a lot in the future turns out to be true, the availability of food might become a big problem for many households. In the study, signs of the displacement of urban farmers and a planning strategy towards a more compact Jinja with less urban agricultural land was found. If this were to become reality it would not only destroy many opportunities and aggravate the conditions for urban agriculture, it would also have a negative impact on the overall availability of food that would be very serious for many of the households in Jinja. In order for the supply of food to come from urban agriculture, it needs to exist. So, although the availability of food that comes from urban agriculture does not pose a problem today, it might be a problem tomorrow.

7.1.2. Access

The study indicates that the main reason for the farmers to engage in agricultural activities was to enhance the economic and physical access to food. Although the study did not show signs of current problems with availability of food for the interviewed farmers' households, access to food was often shown to be a problem. Poverty, or many mouths to feed in a household, made it hard to obtain sufficient amount of food needed to feed the whole household. In many of the farmers' households, urban agriculture was the main source for obtaining access to food. For some farmers, their own cultivation was used more as supportive farming, and their main access to food was through food purchases. Access to food through urban agriculture requires access to cultivable land. Many of the farmers were threatened to lose access to food because of the insecure situations regarding access to land. Since many of the farmers borrowed land from the Municipality, organisations or private owners, the risk of displacement was a constant threat. Fear of displacement and lack of opportunities to make long-term plans was the main reason for only growing short-term crops, which for many of the farmers prevented access to food throughout the whole year.

7.1.3. Utilization

The data in the study shows that maize was by far the most common crop cultivated in Jinja. Many of the farmers only grew maize or a few more crops, often only short-term crops. A diet of only maize was not enough to make a healthy diet and in terms of food utilization, this might not be adequate. For the households that got the majority of their food through own cultivation, this was a bigger problem than for those who could afford to add extra nutrients through food purchases. Although this study did not contain any forms of in-depth investigations regarding utilization status in the farmers' households, it was clearly influenced both by what was grown and how the farming was conducted. For many farmers, the unsecure farming conditions and the economic restrictions caused many farmers to only grow maize and a few more crops at the most. According to Deborah, the quality of many seeds that were used in Jinja were in many cases bad, which affected both the yield and the nutritional value of the cultivated crops. In the same way, Peter mentioned that the wrong usage of pesticides could pose a health hazard and thus also have a negative impact on the utilization status for those consuming it. Peter also mentioned another issue connected to the utilization status, the unawareness in how to storage and process the harvest properly.

7.1.4. Stability

In the majority of the interviews with farmers, it was the stability dimension in different combinations with the other three dimensions that was missing. In some cases, access and availability of food could be considered to be stable but the farming and consumption mainly based on maize created a lack in the utilization dimension. Many people, if not all, had the availability to harvest or buy crops from urban agriculture, but few had the economic resources or land required to get access to enough food for a longer time period, especially after the

harvest. Since most of the farmers in the study were renting or borrowing land under insecure conditions, the access to land to farm on today was something that could disappear tomorrow. Some common and recurring examples of the unstable situation with external factors in this study was the problem with army worms and the lack of rain during the rain-seasons, which both had major impacts on the food security situation in Jinja. The lack of stability was found not only to create current obstacles, it often forced the farmers to make short-term plans, which prevented possibilities for creating stability over all the dimensions over time.

Pinstrup-Andersen (2009, p 2) argues that looking at food security on a household level is important because of the differences between households regarding the food security situation. This was something that became obvious in this study as well. In the same way that Kuwornu, Suleyman and Amegashie (2013, p 4) point out that the availability of food at household level in the Global South come from own farming or is bought from the local markets, our study also shows the same result. Since this includes purchases from local markets, our study indicates that the availability dimension was not a major problem in Jinja. A bigger problem shown in the study was the access dimension of food security. According to Kuwornu, Suleyman and Amegashie (2013, p 4), the food should be at the right place, at the right time, and households should have the economic freedom to purchase sufficient food in order to be food secure. This was in many cases was not found to be fulfilled in the study. Korth et al. (2014, p 2) argue that for the poor urban residents, urban agriculture may be a necessity to provide food because insufficient income makes the food too expensive to buy, and that urban agriculture either improve direct access to food, or indirect in by increasing household income making the food sold at the markets more accessible. In the study, the direct access to food by farming for home-use was the most common, but gaining economic access was also found and was found to be more common amongst male farmers.

