



Effects of Stakeholders' Perception of Urban Agriculture on the Governance of Urban Agriculture in the Wards of Daraja Mbili and Lemala in Arusha City, Tanzania

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Abstract

Actors' perception of urban agriculture can affect the way urban agricultural decisions are made and implemented either positively or negatively, with or without the actors being aware of it. The way actors perceive urban agriculture is influenced by actors' interests, limited or unlimited information about urban agriculture, policy and legal frameworks. This study used a case-study design to examine the effects of actors' diverse perception of urban agriculture on the governance of urban agriculture. Purposefully selected 60 respondents participated in-depth interviews in the wards of Daraja Mbili and Lemala. Farmers and agricultural officers perceived urban agriculture positively because their livelihoods and professional interests were related and relied on the practice of urban agriculture. Urban planners and agricultural officers perceived agriculture positively and negatively depending on the way agricultural activities affected the environment or were compatible with non-agricultural activities. The implementation of policy and enforcement of bylaws relating to urban agriculture was not successful because urban planners and environmental officers were skeptical about the value of urban agriculture. Doing urban agriculture in the environmentally sensitive areas was against environmental bylaws, but the area was encroached upon by the farmers who had no alternative land for farming. Land use hurdles for doing urban agriculture were rarely addressed by urban planners who had no evidence of the benefits of urban agriculture to city authority compared with revenue and employment opportunities from real estate developments. We conclude that the farmers' and non-farmers positive and negative perception of urban agriculture stem from their interests, limited or unlimited information about urban agriculture. Government officials' perception of urban agriculture is influenced by their carrier and work obligations. Despite the presence of policy acknowledging urban agriculture and environmental bylaws for regulating urban agriculture, actors cannot really govern urban agriculture if they perceive it negatively.

Keywords: *Perceptions; Urban Agriculture; Governance*

Introduction

In the 1970s, the International Labour Organisation (ILO) and FAO excluded urban agriculture from their definitions of informal sector activities, simply because the enterprise had an insignificant contribution to peoples' income (Freeman, 1991). However, in the 2000s, the ILO, FAO and some African countries recognized urban agriculture as a source of food and income for the urban poor (FAO, 2012). Urban agriculture helps food production closer to urban areas, helps people to earn income and provides ecosystem services and environmental benefits to the city (Merson, 2010). People engage in urban agriculture in order to meet their needs which they could hardly meet without undertaking it (Obosu, 2002; Kirby *et al.*, 2021). Urban agriculture complements the food imported from rural areas (Duz *et al.*, 2017). Despite the importance of urban agriculture being evident in terms of the provision of food and income, and greening the environment, it is perceived differently by different people (Mosha, 2015; Poulsen, 2015).

The reasons why urban agriculture is recognised or ignored in land use decision-making as an activity that may ensure food security and be a supplement of peoples' income is associated with the way it is perceived by the decision or policy makers, technocrats and farmers (Obosu, 2002; Thibert, 2012). Urban agriculture may be perceived positively and supported accordingly when its positive effects to the livelihoods of the people and its role of conserving the environment outweighs its negative effects to people and environment (Obosu, 2002; Thibert, 2012; Peiris and Fayas, 2022).

Due to limited urban space in the urban areas, growing of crops and livestock keeping take place together with non-agricultural activities and sometimes they took place in environmentally hazardous areas (Duz *et al.*, 2017). Urban farmers facing difficulties in accessing suitable land for farming activities may opt to utilize public conserved or restricted land (Mosha, 2015). A logical decision making requires decision makers to examine the risk and benefits of various options and make a decision that has more positive than negative effect of the decision (Glazera, and Karpati, 2014; Sroka, 2018).

Every country in the sub-Saharan Africa (SSA) has policies, laws and strategies which recognize, support, disregard, or restrict urban agriculture (Zeeuw *et al.*, 2000; Lee-Smith, 2010; Schmidt, 2012). Regardless of the existence of laws and policies relevant to urban agriculture, city officials' decisions are influenced by what they are interested in (Mkwambisi *et al.*, 2011). Despite the recent increased recognition of urban agriculture by the policy and legal documents in some African countries, including Tanzania, Kenya, and Zimbabwe, the pace at which urban agriculture is well governed is not promising (Zeeuw *et al.*, 2000; Kutiwa *et al.*, 2010; Halloran and Magid, 2013). The way urban agriculture is supported or restricted depends on the effects it has to people's livelihoods and environmental conservations (Magigi, 2013).

