



AgriFoSe2030 Report 26, 2020

An AgriFoSe2030 Final
Report from Theme 1 -
Social and economic dimensions
of smallholder based agriculture
and food security

Urban agriculture policy and practice in Kenya

Samuel Onyango Omondi

University of Nairobi, Department of Agricultural Economics, Kenya

AgriFoSe2030

Agriculture for Food Security 2030
- Translating science into policy and practice

Today more than 800 million people around the world suffer from chronic hunger and about 2 billion from under-nutrition.

This failure by humanity is challenged in UN Sustainable Development Goal (SDG) 2: "End hunger, achieve food security and improve nutrition and promote sustainable agriculture".

The AgriFoSe2030 program directly targets SDG 2 in low-income countries by translating state-of-the-art science into clear, relevant insights that can be used to inform better practices and policies for smallholders.

The AgriFoSe2030 program is implemented by a consortium of scientists from the Swedish University of Agricultural Sciences (SLU), Lund University, Gothenburg University and Stockholm Environment Institute and is hosted by the platform SLU Global.

The program is funded by the Swedish International Development Agency (Sida). News, events and more information are available at www.slu.se/agrifose

ISBN: 978-91-576-9744-8



Summary

Urban agriculture is a common phenomenon in contemporary African cities, Kenyan cities included. It is mainly practiced to enhance food security and generate income from sale of produce. The practice has been associated with potential food safety risks, environmental pollution and causing nuisance, especially urban livestock production. In Kenya, this reality has not been addressed through a national policy response. However, Nairobi City has formulated an Act that aims at promoting and regulating urban agriculture. Other counties are likely to follow suit because it is a requirement in Urban Areas and Cities Act, 2011 law to have plans for urban agriculture. It is likely that other counties and cities will replicate Nairobi's initiative. Thus, this literature review combined with insights from two urban agriculture stakeholder workshops aims to undertake a comparative analysis of the key urban agriculture legal and policy frameworks in Kenya and some selected countries. It further provides recommendations on how to approach policy formulation on urban agriculture, based on the innovativeness of the reviewed policies.

Table of Contents

Summary	2
List of abbreviations.....	4
1 Background and objectives.....	5
2 Method	7
3 Policy relevance of urban agriculture	8
4 Global and national policies, conventions, and agendas on agriculture.....	11
5 Policies and legal frameworks for urban agriculture in Kenya.....	12
5.1 National overview	12
5.2 Nairobi	14
5.3 Kisumu	15
5.4 Nakuru	15
5.5 Conclusion on county policies and legal frameworks.....	16
6 A look at urban agriculture policies and practices in selected countries.....	16
6.1 Uganda.....	16
6.2 Tanzania.....	19
6.3 Ghana	21
7 Discussion and recommendations.....	21
8 Conclusions	23
References	25

List of abbreviations

ASALs	Arid and Semi-Arid Lands
CECM	County Executive Committee Member
CGIAR	Consultative Group on International Agricultural Research
EA	Environmental Alert
FAO	Food and Agriculture Organization of the United Nations
GDP	Gross Domestic Product
HPAI	Highly Pathogenic Avian Influenza
IDRC	International Development Research Centre
KCC	Kampala City Council
KEBS	Kenya Bureau of Standards
KUFSAALCC	Kampala Urban Food Security, Agriculture and Livestock Coordinating Committee
MAAIF	Ministry of Agriculture, Animal Industries and Fisheries
MCA	Member of County Assembly
MUFPP	Milan Urban Food Policy Pact
NARO	National Agricultural Research Organization
NEFSALF	Nairobi and Environs Food Security, Agriculture and Livestock Forum
NEMA	National Environment Management Authority
NGO	Non-Governmental Organization
RUAF	Resource Centres on Urban Agriculture and Food Security
SARS	Severe Acute Respiratory Syndrome
SDGs	Sustainable Development Goals
UHC	Universal Health Coverage
UN	United Nations
UNDP	United Nations Development Programme
UNHABITAT	United Nations Human Settlements Programme
UPUFS	Urban and Peri-Urban Farming Systems

1 Background and objectives

Kenya is a major economic hub with the largest economy in the East African region. It has an estimated population of 48 million people comprising 12 million households (Republic of Kenya, 2019a). It was estimated that by 2017, 27 percent of Kenyans were living in urban areas (Plecher, 2019). In 2015/16, the country's levels for headcount poverty and food poverty stood at 36 and 32 percent respectively, varying widely across different counties (KNBS, 2018).

Agriculture is the mainstay of Kenya's economy, contributing about 33 percent to the Gross Domestic Product (GDP). Furthermore, agriculture employs more than 40 percent of the total population and 70 percent of the rural folks (Republic of Kenya, 2019b). While most agricultural activities are undertaken in rural areas, some urban dwellers also engage in farming in urban areas as well as in their surrounding rural areas (Omondi *et al.*, 2017).

Urban agriculture is the growing of crops and raising of livestock within or at the peripheries of urban areas. It is linked to related activities such as input supply, service provision, processing, transporting and marketing of agricultural commodities produced in urban spaces. Urban agriculture is as old as the cities themselves (Mougeot, 2000; van Veenhuizen, 2006). The practice has been in existence since time immemorial and can be traced back to early civilizations (Lee-Smith and Cole, 2008; Gallaher *et al.*, 2013).

Diana Lee-Smith and colleagues provides an elaborate classification of the Urban and Peri-Urban Farming Systems (UPUFS) in Africa; backyard subsystems and open space subsystems. Open space subsystems are further classified into open space irrigate and open space rain-fed agriculture. For the two categories, social equity issues in terms of access to land, food and nutrition security and market access are addressed. The backyard urban farm is normally a mixed farm located next to the house, utilizes domestic water, mostly practiced for household food security (home gardens) and surplus produce provides opportunity to generate extra income. Backyard subsystems also include rooftop farming and institutional gardens (Lee-Smith *et al.*, 2019). . Backyard subsystems are characterized by secure land tenure (Mwangi, 1995; Lee-Smith *et al.*, 2019). In Kenya, urban agriculture is mainly practiced on privately owned land (Omondi, 2018a).

Open space subsystems are common in peri-urban areas and land tenure is mostly insecure. These constitute both small-scale vegetable and livestock producers as well as large-scale producers of vegetables, fruits and flowers with commercial orientation. Open space irrigated subsystems often utilize polluted water for irrigation and constitute the most productive UPUFS. Open space rain-fed subsystems include small-scale crop and livestock farming on public land such as on the roadsides, under power lines and empty lots. It is mostly practiced by the urban poor for food and income, dependent on the rain and with insecure land tenure (Lee-Smith *et al.*, 2019).

Although urban agriculture has potential social, economic and ecological roles to play, in most cases it has not been recognized as a legitimate land use, especially in the global South. This situation stands

in contrast to the growing attention that urban agriculture has been receiving during the past few decades. This close focus on urban agriculture has been marked by an increase in the number of 'Zero Hunger Campaigns' in countries such as Cuba, Brazil and Argentina, whose governments have been supportive to urban agriculture (van Veenhuizen, 2006). The number of declarations by mayors on food systems, including urban agriculture, have also increased (Mougeot, 2000). Food charters between the local authority, communities, private sector and other key stakeholders have also promoted urban agriculture (Hardman and Larkham, 2014).

The attention among (local) governments and practitioners is high because of an array of factors. First, the increasing trend of urbanization of poverty highlights the potential of urban agriculture in enhancing food security. Secondly, there has been an increase in the availability of new research on the importance of urban agriculture for food security: for example, research funded by IDRC's Cities Feeding People programme, CGIAR's Urban Harvest and by other research organizations. Thirdly, there has been increased attention to urban agriculture by international organisations such as FAO, UNDP and UN-HABITAT, as well as increased capacity in urban agriculture at local and regional levels through training by IDRC and RUAF (van Veenhuizen, 2006; Mougeot *et al.*, 2010). Finally, the lobbying from urban farmers and NGOs who are pushing the local authorities to realize the food security potential of urban agriculture (Mougeot, 2000; van Veenhuizen, 2006; Gallaher *et al.*, 2013).

Although urban agriculture has received a lot of attention in the past few decades from international development agencies, researchers and governments, the practice has still not been adequately recognized by the authorities (van Veenhuizen, 2006). At the same time, increasing population and rapid urbanization that lead to increase in demand for food in cities, improved welfare, availability of space for practicing urban agriculture, as well as pressure to engage in alternative livelihood activities such as informal urban farming (as opposed to formal employment) will drive innovations in future urban agriculture practices include (Omondi, 2018a).

