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E J E D

DRIVERS, PRACTICES, AND CHALLENGES OF URBAN AGRICULTURE: EMPIRICAL EVIDENCE FROM DILLA TOWN

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Abstract

In Ethiopia, the significance of urban agriculture as a source of livelihood is well-recognized. However, the benefits of urban agriculture have not yet been realized to a satisfying degree. This article aims to understand the drivers, practices, and challenges of urban agriculture in Dilla town. The empirical data upon which the author draws was gathered through repeated periods of qualitative fieldwork carried out in 2020 with 36 farmers in Dilla town, Southern Ethiopia. Direct observation, interviews, and focus group discussions were used to obtain the required empirical data. This study has also benefited from various secondary sources. As the study shows, direct food supply, increased economic security, improved social inclusion, and regulated urban microclimate are the logic behind the involvement of farmers in urban agriculture. Urban agriculture is characterized by mixed-type of farming and includes crop production (mainly horticulture production) and livestock production (mainly poultry and dairy farming). Crop production in the town takes different forms and it includes home-garden farming, open-space farming, and peri-urban farming. As the study further shows, lack of access to urban agricultural land, land tenure insecurity, lack of urban farming skills, lack of access to credit facilities, lack of basic agricultural supplies and extension services, and limited attention given to urban agriculture from relevant state structures are major challenges facing urban agriculture. The policy implication of the study is that the government should work to promote urban agriculture and ensure its productivity in a way that benefits all for whom it is intended.

Keywords: Dilla, Home-garden farming, Open-space farming, Peri-urban farming, Peri-urban land, Urban agriculture

1 Introduction

The twenty-first century has often been described as 'the first urban century'. UN (2014) projected that by 2050, more than 66 percent of the global population will live in urban areas and urban expansion will occur more in the global south. The growth of urban areas has been due to the natural growth of the urban population and to the large migration of people from rural to urban areas. UN (2014) projections clearly show that urban populations will continue to grow rapidly in most countries in the global south in the decades to come. However, due to their week economic base, countries in the global south are not capable enough to provide sufficient food demanded by the expanding urban population which in itself contributes to the urbanization of poverty. As studies have shown, food absorbs a large share of urban poor households' incomes (Mersha, Gebremariam and Gebretsadik, 2021) and household food insecu-

rity has been worsening in recent years. At a time of increasing urbanization, dwindling agricultural resources, increased food insecurity, and accelerating deterioration in the quality of life for those living in urban areas, cities may need to consider existing and future urban agricultural activities to reduce the food insecurity and prevalence of urban poverty (see Firdissa, 2007).

In cities of the global south, urban agriculture (loosely defined as the practice of food production within the city boundary or on the immediate fringe areas) has a long history (Ashebir, Pasquini, and Bihon, 2007). Africa, a continent exceptionally rich in biodiversity, is rapidly urbanizing, and the increase in the urban population of the continent is accompanied by an expansion in urban land and urban agriculture. As studies show (Kessler *et al*., 2004), in many West African countries, for example, temperate vegetable production was introduced in colonial times. However, in many of these countries, urban agriculture has been strongly opposed by municipal authorities, and activities were either banned or severely restricted. It is only in the last 10 or 15 years that governments in the global south have started revisiting urban agriculture (Mougeout, 2006), and in some cases revising urban zoning by the laws and integrating urban agriculture in zonification plans (see also de Zeeuw *et al*., 2011). As Food and Agricultural Organization (2004) indicated, urban agriculture in African cities has been increasing with examples from Bissau (Guinea Bissau), Dakar (Senegal), Kumasi (Ghana), Lome (Togo), Nairobi (Kenya), and Dar-es-Salam (Tanzania). Over the years, many studies have demonstrated the significant contribution of urban agriculture to people's livelihoods. Million urban dwellers are actively engaged in urban agriculture and million are providing food for marketing (Ashebir, Pasquini, and Bihon, 2007).

In Ethiopia, urban areas are growing fast and facing many social, economic, and ecological challenges, one of these is how to give to eat their growing population. Despite the formal employment gravity of urban areas, poverty persists and in this context, urban agriculture emerges as a lucrative livelihood strategy. Meeting future demand for food would require a big increase in supply. Bryceson and Potts (2005) argued that urban agriculture in Africa was evolved as a response to scant sources of urban economic sustenance. In other words, urban agriculture was evolved as a response to the insufficient supply of staple food to urban areas coupled with a declining purchasing power of the urban dwellers. Currently, millions of urban dwellers are reinforced to restore farming in urban areas either to supplement their household income or because they cannot afford to meet their daily food needs (Bryceson and Potts 2005). Urban agriculture (field crops, horticulture, floriculture, forestry, fishery, poultry, and livestock) takes place in various parts of cities, both within the built-up areas (in back yards, along stream-sides, in vacant public or private land) as well as in the rapidly changing peri-urban areas (Messay, 2010).