Some government officials who are not food activists may be not aware about the contribution of urban agriculture to the livelihood needs of the people (Thibert, 2012). In Botswana, urban agriculture was perceived negatively by local and central government officials, although agriculture contributed about 18 percent of the urban farmers' foods (Mosha, 2015). Farmers adopt and maintain certain beliefs that enable them to meet their livelihood needs (Delgado, 2018; Le-Polain *et al.*, 2021). It has been impossible to prohibit the undertaking of farming and livestock keeping activities in Kampala City because the farmers believe that the places in which they were born are suitable for doing economic activities, including agriculture (Kiguli *et al.*, 2003).

Ignoring and undermining agricultural activities by some of the officials in the urban authorities is caused by the interference of uncontrolled agricultural activities with residential and commercial activities (Drechsel and Keraita, 2014; Sroka, 2018). Most of urban agricultural adverse effects to the environment can be minimized and regulated by relevant stakeholders and by using relevant institutional frameworks (Cisse *et al.*, 2005). The decline of agricultural activities in the urban areas is caused by

urban expansion for non-agricultural activities, which lead some farmers to squat on restricted public land for urban agriculture (Merson *et al.*, 2010). Some stakeholders in developing countries perceive urban agriculture is a transient land use, which does not require a permanent land use plan (Quon, 1999; Merson *et al.*, 2010). Land use planning experts in developed countries who perceive urban agriculture positively, plan and allocate plots to urban farmers as per policy provisions (Carr *et al.*, 2014). Municipalities across the united state recognize urban agriculture as an integral part of planning and land use and they are working to ensure the planned agriculture (Meenar *et al.*, 2017).

A positive or negative perception of urban agriculture maybe influenced by the interests of different stakeholders whose responsibilities and desires are either supported or constrained by agricultural activities (Aref, 2011; Mosha, 2015). Even if farmers’ interests are against the interests of other people, they believe that agriculture may help them to meet their food and income needs from doing urban agriculture (Wang *et al.*, 2021). In tune to governance of urban agriculture, agriculture may be acknowledged and supported or may not be acknowledged and supported as Table 1 shows.

Table 1: Context of acknowledging of urban agriculture

Enabling circumstance of urban agriculture	Enabling circumstance provides tangible institutional and policy support, encouragement and facilitation of urban agriculture with or restriction or regulations.
Permissive circumstance of urban agriculture	Urban agriculture is allowed to take place in urban areas without posing impediments, but institutional capacity is not available to support or encourage urban agriculture.
Neutral circumstance of urban agriculture	There is a lack of formal acknowledgment of urban agriculture, whether in a positive or negative way.
Discouraging circumstance for urban agriculture	Urban agricultural activities are viewed in a negative light, but there are no formal means to stop it.
Prohibitive circumstance of urban agriculture	There are formal and informal means to prohibit and disrupt urban agriculture activities, and the policy clearly identifies urban agriculture as illegal activities.

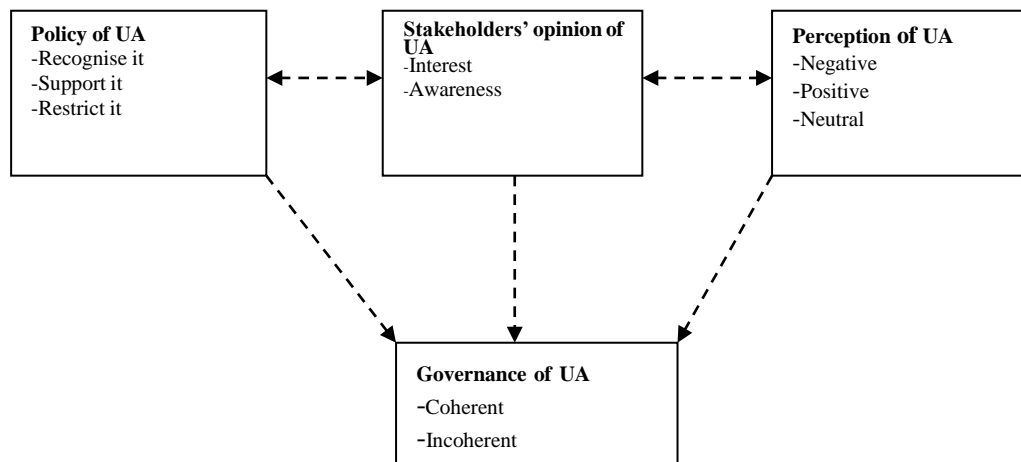
Source: Adopted from Quon, 1999

Diverse actors’ perceptions of urban agriculture have implications on the governance of urban agriculture by implementing or ignoring policy relating to urban agriculture. In urban areas and township authorities, including Arusha city in Tanzania people engage in urban agriculture for food and earning income (Mhache and Lyamuya, 2019). In the country, urban agriculture is recognized by the Land Policy of 1995. The section 6.7.1 of the Land Policy states that the government of Tanzania will continue to regulate the conduct of urban agriculture and will ensure that it does not affect planned urban development. However, such recognition of the policy is conditional that urban agriculture should not affect other non-agricultural activities.