Urban agriculture is expected to persist in future cities in ways that utilize the limited urban spaces efficiently, for example through use of vertical gardens and hydroponics for vegetable production and multi-storey buildings for livestock production (Omondi 2018a,b). Dietary transformations will lead to increase in demand for livestock and livestock products, fruits and vegetables (Popkin, 2003; Pingali, 2006). Urban livestock production will likely become more modernized and intensive (Amadou *et al.* 2012). Going by the projections of poultry consumption in Kenya, urban poultry producers stand to benefit, owing to the tripling of demand for poultry between 2000 and 2030 (Robinson and Pozzi, 2011).

However, to ensure increase in urban agriculture productivity, improvement in welfare of the actors and ensuring food safety and proper environmental management, a supportive and regulatory framework for urban agriculture is necessary. Thus, this report includes a review of urban agriculture in Kenya with a special focus on the policy and regulatory framework. This is contextualized in the broader policies and frameworks at the global and regional level. The report also utilizes experiences gained from two urban agriculture stakeholder workshops in Kenya. In addition, the report reviews urban agriculture

policy environments in some selected African countries. The report aims to achieve the following objectives:

- a. To Identify reasons why urban agriculture needs policy attention
- b. To analyse the urban agriculture policy direction in Kenya
- c. To identify gaps in urban agriculture governance, regulation and policy in Kenya
- d. To provide recommendations for urban agriculture policy in Kenya based on experiences from other countries

The rest of this report is organized as follows. Section 2 presents the method while section 3 discusses the policy relevance of urban agriculture. This is followed by a review of global and national conventions and policies on urban agriculture to which Kenya is a signatory to, in section 4. Section 5 presents Kenyan policies and regulations that are relevant to urban agriculture, while section 6 discusses urban agriculture policies and legal frameworks in some other selected countries. Section 7 critiques the policies and provides recommendations on how counties in Kenya could improve their future policies on urban agriculture. Finally, section 8 concludes the report.

2 Method

The objectives of this report are addressed by reviewing literature, both academic and non-academic, on urban agriculture issues generally and specifically on urban agriculture policies in Kenya, Uganda, Tanzania and Ghana. Insights from consultations and discussions with urban agriculture stakeholders during urban agriculture stakeholder workshops in Nakuru and Kisumu in Kenya conducted between August and September 2019 have informed and enriched this report.

The urban agriculture stakeholders' workshop approach

The urban agriculture stakeholders' workshop project was funded by AgriFoSe2030 program¹ and implemented by University of Nairobi and Mazingira Institute in collaboration with Kisumu and Nakuru County governments. Organizing the workshops was conducted in three steps: identification of towns and cities to implement the project, consultations with stakeholders and conducting the workshops.

a. Identifying potential towns/cities

Identification of the towns and cities to implement the project was achieved through a desk survey. It entailed reviewing literature and counties' websites to ascertain their support for urban agriculture.

b. Consultations with stakeholders (policy needs assessment)

Different stakeholders were consulted prior to the stakeholders' workshop to ascertain their needs and priorities with regards to urban agriculture. Different groups of stakeholders were met separately. The reason for this was for the research team to assess how well they could articulate their issues. In

¹ <https://www.slu.se/en/collaboration/international/slu-global/agrifose/>

situations where the research team perceived that stakeholders' issues were not well defined, they were helped on how to frame them well.

c. Urban agriculture stakeholders' workshop in Nakuru

Identification of stakeholders and planning for the workshop was done jointly between the research team and the two Counties. A total of 63 and 45 stakeholders participated in the Nakuru and Kisumu workshops, respectively. They included urban farmers, traders, County staff from different departments, researchers from universities, NGOs, parastatals, the private sector, National Environment Management (NEMA), Kenya Bureau of Standards (KEBS), Members of County Assembly (MCAs) in the Nakuru County Assembly agriculture committee, enforcement department (legal team), office of the president (assistant county commissioners) and the media.

3 Policy relevance of urban agriculture

Urban agriculture is an activity which a significant share of the urban population engages in and is important for the livelihoods of many. Yet, it is generally still not being recognized, supported and regulated (Halloran and Magid, 2013; Omondi *et al.*, 2017). Urban agriculture is a multi-dimensional, multi-functional and a multi-stakeholder practice that has cross cutting issues. Successful urban agriculture policies should adopt an all-inclusive approach because of the multifunctional nature of urban agriculture. The main sectors involved are agriculture, public health, land use and physical planning, housing and slum upgrading and environmental conservation among others. Urban farmers through their organizations such as farmer organizations, civil society groups and private enterprises should be involved in the policy process. In this section, the various aspects of urban agriculture that require policy guidance and intervention are discussed.

- **Food and nutrition security**

In 2015/16, about 32 percent of Kenyans experienced food poverty (KNBS, 2018). During the same period, close to a quarter of households in the urban and peri-urban areas of Kenya derived some food from own production (KNBS, 2018). Meanwhile, peri-urban and core-urban households spent 58 and 47 percent respectively, of their income on food items (KNBS, 2018). Additionally, about 29 and 24 percent of peri-urban and core-urban households respectively, experienced food poverty (KNBS, 2018). Thus, combating food insecurity is a major policy issue in Kenya. Urban agriculture contributes to food security through two main pathways; direct consumption of own produced food or indirectly through purchasing other food items not produced by the household using money from sale of urban agriculture produce (Omondi, 2018a).

Although the importance of urban agriculture to food security is often contested (Ellis and Sumberg, 1998; Badami and Ramankutty, 2015), there is some research evidence indicating that households engaged in urban agriculture, especially livestock production are more food secure than their counterparts who do not (Lee-Smith, 2010). In addition, the dietary and nutrition status of the farming

households is more enhanced because of ease of accessing a wide variety of diet from own produced food than the latter (Mwangi, 1995).

However, other researchers argue that the potential of urban agriculture in enhancing food security is lowest where it is most needed, that is, in the low-income countries (Badami and Ramankutty, 2015). This is because, based on land availability, the urban areas in the low-income areas have high human population densities, thus leaving limited land for agricultural purposes. While this may be true in the congested mega-cities, small and medium-size cities still have relatively more land than the mega-cities that could be utilized for agricultural purposes (Martellozzo *et al.*, 2014). Additionally, more innovative production systems like use of hydroponics and vertical gardens could greatly increase the efficiency and productivity of urban agriculture even in more densely populated urban areas (Omondi, 2018a).

Urban agriculture not only supplies food to the producing households, but also to other urban residents. For instance, about 8 percent of vegetable needs for urban Nakuru is derived from its urban agriculture (Foeken, 2006). The urban residents also access relatively cheaper and fresher agricultural commodities from urban agriculture as a result of short marketing channels compared to food sourced from rural areas.

- **Income generation and poverty alleviation**

In 2015/16, Kenya had a headcount poverty of 36 percent. The poverty rates in the peri-urban and urban-core were estimated to be 28 and 29 percent, respectively (KNBS, 2018). Poverty reduction in Kenya is a major policy issue that requires attention. Urban agriculture plays a role in reducing poverty through income generation.

Households engaged in open space rain-fed urban agriculture for livelihood are often the urban poor (Lee-Smith *et al.*, 2019). A significant share of urban agricultural producers sell some of their produce. For instance, in Kisumu and Thika, Kenya, about 36 percent of urban farmers sell part of their produce, which contributes slightly above one third to their household cash income (Omondi *et al.*, 2017). This is consistent with earlier studies (Lee-Smith and Memon, 1994; Lee-Smith, 2010). Sale of produce is particularly characteristic for the high value perishable commodities such as poultry, eggs, vegetables and milk. Most of the urban farmers engaged in the production of these commodities mainly produce them for the market. Thus, it is considered as a business for income generation (Omondi *et al.*, 2017). Others engage in urban agriculture as a part-time activity to supplement their household income. Input suppliers, service providers, transporters and traders also benefit from urban agriculture. To the urban poor engaging in urban agriculture, the practice helps them in saving expenditures on food (Rezai, 2016). This is because the urban poor spend between 60 and 80 percent of their income on food (de Zeeuw and Dubbeling, 2009).

- **Food safety risks and zoonoses**

A major risk from urban agriculture is consumption of vegetables produced using untreated sewage water, which poses serious health risks to both producers and consumers (de Zeeuw and Dubbeling, 2009). There are risks of crop contamination with pathogenic organisms as a result of irrigation with untreated wastewater or poor handling during harvesting, transporting, processing and marketing of crops produced in urban areas (van Veenhuizen, 2006). Additionally, poorly disposed manure causes environmental pollution while certain crops act as breeding grounds for disease vectors such as mosquitoes (Republic of Kenya, 2010a). The use of treated sewage water has not been institutionalized into policies, thus, the perceptions from most stakeholders is that such water is unsafe for agricultural production. Furthermore, poor production practices such as slaughtering of poultry intended for sale without inspection, non-adherence to drugs withdrawal periods among poultry/poultry products producers and excessive use of antibiotics also pose health risks to consumers (Omondi, 2018b).