Urban agriculture has been growing in the urban areas as a result of rapid urbanization, rising inflation and unemployment, and declining purchasing power, (see Messay, 2010). To meet part of the food needs of urban dwellers, urban farming has come to be a familiar feature in both intra-urban and peri-urban areas. Urban agriculture continues to be a source of food supplies for urban areas and a means of income for many urban poor. Nevertheless, the subject has attracted little work of scholarship and urban agriculture has been single-handed for a long time. Insufficient attention has been paid to the contribution of urban agriculture to the livelihoods of urban farmers and the health of urban ecology. Little is known about the factors that drive urban agriculture and the multiplicity of challenges that the sector is currently facing. Based on farmer-focused qualitative research methods, the author argues that the drivers and practices of urban agriculture as well as challenges that farmers are facing are highly contextual to the economic, social, political, and ecological realities of the urban areas concerned. With this understanding, this paper looks into the drivers, practices, and challenges of urban agriculture based on an in-depth qualitative study of urban farmers in Dilla town, Southern Ethiopia.

The article is structured as follows. First, the theoretical framework of the study focusing on the social rift perspective in understanding the drivers, practices, and challenges of urban agriculture is discussed. Second, the article briefly outlines the research methodology and fieldwork context. This is accompanied by the presentation of empirical findings focusing on the drivers of urban agriculture, the contribution of urban agriculture to the livelihoods of urban farm households, and the challenges of urban agriculture in Dilla. Finally, the article presents the conclusion and its implication for policy.

Social Rift Perspective

This paper is anchored on the idea of the social rift, which draws our attention to issues of commodification of land, labor, and food and how it drives the emergence of urban agriculture in the global south. Understanding this social rift is not only essential to explaining urbanization, but to elucidating the linkages between urbanization and the agri-food system. In the global south, a host of pressures-land consolidation, poverty, drought, war, expansion of natural resource extraction-has dispossessed rural populations over the last several decades and fueled the growth of cities and their slums across the globe (Davis, 2006). Indeed, part of the rural poor is therefore moving to the urban areas to join the urban poor. As observed by McClintock (2010), a social rift is a central driver of urban agriculture in the global south, where the production of food is often a subsistence activity, of course notwithstanding the ecological rift (driven between human beings and nature) that undermine the conditions of sustainable existence and thereby inform urban agriculture. For example, in a survey of urban agriculture in Africa, 70 to 75% of farmers produced for household consumption, citing the need for food as their principal motivation (Egziabher *et al*., 1994; Mougeot, 2005; van Veenhuizen, 2006).

Rural migrants often discover on arrival in urban centers that prospects for employment are slim. Many must therefore improvise new means of survival. They embark on small-scale agriculture on marginal plots of land within the city itself or in its immediate hinterlands (peri-urban areas), to buffer themselves from the socio-economic upheaval of dispossession from their land and the lack of livelihood opportunities in the city and its peripheral slums. Many, particularly those who live in the shadow of poverty embark on urban agriculture projects to augment their food, and for those selling on informal local markets, to supplement their income. Social rift explains the rise of urban agriculture and its continued presence in the global south. Its continued presence is also linked with the integration of poor countries into the global economy and 'enclosing' of land (communally property) by titling arrangements and emerging land markets (McClintock, 2010). Drawing on these accounts, this paper takes a social rift perspective to shed light on the drivers, practices, and challenges of informal land transformation in Ethiopia.

2 Methodology

The empirical data used to achieve the objective of this study were gathered through qualitative fieldwork that was carried out in 2020 in Dilla, Gedeo. This study used a case-study research design. Case study research is a powerful methodological approach for analyzing and researching urban agriculture. A case study is a preferred strategy when how and why research questions are posed, and when the focus is on a contemporary social phenomenon within a real-life context. The researcher selected a qualitative research approach and explanatory case study research design for the reason that it helps to conceptualize the farmers' personal experiences and their way of looking at their farming practice and livelihoods shaped by the socio-economic conditions which are unique to them. Using a case-study approach also allows the researcher to use mixed and multiple sources of data (Yin, 2014). Thus, a case-study approach is appropriate for examining the drivers, practices, and challenges of urban agriculture in Dilla. The researcher used insider perspective as an analytical tool, recognizing urban farming farmers and concerned experts as key informants of the research. In other words, the paper addressed the drivers, practices, and challenges of urban agri-

culture based on the knowledge and personal experiences of those who are directly involved in it.

