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Small-Scale Urban Agriculture in Addis Ababa: a case Study of two Sub Cities

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Small-Scale Urban Agriculture in Addis Ababa: A case Study of two Sub Cities

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Advisor: Professor Belay Simane

“Declaration”

“I hereby, the undersign fully confident to declared this thesis research work was my original work, and all the sources and materials used to write this thesis research have been properly indicated and acknowledged with completed reference. This is a true copy of my thesis research report”.

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Contents	Pages
ABSTRACT.....	1
CHAPTER ONE: INTRODUCTION.....	2
1. Background of the study	2
2. Statement of the problem	4
3. Objective of the study	6
3.1. General Objective.....	6
3.2. Specific Objectives.....	6
3.3. Research Questions	7
4. Significance of the research	7
5. Scope and Limitations of the Study	7
Chapter II: Review of the Literature	8
2.1. Urban Agriculture: Meaning and classification	8
2.1.1. Meaning of Urban agriculture	8
2.1.2. Small-Scale Urban Agriculture	9
2.1.3. Types of Urban agriculture	10
2.2. Urban agriculture as sustainable food systems	10
2.3. Urbanization and Urban Agriculture in Ethiopia.....	11
2.4. Nature and Forms of urban agriculture in Addis Ababa.....	13
2.5. Potential of Urban Agriculture for City Resilience	15
2.6. Adaptation and Mitigation potentials of Urban Agriculture.....	16
2.7. Urban Agriculture as a Means of Diversifying Food Source and Income..	17
2.8. Urban Agriculture as Nature Based solutions.....	18
2.9. Potential Risks Associated with Urban Agriculture	20
2.10. Theoretical Framework of the Study	20
CHAPTER 3	24
3. DESCRIPTION OF THE STUDY AREA AND METHODOLOGY	24
3.1. DESCRIPTION OF THE STUDY AREA	24
3.2. The Study Design.....	25
3.3. Research Methods.....	25
3.3.1. Depth-Interviews	26
3.3.2. Focus Group Discussion s	26
3.3.3. Observation	27
3.3.4. Document Review	28

3.3.5.	Household Survey	28
3.3.6.	Sampling Methods.....	28
3.4.	Data Analysis and Interpretation	29
CHAPTER 4	30
4.	RESULTS AND DISSCUSSION	30
4.1.	Socio-Economic and Demographic Characteristics of The Sample Households	30
4.1.2.	Educational Level of respondents	31
4.1.3.	Family size of the Sample of Respondents	32
4.1.4.	Household Income Source	32
4.2.	Major urban agricultural Practices.....	33
4.2.1.	Vegetable Production	35
4.2.2.	Cereal Crop Production.....	36
4.2.3.	Fruit Production.....	37
4.2.4.	Spice Produce.....	38
4.2.5.	Poultry, Livestock produce	39
4.2.6.	None Food Tree and Flowers types of Production.....	40
4.3.	Major Socio-Economic and Ecological contribution of agricultural Practices of the study Area.....	40
4.3.1.	Purpose of Production	40
4.3.2.	Economic contributions of Urban Agriculture.....	43
4.3.2.1.	Total Annual Income from urban agriculture.....	44
4.3.3.	Social Contribution	47
4.3.4.	Ecological Benefit of Urban Agriculture from Perspectives of a Sample of Respondents	50
4.4.	Major Urban Agriculture Major Challenges in the Study Area.....	54
4.4.1.	Cooperation among stakeholders regarding intensification of urban agriculture as a response to challenges of Climate change	Error! Bookmark not defined.
Access to Land.....		58
Access to Water		58
Access to improved inputs.....		59
CHAPTER 5: CONCLUSION AND RECOMMENDATION	60
Annex I.....		71
Annex: II.....		79

Acronyms

Σ : Sum

AA: Addis Ababa

AAU: Addis Ababa University

CRGE: Climate Resilient Green Economy

ET: Ethiopia

FAO: Food and Agriculture Organization of the United Nations

FGDs: Focus Group Discussions

HH: Household

Ha: Hectare

IPCC: Intergovernmental Panel on Climate Change

NbS: Nature Based Solutions

SC: Sub City

UA: Urban Agriculture

UNFC: United Nations Framework Convention on Climate Change

\bar{x} : Mean

ABSTRACT

The study attempted to assess the socio-economic and ecological conservation contribution of urban agricultural practices in the study area. Moreover, it attempted to assess coordination and cooperation among stakeholders regarding urban agricultural production and productivity. Both quantitative and qualitative approaches to data collection were employed for the study. Urban Agriculture is found not as a major source of household income in the study area; rather a supplementary activity with other income-generating activities. It has been practiced as a means of substituting market commodities by directly accessing household food needs through own production. UA practice in the study area contributes to sharing of knowledge & experience about agricultural produce types and practices. Urban agriculture's contribution to employment other than members of households was found insignificant. Rather, households do the practice mainly as a supplementary activity to other income-generating activities. Urban agricultural practice in the study area serves as a means for coming together for close neighbors to get-together to discuss different social, economic and political issues. It also enabled households to keep different varieties of vegetables, fruits, spices and nonfood trees and flowers: - contributing to conservation of urban biodiversity. Moreover, the practice enabled households to keep their vicinity clean, conserve the soil, reduce flooding, reduce temperatures during dry seasons. In the provision of support services to urban households, major challenges related to urban agriculture in the study area include: lack/ weak consistency or alignment of directive, proclamation, weak/loose coordination of stakeholders, lack of access to land, water and agricultural inputs.

CHAPTER ONE: INTRODUCTION

1. Background of the study

Urban agriculture (UA) is a term with no a universally agreed definition. The cultivation of plants, keeping and rearing of animals within and around cities as well as food growing both marketing and non-marketing activities (FAO, 2022), and related activities like producing and delivering agricultural inputs as well as processing and marketing of agricultural products can generally refer to the concept of urban agriculture (FAO, Rikolto and RUAF. 2022). Urban agriculture can be practiced in gardens, rooftops, empty public land, field plots by citizens from different socioeconomic backgrounds (Abraham Assefa Tuji 2014). The practice of urban agriculture encompasses a range of actions/ practices like aquaculture, livestock, plants, and food production (Grewal et al. 2012; Haberman et al. 2014; Lovel 2010; Russo et al. 2017).

Small-Scale Urban Agriculture is urban agriculture for food production at household level, whether at home or in community gardens (Greibitus C., 2021). Practice of small scale urban agriculture can be taken as an approach which has the potential of providing multiple development benefits and help to strengthen and enhance urban resilient food systems (Marielle, René and Jess, 2019). Getting the most out of the adaptation and resilience benefits of Nbs for urban food growing advocates the need to embrace the multi-functionality of urban agriculture, rather than viewing it as solely concerning food production (Dodman, et al 2022).