Producing livestock in areas with high human population poses a risk of zoonoses, where livestock diseases could be transmitted to humans (de Zeeuw and Dubbeling, 2009). Livestock diseases such as Highly Pathogenic Avian Influenza (HPAI) and Severe Acute Respiratory Syndrome (SARS) have posed serious threats to public safety elsewhere, thus raising concerns over livestock production in urban areas. The Covid-19 pandemic reinforces why it is important to regulate urban livestock production and maintenance of food safety measures.

In order to reduce the potential health and environmental risks of urban agriculture, Kenya is looking into how the practice should be properly regulated and monitored, through urban agriculture policies that guide production and handling of products (Republic of Kenya, 2010a). Such a policy would provide a framework on how livestock should be raised in urban settings and ways of dealing with threats such as zoonoses.

- **Land use**

Land is a major factor of agricultural production. Most high and middle-income households reside in low density areas, thus, they are able to benefit through urban agriculture. On the contrary, most low-income urban households reside in high-density areas with little or no space for urban agriculture. Those living in unplanned informal settlements lack the capacity to legally practice safe urban agricultural production (Memon and Lee-Smith, 1993).

A major issue for urban agriculture is its recognition as a formal land use, with proper land tenure. While most counties in Kenya have development plans that include urban agriculture as required in some legislation, most do not recognize urban agriculture as a legitimate land use in other laws, as explored in this report. Policy instruments such as land zoning for agricultural purposes could be used to set aside land for urban agriculture. This involves proper mapping of the urban areas to determine which kinds of urban agriculture could be conducted and where. A framework for the use of unused public or private land for urban agriculture also needs to be put in place. In Kenya, this means the counties could

negotiate for the use of private land for agricultural purposes between the owner and the user (Mubvami and Mushamba 2006). Secure land tenure will enhance adoption of good agricultural production.

This section has positioned urban agriculture as a policy issue for Kenya. As poverty and food insecurity are increasingly common in urban areas, urban agriculture presents an opportunity to tackle the two issues. Own food production directly provides food to the producing households, while those who produce surpluses, it provides them with a source of income. Urban agriculture has also been associated with food safety risks, risk of zoonoses and environmental pollution. Thus, in order to tackle the threats and enhance the opportunities for urban agriculture, it requires anchoring in policy.

4 Global and national policies, conventions and agendas on agriculture

Kenya, being a member of the United Nations (UN) is a signatory to the UN's Sustainable Development Goals (SDGs). Several goals are particularly relevant to urban agriculture. The most important goals in relation to urban agriculture are Goals number 1 and 2, of ending poverty in all its forms and ending hunger, by achieving food security, improving nutrition and promoting sustainable agriculture. Through sustainable urban agriculture, its practitioners could achieve food and nutrition security and at the same time derive livelihood from the practice that would eradicate poverty. Other SDGs that are important to urban agriculture include goal number 8 of promoting inclusive and sustainable economic growth, goal number 11 of achieving resilient cities and goal number 12 of ensuring sustainable consumption and production patterns.

The Milan Urban Food Policy Pact (MUFPP) perceives food security and sustainable urban development as part of the urban food system. The urban food system comprises all food production processes and activities, distribution, marketing and waste management. Several cities, including Nairobi have signed the MUFPP, which aims at making cities attain sustainable food systems. Kisumu also intends to sign the pact. MUFPP recognizes that cities currently host more than half of the world's population and that they are engines of economic growth, as well as centres of political and cultural innovation where huge investments are made. Additionally, the MUFPP is cognizant of the fact that the current food systems are being challenged to attain sustainability and provide safe and nutritious food to the growing urban population (MUFPP, 2015). The urban food system transcends the rural areas where most of the food consumed in urban areas is produced. Thus, urban agriculture is just a component of several parts of the urban system.

The signatories to MUFPP are expected to promote and support urban and peri-urban agriculture, to transform the practice into a sustainable livelihood activity. The MUFPP also requires the cities to integrate urban and peri-urban agriculture into their physical and development plans. In this regard, women's and youth's capacities in agricultural production should be enhanced. The cities are also expected to improve access to land for urban and peri-urban agricultural activities, provide agriculture-

related services such as training, credit, technologies and improvement in (waste) water management and reuse in agriculture (MUFPP, 2015).

Kenya's Constitution, under economic and social rights, provides that every person has a right to be free from hunger and to have adequate food of acceptable quality (Republic of Kenya, 2010b, pp. 24). The Constitution also provides for the right to a clean and healthy environment (sustainable management and protection for present and future generations) through legislation and other avenues (Republic of Kenya, 2010b). Meanwhile, Kenya's Vision 2030, the country's economic blueprint, identifies agriculture as one of the sectors that will steer the country towards its goal of 10 percent economic growth. The vision is for agriculture to be transformed to an innovative, commercially-oriented and modern sector. Vision 2030 focuses on several strategic areas that would be targeted to achieve the vision: institutional reforms, increase in productivity through improving access to farming inputs and services, improving land use, development of Arid and Semi-Arid Lands (ASALs) for agricultural purposes and improving market access through value addition (Republic of Kenya, 2007).

In order to achieve Kenya's Vision 2030, the Jubilee administration which took power in 2018 has put in place the 'Big Four' Agenda. The Big Four Agenda addresses four areas that the government considers to be priorities. These include improving the manufacturing sector, achieving food and nutrition security, affordable housing and Universal Health Coverage (UHC) (<https://www.president.go.ke/>). While these conventions, policies, visions and agendas do not necessarily refer to urban agriculture, they are relevant to its practice.

5 Policies and legal frameworks for urban agriculture in Kenya

5.1 National overview

Kenya's Constitution, promulgated in 2010, established two levels of government; the national government and 47 county governments. The Constitution gives power to the national government to formulate agricultural and veterinary policies among others. County governments on the other hand are mandated to steer, support and promote agricultural development, including crops and livestock development, marketing, construction and maintenance of abattoirs, crops and livestock health and fisheries development (Republic of Kenya, 2010b).

At present, Kenya does not have a unitary comprehensive national policy on urban and peri-urban agriculture. The National Urban and Peri-Urban Agriculture and Livestock Policy, 2010, is still in the first draft stage. The overall objective of the policy is to promote and regulate urban agriculture in a sustainable manner that improves welfare through enhancing food security, improving income, creating employment and reducing poverty. The draft policy focuses on land use, public health and environmental management in order to achieve the desired welfare effects (Republic of Kenya, 2010a).

It identifies the need for collaboration between the key actors in the development of urban agriculture, strengthening capacity building of relevant institutions, promotion of appropriate technologies, linking producers to markets and proper waste management.

Although Kenya lacks a national policy on urban agriculture, there are some laws that affect urban agriculture: County Government Act, Public Health Act, Land Control Act, Land Policy Act and Water Act (Republic of Kenya, 2010a). The County Government Act confers the power of leasing, transferring and allocation of land for temporary use to local authorities. Previously, most local authorities had enacted bylaws that prohibited cultivation of crops on public land and restrict livestock farming that is deemed to be a nuisance (Republic of Kenya, 2010a).

According to the Public Health Act, the Cabinet Secretary for health may revoke permits for crop cultivation and irrigation within urban areas if such practices are perceived to cause public health risk (Republic of Kenya, 2012a). The Public Health Act also relates indirectly to urban agriculture through banning of activities that are perceived to cause nuisance to the public. Some of the nuisances related to urban agriculture include: any stable, cow-shed or other building or premises used for keeping of animals or birds, which is constructed, situated, used or kept so as to be offensive, or which is injurious or dangerous to health; any animal so kept as to be a nuisance or injurious to health or any accumulation or deposit of refuse, offal, manure or other matter whatsoever that is offensive or which is injurious or dangerous to health. The Public Health Act also provides for destruction of mosquito breeding grounds, which cultivated crops are often perceived to be. The Act also gives power to the Cabinet Secretary in charge of health to prohibit or regulate activities that are likely to cause pollution, which could include urban agriculture activities.

While the Food and Nutrition Security Policy (2011) identifies urban and peri-urban agriculture as an important contributor to attaining food and nutrition security, it raises concerns over public health, especially on food safety and quality control. Furthermore, the National Food and Nutrition Security Policy identifies lack of support and policy guidance that would ensure that the potential of urban agriculture is realized. It also highlights the need for regulating urban agriculture to ensure food safety and quality control during production, marketing and consumption (Republic of Kenya, 2011). A major law affecting urban agriculture is the Urban Areas and Cities Act. The Act puts urban agriculture on the agenda by requiring that county governments set aside land within their urban areas for agricultural purposes and provide a framework for regulating the practice (Republic of Kenya 2012b).