The purpose of the study and the research approach and design selected for addressing the problem played a role in the decision as to whether the author should consider all kebele administrations of Dilla or concentrate on a specific one. Since the intention was to deeply understand the drivers, practices, and challenges of urban agriculture, one Kebele administration (*Hara wolabu* where *Asedela ketene* is part) was selected for in-depth investigation. The selection of this specific Kebele administration was based on the practice of urban agriculture. It is part of the town where home-garden, open-space, and peri-urban farming is widely practiced. Then, 36 urban farming farmers were purposely selected (from different urban farming categories along the center to the periphery continuum) using the purposive (snowball) sampling technique to obtain data about the drivers, practices, and challenges of urban agriculture in Dilla. Snowball sampling was used mainly because it was hardly possible to get the exact number of urban farmers in the study sub-city. As qualitative research, the sample size was determined based on the principle of data saturation.

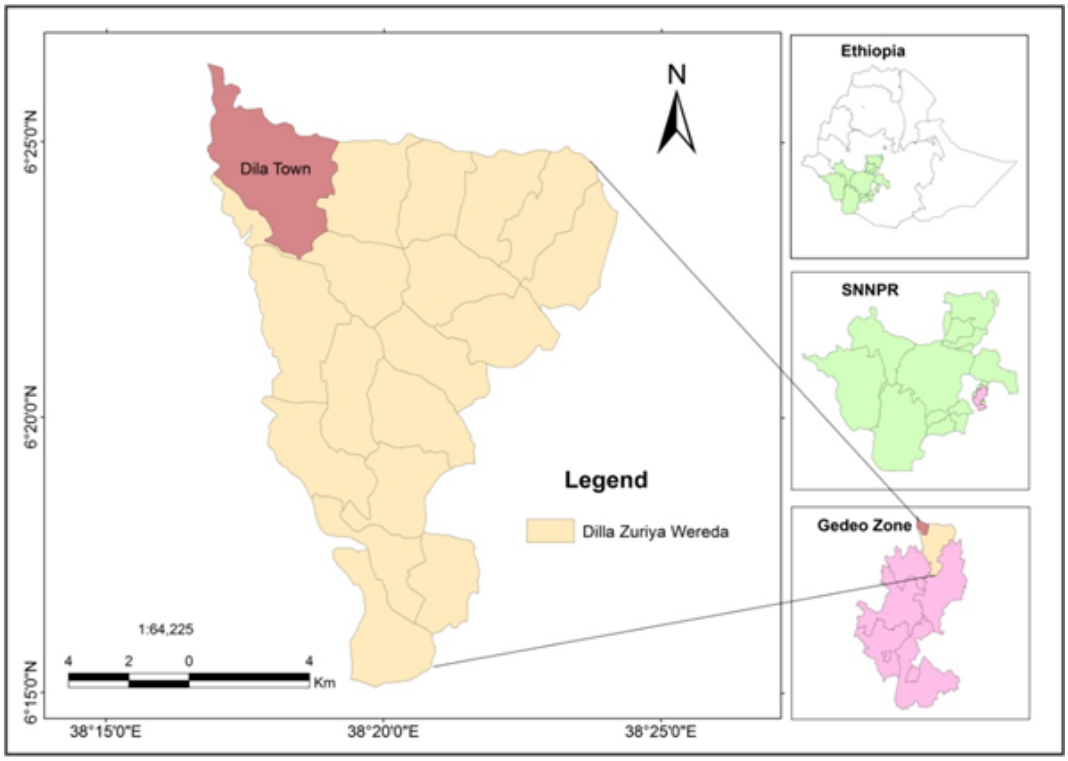

Figure 1. Map of the Study Area

A total of 36 in-depth interviews were conducted with representatives of urban farmers (they represent different sex, age, and urban farming activities). Besides, 8 in-depth semi-structured interviews were conducted with experts from the relevant state structures in the town. These experts were selected based on their expertise and experience in the area being studied. Three different focus group discussions (consisting of 6–8 individuals) were carried out at different stages of the research. On average, each interview and focus group discussion session lasted for 1 hour. Information from the in-depth interviews and focus group discussions were considered to be valuable for the way that it expressed the views of urban farmers, urban agriculture, urban land management experts, urban planners, and urban sociologists