Thus, investments in UA have a number of opportunities to enhance climate resilient development pathways (Dodman, D., et al, 2022). It can contribute to strengthened social capital, diversified livelihood options, improved wellbeing and health of humans and urban ecological as well as the potential to contribute to low-carbon futures (IPCC, 2022, Demuzere et al., 2014; Clucas et al., 2018, Lwasa et al., 2015). It can also strengthen waste recycling, reduce waste in cities and enhance efficient water use, decrease air pollution and soil erosion, and city decoration; empower community unity and cohesion; climate change adaptation and resilience, and ecological and social urban sustainability (FAO, Rikolto and RUAF. 2022, Martina Artmann and Katharina Sartison, 2018, Dubbeling and de Zeeuw, 2011; Satterthwaite et al., 2014).

The urban transformation in Africa is rapid and predicted to get larger (Vandercasteelen et al., 2018), and so is Ethiopia's (Gebresenbet F, etal 2022). Almost about half of the world population lives in urban areas and more than two-thirds of the global population is expected to reside in cities by 2050 (UN, 2018). It has been evidenced that population growth, global climate change, and in some cases urbanization all contribute to failures of agricultural production and the rising of food prices, malnutrition, diseases, and extreme poverty (Horwood, C., & Frouws, B., 2021). While urbanization brings a number of socio-economic benefits, the rapid increase in the urban population leads to a number of challenges (Gebresenbet F, etal 2022).

Continuing rapid urbanization presents important opportunities to incorporate comprehensive adaptation approaches into sustainable development (Pörtner, H.-O., et al, 2022). The phenomenon of growing urbanization provides a vital opportunity. It is a key tool to guiding the attainment of a sustainable development agenda. However, if poorly planned and not managed well, growing urbanization can contribute to worsening many of the problems that it claims to solve. Unplanned, inadequately planed, and unmanaged growing urbanization can result in socio-economic disorder, unrest, overcrowding and ecological degradation, as well as increased slums and sprawl (UN-Habitat 2016). Thus, the choices we make today critically determine the future impacts of climate change (World Bank 2022).

Rapid urbanization puts urban agriculture under high pressure; at the same time, with rising urbanization, demand for food in urban centers is intensifying, calling sustainable agriculture a key. However, lacking proper management in urban agriculture could degrade the environment, causing extra risks, and may contradict with other urban infrastructure developments, posing risks to other urban natural ecosystems. The contribution related to the economy, social equity, food production for self-sufficiency needs to be well articulated, understood and integrated into national, local, regional policies and program design. If planned, developed and managed by an organized manager, urban farming as NbS, can have a crucial impact on sustainable urban development (Artmann and Sartison 2018).

Although urban agriculture has been receiving more attention in recent years in Addis Ababa city administration, studies show the variety of urban agricultural forms, the multifunctionality of urban land where urban agriculture largely takes place and contested framing of urban agriculture often result in the failure to create institutional, policy, and planning arrangements that are conducive to sustainable urban agriculture (Feola, G., 2020). As Mougeot, 2000 explained, to broadly support urban agriculture's contributions to the socioeconomic wellbeing of particular societies within and around cities, one needs to understand how the urban food systems function. Moreover, the recent 2022 IPCC report indicated with high confidence that facts supporting climate resilience of urban agriculture is limited and context specific.

Considering the city government's need to intensify urban agriculture as a means of diversifying urban food provisions and generating employment on the one hand, and reports indicating lack of evidence supporting the climate resilience of small scale urban agriculture as limited, this study aimed to contribute to this gap by providing some insights for researchers on the sub sector for further studies that significantly supports the cities initiatives.

As the orientation and scale of urban agriculture vary from purely subsistence-oriented or recreational types of urban agriculture at the micro scale, through small-scale semi-commercial gardeners and livestock keepers, to medium- and large-scale fully commercial enterprises (H. De Zeeuw, et al, 2011) this study mainly focus on assessing urban households' experience of integrating practice of small scale urban agriculture with other income generating activities and its socioeconomic and ecological contributions to households in the study area.

2. Statement of the problem

Various research works on the crucial role of Urban agriculture in improving urban resilience to food shortages, enhancing biodiversity and increasing coping capacity to the challenges of climate change have been conducted focusing both on developed and developing countries (IPCC, 2022, Dodman, D. et al, 2022, Dubbeling, M., and H. de Zeeuw, 2011, Demuzere et al., 2014; Clucas et al., 2018, Lwasa et al., 2014, UN Habitat,

2022). These research works indicated that urban agriculture contributes to climate change adaptation and mitigation (Lwasa et al. 2014, 2015, Dodman, D., et al, 2022). The practice can serve as a Nature Based Solutions for food security across a range of urban contexts by contributing to food provisioning as well as providing co-benefits including recreation, place making, mental health, mitigating the urban heat island effect (Dodman, D., et al, 2022, Deuskar 2022 as cited by Mukim and Roberts, 2022).

It has been demonstrated by Addis Ababa City Administration that attention to production of urban agriculture increasing since recent years. According to Mougeot, 2000, to complement rural and foreign sources of food supply to cities development agriculture within cities have been practiced in many parties of cities. Production of urban agriculture has been advocated so as to effectively complement food supply from rural areas. As Mougeot, 2000 explained, we necessarily understand how the urban food systems function if we want to broadly study and support urban agriculture's contributions on the socioeconomic wellbeing of particular societies within and around cities. But, the recent IPCC report indicated with high confidence that facts supporting climate resilience of urban agriculture is limited and context specific but there is medium confidence on multi-functional advantages from urban agriculture, depending on the regions and types of urban agriculture (Bezner Kerr, et al, 2022).

On the other hand, studies show that a high rate of urbanization has been impacting urban agricultural practices. The expansion of Addis Ababa city has been leading to a loss of highly fertile agricultural land and green areas losing their valuable ecosystem services. Consequently, 24% of the farmland in Addis Ababa was lost between the 2006 and 2011 periods (Woldegerima et al., 2017, Gebremichael, D. et al 2014). A study also showed that, in 2003, land covered by urban agriculture was about 7176ha. However, the amount of land covered by urban agriculture decreased to 938.7 ha in the year 2016 (Sileshi Azagew and Hailu Worku, 2020). Green space tends to be lost as Ethiopian cities are being redeveloped (Girma et al., 2019), adjacent natural areas are lost to urban expansion, and urban population growth is surpassing urban economic growth and sustainable development (Gebresenbet F, etal 2022).

Moreover, the population of Addis Ababa is expected to increase at an average annual growth rate of approximately 4.3%, reaching almost 7 million people in 2030 (UN, 2018), consequently, farmland will continue to decline. The amount of farmland lost and the impacts on food supply, local livelihoods and the environment will very much depend on the mode of future urban development (Stephan Pauleit, etal 2019). With the fact that the current land lease price is so expensive, it might not be affordable to the urban poor who want to engage in urban farming for livelihood. Thus, besides a lack of public awareness regarding the benefits of urban farming, getting access to land for this purpose is a huge challenge (Husen A. T., 2020).