The National Land Policy of 2009 identifies urban agriculture as an important land use. It defines urban agriculture broadly, moving away from emphasis on production alone. The policy recognizes the existence of underutilized land in urban areas that needs to be developed. It further recognizes that urban agriculture has not been adequately regulated and facilitated and sets a framework for planning for urban agriculture and forestry. It identifies the need for a legal framework to regulate and support urban agriculture (Republic of Kenya, 2009).

The policies and regulations operate at the national level and thus apply to all county governments. Some county governments have formulated or attempted to formulate specific regulations for urban agriculture. Three cases, namely Nairobi, Kisumu and Nakuru are discussed hereafter.

5.2 Nairobi

Nairobi is both a county and a city. It is classified as a city with 100 percent urban population. Over the years, urban agriculture has been a common feature in Nairobi, albeit without government's support and regulation. During the 1990s and earlier, the Nairobi City Council did not support urban agriculture, thus, the practice operated in a 'policy vacuum' (Gore, 2018, p. 174). With lack of government support, a common myth that urban agriculture has been illegal since the colonial era emerged. This is contrary to the colonial city bylaws which only restricted farming on public streets maintained by the city government. In addition, while small livestock could be kept unless there were complaints of nuisance, large livestock required written permission. Despite the regulations not barring urban agriculture in entirety, earlier studies reported both physical and monetary harassment (Memon and Lee-Smith, 1993, pp. 39). The myth that urban agriculture was illegal in Kenya was reinforced by the fact that the bylaws were not easily accessible, the myth was regularly retold by both the authorities and farmers and the inconsistent application of the bylaw and bribe taking by the authorities (Gore, 2018).

Mazingira Institute, a Kenyan NGO, convened the Nairobi and Environs Food Security, Agriculture and Livestock Forum (NEFSALF). This network of urban farmers articulated their issues and Mazingira Institute provided them with capacity building. This prompted the Ministries of Agriculture and Livestock to launch the National Agriculture and Livestock Extension Program (NALEP) in 2006 in Nairobi (Lee-Smith, 2013). Awareness of contributions of urban agriculture to food security and active involvement by NEFSALF and local NGOs was a factor in influencing the Nairobi County government to formulate 'The Nairobi City County Urban Agriculture Promotion and Regulation Act, 2015' (Gore 2018).

The Act identifies crops and livestock production as important land uses in the city and aims at promoting and regulating urban agriculture. It also establishes the urban agriculture promotion advisory board which is in charge of advising the County Executive Committee Member (CECM) on promoting urban agriculture. The objectives of the Act are to: contribute to food security through commercialisation of urban agriculture, provide extension services, promote and guide urban agriculture, regulate land and water for urban agriculture, ensure food safety and public health, institutionalise procedures for accessing agricultural resources, monitoring the effects of urban agriculture and establish procedures for law enforcement for urban agriculture. The Act provides for inclusion of urban agriculture in county physical plan to facilitate zoning, marketing and development of market infrastructure (Nairobi City County, 2015).

The department of agriculture, livestock and forestry has a total of 250 employees including middle and high level employees and agricultural extension workers. In efforts to promote urban agriculture, the

City government has been collaborating with farmers and farmer organizations as well as civil society actors. For example, between July 2018 and June 2019, a total of 17,491 urban and peri-urban farmers, of whom 65 percent were women were provided with agricultural technical training and assistance (Nairobi City County, 2019).

In addition, the Nairobi City government through partnership with FAO has been developing a food system strategy that entails forming a discussion platform with stakeholders on how to ensure a sustainable food system. The platform, the food liaison advisory group, will be a private-sector driven group that would advise the city on food policy environment. As a member of the C40 Cities, Nairobi City County government benefits from advice from the association (Nairobi City County, 2019).

5.3 Kisumu

A huge proportion of Kisumu City was erstwhile rural. Therefore, what used be rural Kisumu in early years have now been engulfed by the city boundaries. As a consequence, the practice of farming is common in the lake-side city. Despite this reality, the former Kisumu municipality bylaws, which were based on the Public Health Act dating from colonial times, specified that, in order to raise livestock within the city's boundaries, it was required to obtain a permit from the council. However, like the Public Health Act, the bylaws were silent on the practice of urban crop production. Most have assumed this meant its exclusion as a legitimate practice (Mireri *et al.*, 2007).

However, with devolution, there has been a paradigm shift with regards to urban agriculture in Kisumu County. Even though the County lacks an official policy on urban agriculture, the County government has been supportive to some agriculture projects. For instance, there have been projects that donated dairy cattle to farmers. Another project provided urban poultry producers with free Day Old Chicks (DOCs) (Omondi, 2019).

The County also has plans to formulate a policy on urban agriculture (personal communication, CECM and Chief Officer for agriculture, livestock and fisheries, Kisumu County, May 22nd 2019). This was prompted by the policy agenda items that were raised during the urban agriculture stakeholder workshop in Kisumu. The main concern among urban agriculture stakeholders was a lack of policy framework for urban agriculture. The issues raised aimed at promoting, supporting and regulating urban agriculture production and marketing, with an aim of improving urban food security while conserving the environment.

5.4 Nakuru

Nakuru town has previously attempted to formulate regulations for urban agriculture. In 2016, the Nakuru County Urban Agriculture and Promotion Bill was presented to the Nakuru County Assembly but faced hostility from MCAs. It failed based on technical issues such as failure of the County to specify which areas are considered to be urban and some issues raised were considered hindrances to promoting agriculture (County Assembly of Nakuru, 2016).

The Department of Agriculture, Livestock and Fisheries is in the process of formulating the Nakuru County Urban Food and Agriculture Bill, 2019 that would promote and regulate urban agriculture. The Bill sets a framework for provision of agricultural extension services and support in production, value addition, marketing and waste management (Nakuru County, 2019). The urban agriculture stakeholders' workshop facilitated public participation in the development of the Bill and provided scientific evidence to support decision making in policy and practice.

5.5 Conclusion on county policies and legal frameworks

While there is a lack of a national policy for urban agriculture in Kenya, several counties have initiated the process of establishing policies that aim at mostly promoting urban agriculture. Implementation of the decentralization policy and increasing awareness of the importance and risks of urban agriculture have enabled counties to formulate Acts that are relevant for urban agriculture.

Nairobi has taken the lead, though the law passed in 2015 is mostly for promotion of urban agriculture. It does not stipulate how to regulate the practice. To date, there is no evidence that land has been zoned for agricultural purposes in Nairobi. An almost identical Act is being formulated in Nakuru County. Knowledge gained from the workshops conducted in Nakuru and Kisumu indicate that, while promotion of urban agriculture is necessary, there should also be regulations to reduce the potential risks of urban agriculture.

6 A look at urban agriculture policies and practices in selected countries

6.1 Uganda

A brief history on institutionalization of urban agriculture in Kampala

A dark history of misrule, civil war, economic downfall along with favourable climatic condition and adequate water supply from Lake Victoria sustained the practice of farming within Kampala (Lee-Smith and Cole, 2008). Urban agriculture was practiced in Kampala to overcome the hard-economic times. At the same time, urban agriculture was not mentioned in any of the national government's policies or plans (Gore, 2018). This changed in 1994 when urban agriculture was recognized as an official land use practice in the Structure Plan of 1994 (Lee-Smith and Prain 2010; Gore, 2018). Although the Structure Plan which permitted urban agriculture was passed, it faced hostility from some stakeholders, especially on allowing the use of wetlands for other purposes such as agriculture (Lee-Smith and Cole, 2008).

During the period of lack of legislation on urban agriculture, civil society groups were active in improving urban farming with aims of enhancing food security and combating poverty (Lee-Smith and Cole, 2008). A notable NGO is Environmental Alert (EA) which started offering extension services to women farmers with an aim of enhancing food security and combating poverty after Uganda's emergence from a civil

war in 1988 (Lee-Smith *et al.*, 2008; Gore, 2018). These actions of enhancing food security and poverty alleviation also created awareness among local politicians (Lee-Smith and Cole, 2008).

Meanwhile, on the research front, evidence was emerging that urban agriculture had significant impacts in enhancing households' food and nutrition security. Daniel Maxwell's research indicated that about 36 percent of Kampala households derived their livelihood from urban agriculture, with the majority being women. The practice was associated with economic and nutritional benefits (as cited in Lee-Smith *et al.*, 2008).