regarding the drivers, practices, and challenges of urban agriculture in Dilla. Moreover, the views of urban farmers and experts about the ways forward to enjoy the beneficial effects of urban agriculture were formed a valuable input into this study. Direct field observations were carried out to have a first-hand view of urban agriculture systems and land use patterns. The study also employed a desk review research approach and has benefited from various secondary sources. Accordingly, various published and unpublished documents were incorporated and used as inputs to the study. In this study, the data collected through various methods were presented, analyzed, and summarized through a qualitative method. Analysis of data was conducted using the thematic analysis method. The first task in the analysis was to become familiar with the initial mountain of data and reduce it to an ordered set of themes (Yin, 2014). Following a thematic analysis tradition, the main themes from the data were developed, synthesized (integrated and interpreted), and harmonized (Yin, 2010) and used in the analysis and write-up. During fieldwork, consent was sought from the research urban farmers/ participants. This was preceded by an explanation of the kind of research the author intended to do. The purpose was twofold: (1) to tell participants what the study was about, and (2) to ease the skepticism participants might have had about the research. Interviews/dialogues and focus group discussions were held in places where the participants felt safe and comfortable.

3 Results and Discussion

3.1 Drivers of Urban Agriculture

In the study area, urban agriculture is practiced for three major reasons. These are household food self-sufficiency, commercial production, and environmental protection; forces that drive people from all walks of life to engage in urban farming (see Mougeot, 2005). As interviews data revealed, urban agriculture appears to be used as a support structure through different channels: improving (direct) consumption of food, generating income, and improving the livability of the urban neighborhood (preserving the viability of the urban environment). Many low-income urban farmers are involved in urban agriculture because urban agriculture reduces households' vulnerability to severe food insecurity. Of course, growing one's food makes the best economic sense. Alemitu (35, female, farmer) explained the role of urban agriculture in household livelihood.

> "*I know that these days there is a growing interest in urban agriculture [home-garden farming, open-space farming, and peri-urban farming]. The fear of not having the products they are used to eating has motivated many people, particularly those in the low-income group, to start thinking about growing their food. Of course, many people living in Dilla can grow their food and increase their food security. I think it is necessary to be more self-sustainable*".

When urban farmers in this study are asked why they are involved in urban farming, they cite "additional food source" as one of their major reasons. They can reduce their food expenditure because vegetables/crops from their small urban farms supplement their food consumption. This is particularly significant in the urban context where farmers spend 40-50% of their income on food. For these households, particularly for farmers who are engaged in home gardening in the intra–urban areas, urban farming is the 'logic of survival.' It improves households' 'food regime' (Landon-Lane, 2004), and hence their vulnerability context is somehow reduced. Urban agriculture contributes to food diversification through increased availability of household disposable income (Zezza and Tasciotti, 2010, Onyango, 2010; Mpofu, 2013). With more diverse foods available, farmers become more food secure (Swindale and Bilinsky, 2006). Thus, self-grown food can reduce well-known challenges that the urban poor face, especially the dangers of meeting their household food and nutrition security entirely through the market.

Urban agriculture is used as a support structure through increased economic security, primarily through the sale of farm produces. It is practiced by the urban poor who supply the market with what

is left from their consumption. As Marta (34, female, farmer) puts it, 'urban farming improves economic security and strengthens resilience against livelihood shocks'. Many farmers in this study can combat the livelihood dilemma through what they commonly call 'subsistence saving.' Urban agriculture serves as a 'means of saving on expenditure' (Prain, & Lee-Smith, 2010). It provides food that would otherwise be available through purchase and hence contributes to household savings, which can be spent on other basic needs. Put differently, urban agriculture enables farmers to generate income and substitute their household expenditure. During the interview, Obse (32, male, farmer) said the following:

> "*Urban agriculture is a good source of income. I strongly believe that participating in urban agriculture impacts poverty by providing employment and incomes to those who do not have a regular source of income. Urban agriculture releases money that would have been used to purchase food for other household uses. It can also be a secondary source of income for people who have a regular source of income but not enough to cover the cost of living. In this way, urban agriculture eases the poverty burden experienced by (poor) urban households*".

During the focus group discussion, Aklilu (36, male, planning expert) indicated that food items that cannot be produced in the home garden or on other family lands can be purchased from the sale of other items produced in the home garden.' Farmers obtain food supplies either through their food production or food purchases, but more often through a combination of both. This supports the idea that urban agriculture is a survival strategy adopted by people on the margins of society, particularly women who suffer from the 'urbanization of poverty.' Urban agriculture is also a fallback area for those who live in relative poverty (deprivation) (FAO, 2012). This indicates that urban agriculture is driven by what Bayeush (36, female, farmer) called 'real community needs', a response to inadequate access to food and lack of purchasing power. The mismatch between the mounting urban populations and the availability of employment opportunities in the study area renders urban agriculture a vital source of employment. During the focus group discussion, experts boldly indicated that urban agriculture is a particularly important source of employment for people who may not successfully compete for formal sector jobs due to their low skill levels. Thus urban families without formal employment can enhance their labor productivity by engaging in urban agriculture as Zezza and Tasciatti (2010) confirmed.