Given the significant climate and land area pressures bearing down on urban agriculture, new production systems could help to ensure that urban food production can be sustained and possibly increased. Intensive production for urban agricultural systems, with their small land holdings, will become increasingly important given increasing land constraints (UNEP, 2014). Thus, practices of small scale urban agriculture need to be promoted not only as a major livelihood but also as a supplementary activity. As many studies on urban agriculture focused on both urban and pre-urban agriculture, this study focuses mainly on small-scale urban agriculture, taking two sub cities in Addis Ababa as a case study. It aimed at assessing whether urban households have been taking small scale urban agricultural practices. The study focused on assessing the socioeconomic and ecological contribution of small-scale urban agriculture at household level, taking two subcities within Addis Ababa as a case study.

3. Objective of the study

3.1.General Objective

The general objective of this research is to assess socioeconomic and ecological contributions related to small-scale urban agricultural practices in Addis Ababa taking two sub cities as a case study.

3.2.Specific Objectives

The specific objectives of this research are as follows:

1. Assess economic contributions of small scale urban agricultural production to the residents in the study area

2. Assess social contribution of small scale urban agriculture to city residents in the study area
3. Assess ecological contribution of small scale urban from the perspective of urban farm households
4. Assess the major challenges related to urban agriculture production in the study area

3.3. Research Questions

1. What are major potential opportunities for urban agricultural practices in Addis?
2. What are the major potential factors affecting progress of Urban agriculture in Addis Ababa

4. Significance of the research

This study aims to assemble knowledge on the challenges and opportunities of urban agriculture in the study area. This study intends to provide information supporting programs and policy planning and decision-making at the local level specific to urban Agriculture subsector. It also aims to raise awareness among stakeholders on basic conditions for enhancing UA as an approach to contributing to urban food security, helping reduce urban poverty and contributing to overall urban development. Lastly, the study finding can serve as an inference for conducting additional research on the subsectors.

5. Scope and Limitations of the Study

This study focused on households who have been engaged in urban agriculture as a supplementary to other income-generating activities who were drawn using multistage cluster sampling. The MA thesis study is limited to Woreda 4 and 1 of 'Lideta sub city' and 'Nifas Silk Lafto Sub city' respectively in Addis Ababa administration. The samples of respondents were selected using multistage cluster sampling, which may not be representative of the whole population. Thus, the assessment may not be representative of the population under study.

Chapter II: Review of the Literature

2.1. Urban Agriculture: Meaning and classification

2.1.1. Meaning of Urban agriculture

Although, urban agriculture is a practice without having commonly agreed definition, the term urban agriculture refers “the producing plants and the rearing of livestock within and around cities” for production of foodstuff for both market and non-marketing activities (FAO, 2022). It is a business situated within (‘intra-urban’) or on the fringe (‘peri-urban’) of a town, a city, or a metropolis, that grows and raises, processes and distributes a diversity of farming products from both plants and animals, using human, land and water resources, products, and services found in and around that urban area. Urban agriculture can be produced in private grounds, rooftops, vacant communal land by city residents from different background. The purpose and extent of such practices may vary from household consumption, to more leisure types of cultivation at the micro scale, through small-scale semi-commercial gardeners and livestock keepers, to medium and large-scale commercial enterprises (World Bank, 2013). The most common known building blocks of urban agriculture are: based types of economic activities, food/non-food types of products and subcategories, based on location-intra-urban and peri-urban, types of production system based types, on the basis of product destination and production scale (Mougeot 2000).

Urban agriculture products comprises vegetable productions, and cultivation of fruit trees, as well as other varieties of crops for instance, medicinal and ornamentals crop varieties, timber production, livestock rearing (such as poultry, fattening) and bee keeping (Francesco Orsini, et al , 2013). Other important sectors under urban agriculture include production of horticulture, fodder and dairy production, and including forestry activities (FAO, Rikolto and RUAF. 2022).

There are various forms of urban agriculture in within urban centers including land-based private household plots, public allotment gardens and larger commercialized farming, as well as other innovative kinds of gardening that have less/ no prerequisite for vacant land including indoor farming, aquaculture, mushroom farming, etc. These

the different forms of farming are appropriate to various commercial models farming and to differing aim and objective. For example, advanced vertical urban agriculture, typically advantageous for niche crops (e.g., herbs, select vegetables), can generate economic development and minimize needs of transport services and related impacts, but may not necessarily provide the dietary and income needs of low income groups within the city (International Resource Panel, 2022).

In the second half of 20th century, technological development and social initiatives set the new development stage for the concept of urban agriculture - the renaissance of urban agriculture, where urban agriculture is practiced on a relatively small scale, using not only land resources in their traditional sense, but all the available space in cities - walls, roofs, balconies etc (Madara D. and Andra Z. 2020). The meaning and popularity of urban agriculture in the 21st century has been influenced by trends of social ideas, changes in societal values and sustainable development in an attempt to balance urban resource consumption and security (Zvirbule, Dobeles, & Auzina, 2019 as cited by Madara D. and Andra Z. 2020). The change in the concept of urban agriculture has been driven by social, political and economic factors, changing the role of agriculture in the urban environment (Madara D. and Andra Z. 2020).

2.1.2. Small-Scale Urban Agriculture

Small-Scale Urban Agriculture is urban agriculture for food production at household level, whether at home or in community gardens (Grebitus C., 2021). Small scale urban agriculture can bring the unemployed family members back into the productive production process. While their labor may not be paid according to their marginal productivity if employed in the so-called first labor market, they are paid according to the average productivity of all family members as they raise the overall (subsistence and cash) family income (Benjamin E., Buchenrieder G., 2022). Small-scale urban agriculture is related to increased overall health and well-being, nourishing individuals by providing healthy food options and building communities (Grebitus C., 2021).

Small farms can be equally, if not more, productive than industrial monoculture farming. This is particularly true if total output is considered rather than the yield from a single crop, given that in small-scale farming it is usual to grow multiple crops in the same

space (inter-cropping) or within the same growing season. Of the 570 million farms worldwide, 84% are landholdings of less than 2 ha (Lowder et al. 2016). These small farms make up 12% of total agricultural area, yet produce 70% of food in Africa and Asia (Elizabeth N, et al, 2020).

2.1.3. Types of Urban agriculture

One can distinguish between various types of urban agriculture. Each types of urban agriculture have some kind of common characteristics which one needs to understand to distinguish between the types of urban agriculture (FAO, Rikolto and RUAF. 2022). The classifications of urban Agriculture productions/producers are many. But because of the several layers of practices and characteristics symbolizing specific urban agriculture, It is important to note that there is no a universal approach to classify urban agriculture. (Mougeot 2000). Thus, it is necessary to discover key criteria for the diverse typologies of urban agriculture (FAO, Rikolto and RUAF. 2022). On the bases of criterion to be used like- place of production, purpose of farming, crop or animal types, and or extent of production, categorization of urban agriculture systems may vary (FAO, 2007).

2.2. Urban agriculture as sustainable food systems

With the rising growth of population combined with challenges of climate change will place increasing stress on food systems, particularly in Africa (Global Panel on Agriculture and Food Systems for Nutrition). The demand for food production is consistently increased at the expenses of sustainability, (Godfray H CJ, et al. 2020). Food systems have undergone significant changes in responding to rapid urbanization, dietary patterns, and increasing per capita incomes (Global Panel on Agriculture and Food Systems for Nutrition, 2016).