An important governance change occurred in 1993 with the implementation of the decentralization policy that established Kampala City to be an independent local government district headed by the Mayor (Lee-Smith and Cole, 2008; Gore, 2010). There was re-assignment of staff from national ministries to Kampala City Council (KCC). Technical personnel from the Ministry of Agriculture, Animal Industries and Fisheries (MAAIF) were re-assigned to KCC, where they formed partnerships with Makerere University, the National Agricultural Research Organization (NARO), EA and other NGOs to hold stakeholders workshops on urban agriculture (Lee-Smith *et al.*, 2008; Lee-Smith and Prain, 2010). The Urban Harvest program supported the establishment of the Kampala Food Security, Agriculture and Livestock Coordinating Committee (KUFSALCC). This constituted a forum of local stakeholders active in urban agriculture (Gore, 2018). It was involved in conducting research, promoting urban agriculture that provide safe and healthy food in Kampala (Lee-Smith *et al.*, 2008).

Thus, several factors led to the institutionalisation of urban agriculture in Kampala (Gore, 2010; 2018; Lee-Smith and Cole, 2008; Lee-Smith *et al.*, 2008): 1) the governance change that forced urban politicians to face issues that affected their constituents, including urban agriculture 2) emerging evidence that urban agriculture was an important livelihood activity 3) lobbying by civil rights groups and their activities such as provision of extension services 4) the participatory approach to policy changes as supported by Urban Harvest 5) political goodwill 6) the favourable climate and Kampala's farming history (David *et al.*, 2010).

The Kampala City Council Urban Agriculture Ordinances, 2006

The Urban Harvest program, which was active between 2002 and 2010, supported urban agriculture research in Kampala. An important outcome of the program was that the KCC reviewed its legislation on urban agriculture and food handling, leading to new Ordinances on the practice. It also led to the establishment of an inventory of enterprises active in urban agriculture and food handling (David *et al.*, 2010). The Ordinances include:

- a) Local Governments (Kampala City) (Urban Agriculture), Ordinance 2006
- b) Local Governments (Kampala City) (Livestock and Companion Animals), Ordinance 2006
- c) Local Governments (Kampala City) (Fish), Ordinance 2006
- d) Local Governments (Kampala City) (Milk), Ordinance 2006
- e) Local Governments (Kampala City) (Meat), Ordinance 2006

These ordinances aim at ensuring health and food safety for consumers and producers. The urban agriculture ordinance regulates the practice through licensing, controlling and regulating urban agriculture (Lee-Smith, 2013). It distinguishes between private and commercial urban farmers. Subsistence urban farmers are exempted from applying for a permit and are only required to register with KCC, while commercial producers are required to obtain commercial licences at a fee, depending on the type of agricultural activity and size of the enterprise (Cabannes, 2012). The urban agricultural permits include the applicants' name, address, type of urban agriculture activity and location. Thus, the council maintains a register of all the urban farmers and food handlers (David *et al.*, 2010).

The KCC has a department of agriculture which offers extension services to urban farmers (Lee-Smith, 2013). The city officials conduct farm visits to ensure health and food safety standards are complied with before and after issuing the permit (Cabannes, 2012). The Council has further classified urban agricultural land into four groups: peri-urban (peripheral), peri-urban in transition, urban new (dense slum) and urban old, based on land availability, population density and prevalence of agricultural activities (David *et al.*, 2010; Prain and Lee-Smith 2010; Lee-Smith 2013).

In order to ensure food safety and sustainable agricultural production in Kampala, there are some locations where practicing urban agriculture is restricted. They include: wetlands, greenbelts, landfills or toxic lands. Furthermore, urban farms should not be located less than 10 feet from an open drainage. This prohibits urban farmers from using untreated human waste. The ordinance provides further guidance on waste disposal, proper use of agricultural chemicals, food processing and value addition. In situation where urban agricultural production poses public health and food safety risks, the KCC will close down the enterprise. Those found committing offences contrary to the ordinance should be penalized in a court of law, with a sentence of imprisonment not exceeding six months, a fine not exceeding twenty thousand Ugandan shillings or both (KCC, 2006).

Despite existence of ordinances on urban agriculture, the city bylaws are still prohibitive and punitive to urban farmers. For instance, farming in wetlands is prohibited. However, farming on wetlands still occurs, implying that many farmers could lose access to agricultural land if the bylaws were to be enforced (Cabannes, 2012).

Although the ordinance recognizes urban agriculture as a legitimate land use and that it emphasise health, it does not adequately specify mechanisms to protect the environment. Additionally, some of the key concerns for urban farmers, such as access to land and water, fertilizers, access to services such as credit and marketing are not addressed (Cabannes, 2012). Despite great resistance, urban agriculture gained policy traction in the Draft National Urban Policy of 2013. The draft policy recognized the practice as important for food security and the need to zone land for it. It further recommended that urban agriculture be integrated in housing programs and laws be enacted to support it (Gore, 2018).

A followup on the urban agriculture policy process in Uganda by Gore (2018) highlighted several issues. An important governance change occurred in 2010. Kampala City was taken over by the national government through the establishment of the Kampala Capital City Authority. The new management

supported the 2006 urban agriculture bylaws through allocation of budget for farmer training, hiring more extension workers, value addition, establishment of demonstration farms and popularizing urban agriculture in Kampala. However, amidst these proactive efforts, the connection between the city government and other stakeholders such as civil domestic organizations, researchers and farmers who were active in the 2006 bylaw continued to be eroded. The takeover of Kampala by the national government affected the City's management; none of the staff that had existed during the 2006 bylaws were working for the City by 2014. The city government did not involve civil society organizations in their activities related to urban agriculture. Extension workers could not connect with urban farmers and farmer organizations because they did not know who they were and how to reach them. There was also no engagement between the national government and urban agriculture advocates and civil society organizations.

KUFSALCC, a collaborative forum that was active in the establishment of the 2006 ordinances lacked the momentum to continue advocating for urban agriculture. There were no meetings and no engagement with the city or national government. The reason for the 'collapse' of KUFSALCC was that unlike in Nairobi where Mazingira Institute acted as the focal point for NELSALF, in Uganda, there was no such organization or individual. Another reason for KUFSALCC collapse is that the Urban Harvest program played a key role in establishing the forum. However, with the ending of the Urban Harvest program in 2010, the support for KUFSALCC also ended (Gore, 2018).

Despite these challenges, agricultural staff are promoting and encouraging food production in the city. At the same time, an agricultural demonstration centre has also been established. While these are good deeds in supporting urban agriculture in Kampala, it is happen in absence of strong networks of farmers, farmer organization and NGOs. The department is also faced with a challenge of limited resources in meeting its obligations. Despite this, demand for agricultural services is increasing, yet, without capacity and network to utilize the inputs effectively. Elected leaders are also not delivering their promises to the electorate in terms of resources (Gore, 2018).

6.2 Tanzania

Farming within Tanzanian cities was limited during British colonial rule. The colonial rules regulated what was to be farmed and by whom. However, after independence in 1961, the laws prohibiting urban agriculture were ignored (Mlozi, 2003). Urban agriculture persisted in Tanzania, although without official support in terms of access to land and extension services (McLees, 2011). Since the 1970s the government of Tanzania has issued policy statements that support urban agriculture. Politicians have also encouraged urban residents to grow food in their backyards or in open spaces (Mubvami and Mushamba, 2006). For example *Siasa ni Kilimo*, (politics is agriculture) 1972, *Kilimo cha Umwagiliaji* (Irrigated Agriculture) of 1974, *Kilimo cha Kufa na Kupona* (Agriculture for Life and Death) of 1974/75, *Mvua za Kwanza ni Zakupandia* (First Rains are for Planting) of 1974/75 are some of the policy proclamations that supported urban agriculture (Mlozi, 2003). The policy statements aimed at encouraging Tanzanians to achieve food self-sufficiency, especial in hard economic times such as fast

rising inflation (Mlozi, 2003). The Ministry of Agriculture and Food Security offered extension services to urban farmers informally. An urban agriculture extension service was also set up in the 1970s to encourage own food production.

During the 1980s, negative impacts of urban agriculture especially on waste disposal prompted the municipalities to review the urban bylaws with regard to urban agriculture. The bylaws distinguished between spaces where urban farming could or could not be practiced. For instance, crops cultivation within 14 metres from riverbanks was prohibited. While cultivation of annual crops was allowed, that of permanent crops required permission from the municipalities. The bylaws also regulated how crops were cultivated and provided the framework for abating pests and diseases. They also defined the punishments for not adhering to the regulations, which include fines, imprisonment and destruction of crops. The bylaws also stipulated how livestock should be raised within urban areas, which included large livestock. Rearing these livestock in towns required acquisition of permits from the town councils. Despite this requirement, urban residents in Tanzania keep livestock without permits. The regulation that requires proper disposal of manure is also never adhered to. Despite existences of the laws, defaulters were never penalized. Urban agriculture still existed in the restricted areas such as on the riverbanks (Mlozi, 2003).