Furthermore, section 4.16.3 of Agricultural Policy of 2013 states that the government shall develop supportive mechanisms for urban and peri-urban agriculture, shall develop a regulatory framework for the same and promote good agricultural practices. The information from two policy

documents substantiates that urban agriculture is recognized by Tanzanian policies relevant to urban agriculture. However, having the policy documents does not mean that urban agriculture is perceived positively or negatively by stakeholders who should implement the policy.

The way urban agriculture is taking place in environmental prone areas in Tanzania, the way former agricultural land is declining in the urban areas due to urban expansion and the way unregulated agricultural activities interfere with non-agricultural land uses, give an impression that something relating to governance of urban agriculture is not going well (Foeken, 2004; Katera, 2021). In Tanzanian context, as well as in the wards Daraja Mbili and Lemala there is scant information regarding the functions of relevant stakeholders in regulating urban agriculture, and whether or not stakeholders' perception of urban agriculture is positive, negative or neutral. Due to rampant urbanization and increased demand of land for agricultural and non-agricultural activities, their interests and information change, this in turn may lead to coherent or incoherent governance of urban agriculture as Figure 1 shows.



Note: UA means urban agriculture

Figure 1: Conceptual framework

Source: Author, 2019

The policy may acknowledge the existence of urban agriculture, may not contain provisions in which urban agriculture may be supported. The policy provision may include or lack a clear statement of how urban agricultural activities can be controlled or it may limit farmers to undertake farming activities. It is important to find out whether or not urban agriculture is perceived (positively or negatively) based on individuals or institutional interests. A negative or positive perception of urban agriculture also depends on the information or limited information that the people have about certain aspects of urban agriculture. One may not rush to governance of urban agriculture without understanding whether or not urban agriculture is perceived positively, negatively or neutral and the reasons for such perception (Quon, 1999; Sroka, 2018). The effectiveness of a participatory form of governance depends on how an issue being governed is perceived by the people for the benefit of the majority (Lovan *et al.*, 2017). Thus, this study was conducted to examine how diverse stakeholders' perceptions of urban agriculture influence and affect the governance of urban agriculture.

Methods

Description of the Wards

The study was conducted in the wards of Daraja Mbili and Lemala in Arusha City, Tanzania. Daraja Mbili and Lemala were selected out of 25 wards because they had more farmers who engaged in livestock keeping and crop cultivation than other wards.¹ Most of the wards in Arusha City, including Daraja Mbili and Lemala have agricultural officers (Hamisi, 2012). The transformation of the former agricultural land into residential and commercial land was higher in the two wards than in the other wards.² Daraja Mbili has a total area of 1.25 km² and Lemala has a total area of 6.99 km².³ Daraja Mbili is located at a distance of 2km and Lemala at a distance 4.3 km from the Arusha declaration tower, which is the central part of the city.⁴ By 2018, Daraja Mbili had a population of 19,493 and Lemala a population of 26,130 people (Demographic Report at wards' office from Daraja Mbili and Lemala, 2015).

Data Collection and Analysis

This study sought to understand the way individuals' perceptions of urban agriculture and the way such perceptions affect the governance of urban agriculture. The qualitative technique allows researchers to examine, understand opinion, perceptions and explore how people structure and give meaning to their daily ways of life (Lune and Berg, 2017). The information about opinion of actors' perception of urban agriculture is dynamic and diverse. Thus, forty farmers and twenty non-farmers respondents who had been purposely selected participated in-depth interviews. The why and how questions in qualitative study demand for smaller, but focused samples rather than large random samples (Yin, 2003; Lune and Berg, 2017). The study also adopted a case study design in order to obtain answers of the "how" urban agriculture is perceived and "why" is perceived in that way. Thus, we mostly asked open-ended questions. The case study design focuses on contemporary issues which are done in a place where the researcher does not control the phenomenon being studied (Yin, 2003). Urban agriculture is one of the contemporary urban activities.

Data were collected from primary and secondary sources. The instruments of data collection were interviews and document reviews. The tools for data collection included questionnaires and relevant documents. While conducting the in-depth interviews, the researchers had limited knowledge of actors' diverse perceptions of urban agriculture. The analysis of quantitative data allows researchers to obtain the meaning from the data and discuss their pertinent information in relation to social realities (Lune and Berg, 2017). We did content analysis of the data by examining the key ideas and thoughts from qualitative information reported by the respondents. This was done in order to understand the perspective surrounding respondents' behaviour, opinion and beliefs. The respondents' responses were rationally examined and interpreted and reported in the text. Content analysis entrusted the researchers to draw inferences from the information.