Currently, urban food environments can be symbolized as “lose-lose” diets because they represent energy-dense foods that are heavily processed, and are high in saturated fats and added sugars. This suggests that reducing access to unhealthy foods or increasing the availability of healthy food alternatives rich in produce is crucial to realize win-win diets (Alemu H, Grebitus C., 2020). Urban agriculture can have an impact on urban food

security. At the household level, urban agriculture can be a source of income, can provide direct access to a larger number of nutritionally richer foods (vegetables, fruit, meat) and a more varied diet, can increase the stability of household food consumption against seasonality or other temporary shortages, and can increase the time mothers spend caring their children, as opposed to non-agricultural activities that are more likely to be located further away from home (Maxwell D., 2003). Urban agriculture is an important source of food supply for those communities, contributing to food security and health among poorer communities in lower income areas (Orsini et al., 2013).

Urban agriculture enables citizens to fulfill some of their food needs, improving urban resilience to food shortages, enhancing biodiversity and increasing coping capacity during disasters (Demuzere et al., 2014; Clucas et al., 2018, Lwasa et al., 2022). Strengthening urban agroecosystems therefore increases resilience to supply shocks from climate change impacts and can contribute to community cohesion (Temmer, 2017a). It can contribute to enhancing urban food security and healthy nutrition of the urban poor. Urban households that are involved in some sort of farming or gardening are more food secure, have a better and more diverse diet, and eat more vegetables than non-farming households (Zezza&Tasciotti 2008). Involvement in urban agricultural practices increases the availability of affordable, healthy and fresh food for other urban consumers, as much of the food produced by urban farmers is sold locally (H. De Zeeuw, R. Van Veenhuizen and M. Dubbeling, 2011). It provides a substantial part of the urban demand for vegetables, milk, poultry and eggs, and fruits. Urban agriculture is considered as a strategy that can bring many advantages and help to enhance resilient urban food systems at the city level (Marielle, René and Jess, 2019).

2.3. Urbanization and Urban Agriculture in Ethiopia

Ethiopia is urbanizing rapidly due to “migration from villages to towns, urban expansion to peri-urban areas and the natural growth of urban inhabitants”. The phenomenon is posing an existential threat to peri-urban farmers. Evidence indicates that farmers displaced as a result of Addis Ababa’s expansion were exposed to a myriad of economic and social problems including poverty and chronic food insecurity (Husen A. 2020). Urbanization has historically pushed all forms of agriculture out of the city

into the rural areas, considering it is too dirty for the wealth and glory of the city (Wellington J. and Isaac N., 2011). As the level of urbanization increases, the interest in the role of agriculture and its potential in cities renewed (Madara D. and Andra Z. 2020). As cities and towns expand, mainly arable land is changed into urban settlements causing a scarcity of agricultural land in the long run. Thus, leveling urban development and conservation of agricultural land and encouragement of local food making could happen not by chance but by design. It entails implementation of well-thought national land use policy and strategy. Most of the fertile farmlands in Ethiopia are being converted into urban settlements, which have been evidenced in Addis Ababa, and its surrounding towns (Husen A. 2020).

The rate of increase in urban land cover is expected to be at its highest in Africa until 2030 (Seto et al. 2012). City of Addis Ababa has already been experienced a high rate of urbanization over the past decades (Stephan Pauleit, Didit Okta Pribadi and Hany Abo El Wafa. 2019). This rapid urbanization, triggered expropriation of massive farmland from peri-urban smallholders with low compensation and little rehabilitation support, who have been exposed to many economic and social crises. Despite its enormous potential to improve urban food security and nutrition, existing urban land law and urban planning policy do not create a favourable condition to promote urban farming (Husen A. 2020). The phenomenon will be concentrated in five regions of which Addis Ababa is one. The city of Addis Ababa has already been experienced a high rate of rapid urbanization over the past decades. Due to the lack of 'proper' government policy and strategy, the expansion of the city is leading to a loss of fertile agricultural land and green areas losing their valuable ecosystem services. Consequently, 24% of the farmland in Addis Ababa was lost between 2006 and 2011 (Woldegerima et al., 2017). These losses have social and economic impacts for a majority part of the citizens living in Addis Ababa and the surrounding towns, as urban agriculture is considered as a significant means of livelihood and one of few stable income sources for farmers with limited qualifications (Zezza and Tasciotti 2010, Drechsel and Dongus 2010).

Urban agriculture is being threatened by urban sprawling and infrastructure developments that are competing with urban farming for available space and scarce resources such as water for irrigation, similarly, some credit agencies, researchers,

development agencies and market agents generally do not view urban agriculture as a significant industry (Marielle et al .2013). As a consequence, the sector' benefits are not being fully realized by those urban development planners or agency. According to Mougeot (2000), the main characteristic of urban agriculture is not simply represented by its localization within the city boundaries but by its increasing significance in the urban texture both at a socio-economical and ecological perspective. Therefore, urban agriculture influences and is also influenced by the urban environment.

2.4.Nature and Forms of urban agriculture in Addis Ababa

Urban Agriculture is a traditional practice in Ethiopia (G. Egziabher et al, 1994). Rearing cattle, sheep, and chicken, or growing rain feed crops and vegetables on plots found adjacent to their houses and away along river sides are traditional urban and peri-urban farming practices in Addis Abeba (Degefa et al., 2006). Mixed farming in peri-urban areas is practiced on a larger scale than in the urban areas, given that farmers have larger plots (Gebremichael, D. et al 2014). Urban agriculture has been practiced within or on the outskirts of a city and includes a variety of production systems, ranging from subsistence production and processing at household level to fully commercialized agriculture. It may take place in locations inside the cities (intra-urban) or in the peri-urban areas. The activities may take place on the homestead (on-plot) or on land away from the residence (off-plot), on private land (owned and/or leased) or on public land (parks, conservation areas, along roads, streams and railways), or public lands (schoolyards, grounds of schools and hospitals) (Mekuria D., and Messay M., 2018). This study mainly focuses on small scale urban agriculture located within city of Addis Ababa taking two woredas as a case study.

Urban agriculture production has been shown to be a final stage by households in their sequence of survival strategies (Lemi J. and Takele W. I, 2022). Urban agricultural practitioners in Ethiopia are for the most part resource-poor, subsistence, and urban poor growing vegetables and raising animals within and/or around city boundaries in uncoordinated manner (Mesay M. 2013). The majority of those involved in urban agriculture activity are from low to medium income earners who grow foods and rearing

animals primarily for household consumption and to lesser extent for markets (Alemayehu G.2022).

Thus, it has been becoming as an important means of responding to food insecurity, and is playing important role in fulfilling nutritious food and livelihood for the poor communities (Assefa Tuji, 2015). Studies show urban households practicing urban agriculture as response to declining household income and as an alternative livelihood activity in response to food insecurity (Lemi J. and Takele W., 2022). Most of the urban population in Ethiopia consists of the poor who cannot afford to buy high-valued food stuffs Lemi J. and Takele W. I, 2022.