During the focus group discussion, Tariku (47, male, farmer) emphasized the 'multiplier effects of urban agriculture'. He emphasized the employment opportunities urban agriculture creates for many urban dwellers, particularly for the elderly. Many urban farmers in this study viewed the 'involvement of the elderly in urban agriculture as a positive step that enabled them to support their fragile economic base while at the same time strengthening their inclusion into their society. As this study shows, urban agriculture in the study area is a part of the green landscape and many farmers develop green plants in the home compound for different reasons. As interview and focus group discussion data revealed, urban farming regulates the town's micro-climate which confirms the findings of Veenhuizen (2010) and Magigi (2013). In this regard, the experience of experts has been quite extensive. Kepie (46, male, agriculture expert) said the following:

> "*Urban agriculture, in combination with the addition of other types of green spaces, offers the most potential for improvement of the urban microenvironment in terms of reducing storm-water (by promoting storm-water infiltration), improving air quality, reducing urban heat, promoting biodiversity, reducing waste (by utilizing food waste as compost), and decreasing carbon emissions*".

Comments that are made during the focus group discussion highlighted that as long as urban farming is eco-friendly; it preserves the viability of ecosystems and reduces the loss of biodiversity'. The use of (organic) manures in urban farming is common in urban and peri-urban areas of the study area, which in itself

benefits the environment and enhances agricultural productivity which Lee-Smith (2010) confirmed. Urban farmers explained waste as a 'resource' from a contemporary perspective. Urban farming provides aesthetic and recreational functions. It also protects productive areas from being used as dumping sites for 'environment-unfriendly wastes' which would be a pathway for negative human and environmental health effects if proper precautions are not taken. As observed, there is a culture of cultivating green plants for shading and reducing the 'heat island effect' (Ohmachi & Roman, 2002) and improving the health of the microclimate (see Heather, 2012; Prain and Lee-Smith, 2010). It also contributes to the development of a 'green urban landscape'.

3.2 Urban Agriculture Practice

One would think that urban areas are not places where agriculture is undertaken, but as indicated elsewhere, urban agriculture has come to life due to the urbanization of poverty. Many people in the study area (in Dilla town extended) are engaged in urban agriculture. As observed, urban agriculture is located within (intra-urban) or on the fringe (peri-urban) of the study area and takes different forms: home-garden farming, open-space farming, and peri-urban farming. These agricultural activities use resources, products, and services of the town. Home-garden production involves farming in backyards. Plots are generally small. 'Gray' water and rainwater are major sources of water for home-garden farming. The home-garden production is predominantly a small-scale subsistence urban farming system, and as indicated by the farmers in this study, it is mainly used for home consumption. Selling part of one's produce occurs more frequently when plots are bigger or intensively cultivated. As Tsegay (37, male, farmer) puts it:

> "*Back yard gardening/farming is easy to start and each member of the household is responsible for the production. In our context, home gardens are more diverse and provide multiple products for farming households. Vegetables such as cabbage, tomato, carrot, onion, garlic, pepper, sweet potato, potato including Enset, medicinal plants, and fruits such as banana, mango, sugarcane, and avocado widely grow in home gardens*".

During fieldwork, the author came to know that home-garden farming is mainly 'family farming' and every member of the household takes part in the farming practice. It is worth mentioning that horticulture is a part of the 'local food system' that provides horticultural crops for needy households. Farmers and experts covered in this study indicated that the broad diversity of horticultural crop species allows year-round production, employment, and income. Farmers are now realizing that intensive horticulture can be practiced on small plots, making efficient use of limited water and land resources. Horticultural species, as opposed to other food crops, have a considerable yield potential depending on the input applied. In addition, due to their short cycle, they provide a quick response to 'emergency needs for food'.

In the study area, there are open-spaces and peri-urban farming. Open-space farming covers limited areas within the built-up space. Plots within the built-up space and peri-urban areas are bigger than backyard farms. Open-space cultivation in the intra-urban is largely located in open spaces, along river/stream sides and other abandoned urban land where land is not suitable for building construction, which itself shows 'opportunistic use of open-spaces.' Rainwater and urban drains are major sources of water for open-space and peri-urban farming. Vegetables, fruits, and crops are widely grown within built-up and peri-urban areas. As Marta (34, female, farmer) indicated, farmers grow different types of crops.

> "*In both open-space and peri-urban farms, there is a diversity of vegetable crops and fruits, but tomato, onion, cabbage, pepper, mango, avocado and banana are the most widely cultivated in both open-space and peri-urban farms. Enset and maize are widely grown crops in the peri-urban farms. Intercropping is one of the agronomic practices that are followed by many urban farmers in the study area. Both open-*

space and peri-urban farming are characterized by inter-cropping where vegetables, fruits, and crops grow in different combinations to make effective use of limited urban space".