According to FAO (2008b, p 1), humans need a diverse diet in order to get sufficient nutrient intake. The utilization dimension was also something that the study indicated was lacking in many cases. In a wider explanation of the utilization dimension, given by Kuwornu, Suleyman and Amegashie (2013, p 4), this includes proper use of food, a diet that contains adequate energy and essential nutrients, but also knowledge of how to storage and process food as well as proper illness management. According to Peter, many farmers in Jinja lacked knowledge in how to proper store harvested crops which resulted in parts of the harvest becoming poor and unnecessarily destroyed. Korth et al. (2014, p 2) argue that urban agriculture, through improved access to food, can give access to more nutritious and diverse food. However, a more nutritious diet through urban agriculture was something that this study did not indicate. The farmers who had access to food through purchases from the market had bigger possibilities to have a more nutritious and diverse diet than the farmers who only relied on their own farming. FAO (2008b, p 1p) have derived two types of food security, the short-term and temporary transitory food insecurity that occurs when the ability to access enough food is rapidly declining, often as a result from short-term disturbances, and the long-term permanent food security that is more persistent. The latter one occurs when households are unable to satisfy their need of food over a longer period of time. This study indicates that both occurred. The transitory food insecurity

because of, for example, the fluctuations in food access due to the seasons and the army worms destroying the maize harvest. The permanent food insecurity because of the poverty that was present in many of the farmers' households. According to FAO (2008b, p 1), stability is achieved when the other three dimensions are achieved over a period of time, resulting in that the food supply at household level remains constant during the year and in the long-term. In addition, Kuwornu, Suleyman and Amegashie (2013, p 4) add that external factors have a big impact on a household's food security status, which not only have an impact on the different dimensions of food security but also increase the need to improve the stability and resilience of households. The importance of creating stability and more resilience against external factors became evident in this study due to the major problems with army worms, and the lack of ways to stop them.

7.2. Analysis using the crisis model

7.2.1. *Natural conditions*

The natural conditions for urban agriculture in Jinja were very good. Rich productive soils, favourable sun and temperature, as well as access to seasonal rainfall makes Jinja a suitable place for agriculture. The favourable conditions allow farmers to cultivate without needing any major investments. Therefore, urban agriculture is possible to engage in for poor as well as for more wealthy citizens. However, global warming and climate change may affect these conditions, for example in lack of rain. As the rain-seasons become more unpredictable and giving lower amount of rain, the natural conditions for agriculture in Jinja may become less favourable in the future. The natural conditions affect urban agriculture in Jinja in many ways. During the study the army worm was shown to be a major problem for the farmers in Jinja. If the amounts of rain will continue to be low, the army worm will cause big problems in the future as well. But if the rain comes in sufficient amounts, it can reduce the problem with army worms and their spread.

7.2.2. *Physical infrastructure and services*

Farmers' perspective

To obtain space for agriculture was a crucial challenge for the urban farmers in Jinja. The result showed that many are farming under insecure conditions. Many of the farmers rented or borrowed land on insecure premises where they did not know for how long they would be able to farm the land. This situation prevented many farmers from daring to invest in the farming, as well as to make long-term plans that could make the agriculture more productive. This was evident since the most common crops were short-term crops, such as maize. Many of the interviewed farmers preferred to grow maize because they did not know if the owner of the land would claim the land tomorrow or in the near future. Maize requires low investments, which meant that eventual losses from displacement would not hit as hard at high cost crops. This "race for harvest" situation is depleting the nutrition of the soil and obstructs a sustainable farming situation. But as Peter said: "if you need to survive today, you don't plan for

tomorrow". The lack of access to farmland could also help to explain why citizens of Jinja were illegally grabbing land in order to have somewhere to farm.