Much of the outputs of urban agricultural practices in Addis Ababa are mainly used for household consumption (Alemayehu G.2022, Degefa et al., 2006, G. Egziabher et al, 1994) mostly as subsistence purposes, making the sector unable to play a significant role in poverty alleviation, urban greening and waste recycling endeavors (Mesay M. 2013). Study by Yohannes E, 2011 indicated that although urban agriculture makes a good contribution in enhancing food security, employment opportunity and income at household level, the attention given by the local governmental bodies in Bishoftu town is minimal. It is important to note that urban agriculture has also been studied as a contributor to improved nutritional levels among the urban poor in Ethiopia (Lemi J. and Takele W. I, 2022).

With the fact that the current land lease price is so expensive, it might not be affordable to the urban poor who want to engage in urban farming for livelihood. Thus, besides a lack of public awareness regarding the benefits of urban farming, getting access to land for this purpose is a huge challenge (Husen A. T., 2020). This problem leads to low investment in urban agriculture and hence poor productivity (Lemi J. and Takele W. I, 2022).

Thus, practices of urban agriculture need to be promoted not only as a major livelihood but also as a supplementary activity to showcase its multi functionality to individual households and to the public in general. Many of studies in Addis Ababa focus mainly on urban and pre urban agriculture. It might be not possible treating urban and pre urban together in examining the role of urban agriculture in Addis Ababa. Thus, as many of studies being done on urban agriculture taking both pre urban and urban together, this

study mainly focused on assessing the socio economic contributions of urban agriculture in Addis Ababa taking two sub cities as a case study.

2.5.Potential of Urban Agriculture for City Resilience

Urban agriculture can serve as a means of fulfilling food needs for the urban poor, be a mechanism for enhancing urban resilience to food shortages, and an approach to strengthen the coping capacity during disasters (Demuzere et al., 2014; Clucas et al., 2018), it is means of building capacity of urban settlements contributes to the vulnerability of the most at-risk communities and by building community based adaptive management via provisions of supplementary food sources to the low economic communities in cities. Moreover, it can builds access of poor city residents to nutritious food. UA contributes to reduced dependency on imported foods and reducing exposure to periods of low food supply from the rural areas during crises of poverty, hunger, flooding, and or other failures happen to the systems (RUAFA, 2014).

The urban agriculture systems can builds mainly on the capacities of resilience systems such as preventive, anticipative; absorptive; adaptive, and transformative capability systems. The resilience of a farming system can strengthens urban communities' preventive capabilities to reduce existing and future risks; anticipative capability to take necessary actions early on the possible risks/hazards. Thus, UA is a key to strengthening the resilience and sustainability of food systems in the occurrences of shocks and stresses in the urban centers (FAO, Rikolto and RUAFA. 2022). It can improve the resilience of towns/urban residents by reducing the urban heat island effect. When planned, designed and placed strategically, urban farming can improve ground water, and conserve much water in soils and has potential of mitigating high flooding at the same time contributing to making inhabitable conditions within cities and the vicinities more conducive and appealing for a living.

According to FAO, urban agricultural practices as a coping and adaptive mechanism enabled urban residents to tackle and recover from shocks, hazards, and stresses. It can enable the urban poor especially women and children to enhance availability of nutritious food (FAO, 2007, Martina Artmann and Katharina Sartison, 2018; FAO,

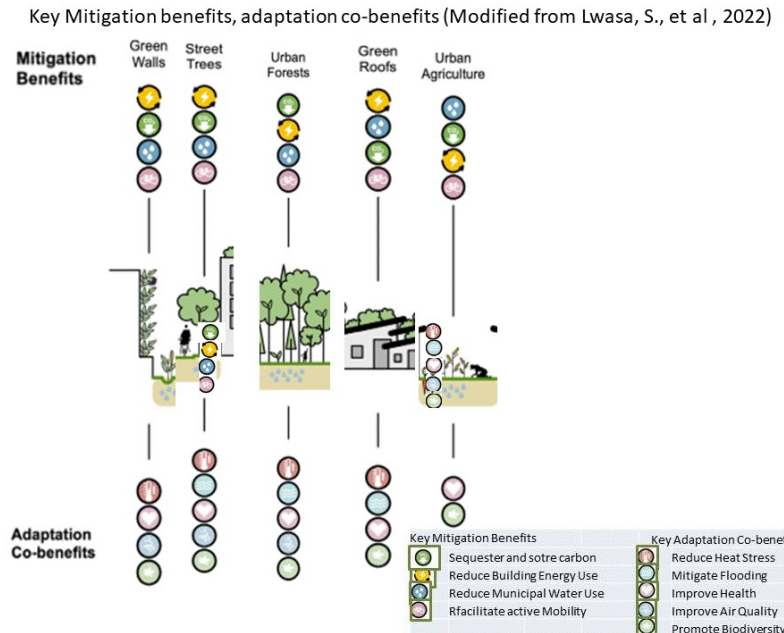
Rikolto and RUAF. 2022). The urban poor can enhance their adaptive capacity by engaging on urban agriculture production as means diversifying income source. Studies show that urban agriculture does not only augment the quantitative access to food but also household food self-sufficiency. The growing need of the urban poor in natural food is a major opportunity to advocate urban agriculture production and productivity further (Martina Artmann and Katharina Sartiso, 2018).

2.6. Adaptation and Mitigation potentials of Urban Agriculture

Studies show that urban agriculture provides many types environmental services and provides a wide range of socio-economic, environmental and ecological impacts. These broad widerange of socioeconomic and environmental benefits can be viewed as urban agriculture co-benefits (Martina Artmann and Katharina Sartison, 2018). According to the International Resource Panel, 2021, there are pathways in the course of which urban farming mitigates the impacts of the challenges of climate change. At the household levels, vegetation production can impact the energy loads of houses, limits high temperature and the use of air conditioning and contributing to reduce the carbon footprints of foods utilized in urban areas. Increased urban food production as a means of food self sufficiency in cities can contribute to decreased amount of energy consumed in the courses of transportation, cooling and storage of agricultural products from distant rural areas (IRP, 2021). The urban farming could also contributed reduced the city's environmental footprint by producing urban fresh foods near to the majority of consumers, in so doing decreased amount of energy use for transportation, loading and packaging and related services (FAO, Rikolto and RUAF. 2022). The urban agriculture production practice may also build an urban setting where the youth generations in cities can strengthened and build their food literacy and be taught about agriculture, thereby attain information, facts, aspirations, needs and value for urban food production (FAO, Rikolto and RUAF. 2022). This could certainly contribute to enhancing climate resilient cities, the enhancement micro-climate at local city levels and the preservation of urban biodiversity (FAO, Rikolto and RUAF. 2022).

Usually urban agriculture put together land that is not fit for production and make them productive and creates significant value to land that might not otherwise have

productive output. Urban agriculture can also contribute to a wise use wastes and wastewater (René van Veenhuizen and George Danso, 2007).