However, as observed, the smaller plots are located in the inner part of the town and show the highest crop diversity. The choice of crops for production in urban areas could be determined by whether food is being produced for household consumption, or subsistence, or for the market sale (Cofie, 2009). As the current study shows, in all farming systems in the study area, the choice of crops cultivated is shaped by the growers' consumption preferences, the amount of input needed for growing the crops (low input crops), the cultivation period (short cycle), and the market (high demand crops). The decision to undertake urban agriculture is also influenced by location and resource availability. As the current study further indicates, a variety of vegetables and fruits are favored by urban farmers, although food crops are also cultivated.

Poultry and dairy farming are suitable businesses for people who are passionate about livestock farming, keeping livestock and comfortable with farm life. Poultry and dairy farming are highly profitable businesses if farmers can run it properly under acceptable methods and conditions. For traditional and economic reasons, poultry and dairy farming are an integral part of the urban farming system in the study area. Both are mainly market-oriented. A small-scale traditional or backyard poultry production system is common. Farmers feed chickens home grain and leftovers (as it is cost-effective) but mostly rely on scavenging. Poultry farming has been a source of income generation and food for many farmers in both urban and peri-urban areas. Tesfa (39, male, social expert) said the following:

"*For low-income urban farmers, poultry is one of the few opportunities for coping with vulnerability (livelihood risks). Nonetheless, due to the limited number of chickens they have, farmers are not committing their working time to the activity. In addition to poultry farming, dairy farming has been a traditional activity of many households, though many of them still have a limited livestock population*".

As urban farmers in this study indicated, though dairy farming is a 'capital intensive' activity, farmers consider the multiple functions of dairy farming in their household economies such as source of food, input for soil fertility management, source of income, source of energy, and source of household saving (see also Kassahun, Snyman, & Smit, 2008). As focus group discussions data revealed, in the space-constrained inner-city areas, dairy farmers have no access to natural grazing systems. Because of 'zero-grazing,' dairy farmers follow what they called 'confined dairy management practices.' As observed, most urban farming activities are privately managed and family labor is the most common input for all urban farming activities though women frequently carry out the majority of urban farm labor along with their care-taking and house-holding roles.

As already said earlier, produces of urban farming are used for both home consumption (to supplement their families' diets) and the market (to generate income). Products need to be marketed if farmers are to derive income from urban farming. As observed, if a farm produces are to be traded, they are directly sold to consumers. It is delivered to the market close to the farmers. Tadesse (42, male, farmer) explained the transportation and marketing of agricultural products.

"*Once urban farmers harvested their vegetables and crops, they usually delivered them to the marketing outlets on the same day, or the next depending on the 'perishability of the products.' They mostly use human labor to transport farm products to the marketing outlet where the urban dwellers have access to purchase including mola gol'ja and bus station. Sometimes, farming farmers take their produces to the doors of urban dwellers and exchange them at bargain prices*".

In the market, both buyers and sellers are mostly low-income people who try to make ends meet through

cheap bargains. In this way, one section of the urban poor helps another section to survive. For most of the farmers in this study, 'using human labor to transport farm products is cost-effective as it buffers from transport-related problems.' In other words, urban farmers accept the long travel to the marketing outlet although it takes a long time and create inconvenience. When marketable farm products are to be delivered in large, donkey-drawn carts are used, but it charges a higher price. The farmers in this study are "not comfortable" with the existing market that is essentially 'poor,' thereby weakening the ability to save and invest, and making 'moving out of poverty' less likely.

3.3 Challenges of Urban Agriculture

The expansion of urban agriculture is arguably necessary to feed the urban population, especially as the influx of migrants to urban areas continues. However, there is a range of hindrances preventing its full utilization, all of which are not necessarily exclusive to urban production systems – especially challenges associated with lack of foresight. As this study shows, there is a range of challenges that often prevent the beneficial effects of urban agriculture from happening in an effective manner. First, there was no conscious planning for urban agriculture. Urban farmers are often 'ignored' by the local authorities highlighting urban agriculture-urban governance disconnect. Lack of recognition of urban agriculture often leads to a feeling of insecurity among urban farmers.