However, in 2000, the Ministry of Lands and Human Settlement incorporated urban agriculture as a land use that required zoning, thus making urban agriculture legal in the country (McLees, 2011). The National Human Settlements Development Policy of 2000 recognized the reality of urban agriculture in Tanzania and its potential impacts on food security and employment. However, the policy noted that urban agriculture was unregulated and that the practice often conflicted with other urban land uses, leading to environmental pollution and posing serious health and food safety risks. Thus, to tackle these vices, the government's plans were to;

- a) Designate special areas within city planning where people will be granted legal rights to engage in agricultural activities;
- b) Continue to regulate and research urban agriculture and will ensure that it does not disrupt planned urban development;
- c) Review existing laws to facilitate planned urban agriculture; and
- d) Facilitate construction of appropriate infrastructure to mitigate/prevent land degradation, water pollution and health and safety hazards in areas where urban agriculture is permitted (United Republic of Tanzania 2000, pp. 48).

However, 'while urban agriculture was formally incorporated into the zoning framework, no space has yet been designated and the practice remains effectively illegal' (McLees 2011, pp. 607). For instance, in Dar es Salaam, there are no lands zoned for agricultural purposes and therefore those cultivating institutional land or land owned by government entities are violating city bylaws.

Despite these various attempts to legalize urban agriculture in Tanzania, the practice is largely not recognized as a legitimate land use (Haloran and Magid, 2013). Thus, the relevant ministries that deal with urban agriculture issues lack a common reference when formulating regulations that affect urban agriculture (Schmidt, 2012).

6.3 Ghana

During the 1970s, urban agriculture in Ghana received a major boost with the government's declaration of 'Operation Feed Yourself' which responded to food shortage. The operation encouraged urban residents to engage in urban farming for their food self-sufficiency. However, during the 1980s people became discouraged about the program. There were improvements in the welfare and food security situation and land under urban agriculture was shrinking as it was being converted to houses and other development infrastructure (Armar-Klimesu and Maxwell, 1999).

Officially, Ghana does not have a specific policy for urban agriculture. A lack of regulatory framework and support has led to urban agriculture being 'haphazard, unplanned and unsupported and regulated' (Cofie, *et al.*, 2005a, pp. 13).

However, the Accra Metropolitan Assembly's bylaws make reference to urban agriculture and food safety. The bylaw requires that urban agriculture be undertaken in the backyards and that all persons engaged in the practice should obtain approval from public health. As Ayerakwa notes, these bylaws have never been implemented because of lean budgetary allocations (2017).

7 Discussion and recommendations

Mougeot states that farming in the city is not as straightforward as most people think (1994), thus urban agriculture requires special attention. The technologies applied should be much different from those applied in rural areas. It further requires more organization because it has to be intensive, tolerant to environmental stress, should respond to the dynamic market behaviour and be monitored closely to ensure public safety. The local/county governments will have to take the lead in formulating and enforcing policies that address the concerns of urban farmers because they are involved in land use planning and linking farmers to credit institutions (UCCRN, 2018). Also, as demonstrated in the urban agriculture stakeholder workshop, policy formulation processes should be a multi-stakeholder process, where all major stakeholders are consulted during the policy agenda stage. This will ensure that policy formulation related to urban agriculture is accepted and permitted. Furthermore, the policy should address how the private sector would be attracted to urban agriculture in terms of financing and provision of credit (Drechsel and Karg, 2018).

While Kenya does not have a national policy of promoting and regulating urban agriculture, several counties have made significant strides in institutionalization of the practice. Efforts have been made in the capital by passing the Nairobi City County Urban Agriculture Promotion and Regulation Act, 2015. Even though the Act should provide a frameworks for both promotion and regulation, it only promotes urban agriculture with no mechanisms for regulating it. Nakuru County is also in the process of formulating a very similar Act. In neighbouring Uganda, the KCC ordinance on urban agriculture outlines

how and where urban agriculture should be conducted. In essence, as per the bylaws, KCC should have a list of all entrepreneurs active in urban agriculture. If such an inventory existed, then it would be possible to better plan for urban agriculture while knowing who the actual participants are and the enterprises they are involved in. Similar approach should be adopted in the Kenyan context where it is likely that many more counties will formulate their own regulations on urban agriculture.

The KCC ordinance also restricts urban agriculture in certain areas such as on gazetted parking zones, greenbelts, road reserves and wetlands. It further restricts dumping of waste and chemicals in manner that could be injurious to human health. While important to ensure food safety and health, such regulations are conspicuously missing in the Nairobi Act. However, these issues are covered in other Kenyan laws such as the Public Health Act, Food, Drugs and Chemicals Act, County Abattoirs Act, Meat Control Act and the Environmental Management and Coordination Act (Nairobi City County, 2019).

The KCC ordinance on urban agriculture prohibits cultivation of crops using wastewater. Rather than banning use of waste, county governments in Kenya should put in place mechanisms to treat and process waste, including wastewater and human faecal waste to be used as inputs in urban farming. This will lower the pressure on the already overstretched potable water in Kenya. In Tamale, Ghana, sun dried human faecal sludge is already being used as manure for crop cultivation (Cofie *et al.*, 2005). In Kampala, the wetland valleys through which sewage run have been exploited for urban agriculture (David *et al.*, 2010). Recycling of organic wastes and wastewater reduces both water footprint and contamination of water bodies downstream of cities (Drechsel and Karg, 2018).

The critical issue of land access has not been addressed by the policies reviewed in Kenya, Uganda, Tanzania and Ghana. Land often acts as a limiting factor in urban agriculture, with some farmers practising farming in prohibited areas such as on riverbanks (FAO, 2011; FAO, 2012). In Accra, Ghana, the city bylaws restrict urban agriculture to the backyards. The rhetoric in policies that require zoning some land for urban agriculture does not match the practice. In Tanzania for example, there is no single tract of land zoned for urban agriculture despite it being a requirement in law (McLees, 2011). While zoning is easier in the developed countries where property rights are well defined and enforced, in the studied cases it can prove to be difficult. However, county governments could engage private individuals owning substantive tracts of land at the peripheries of cities in lease agreements (Cabannes, 2012). The carefully chosen beneficiaries would then be expected to pay rent as they practice farming on these lands.

In situations where county governments own substantial tracts of land within the urban areas, which are unsuitable for other development projects but suitable for agriculture, they should engage in zoning for urban agriculture. This will require incorporation of urban agriculture in physical planning and encouraging it to be incorporated into new construction projects (Raja *et al.*, 2018).

The Urban Areas and Cities Act of 2011 requires that counties establish plans for urban agriculture. The Land Policy Act of 2009 also identifies urban agriculture as an important practice that requires

recognition in land uses. It further emphasizes the need for planning for urban agriculture. If these provisions are clearly stipulated in national policies and legislation, why then have the counties in Kenya not implemented them? This problem is not unique to Kenya. In Tanzania, zoning of land for urban agriculture has not occurred yet it is stipulated in law (McLees, 2011). Furthermore, even the elite in society flout urban regulations (Mlozi, 2003). Thus, even if the best policy is implemented but it is poorly enforced, the policy will not achieve its desired objectives.

Changes in the city management and staff as in Kampala could act as hindrances to policy development and implementation. For instance, incorporation of the Kampala bylaws on urban agriculture into a policy has been curtailed by lack of cooperation between the new staff of the Kampala Capital City Authority and other stakeholders. In addition, high turnover of elected leaders and lean budgets devoted to urban agriculture also act against firm institutionalization of the practice (Gore, 2018).

It is important to note that urban agriculture is not the silver bullet for urban food insecurity. Thus, urban agriculture should not be viewed in isolation from other urban food system components (Ayerakwa 2017). It is just a component of the broader food system which links to rural areas and other services. Household income is a significant determinant of food security (Battersby and Watson, 2019). Thus, efforts should be made reduce unemployment in order to tackle the problem of food insecurity.

8 Conclusions

This report has reviewed the legal framework of urban agriculture in Kenya and some selected countries. In Kenya, counties will take the leading role in formulating and enforcing such policies and frameworks. It is a legal requirement that they zone land for development of urban agriculture. This review has discussed various approaches of institutionalizing urban agriculture and provided recommendations.