Results and Discussion

Results

In both Daraja Mbili and Lemala, farmers engaged in urban agriculture for a number of years as Table 2 shows. The farmers had experience in farming and provided information relating to urban agriculture.

¹ Phoning a city agricultural officer, during baseline survey, June 2018

² Phoning a city agricultural officer, during baseline survey, June 2018

³ www.citypopulation.de

⁴ www.citypopulation.de

Table 2: Years farmers engaging in urban agriculture

Number of years	Daraja Mbili, n=20 (%)	Lemala, n=20 (%)
≤ 5 years back	30.0	15.0
6 -10 years back	40.0	20.0
11 - 15 years back	20.0	10.0
16-20 years back	0.0	20.0
≥ 21 years	10.0	35.0
Total	100.0	100.0

Source: Field survey, September 2019

In Daraja Mbili, all 20 farmers perceived urban agriculture positively. Fifty-five per cent of the 20 farmers acknowledged that urban agriculture gave them food and income. They also did farming as part of physical exercise and pleasure. Forty-five per cent of them said that agriculture made them meet their livelihood needs and they used other sources to get food and income as well. All the farmers perceived urban agriculture positively because it helped them to meet their livelihood needs. Urban agriculture was said to be an informal activity that had employed people who could not get formal employment and who did not have large capital for doing non-agricultural activities. One of the farmers said:

I like to do farming because it helps me to get my necessities. I save the money that I would have used to buy food. My family eats vegetables that we grew while they are still fresh. However, there is no institutional support to plan and allocate land to farmers for doing urban agriculture.

Despite farmers' positive perception of urban agriculture, they also said that the limited access to land was one of the things that made farmers who did not occupy land legally squat on public land in order to grow vegetables. The farmers were aware that the public land they squatted on (the land found along the Arusha-Moshi railway reserve and along the banks of the Rivers Naura and Themí) was restricted for environmental purposes, but they kept squatting on it because there was no land had been set aside for doing farming activities. In Lemala, all 20 farmers repeatedly said that agriculture gave them food and income that they could hardly find elsewhere. Their perception of urban agriculture was also positive because of the livelihoods they got from it. One of the interviewees said:

Although I do not keep a record of the food and income I get from agriculture, generally, I met the livelihood needs of my family by growing crops and keeping cattle. I could hardly get a formal job with primary school education. Farming keeps me busy, and it supports my livelihood needs.

The urban farmers who squatted on public land in Lemala were aware that uncontrolled agricultural activities were done along the banks of the River Naura and Themí. However, they regarded that land being more fertile than the land which was far away from the river. The land along the river does not dry quickly during the dry season. Thus, they regarded that land as being suitable for growing vegetables, especially during the dry season from June to October.

In both Daraja Mbili and Lemala, farmers reported that urban planners perceived negatively the urban agricultural activities done on the land that could be used for real estate activities. On the contrary, the urban planners said that uncontrolled farming activities interfered with non-agricultural land uses such as housing. Urban planners did not appreciate much the setting aside land for farming activities while there is scarcity of land for doing real estate development. The urban farmers noted that, if there was a planned land on which to do agricultural activities, they would not trespass on public land. One of the farmers said:

Urban agriculture degrades land, but the issue is exaggerated because the officials do not benefit directly from urban agriculture. Urban planners rarely consider the survival of urban poor who depend on urban land for farming activities.

We saw commercial ornamental nurseries along the Samunge road in Daraja Mbili. The seedlings of ornamental plants and fruit trees had been planted in movable containers. The gardeners were permitted to use part of the road and power-lines reserves temporarily. They were permitted to do so by Tanzania Rural and Urban Road Agency (TARURA) and Tanzania Electric Supply Company (TANESCO) because the activity did not lead to environmental pollution and land degradation. Rather, the nurseries provided ornamental plant seedlings for landscaping and greening urban spaces. This type of urban agriculture was perceived positively by environmental officers and urban planners. However, the gardeners were not directly involved in the production of food crops they used the money they got to buy food. Most of the farmers in both wards hesitated to grow commercial ornamental plants in the containers because they would not use them whenever there were no customers to buy them. Moreover, farmers in Lemala mentioned that the urban planners did not demarcate and allocate plots for practising agriculture because the land suitable for doing agricultural activities was also needed for doing residential and commercial activities.

In Daraja Mbili and Lemala, there were agricultural officers supervising agricultural activities at the ward level. The agricultural officers provided agricultural extension services and researched about farmers' problems to find appropriate solutions to them. The agricultural officers in the wards advised and trained farmers in greenhouse farming. The farmers were trained in mushroom farming, which is done in small areas and indoors. The farmers were advised in a livestock keeping method that allowed feeding livestock on an enclosed plot.