Integrating NBS in urban agriculture practice provides ecosystem-based approach to gaining benefits of various forms of ecosystem services. It has crucial importance in the changing societal challenges related to climate changes, high urbanization via conservation/preservation and development of carbon sinks (Lwasa, S., et al , 2022). Street trees have very good mitigation benefit because of their capacity to sequester and absorb carbon. Street trees simultaneously have potential of minimizing demand for household energy. They give many adaptation co-benefits and synergies to the SDGs. The mitigation benefit of urban agriculture depends greatly on context and scale specific spatial developments and its closeness to household buildings (Lwasa, S., et al, 2022).

2.7. Urban Agriculture as a Means of Diversifying Food Source and Income

Urban agriculture is an important strategy for alleviating urban poverty and inclusion of the most underprivileged urban groups (like disabled people, women, youth), with the objecting of inviting them to actively participate into the socioeconomic system (FAO, 2007) by availing an opportunity to feed food to families, increase/diversity household income, at the same time by capacitating/building their confidence, household

management and business innovative skills (Bailkey et al. 2007). The type of participants involved in urban agriculture; the types and extents of products produced, as well as availability and scale of market-oriented production are among the determining factors of urban agriculture's role in alleviating urban poverty. The more hand to mouth oriented, semi or noncommercial types of urban agriculture, may perhaps have less economic significance (Zeeuw, et al , 2011).

The urban agriculture practice can serve as a main source of revenue for many households in cities. In addition to revenue to be generated from sales of surplus production of urban agricultural products, engagement in urban farming can save household expenditures via fulfilling their own food needs by producing their own food (FAO, 2007,,Dodman, D.et al, 2022). Urban farming can also produce a considerable urban demand for fruits, spices, vegetables, dairy and poultry products. The sub sector can also increase the growth of small scale and medium enterprises in the production of essential urban agricultural inputs, the production, processing, and marketing of urban agricultural products and the rendering of urban agricultural support services like animal breeding services (FAO, 2007).

Households involved in urban agricultural practices often contribute a crucial role in the continuity of strategies of the poor, who may profit from the urban agriculture in various mechanisms. As an urban household farmer produces food, households' expenses are minimized, leading to significant savings. In additions, urban households that farm more than they want for their own household consumption will provide the surplus to the market and ultimately make an income, adding to the income from other sources (H. De Zeeuw, R. Van Veenhuizen and M. Dubbeling, 2011).

2.8.Urban Agriculture as Nature Based solutions

According to the International Union for Conservation of Nature (IUCN), Nature Based Solutions can be defined as “practices to safeguard and manage sustainably and restore natural ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits”. Nbs can be undertaken independently or in an integrated approach with other practices as a

solution to pressing societal challenges (Cohen-Shacham et al, 2016). NbS is a broad concept that has come to explain undertakings that enhance societal well-being at the same time as contributing to the conservation and preservation of biodiversity. The nature-based solutions comprise varieties of practices/actions that integrate nature for sustainable development and that maintain climate resilience, socioeconomic sustainability, climate resilient jobs and environmental conservation, and preservation (UNEP, 2021).

If planned, designed and translated into action very well, nature-based solutions provide various benefits including resilience and avoided losses; economic gains and sustainable growth; and essential environmental services. However, taking the full advantages of the multiple advantages of NbS, it needs everyone's understanding of the multiple benefits, their value and the close follow-up. Effective implementation of nature-based solutions depends on the governance systems at all levels, the political will, level and extent of citizen participation and efficacy and effectiveness of the development, planning, and management of the diverse methods of implementation. The success of NbS programmes depends on how good the low level city administrators and practitioners are able to coordinate and cooperate with medium and high level national governments to safeguard the consistency and complementarity of national policies, proclamations, and other practical undertakings at different scales (UNEP, 2021).

NbS based solutions can be implemented at spatial scales in diverse environments in and around towns and cities as a mechanism to enhance urban resilience. For instance, actions on green spaces on buildings, green corridors by the side of streets and water bodies, urban parks and forests within the boundaries of cities/towns constitute NbS for urban resilience (World Bank 2021).

As growing climate change challenges and associated risks interact with growing urbanization, loss of biodiversity, loss of environmental services, increasing urban poverty and widespread socioeconomic and political inequality, towns and cities across regions are facing resilience challenges. Climate change associated risks like severe precipitation, flooding, disease and droughts are causing huge socioeconomic and

political losses, increasing food insecurity of the urban poor, and affecting overall urban wellbeing. With the growing urbanization, urban resilience challenges are expected to grow. As challenges of climate change are likely to raise the occurrence and intensity of extreme hazardous events like poverty and hunger, urbanization can also cause higher vulnerability and exposure of people and assets in urban areas (World Bank, 2021).

2.9. Potential Risks Associated with Urban Agriculture

According to FAO, 2007, if one fail to consider some feature associated with urban agriculture practices, it may have negative effects/ risks/ on the wellbeing to the urban population. According to FAO, 20007, some of the main risks associated with urban farming may include: Health related risks- this may be associated to pollution of crops with pathogenic organisms caused by irrigation that uses water from contaminated river streams, or poorly managed wastewater, or to the unhygienic management of the farm products in the courses of transportation, processing and selling. Urban agriculture production may also contribute to polluting ground and surface water sources if high quantity of pesticides and/ or fertilizers used. Study also showed that if too much nitrate-rich manure like poultry manure have potential of polluting groundwater. Specifically wastewater releases from poultry farm have possibility of carrying lots of micro-organisms, and this may potentially pollute drinking water supplies within and the surrounding of urban settlements (International Resource Panel, 2021).

2.10. Theoretical Framework of the Study

To better understand the dynamics giving rise to urban agriculture and the means in which urban agriculture has been intensified as a multi-functional response to pressing challenges of cities, drawing theoretical framework would be helpful for actors willing to employ intensive urban agricultural practices.

Urban agriculture tends to be theorized in a ‘metabolicrift’ theory. As John Bellamy 1999, the “metabolic rift” describes the disruption of forms of exchanges of humans with nature jeopardizing the human social existence. As he explained, the metabolic rift theory explains that the society and ecology should not be seen as two different bodies. Rather, according John, the two should be seen an organism and the society cannot

function without the ecology. Thus, the theory asserts that with the growing of the capitalist system, man/ woman started seeing society and ecology as a two independent bodies/units/ entities, creating a “rift” among people being and the environment.

Thus, according to McClintock’s, 2010, urban agriculture has appeared as an approach to mitigate the metabolic rift in various forms. As he explains, urban agricultural practice can assist to restore ecological, social and individual rift problems. As McClintock explained by practicing urban farming, humans can fill a nutrient cycle gap and fix other ecological rifts, which, according to the theory, could help to cure the individual rifts by reconnecting them with their food needs, their labours with the produce of their work, and people with the natural environment (John Bellamy F. 1999).

The second important theory is Social Practice Theory. This theory views social actions as a starting point for a social change. The theory explained that customers are trapped in flawed lifestyles which to some extent influenced by social structures of markets, work behaviours and urban planning developments and at the same time their predestined; lack of choices is making prolongation of the societal compositions (Shove, et al, 2012).