Urban agriculture presents a viable avenue for enhancing food and nutrition security. In addition, it provides part of the income to the practising households. Through these two pathways, that is, through direct consumption of own produced food and provision of income, urban agriculture contributes to enhancing the right to food as enshrined in the Kenyan constitution. Other potentials for urban agriculture include: recycling of organic wastes thus making the environment cleaner, climate change mitigation especially through agroforestry and greening of cities. Despite these potential benefits, urban agriculture has been criticized because of potential negative impacts such as: using untreated sewage water for irrigation thus posing health risks, poor disposal of livestock manure, risk of zoonoses and causing nuisance to other urban dwellers. These concerns could, to a great extent, be addressed through policies. There are opportunities in adopting urban agriculture policies to reduce risks and provide support to farmers.

The available legislation in Kenya for urban agriculture, that in Nairobi, shows that it is mainly an urban agriculture promotional tool. In Uganda, the KCC urban agriculture ordinance is specifically a regulatory tool. In Tanzania and Ghana, there are no specific policies or regulations for urban agriculture. Formulation of policies that promote and at the same time regulate how and where urban agriculture is conducted would go far in improving productivity, thus enhancing food security and reducing poverty and at the same time reducing the relate food safety and environmental risks.

Lack of access to land, coupled with insecure land tenure systems, constrains urban agriculture in Kenya, Uganda, Tanzania and Ghana. The urban poor who would greatly benefit from urban agriculture are often marginalized in land access. Although it is a requirement in Kenya and Tanzania to plan for urban agriculture, the land question has proved difficult to answer. It requires concerted efforts from both the national and county governments to conduct land mapping and zoning. In some cases where there are unutilized land parcels, the county governments could engage the private sector in land leasing agreements.

While the leading role in the urban agriculture policy process has to be taken by the public sector, which in Kenya means the county governments, it should be a multi-stakeholder process. This will ensure meaningful discussions and debates on the important issues. The private sector should be brought on board through public-private partnerships to provide essential services in the urban food system. The services range from provision of credit, establishment of infrastructure such as markets to marketing among others. The policy process also requires substantial budgets in organizing stakeholders and formulating the policy.

References

- Amadou, H., Dossa, L. H., Lompo, D. J. P., Abdulkadir, A. and Schlecht, E. (2012). A comparison between urban livestock production strategies in Burkina Faso, Mali and Nigeria in West Africa. *Tropical Animal Health and Production*, 44(7): 1631-1642.
- Armar-Klemesu, M. and Maxwell, D. (1999). Accra: Urban Agriculture as an Asset Strategy, Supplementing Income and Diets. RUAF.
- Ayerakwa, H.M. (2017). Planting to feed the city? Agricultural production, food security and multi-spatial livelihoods among urban households in Ghana. Published Phd thesis, Lund University.
- Badami, M.G. and Ramankutty, N. (2015). Urban agriculture and food security: A critique based on an assessment of urban land constraints. *Glob. Food Sec.*, 4: 8–15. doi:10.1016/j.gfs.2014.10.003.
- Battersby, J. and Watson, V. (2019). Urban Food Systems Governance and Poverty in African Cities. Routledge: London and New York.
- Cabannes, Y. (2012). Pro-poor Legal and Institutional Aspects of Urban and Peri-Urban Agriculture. FAO: Rome.
- Cofie, O. Larbi, T., Danso, G. Abraham, E. Kufogbe, S.K., Henseler, M., Schuetz, T., and Obiri-Opareh, N. (2005a). A Narrative on Urban Agriculture in Accra Metropolis. RUAF, IWMI.
- Cofie, O.O., Kranjac-Berisavljevic, G. and Drechsel, P. 2005b. The Use of Human Waste for Peri-urban Agriculture in Northern Ghana. *Renewable Agriculture and Food Systems*, 20(2): 73–80.
- County Assembly of Nakuru, 2016. The Hansard: Nakuru County Urban Agriculture and Promotion Bill, Wednesday, 16th November, 2016. <https://assembly.nakuru.go.ke/web/?wpdmact=process&did=NTk2LmhvdGxpbms>
- David, S., Lee-Smith, D., Kyaligonza, J., Mangeni, W., Kimeze, S., Aliguma, L., Lubowa, A. and Nasinyama, G.W. (2010). Changing Trends in Urban Agriculture in Kampala. In: Prain, G., Karanja, N. and Lee-Smith, D., (Eds). *African Urban Harvest Agriculture in the Cities of Cameroon, Kenya and Uganda*. Springer, New York, Dordrecht, Heidelberg, London.
- de Zeeuw, H. and Dubbeling, M. (2009). Cities, Food and Agriculture: Challenges and the Way Forward. Working Paper No. 3, RUAF Foundation: Leusden.
- Drechsel, P. and Karg, H. (2018). Food flows and waste: Planning for the dirty side of urban food security. In: Cabannes, Y. and Marocchino, C. (Eds). *Integrating Food into Urban Planning*. London, UCL Press: Rome, FAO. <https://doi.org/10.14324/111.9781787353763>
- Ellis, F. and Sumberg, J. (1998). Food production, urban areas and policy responses. *World Development*, 26(2): 213–225.
- FAO, 2011. The place of urban and peri-urban agriculture (UPA) in national food security programmes. FAO: Rome
- FAO, 2012. Growing greener cities in Africa. First status report on urban and peri-urban horticulture in Africa. FAO: Rome.
- Foeken, D. (2006). *“To subsidise my income”- urban farming in an East-African Town*. Brill: Leiden.

- Gallaher, C.M., Kerr, J.M., Njenga, M., Karanja, N.K. and Winklerprins, A.M.G.A. (2013). Urban agriculture, social capital, and food security in the Kibera slums of Nairobi, Kenya. *Agric Hum Values*, 30: 389–404. doi:10.1007/s10460-013-9425-y.
- Gore, C.D. (2018). How African cities lead: Urban policy innovation and agriculture in Kampala and Nairobi. *World Development*, 108:169–180.
- Haloran, A. and Magid, J. (2013). Planning the unplanned: incorporating agriculture as an urban land use into the Dar es Salaam master plan and beyond. *Environment & Urbanization*, 25(2): 541–558. DOI: 10.1177/0956247813500903.
- Hardman, M. and Larkham, P.J. (2014). *Informal Urban Agriculture-The Secret Lives of Guerrilla Gardeners*. Springer International Publishing: Heidelberg New York Dordrecht London. doi:10.1007/978-3-319-09534-9_1.
- KCC. (2006). Local Governments (Kampala City Council) Ordinance 5 (Urban Agriculture) Ordinance. Uganda Gazette No. 74 Volume XCVIX dated 29th December, 2006, UPPC, Entebbe.. <https://www.kcca.go.ug/uploads/acts/Kcc%20Urban%20Agriculture%20Ordinance,2006.pdf>
- KNBS. (2018). Basic Report on Well-being in Kenya. Kenya National Bureau of Statistics: Nairobi.
- Lee-Smith, D. (2010). Cities feeding people: an update on urban agriculture in equatorial Africa. *Environ. Urban*, 22: 483–499.
- Lee-Smith, D. (2013). Which way for UPA in Africa? *City*, 17(1): 69-84, DOI: 10.1080/13604813.2012.754177.
- Lee-Smith, D. and Cole, D.C. (2008). Can the city produce safe food? In: Cole, D.C., Lee-Smith, D. and Nasinyama, G.W. (Eds). *Healthy city harvests: Generating evidence to guide policy on urban agriculture*. CIP/Urban Harvest and Makerere University Press: Lima.
- Lee-Smith, D. And Memon, P.A. (1994). Urban Agrgculture in Kenya. In: Egziabher, A.G., Lee-Smith, D., Maxwell, D.G., Memon, P.A., Mougeot, L.J.A. and Sawio, C.J. (Eds). *Cities Feeding People-an Examination of Urban Agriculture in East Africa*. International Development Research Centre: Ottawa, Cairo, Dakar, Johannesburg, Montevideo, Nairobi, New Delhi, Singapore.
- Lee-Smith, D. and Prain, G. (2010). The Contribution of Research–Development Partnerships to Building Urban Agriculture Policy. In: Prain, G., Karanja, N. and Lee-Smith, D. (Eds). *African Urban Harvest Agriculture in the Cities of Cameroon, Kenya and Uganda*. Springer: New York, Dordrecht, Heidelberg.
- Lee-Smith, D., Azuba, S.M., Musisi, J.M., Kaweesa, M. And Nasinyama, G.W. (2008). The story of the health coordinating committee, KUFSAALCC and the urban agriculture ordinances. In: Cole, D.C., Lee-Smith, D. and Nasinyama, G.W. (Eds). *Healthy city harvests: Generating evidence to guide policy on urban agriculture*. CIP/Urban Harvest and Makerere University Press: Lima.
- Lee-Smith, D., Prain, G., Cofie, O., van Veenhuizen, R. and Karanja, N. (2019). Urban and peri-urban farming systems: feeding cities and enhancing resilience. In: Dixon, J., Garrity, D.P., Boffa, J.M., Williams, T.O., Amede, T., Auricht, C., Lott, R. and Mburathi, G. (Eds). *Farming Systems and Food Security in Africa-Priorities for science and policy under global change*. Routledge: London. <https://doi.org/10.4324/9781315658841>