The study revealed that farmers who found grazing cattle and goats in public land were fine as per Arusha City Environmental Bylaws of 2018. All four agricultural officers were in good rapport with farmers and their perception of urban agriculture was positive. However, they also said that the agricultural activities which were tolerated were those which did not cause any environmental and health problems. The agricultural officers acknowledged the role of urban agriculture in providing food and income to the farmers and non-farmers who live in Arusha City. The agricultural officer in Daraja Mbili said:

Most of the green vegetables we eat in our city are produced by urban farmers. Vegetables cannot come from rural areas because they are perishable. Even the government officials, who do not appreciate urban agriculture, ate the vegetables grown within the city.

The in-charge of the Agriculture Department of Arusha City Council said that urban agriculture should be accommodated in the urban land-use plans so that it can be done in specific areas designated for it. The agricultural officer mentioned that the problems caused by uncontrolled urban agriculture could be solved or prevented by setting aside land for agriculture, providing agricultural extension services and training the farmers. The study revealed that the farmers' and agricultural officers' positive perceptions of urban agriculture created their readiness to participate in making decisions aimed at promoting urban agriculture. The agricultural officers were also responsible for raising awareness among farmers about good farming practices, but the success was inadequate.

The interviews with the urban planners unveiled the reasons for having a positive and a negative perception of urban agriculture. The study revealed that, the urban planners were neither food activists nor food production promoters. Instead, they were responsible for planning and managing urban land, which could be used to do non-agricultural and agricultural activities. The agricultural activities that conserved land, helped to green urban areas and the agricultural activities which did not interfere with the use of land for residential, commercial and infrastructural activities were perceived positively by urban

planners. In the Korongoni sub-ward in Lemala, part of land which was used to do agricultural activities was planned and subdivided into residential plots.

Before the allocation of residential plots to prospective developers commenced, farmers encroached on the plots on the pretext that they were given little compensation and there was no land which they could use for growing vegetables. The urban planners did not tolerate agricultural activities on the land already planned for residential activities. Thus, they ordered that whoever invades planned residential plots for growing vegetables must be fined. The farmers said that agricultural activities enabled them to produce crops for food and sales, and some of them kept squatting on public land. Farmers who squat on public land for urban agriculture were not reported by the people in the wards because they farmed for getting food to sustain the needs.

The agricultural officers, urban planners and environmental officers mentioned places where unauthorised agricultural activities took place in Daraja Mbili and Lemala as Figure 2 shows. These places were considered as not appropriate for agricultural activities and made urban planners and environmental officers to perceive urban agriculture negatively.

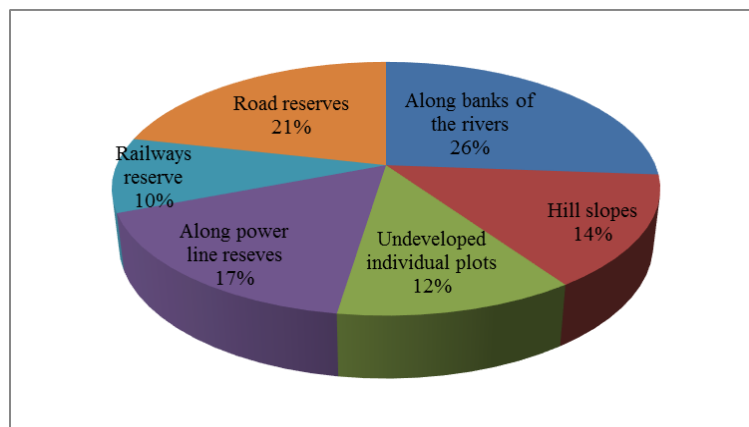


Figure 2: Urban agricultural activities in unauthorised areas

Source: Field survey, September 2019

The urban planners said that setting land for typical subsistence agriculture may cause the city authority to lose land rent and property taxes, which could be obtained from land development for non-agricultural activities. Furthermore, an urban planner said:

There is ample land in the districts of Monduli and Arumeru districts which are near to Arusha City. Agriculture may be done in such areas and agricultural products transported to the City. In Daraja Mbili and Lemala, land is highly needed for non agricultural-activities, especially for housing construction. Although agriculture somewhat helps some people to meet their livelihood needs, its contribution to city revenues is very little.

Urban planners questioned the monetary contribution of urban agriculture to farmers', saying that they did not know any urban farmer who had become rich and who became food secure by growing vegetables and spices in a small piece of land in the city. On the other hand, urban planners perceived urban agriculture positively when ornamental plants and landscaping activities conformed to non-agricultural land use such as housing and infrastructure development.