To clearly know how the low and medium urban farmers and their associated urban farming produce, we may need to take into account three elements on urban agriculture. These elements include material elements such as farming tools and technologies; meanings- this may include specific ideas, aspirations of the groups involved, symbolic meanings attached to certain actions and; competencies of a specific group of urban farmers, including skills the group possess, practices a specific urban group exercise, group’s practical knowledge to undertake farming activity (Shove, et al, 2012).

2.11. Conceptual Framework of the Study

The urban agriculture practices' multifaceted impact on the life and wellbeing of urban households is dependent on many factors and yet may further determined by combination of many of those factors (Petra Jacobi, et al, 2000, Kimberley Hodgson, et al, 2011, World Bank Group, 2013) that influence the implementation of urban agriculture (Petra Jacobi, et al, 2000, World Bank Group, 2013, Martina Artmann and Katharina Sartison, 2018, Henk de Zeeuw and Marielle Dubbeling, 2015, Hubert de Bon, et al, 2015). Important drivers supporting the implementation of urban agriculture include social conditions, institutional conditions, economic and ecological conditions, as well as spatial and technical factors. Decision making and urban development planning entities should take due consideration and understand how those conditions may positively and or negatively impact the production and productivity of UA activities in the courses of their city development planning and implementation to fully unlock urban agriculture's potential for city citizens. Thus, if appropriate considerations are taken with clear understanding of the situation, enabling conditions can be met that improve the socio-economic and environmental conditions that could speed the implementation of urban farming production.

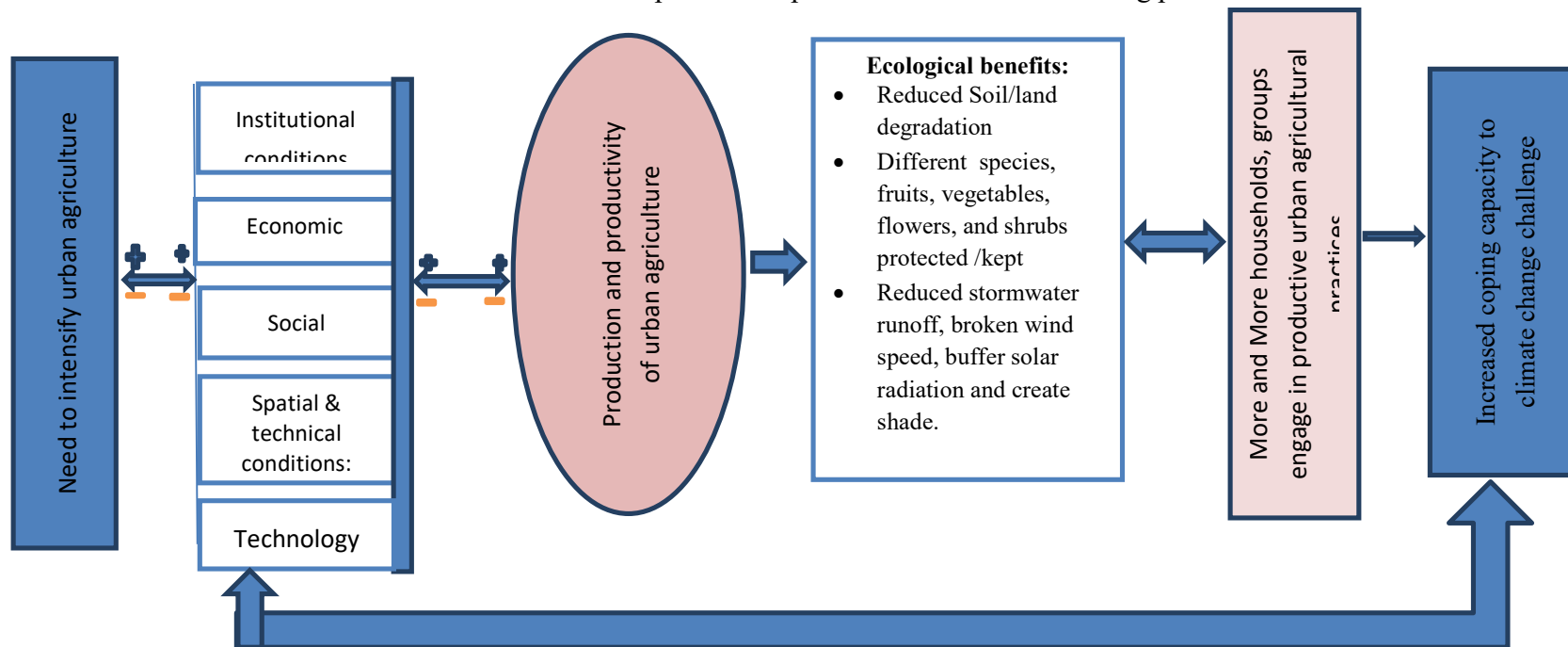


Fig. Conceptual Framework of the

It is to be noted the conditions that are considered above as drivers of the implementation of urban agriculture are interrelated, intertwined with one another (FAO, Rikolto and RUAF. 2022). A study showed that although all urban farmers would like to produce urban food in a manner that conserves, protects and benefits the environment in the long term, it is found difficult for urban citizens to put more resources on production and productivity with low/limited benefit packages (Steve Hallett, et al, 2017),

Economic conditions may refer to production and productivity, income, marketing opportunity, availability of funding for projects, physical infrastructure (like availability of inputs, and urban farmers' access to finance either formal or informal credits facilities.

Institutional conditions refers policy regulations supporting urban agriculture- laws supporting urban agriculture practices and regulations that are consistent with the national policies and laws favoring urban households' urban agriculture practice.

Social conditions include households farming traditions, employment opportunities created, community participation could be a major social drivers of urban agriculture implementation.

Spatial and technical conditions include securing space for urban agricultural activities. Availability and access to land for urban food production could also be constraining factors for enhancing urban agriculture production, processing and productivity in cities across all regions of world (Kimberley Hodgson, et al, 2011).

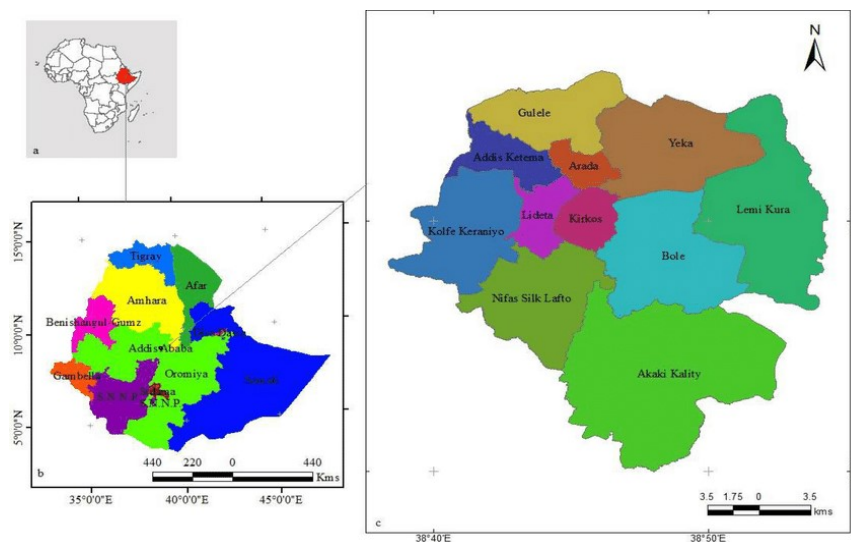
The technical conditions of urban farming groups can also be a determining factor for intensive agriculture within city centers. For instance, efficient urban agriculture management methods like having competences of recycling of urban wastes, and or capability of space-efficient production of crops, "regular maintenance of urban agriculture areas (Kimberley Hodgson, et al, 2011).