Planning perspective

The urban planners of Jinja are faced with many different interests that require space in the urban landscape. In the Municipality's vision of Jinja to be an attractive sustainable tourist city, with excellent industry and commerce, little space seemed to be intended for urban agriculture. The fact that urban agriculture was viewed as something that destroys the urban aesthetics does not work in favour for a future city landscape where urban agriculture is represented. Instead, the authorities seemed to fill up the "open" spaces in the city with residential, tourism or industrial uses instead.

7.2.3. Socio-cultural conditions

Farmers' perspective

Agriculture is deeply rooted into the way of living for the people of Uganda. It is a country with a long and rich tradition of cultivation. The study showed that there is a lot of knowledge about agriculture amongst the urban farmers of Jinja. But at the same time, the traditions of Ugandan agriculture, have according to Peter, provided a sense of "I know best" mentality that may stand in the way for the development of agricultural practices. The unwillingness among urban farmers in Jinja to change their farming practices may be an obstacle, as the farmers do not adapt their farming methods to the conditions they are facing. The traditions regarding agriculture were not just about how to grow but also what to grow. Even though the climate in Jinja enables farmers to grow a variety of different crops, the diversity of cultivated crops was found to be low. Maize was by far the most common crop in Jinja. This may become a problem since the army worm requires maize to be able to reproduce. The army worm thrives on maize and has, through the abundance of it, been able to reproduce in vast numbers. The fact that everyone was growing the same crops make the foodscape vulnerable for pests such as army worm. There are also nutrition benefits from eating more diversified diet, which are lost when only cultivating a few different crops.

Planning perspective

According to the interviewed officials and the studied Municipality documents, there seemed to be a reluctance amongst the citizens of Jinja towards policy and regulations. This negative attitude is putting up obstacles for the urban planning in Jinja. This socio-cultural condition may make future policy implementations regarding urban agriculture ineffective.

7.2.4. Institutional conditions

Even though urban agriculture from a planning perspective was seen as something that could be beneficial for the citizens of Jinja, the way it is conducted today was not desirable according to the Municipality. Urban agriculture in Jinja was without restrictions from policies or legal status. The study shows that the Municipality wanted to regulate where urban agriculture should

be allowed to exist, as well as what crops that could be grown. Two motives could be found behind the need for regulation; to prevent urban agriculture to degrade the urban aesthetics, and to counteract traffic impacts from agriculture. The first motive fits well into Jinja's vision in becoming a modern city, attractive for tourism. The Municipality primarily wanted to get rid of maize and matoke from the urban landscape because they had the most negative impact on the city's image. As maize and matoke were the most common and important crops grown in Jinja, there were conflicting objectives between farmers and planners in this question. If the forthcoming urban agriculture policy prohibits maize and matoke to be grown in urban Jinja, much of the food security gained from urban agriculture will be lost. Despite the absence of regulation, urban agriculture exists in the urban structure plans as a land use category. But through bad governance with dissimilar aims for urban spaces by different authority levels, the land assigned for urban agriculture was often overridden by industry, residential or commercial interests and use.

7.2.5. Economic conditions

Farmers' perspective

With a population where 80% are estimated to live in poverty (Jinja Municipal Council, 2010, p 111), the economic motivations for engaging in urban agriculture in Jinja were obvious. The main objective for urban agriculture, was according to the interviews with farmers, to have something to eat because of poor economic conditions. The current unemployment situation in Jinja made people engage in urban agriculture. The majority of the farmers in the study were poor. Even though there were differences in economy between the farmers, it was clear that poverty was preventing many farmers from increasing productivity of their farms, diversify cultivated crops, as well as making long-term farming plans. Only two of the informants owned the land they were cultivating, and these two farms had the highest diversity of crops. Because of the ownership of the farmland, these farmers could invest and make long-term plans that increased productivity and crop diversity.