The planting of trees in the residential areas or planting of fodder grass along the slopes of Engra hills in Lemala was perceived positively by urban planners. Land along the Rivers Naura and Thembi were

not set aside for growing crops, but it is where people encroach for growing vegetables. Besides, urban agriculture also took place in the residential areas of Daraja Mbili and Lemala as Figure 3 and Map 4 show.

The officers perceived urban agriculture negatively when it polluted the environment and degraded the land. The ward environmental officer at the ACC said:

We have to prohibit farming activities which are not friendly to the environment. We cannot perceive positively such type of urban farming. We cannot turn a blind eye to agricultural activities that pollute or degrade the environment.

Irrespective of fining the culprits, squatting on public land for urban agricultural activities continued and was evident along the banks of rivers Thembi and Naura, and on road reserves. The environmental officers did not tolerate growing of vegetables along erosion-prone areas. The culprits were fined. The farmers saw the fine as a way of stopping them from practising farming. The study revealed that owing to limited access to land for growing vegetables and laxity in enforcing environmental bylaws caused the public land to be squatted on for unauthorised agricultural activities.

All the environmental officers also acknowledged the contribution of flowers, turf, shrubs and shade trees to cool and greening the environment as well as minimising soil erosion. Thus, they perceived positively the agricultural activities that did not have adverse effects on the environment. In Daraja Mbili, one farmer who kept more than five thousand poultry in congested informal settlements was told to manage properly livestock droppings. Improper management of livestock waste was contrary to City Environmental Bylaws of 2018.

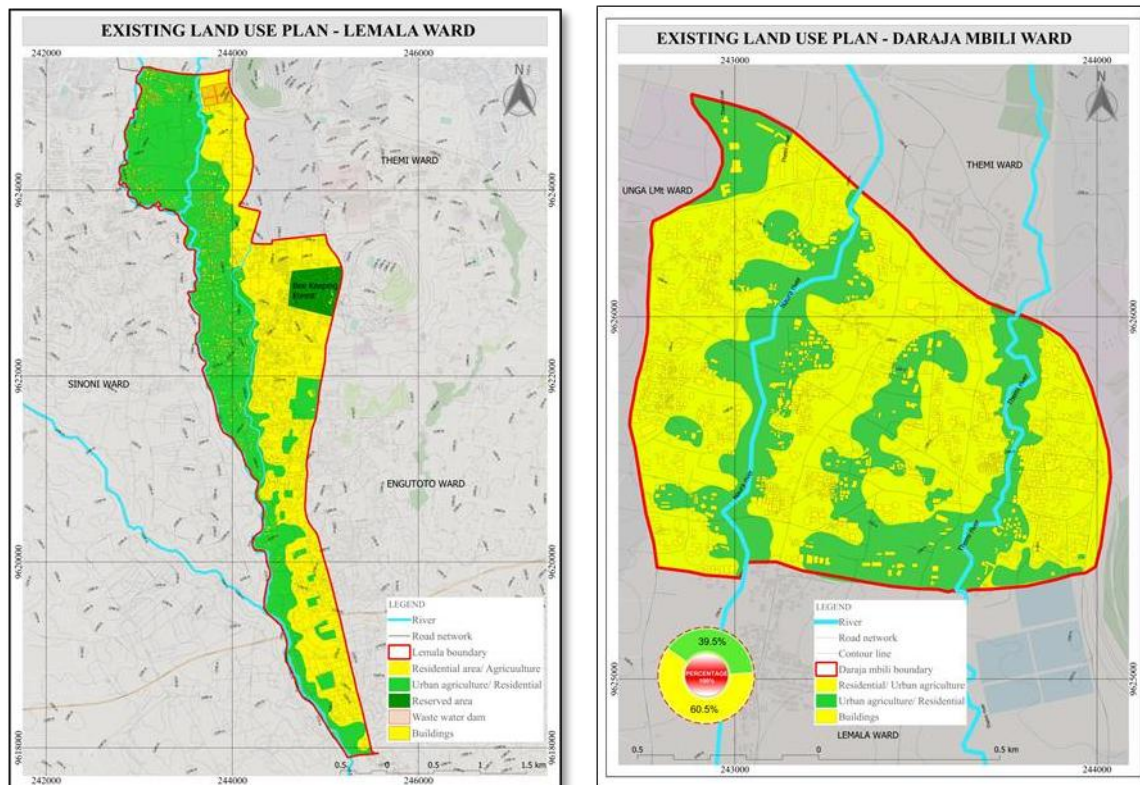


Figure 3 and Figure 4: Areas where urban agriculture takes place Daraja Mbili and Lemala
Source: Field survey, September 2019

The farmers collected the chicken poop before it produced an unpleasant smell. The prompt management of chicken poop had made non-farmers think that that keeping livestock was not bad when the waste was properly managed. A leader of the Darajani sub-ward said:

A poultry keeper in the Darajani produces a large pile of chicken manure in a month. If the chicken poop was not taken away a few days after it had been piled up, it would have produced an unpleasant odour, which would make the non-livestock keepers uncomfortable. However, as soon as it was piled up, it was taken away by the vegetable growers. I cannot perceive agriculture negatively because the farmers used waste as manure.