In the study area, urban land use planning has failed to tap adequately into urban agriculture as a viable strategy to increase urban food supply and ensure food security. This failure is compounded by rapid urbanization and urban growth, urban sprawl, and the conversion of agricultural lands to residential uses in both urban and peri-urban areas. I argue that urban agriculture does not get the status it deserves as it is mostly considered a 'rural' activity which clearly shows the indifference with which the sector is treated, which validates the findings of Bryceson and Potts (2005). There is no clear strategy concerning current and future issues related to urban agriculture. As a result, the sector suffers from policy bias. There is also poor coordination among concerned state structures. According to Bayeush (36, female, farmer)

> "*Urban agriculture encourages the use of land to feed people. However, urban farmers are not adequately encouraged to participate in the urban agriculture sector through sensitization, training, and demonstration. Even those who are involved in urban agriculture remained reluctant to expand their agricultural activities because of lack of support from relevant state authorities. As a result, the functions of urban agriculture remained 'invisible'*".

Land, in terms of availability and access, is one of the major institutional constraints to urban agriculture (Mpofu, 2013). While demand for land has been steadily increasing, supply of the same is inadequate, thereby creating a shortage of land in the town and affecting the availability of land for urban agriculture. As Marta (34, female, farmer) observed, 'land' is a problem, particularly in the inner part of the town. Moreover, land delivery is not transparent. While some people are denied, others are allowed to know where they can farm or how they can gain permission to farm even in restricted places.' This observation is consistent with the studies by Maxwell and Zziwa (2002), Mbiba (2005), and Mougeot (2005). Farmers have no minimum use rights of farmlands (roadsides, riverbanks, idle public lands) and hence, suffer from land-tenure insecurity. For Kebede (32, male, land expert) land is a major constraint to urban agriculture.

> "*Land holds a central position in people's livelihood. But, in urban areas where land is in short supply, accessing land to work on is very difficult. The population of Dilla is growing. This leads to additional land being put to use. Many urban farmers are kicked out from urban farming in and around the town due to rapid land-use conversion. The patterns of location have been changing over time, as cultivated land is pushed outside by the housing demands that out-price urban farms as urban land use*".

As the demand for land continues to increase, the town's administration takes land occupied by the urban poor within the city and pushes for the annexation of peri-urban areas, and turns them into the town districts through a series of legislative actions (expropriating the land and reallocating the expropriated land to different users through the lease contract). In a context where investors have unrestricted access to land, farmers within and in the peri-urban areas live in perpetual fear of eviction. Evicted people embark on small-scale agriculture on marginal plots of land within the town or in the peri-urban areas to buffer themselves from the socio-economic upheaval of dispossession from their land and the lack of livelihood opportunities in the town. Farmers also lessen input and productivity due to the risk of 'eviction.'

On the other hand, smallholder farmers in this study seem to have very little idea of intensive land utilization or urban farming skills. Put differently, urban farmers have a limited idea about the very nature of urban farming, which is 'super intensive' (Mesay, 2010) and can be practiced on small areas and the roof of containers and buildings; what is called 'vertical farming'.

The existence of good marketing opportunities will be crucial for the further development of urban agriculture. As Tadesse (42, male, farmer) indicated, 'market access is important as is access to land.' Nonetheless, there is a poor local market for agricultural products. This is due to the existing food culture in the town. According to Tesfa (39, male, social expert), 'residents of Dilla prefer protein foods. Because of this, there is low consumption of vegetables in the town'. This in itself affects both the production and marketing of urban farm products'. The national picture is also the same. Per capita consumption of vegetables (about 25 kg per year) is amongst the lowest in sub-Saharan Africa, which is well below the recommended WHO/FAO minimum per capita consumption of vegetables (146 kg per capita per year) (Ruel et al., 2004). Kepie (46, male, agriculture expert) explained the challenges that urban agriculture is currently facing:

> "*High-value vegetable crops are not dominant in urban and peri-urban production and marketing. No adequate efforts have been made to encourage large vegetable production in urban agriculture. Even those efforts that have been made have brought limited change as they have not been accompanied by a program of sensitization amongst urban farmers to develop 'vegetable and fruit culture' [a culture of eating vegetables and fruits]*".

For one farmer, 'little effort has been made in finding ways to connect farmers even to the existing markets to help them generate income.' As a result, the situation for urban farmers is far from being any better. During focus group discussion, farmers and experts confidently indicated that following the rapid population growth, the demand for horticulture crops (vegetables, fruit crops, root, and tubers) and poultry and animal products is to some extent increasing over time, and this would create a strategic opportunity that urban farmers can exploit. Farmers and experts who participated in the focus group discussions believed that, if properly explored, the emerging market niches can provide important income sources for the urban poor.