Planning perspective

There were a lot of different interests that the urban planning of Jinja had to coordinate. Urban agriculture was not the most profitable activity compared to industry or tourism. In Jinja tourism and industry were often prioritized over urban agriculture, as a part of the ambition of transforming Jinja into a "modern" city. The economic conditions for the planners also regards the economic situation of the Municipality. High unemployment combined with a large informal sector were bringing low tax revenues to the Municipality, which affected what kind of policies that could be implemented, both when it came to regulation but also protection and development of urban agriculture in Jinja.

Just as Jacobi, Drescher and Amend (2000) point out that the natural conditions and climate have a huge impact on urban agriculture, this study shows that the natural conditions affect urban agriculture more than any other condition. The suitable conditions for farming in Jinja showed a positive influence on urban agriculture, while the lack of rain and increase of army

worms showed a different impact that the natural conditions had. According to Jacobi, Drescher and Amend (2000), favourable natural conditions are necessary in order for urban agriculture to be available for all income groups since this means that no major investments are necessary for farming. That urban agriculture is an activity carried out by both low- and high-income residents is also described by Pedzisai et al. (2014, p 85) and Vermeiren et al. (2013, p 40). According to Zezza and Tasciotti (2010, p 271) there is an overrepresentation of low-income residents who practice urban agricultural activities. Since the interviewed farmers came from both low- and high-income households, but with an overrepresentation of low-income households, indications to all these statements was shown in the study.

According to Jacobi, Drescher and Amend (2000), farming traditions and the farming background is a strong socio-cultural condition that affect what to farm and how to do it. This was also evident in the study since many of the interviewed farmers explained about their background and farming traditions and that everybody cultivated for example matoke and maize because of the cooking tradition. It was also mentioned by Peter as a negative impact on urban agriculture since it created an unwillingness to learn new and better ways to conduct agriculture in Jinja. Urban agriculture was, as the literature review indicated to be common in many African cities, without regulation or policy (see FAO, 2008, p 75; Foeken, 2005, p 6p; Satterthwaite, McGranahan & Tacoli, 2010; p 2815 Vermeiren et al., 2010, p 40p). The study showed that there were no current regulations or policies regarding urban agriculture in Jinja. The regulations that the Municipality was planning to implement pointed at making urban agriculture appropriate for their representative image of Jinja, rather than making it more productive for the farmers. This phenomena of cleaning up the urban aesthetics from parts regarded to be unfit in the urban landscape has been found by both Watson (2009a, p 2268) and Macdonald et al. (2014, p 117p). This may prove to be an obstacle for the future food security from urban agriculture in Jinja.

8. CONCLUSIONS AND DISCUSSION

The aim with this study was to investigate if urban agriculture is an important activity for creating food security as well as to explore potential opportunities and obstacles for agricultural activities within the city of Jinja. This has been made through observations, interviews with farmers, officials and key informants as well as through studies of planning documents from the Municipality of Jinja. To fulfil the aim with the study, three research questions were used. This chapter is structured around these questions, and ends with an open discussion on aspects and issues that arose during the process of the study.

8.1. Conclusions

How does urban agriculture affect the food security situation for households in Jinja?

According to the results from this study, urban agriculture was shown to be an important contribution to the food security situation for many households in Jinja. To get a wider, and general, picture of how urban agriculture contributes to food security, the data connected to this question have been analysed by using the four dimensions of food security-model. The study has shown that the physical *availability* to food was not a big problem in Jinja today, partly due to urban agriculture. However, when it comes to getting *access* to food, urban agriculture was shown to be an important contributor and was in many households the main source of getting access to food, which was partly due to the poor economic situation for many households and that food was too expensive to buy. Urban agriculture's impact on the *utilization* dimension varied a lot between different households depending on how diversified cultivation that was possible. Most of the farmers in the study only cultivated a few crops which was not enough to have a healthy and nutritious diet. In order to create food security over a longer period of time, *stability*, the fourth dimension of food security, needs to be fulfilled. The findings in the study indicates that Jinjas urban agriculture in different ways lack the stability needed to create food security.

What conditions affect urban agriculture in Jinja, and in what ways?