Moreover, in Lemala, there were ponds into which wastewater from all over the City flew. Public health and agricultural officers allowed farmers in Lemala to use wastewater to irrigate the root area and non-edible parts of their crops during the dry season. The study revealed that the farmers used wastewater to irrigate amaranth leaves. The agricultural officers insisted that vegetables sold at the Samunge market, which is the famous vegetable market must be washed thoroughly before being cooked. Although not all vegetables were irrigated with wastewater, farmers in Daraja Mbili said vegetables from Lemala were irrigated with wastewater. On the other hand, the study revealed that in order to minimize the incidence of soil erosion in the residential areas, one farmer in Lemala intercropped banana plants with turf as Plate 1 shows.



Plate 1: Turf grasses intercropped with banana plants

Source: Field survey, September 2019

The growing of cover crops and fodder grass along Engra hills did not need frequent tilling of land. They protected the surface of the land from splash soil erosion, which could occur when rainwater fell onto bare soil.

It was also reported by the environmental officer that the farmers had been ordered to stop squatting in the environmental sensitive areas such as along the banks of rivers, in the river valley and along the slopes of hills and on the road reserves, but some of them had ignored the order. The food got and income earned by farmers' from urban agriculture matter most to farmers instead of having a protected area for environmental purpose. The study revealed that farmers who squatted on public land for doing urban agriculture and who positively perceive urban agriculture regarded prohibitive mechanism to urban agriculture as oppressive to them.

Table 3: Summary of respondents' opinion on urban agriculture

Respondents views of urban agriculture	Farmers (n=40)		Urban planners (n=4)		Agricultural officers (n=4)		Environmental officers (n=4)	
	Yes (%)	No (%)	Yes (%)	No (%)	Yes (%)	No (%)	Yes (%)	No (%)
Urban agriculture has a high social and economic benefits to farmers	100.0	0.0	0.0	100.0	100.0	0.0	0.0	100.0
Urban agriculture conserves and protect environment	65.0	35.0	25.0	75.0	75.0	25.0	50.0	50.0
Urban agriculture is compatible with non-agricultural land use	77.5	22.5	50.0	50.0	50.0	50.0	25.0	75.0
Agricultural extension services should be provided to farmers	92.5	7.5	25.0	75.0	100.0	0.0	100.0	0.0

Source: Field survey, September 2019

Furthermore, the study revealed that urban planners were not obliged to ensure that people in the urban areas were food secure and income stable. They regarded the issues relating to the promotion of food production in the urban areas as the functions of agricultural officers and the people interested in doing urban agriculture. Unlike urban farmers, the opinions of agricultural officers, urban planners and environmental officers was that the way urban agriculture would be tolerated and supported depends on how it conserve, protect environment and is compatible with non-agricultural activities.

Discussion

Farmers' and non-farmers actors' perception of urban agriculture depended on their interests and careers. In both Daraja Mbili and Lemala, farmers perceived urban agriculture positively because it enabled them to obtain their livelihoods as Table 3 shows. Because of their positive perception of urban agriculture, they rejected the decisions that would affect urban agriculture. Thus, the knowledge and agricultural extension services, agricultural officers provided to urban farmers was trusted and used if it did not affect or would not affect urban agriculture. However, farmers' dependency on urban agriculture for livelihoods made them perceive negatively the bylaws that restricted the undertaking of farming activities on public land, such as road reserves and environmental sensitive areas like on the river banks of Naura and Them.

Farmers considered farming as a very important activity to them. Most urban farmers could hardly find non-farming employment in the city as they did to urban agriculture. These findings are similar to those of Delgado, (2018). A scholar says that one's needs influence one's positive perception of the thing or decisions that support his or her desire and expectations. Farmers were unwilling support any land use decision that could put at risk the livelihood needs they obtained from urban agriculture. However, they supported the decision that would lead to the promotion of urban agriculture.

The responsibilities of agricultural officers in Daraja Mbili and Lemala related to the provision of agricultural extension services to urban farmers. The officers provided agricultural training and extension services to urban farmers in order to increase agricultural productivity while minimising agricultural

adverse effects to the environment. The provision of provision of agricultural extension services and training to farmers was in tune with section 4.16.3 of Agricultural Policy of 2013 which states that the government shall develop supportive mechanisms for urban and peri-urban agriculture and promote good agricultural practices. However, they were not in the forefront to protect and conserve the environment. The nature of their work and responsibilities in promoting urban agriculture influenced them to perceive urban agriculture positively. Sroka, (2018) notes that besides being perceived positively, urban agriculture must also be promoted.