Small-scale urban farmers are prone to lack of basic agricultural supplies, extension, and veterinary services. Although some farming equipment is available, it is rare to find specialized farm tools. It is the urban poor who need tools most who must do urban farming without them as prices of it are too costly to afford. As the current study shows, urban farmers have no access to credit facilities; one of the big hurdles to urban agriculture as Mpofu (2013) confirmed in his study of the performance of urban agriculture in Addis-Ababa. Urban farmers need capital/ financial resources to invest in urban agricultural inputs for the intensification of crop, poultry, and dairy production. But, no well-developed legal and institutional framework to unlock critical technical and financial support services for the sector. As Alemu (43, male, farmer) explained the challenges farmers face to access to credit:

"*Farmers face many challenges when they want to access credit. First, they lack sufficient assets to put up as collateral (a prerequisite for borrowing from financial institutions). This makes it more difficult for farmers to obtain credit from formal credit sources. Second, poor farmers are unable to repay loans they obtained from financial institutions because of higher interest rates imposed on loans and their short repayment period. This makes it more difficult for farmers to obtain credit from formal credit sources*".

Banks often find it very risky to provide credit to urban farmers because agricultural credit is perceived as a risky venture (Rahji & Fakayode, 2009) and urban farmers are perceived as 'high-risk borrowers' (Daniel, 2019). Besides, high-interest rates (that ignores profitability levels of urban agriculture) and short loan repayment periods are still impeding farmers' access to credit services. Obtaining loans from friends and relatives is also very difficult since loans to family and friends are mostly open-ended [lenders are not sure when their money will be returned]. During the focus group discussion, farmers commented that access to adequate supply of water, manure, compost, and fodder is crucial to urban agriculture, but all are difficult to obtain for urban farmers in the study area. Besides, urban farmers are not organized in a formal way, which in itself limits their capacities to improve their farming systems and marketing opportunities. As a result, farmers are unable to enjoy the returns from the resources they put into urban farming.

4 Conclusion and Suggestive Remarks

4.1 Conclusion

This article provides insight into the drivers, practices, and challenges of urban agriculture based on a case study in Hara wolabu Kebele administration, Dilla town. Urban agriculture is a productive and income-generating farming system that should be seen as an integral part of the urban system, contributing to household livelihoods and the health of the urban ecosystem. As learned from the discussion, there are different reasons for farmers to be engaged in urban agriculture. These include household food self-sufficiency (direct consumption of food), economic security (increased income through the sale of agricultural produce), and environmental protection (improves urban microclimate/ ecosystems). As regards the practice of urban agriculture, smallholder urban farmers are mainly engaged in crop cultivation (horticulture), and livestock production (dairy and poultry production). As this study has made it clear, the urban agriculture sector faces many challenges. Lack of access to urban agricultural land, land tenure insecurity, little idea of intensive land utilization or urban farming skills, lack of access to credit facilities, lack of basic agricultural inputs and extension services, and limited attention given to urban agriculture from concerned bodies (relevant stakeholders) are to mention. As a result, the farmers are not enjoying the benefits of urban agriculture as expected. At its current situation, urban agriculture in the town is entirely resource-poor and disorganized, and those in a position to develop it, notably the state authorities, have done nothing about it.

4.2 Suggestive Remarks

The findings of the study reveal that urban agriculture could play a great role in the overall development of the study area (Dilla town extended) if the state authorities, practitioners, non-governmental actors, and the urbanites at large are well aware of the value of the sector. It seems that the contribution of the sector is likely to expand owing to rapid population growth and soaring food prices in the town. The sector needs to be well-organized and land should be provided for urban farmers on a usufruct basis (but the land can be used for the intended urban development purpose when needed). For urban agriculture to become part of the solution to livelihood deprivation, it is necessary to address the problems observed in the provision of appropriate technical support, training, modern farm inputs (including appropriate and affordable locally developed technologies), credit facilities, and extension services all of which are vital to the sustainability of urban agriculture thereby enabling farmers to make change for the better of

their life and the lives of others around them. Integration of urban agriculture into the urban planning vision should also be accompanied by policies that seek to expand the water supply infrastructure to accommodate urban agriculture.

It is identified that the inclusion of a well-staffed and equipped urban agricultural development bureau in the administrative structure of the town is highly required. The identification and establishment of specialized intensive urban farming zones may result in a more productive and eco-friendly urban agriculture in the town. Back yards, roadsides, and other open areas along the urban and peri-urban continuum can be used for the production of temporary vegetables, crops, salable flowers, and seedlings; of course, integrating urban farming in harmony with the environment. This will place urban agriculture on the agenda of reducing urban poverty and improving livelihoods. In this regard, concerned state-level actors particularly urban planners and non-state and other informal actors as well as the urban community are expected to give appropriate attention to urban agriculture and mainstream it into urban livelihood policy strategies so that urban agriculture could play its optimal role in making Dilla a more food-secure, green, and livable town.

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Conflict of Interest

The author declares that there is no conflict of interest.

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