The natural conditions for urban agriculture in Jinja are favourable which creates good farming opportunities. The farming culture and knowledge in agriculture in Jinja and Uganda led to acceptance from the urban citizens as being a natural part of the livelihood. The study has shown two major issues affecting urban agriculture in Jinja. In general, a current and critical problem was the army worms, attacking and destroying a large part of the maize that was grown. Another problem for many of the households, but not for all, was the urban farmers' poor opportunities to make long-term plans and investments in their farms. Most farmers grew on someone else's land without security or guarantee for how long they would be able to farm the land. Because of the fear of displacement, most farmers only farmed short-term crops such as maize, which affected the utilization dimension of food security negatively, it also limited incentives for yield-increasing investments. Since the majority of the citizens of Jinja are poor, economic constraints have been shown to have a big effect on the urban agricultural activities. Difficulties in obtaining farmable urban land were in this study strongly connected to poor economic

conditions. The study also indicates that the current economic conditions made it hard for the farmers to plan for long-term sustainable agriculture due to the present challenges in getting food for the day. Altogether, the study indicates that most of the conditions affecting urban agriculture in Jinja, have been shown to work against the possibilities of making long-term agricultural plans that are needed to create high-yield farming. The institutional conditions affecting urban agriculture are discussed below.

How does the urban planning of Jinja affect the conditions for urban farmers and urban agriculture?

The results from this study indicates that the urban planning of Jinja aims to transform Jinja into a more compact city with increased residential and commercial land use. The Municipality's position regarding urban agriculture was that farming may be an important part of urban livelihoods, but the way it is conducted today is out of legal control and destroying the urban aesthetics. The crops that was the biggest contributor to the degradation of the urban aesthetics were, according to the Municipality, maize and matoke due to their great height. Since these two are important staple crops and the most common crops in Jinja, the impact on the food security contributions from urban agriculture may decrease significantly if these crops would be prohibited. The study has also shown that there are conflicts concerning land-use between the Municipality and the District Land Board (DLB). Even if the urban planners of Jinja planned for a piece of land to be intended for agriculture, the DLB could override the plan and use it for industry or something else that gave more economic profit to the city. Therefore, urban agriculture in Jinja may be threatened even if the Municipality-planners would plan for agriculture to occupy a lot of the urban space in Jinja. Furthermore, the lack of regulation of urban agriculture in Jinja may stand in the way for long-term sustainable urban agriculture. Insecure conditions due to unclear directives on what is legal or not concerning urban agriculture give little incentive for farmers to make production efficiency investments. At the same time, lack of regulation also provides opportunities for cultivation in a way that might be illegal if there were an urban agriculture policy. Therefore, the absence of regulation of urban agriculture was a difficult question since it also provided opportunities for people in Jinja to farm, mostly on "nowhere-lands" that probably would be prohibited if a regulation would be introduced.

This study concludes that urban agricultural activities is an important activity for many households in Jinja for getting access to food and improve their food security situation. This indicates that, in the context of small and intermediate urban areas in the Global South, urban agriculture can contribute to improve or maintain a decent food security situation. It is however noteworthy that the affect urban agriculture has on households' food security situation, how dependent you are on urban agriculture and under what circumstances urban agricultural activities are taken place differs between households. Besides general conditions as favourable climate for farming or problems with pesticides such as army worms, the economic conditions were shown to have a major impact on both agriculture activities and the food security situation for many households. As with so much else, it is the poorest households who are most dependent on being able to farm and who will suffer the most if transformations to more

compact cities with less opportunities for cultivation are introduced. Access to essential resources such as land and good seeds would greatly improve on the food security situation for many of the poorest households.