In Daraja Mbili and Lemala, urban agriculture would not be perceived negatively by the agricultural officers who were required to promote it. The advice and extension services the agricultural officers provided were acknowledged by farmers when they increased agricultural productivity and were not associated with management challenges. These findings have an implication that decision for just conserving the environment may not be sincerely implemented by farmers whose livelihood needs depends on urban agriculture for producing food and earning income.

Although agricultural training and extension services were provided to farmers and new farming methods have been adopted, shortage and limited access to agricultural land have resulted farmers to do farming in the authorised areas as Figure 2 shows. Regardless the way agricultural activities supported the survival of the urban poor, the activities that contributed to environmental degradation were not tolerated by environmental officers. These findings are similar to the findings of the study of Mosha (2015). The researcher mentioned that no matter how urban agriculture is perceived positively by farmers and the way it supports their livelihood needs, uncontrolled agricultural activities cannot be tolerated at the expense of having the conserved environment. This situation is what brings the challenges of governing urban agriculture to ensure agricultural productivity without putting in danger the environment.

Planning the land for urban agriculture is outlined by the Land Policy of 1995 under section 6.7.1. However, the urban planners regard themselves as not food promoters. In practice, urban agriculture can hardly be regulated without addressing hurdles related to access to land and having the planned land for urban agriculture. Urban planners were skeptical to plan agricultural land because they were less convinced with importance of urban agriculture in terms of food and income to farmers and revenue to city authority as compared to the revenue obtained from real estate development. The scepticism of urban planners might resulted by their negative perception of urban agriculture. The farmers were doubtful of land-use planning because they knew from experience in other wards that their land would be confiscated. Thus, they perceived negatively land-use planning that was aimed at transforming part of agricultural land into non-agricultural activities, at the pretext of doing land use planning. Urban agriculture cannot prosper without supporting farmers and finding solutions to agricultural problems relating to access to land and transforming officials' negative perception of urban agriculture (Obosu, 2002).

As it was revealed from the findings, justifying that agricultural activities conserve the environment and they can be done without affecting non-agricultural activities, people can perceive it positively. The urban planners also had limited information about the contribution of urban agriculture to the livelihoods of people; particularly the farmers and they did not bother much to look for the information. This perception also made them consider urban agriculture less important. However, the urban planners are responsible for addressing land use problems as they do to land residential, commercial and infrastructural activities. In line with the findings of this study, Quon (1999) observed that when urban agriculture is acknowledged by government officials, but with no actions to promote it and addressing farmers' problems, it means that urban agriculture is ignored. The study revealed no significant differences in the way farmers and non-farmers perceived urban agriculture in Daraja Mbili and Lemala.

Conclusion

The paper has revealed the influence of actors' perception on the governance of urban agriculture. Farmers perceived urban agriculture positively because they rely on it for food and earning income. The benefits the farmers got from urban agriculture influenced their positive perception of urban agriculture. The good rapport between the farmers and the officers helped agricultural officers to cooperate with farmers during provision in providing agricultural extension. The officers also perceived urban agriculture positively because they were supposed to promote it because they were paid salary as government employees

The problems caused by agriculture to housing and infrastructure development, as well as to the environment made the urban planners and environmental officers perceive urban agriculture negatively. If the adverse effects of urban agriculture were minimised or well managed, agriculture would not be perceived negatively by urban planners and environmental officers. Thus, the actors' perception of urban agriculture depended on the way agriculture is done. Non-agricultural activities such as housing and infrastructural development were perceived positively by urban planners, but they valued at the expense of urban agriculture for subsistence needs. Residential and infrastructural development should not be done at the expense of the livelihood needs which people obtain from doing urban agriculture. Farmers may not live comfortable life in urban areas and engage in other development activities if they are starving, food insecure and jobless.

Recommendations

This study recommends taking into account the diverse actors' perceptions of urban agriculture because the actors cannot regulate and sincerely promote urban agriculture which they perceive negatively. The management and minimising the adverse effects of urban agriculture may change actors' perception of urban agriculture from negatives to positive. Understanding and acknowledging diverse perceptions of urban agriculture establishes a basis for developing devised strategies taking into account the actors' perception of urban agriculture when governing governance.

Effective strategies must be in place to inform the stakeholders the benefit of urban agriculture and the effects of uncontrolled to the environment and life of the people. Collaborative and devised strategies which are in line with policy and legal framework should be sought and adopted to govern urban agriculture in a way that will increase agricultural productivity without affecting the environment and non-agricultural land use activities.

Declaration of Conflicting Interest

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