- Martellozzo, F., Landry, J-S., Plouffe, D., Seufert, V., Rowhani, P. and Ramankutty, N. (2014). Urban agriculture: a global analysis of the space constraint to meet urban vegetable demand. *Environmental Research Letters*, 9: 1-8.
- McLees, L. (2011). Access to land for urban farming in Dar es Salaam, Tanzania: histories, benefits and insecure tenure. *The Journal of Modern African Studies*, 49(4): 601-624.
- Memon, P.A. (1993). Urban Agriculture in Kenya. *Canadian Journal of African Studies*, 27(1): 25-42.
- Mireri, C., Atekyereza, P., Kyessi, A. and Mushi, N. (2007). Environmental risks of urban agriculture in the Lake Victoria drainage basin: A case of Kisumu municipality, Kenya. *Habitat International*, 31: 375–386.
- Mlozi, M.R.S. (2003). Legal and Policy Aspects of Urban Agriculture in Tanzania. UA-Magazine, December 2003 RUAF
- Mougeot, L.J.A. (1994). Leading Urban Agriculture into the 21st Century: Renewed Institutional Interest. In: Egziabher, A.G. Lee-Smith, D. Maxwell, D.G. Memon, P.A. Mougeot, L.J.A. and Sawio, C.J (Eds). *Cities feeding people: an examination of urban agriculture in East Africa*. International Development Research Centre: Ottawa.
- Mougeot, L.J.A. (2000). Urban Agriculture: Definition, Presence and Potentials and Risks. In: Bakker, N., Dubbeling, M., Guendel, S., Sabel-Koschella, U. and de Zeeuw, H. (Eds). *Growing Cities, Growing Food: Urban Agriculture on the Policy Agenda*. DSE: Feldafing.
- Mougeot, L.J.A., Gasengayire, F., Lee-Smith, D., Prain, G. and de Zeeuw, H. (2010). IDRC and its Partners in Sub-Saharan Africa 2000–2008. In: Prain, G., Karanja, N. and Lee-Smith, D. (Eds). *African Urban Harvest Agriculture in the Cities of Cameroon, Kenya and Uganda*. Springer: New York, Dordrecht, Heidelberg, London.
- Mubvami, T. and Mushamba, S. (2006). Integration of agriculture in urban land use planning. In: van Veenhuizen, R. (Ed). *Cities farming for the future: urban agriculture for green and productive cities*. RUAF, IIRR, IDRC: Silang.
- MUFPP, 2015. Milan Urban Food Policy Pact. 15 October 2015. <http://www.milanurbanfoodpolicypact.org/text/>
- Mwangi, A.M. (1995). The role of urban agriculture for food security in low income areas in Nairobi. FNSP Report No. 54, Food and Nutrition Studies Programme. African Studies Centre: Leiden.
- Nairobi City County, 2015. The Urban Agriculture Promotion and Regulation Act, 2015, Nairobi. <https://maarifa.cog.go.ke/resource/nairobi-city-county-urban-agriculture-promotion-and-regulation-act-2015>
- Nairobi City County, 2019. MUFPP Monitoring Framework Pilot Cities Project-Nairobi City County Case Study Report. <https://nairobi.go.ke/download/mufpp-monitoring-framework-pilot-cities-project/>
- Nakuru County, 2019. The Nakuru County Urban Food and Agriculture Bill, 2019. Department of Agriculture, Livestock, and Fisheries. Nakuru County Government: Nakuru.
- Omondi, S. O. (2018a). Urban-Based Agriculture and Poultry Production: The Case of Kisumu and Thika in Kenya. Published PhD thesis, Lund University.
- Omondi, S. O., Oluoch-Kosura, W. and Jirström, M. (2017). The role of urban-based agriculture on food

- security in Kenya's medium-sized towns. *Geographical Research*, 55(2): 231–241. doi:10.1111/1745-5871.12234.
- Omondi, S.O. (2018b). Urban Agriculture: The Neglected Gem for Food Security in Kenya-Policy Brief, October 2018. <http://www.kilimo.go.ke/wp-content/uploads/2018/12/Samuel-Omondi-Policy-Brief.pdf>
- Omondi, S.O. (2019). Small scale poultry enterprises in Kenyan medium-sized cities. *Journal of Agribusiness in Developing and Emerging Economies*, 9(3): 237-254.
- Pingali, P. (2006). Westernization of Asian diets and the transformation of food systems: Implications for research and policy. *Food Policy*, 32: 281–298. doi:10.1016/j.foodpol.2006.08.001.
- Plecher, H. (2019). Urbanization in Kenya 2017. <https://www.statista.com/statistics/455860/urbanization-in-kenya/> Published by r, Jun 17, 2019
- Popkin, B.M. (2003). The Nutrition Transition in the Developing World. *Development Policy Review*, 21(5-6): 581-597. doi:10.1111/j.1467-8659.2003.00225.x.
- Prain, G. and Lee-Smith, D. (2010). Urban Agriculture in Africa: What Has Been Learned? In: Prain, G., Karanja, N.K. and Lee-Smith, D. (Eds). *African Urban Harvest: Agriculture in the Cities of Cameroon, Kenya and Uganda*. Springer, New York, and IDRC: Ottawa.
- Raja, S., Whittaker, J., Hall, E., Hodgson, K. and Leccese, J. (2018). Growing food connections through planning: Lessons from the United States. In: Cabannes, Y. and Marocchino, C. (Eds). *Integrating Food into Urban Planning*. UCL Press and FAO: London and Rome. <https://doi.org/10.14324/111.9781787353763>
- Republic of Kenya, 2010a. Draft National Urban and Peri-Urban Agriculture and Livestock Policy-First Draft. Ministry of Agriculture: Nairobi.
- Republic of Kenya, 2010b. Laws of Kenya: Constitution of Kenya. National Council for Law Reporting; Nairobi.
- Republic of Kenya, 2011. National Food and Nutrition Security Policy. Agricultural Sector Coordination Unit (ASCU): Nairobi.
- Republic of Kenya, 2012a. Laws of Kenya: Public Health Act, Chapter 242. National Council for Law Reporting: Nairobi.
- Republic of Kenya, 2012b. Laws of Kenya: Urban Areas and Cities Act, 2011, No. 13 of 2011. National Council for Law Reporting: Nairobi.
- Republic of Kenya, 2019a. 2019 Kenya Population and Housing Census Volume I: Population by County and Sub-County. Kenya National Bureau of Statistics: Nairobi.
- Republic of Kenya, 2019b. Agricultural Sector Transformation and Growth Strategy, 2019-2029. Ministry of Agriculture, Livestock, Fisheries and Irrigation: Nairobi.
- Republic of Kenya. (2007). Kenya Vision 2030-A Globally Competitive and Prosperous Kenya. Government Printers: Nairobi.
- Republic of Kenya. (2009). Sessional Paper No. 3 of 2009 on National Land Policy. Ministry of Lands:

Nairobi.

- Rezai, G., Shamsudin, M.N. and Mohamed, Z. (2016). Urban agriculture: a way forward to food and nutrition security in Malaysia. *Procedia - Social and Behavioral Sciences*, 216(6):.39–45.
- Robinson, T., Pozzi, F. (2011). Mapping Supply and Demand for Animal-Source Foods to 2030. Working Paper No. 2. Food and Agriculture Organization of the United Nations: Rome.
- Schmidt, S. (2012). Getting the Policy Right: Urban Agriculture in Dar es Salaam, Tanzania. *International Development Planning Review*, 34(2):129-145.
- UCCRN (Urban Climate Change Research Network). (2018). The Future We Don't Want-How Climate Change Could Impact the World's Greatest Cities. UCCRN Technical Report. https://c40-production-images.s3.amazonaws.com/other_uploads/images/1789_Future_We_Don't_Want_Report_1.4_hi-res_120618.original.pdf
- United Republic of Tanzania. (2000). National Human Settlements Development Policy. Ministry of Lands and Human Settlements Development. Government Printers: Dar es Salaam.
- van Veenhuizen, R. (2006). Cities Farming for the Future. In: van Veenhuizen, R., (Ed). Cities Farming for the Future-Urban Agriculture for Green and Productive Cities. RUAF Foundation, IDRC and IIRR: Ottawa.