8.2. Discussion

The aim with this study was to investigate if urban agriculture is an important activity for creating food security for the urban inhabitants in Jinja today. Even if the results from this study indicate that urban agriculture really is an important activity for many households, especially when it comes to getting access to food, there are many problems and obstacles for creating long-term and sustainable urban agriculture. From a farmers' perspective, the major problem with army worms and the problematic situation with insecure farming and housing conditions were things that permeated the entire study. The lack of stability was clear, and most people that we encountered wanted nothing more than creating a more stable way of life. Peter and the other key informants gave us a deeper understanding of the complexity with urban farming, explaining social norms and giving us clues to why and how it works. From a planning perspective, it feels like there is a love-hate relationship towards urban agriculture. Without it, poverty, starvation and unemployment would become even greater challenges to the Municipality of Jinja. As it works today, urban agriculture is difficult to control and can in some cases constitute threats, for example when car drivers are unable to see clearly at intersections because of the crops. A constant threat for urban agriculture is the risk of displacement. Today, urban agriculture is not a profitable activity for the city of Jinja. It remains to be seen if Jinja will be developed to attract investors, or if the city will be developed to meet the needs of residents.

There is a complexity, broader relationships and more links to things other than what we first thought about, both within the food security- concept but also within urban agriculture. A very clear example, and something that cannot be ignored, is the complex relationship with economy. It is the lack of it that makes urban agriculture such a common activity in Jinja. At the same time, it is the low economic gain that makes it at risk of disappearing. To focus the study on an intermediate city, with other conditions than in bigger cities that are often used in similar studies, turned out to be very interesting. We believe that this is important in the future as well. The world is a complex place and looking at all levels, including the local or the household with so many different conditions, is needed in order to create a better understanding. This study has been using a definition of urban agriculture that has been created by researchers from the Global North, as well as our own preconceptions of what urban agriculture are. Many of the people we met in Jinja had a different opinion regarding what could be counted for as urban agriculture or not which did not correspond with our perception of urban agriculture. For us, this was an important lesson and something that we think should be considered more in future studies. What in the Global North may appear as an obvious definition according to our conceptions, may not be applicable in the conditions of the Global South. We set out to find out if urban agriculture was an important activity for creating food security for the urban inhabitants in Jinja, and in the long run if it could be a possible tool in the future for creating even better conditions of food security. What we did not know was how important urban agriculture is

today. Even if many households in Jinja do not even come close to achieving food security, it is the urban agricultural activities that are keeping them alive.

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Informants

List of interviewed farmers

Informant	Date	Group	Gender	Household members	Head of Household	Main purpose with farming
1	10/4-2017	Farming on semi-public land	Female	3	Yes	Subsistence
2	10/4-2017	Roadside farming	Male	10	Yes	Subsistence
3	13/4-2017	Home Garden	Female	8	Yes	Subsistence
4	13/4-2017	Home Garden	Boy	7	No	Subsistence
5	13/4-2017	Roadside farming	Female	6	Yes	Subsistence
6	13/4-2017	Home Garden	Male	15	No	Income
7	25/4-2017	Home Garden	Male	10	Yes	Subsistence
8	25/4-2017	Big open farming	Male	8	Yes	Subsistence
9	25/4-2017	Farming on semi-public land	Male	10	Yes	Subsistence
10	25/4-2017	Roadside farming	Male	1	Yes	Income
11	25/4-2017	Farming on semi-public land	Female	1	Yes	Subsistence
12	26/4-2017	Home garden	Female	12	Yes	Subsistence
13	26/4-2017	Home garden	Female	6	Yes	Subsistence
14	3/5-2017	Big open farming	Female	2	Yes	Subsistence
15	3/5-2017	Home garden	Female	5	Yes	Income
16	3/5-2017	Home garden	Male	1	No	Subsistence
17	4/5-2017	Farming on semi-public land	Boy	8	No	Subsistence
18	4/5-2017	Big open farming	Female	7	No	Income
19	4/5-2017	Farming on semi-public land	Male	7	Yes	Subsistence
20	10/5-2017	Home garden	Girl	5	No	Subsistence
21	10/5-2017	Home garden	Male	7	Yes	Subsistence
22	10/5-2017	Home garden	Male	4	No	Subsistence

List of Interviewed Key informants

Name	Date	Occupation
Peter	11/4; 23/4-2017	Agronomist
Deborah	29/3-2017	University lecturer
Stephen	30/3-2017	NGO-Staff

List of interviewed Officials

Name	Date	Occupation
Josef	20/4- 2017	Environmental Officer, Jinja
Robert	12/5-2017	Physical Planner, Jinja