CHAPTER 3

3. DESCRIPTION OF THE STUDY AREA AND METHODOLOGY

3.1. DESCRIPTION OF THE STUDY AREA

The study was carried out in Addis Ababa - the economic and political capital of Ethiopia- taking two sub cities as a case study. Addis Ababa is located in the central highlands of Ethiopia between 8° 48' and 9° 06' North latitudes and 38° 38' and 38° 54' East longitudes. It is situated at the western margin of the Great East African Rift Valley at 2,100–3,000 m altitude, and it is the third highest capital city in the world with a subtropical highland climate. It is the political and cultural center of Ethiopia, and the African Union and the Economic Commission for Africa are based in Addis Ababa. Nowadays, it serves as a center for many international organizations and is becoming a city of the African nations with regard to economic, social, and political life. The land area of Addis Ababa is 540 km² and is surrounded by Oromia special zones (PEFA, 2019). The total population of Addis Ababa is estimated to be 4 million according to the projection of the Central Statistics Agency as of 2022. The city is divided into 11 sub cities.



Source: Map of Addis Ababa City Administration: https://www.researchgate.net/figure/Map-of-Addis-Ababa-with-Sub-Cities-Source-Ethio-GIS-2022_fig1_360988227

It is one of the world's most cosmopolitan cities in Africa, and is the second biggest economic, political and cultural centre in East Africa, following Nairobi. Although the

population growth rate was 2.1% per year in 2000-2015, it is expected to increase by 4.0% per year from 2015-2030, and the estimated population of 3.2 million in 2015 is expected to reach 6 million in 2030 (UNEP, 2018).

The climate in the study area is Afro-Alpine temperate (Abraham, 2012). Although with the changing of climate, there is variability, the main rainy season of Addis Ababa lasts from June to September and accounts for roughly 70% of the city's annual rainfall, and the average annual rainfall is 1254 millimeters. The average annual temperature is 17.25 degrees Celsius, with a range from 9.90 to 24.60 degrees Celsius (Deshu et al., 2021, Gebremichael, D., et al. 2014). The mean annual minimum temperature of Addis Ababa ranges from 8.56 °C to 9.82 °C for Entoto and Bole station whereas the mean annual maximum temperature ranges from 18.25 °C to 23.52 °C for Entoto and Bole stations, as well as the mean annual average temperature, ranges from 13.40 °C to 16.67 °C for Entoto and Bole station (Zinabu A., A. and Michael O. D., 2020).

The favorable climate of Addis Ababa provides suitable conditions for Urban Agriculture, however it has to compete for scarce resources—land, water, energy and labour—that are in demand for other urban activities. Urban areas also face emerging risks associated with climate change, which exacerbate vulnerability and are compounded by the existence of multiple stressors caused by uncontrolled urban expansion, poverty, pollution and inadequate urban infrastructure (Gebremichael, D., et al. 2014). Socioeconomic and ecological contributions related to small-scale urban agricultural practices is explored in this assessment

3.2.The Study Design

The study design for the assessment is a cross-sectional study. However, with the objective of assessing the occurrence and changes over time, respondents were asked to furnish data relevant to past events in addition to present ones.

3.3.Research Methods

With the objective of addressing objectives of the study, qualitative and quantitative approaches to data gathering and analysis were used. In order to gather primary data

from different sources, interviews with key informants, focus-group discussions, household survey, direct field observation and secondary sources were employed.

3.3.1. Depth-Interviews

Individuals knowledgeable about previous and current urban agricultural practices within the study area were approached for depth-interviews. The interviews were conducted in order to gather data relating to the types, purpose and extent of urban agricultural practices, to gather data relating to recent and current ecological implications resulting from urban agricultural practices, the social and economic contributions as well as related challenges of urban agricultural practices. Moreover, data related to types of food and nonfood agricultural practices, types of fruits, crops, vegetables grown and their ecological, economic and social contributions gathered and presented.

In-depth interviews were conducted with selected sectoral experts (with 1 Job opportunities and Organization Expert, 1 Horticulture Vegetation Expert working at Farmers and Urban Agriculture Development Office at Woreda 1 of Nifas Silk Lafto sub city, and 1 Job opportunities and Organization Core Process team leader, 1 Horticulture expert from Woreda 4 of Lideta), two urban farmers' representatives from each of the selected Woredas. The key informants for the in-depth interview were selected purposely.

3.3.2. Focus Group Discussions

The focus group discussion was conducted with purposely selected household heads who have been engaged in small-scale urban agriculture practices in their backyard, homestead and also open spaces in their vicinity of their residence. Urban farmers within each of the two sampled Woreda (Woreda 4 from Lideta Sub City and Woreda 1 from Nifas Silk Lafto Sub city) were recruited/ organized for the focus-group discussions. The six individuals selected for the focus group discussions were all of them have been engaged in the production of small scale urban agriculture as a supplementary activity to other income-generating activities: two elders, two females, and two young individuals engaged on urban agriculture within each of the two Woredas. For this, 12 discussants were purposively selected and organized in to two groups. I have conducted two

separate focus group discussions sessions within the two woredas selected for the case study

The focus group discussants were asked to discuss issues relating to factual information on the type, extent and purpose of urban agricultural production, residents' annual production, productivity and the major challenges of urban agricultural production specific to the study area. The respondents were also asked to discuss issues relating to factual information on the measures undertaken within their districts by the community members and other stakeholders to deal with /cope with those challenges, data related to types of food and nonfood agricultural practices, types of fruits, crops, vegetables grown and their ecological, economic and social contributions observed following the urban agriculture practice.

3.3.3. Observation

Direct field observation contributed to supplementing and verifying the information obtained through key informant interviews, FGD, and survey methods. Observations were conducted on existing types and extent of urban agricultural practices, and measures employed for the challenges of urban agricultural practices. Direct field observation was conducted in selected districts where city tree planting initiatives have taken place, so that data was generated to what extent plantation of trees varies considering those with the potential of providing food to city residents. Types of crops, fruits, vegetables, perennial and vegetables and nonfood items production practices were observed. Implications of recent and/current urban agricultural practices to ecological conservation were also observed and presented.

3.3.4. Document Review

Proclamations such as Proclamation No.64/2019 (The Addis Ababa City Government Executive Organs Re-Establishment); Proclamation No.1161/2019 (Expropriation of Land holdings for Public Purposes, Payments of Compensation and Resettlement of Displaced People Proclamation); Proclamation No. 721/2011urban land lease proclamation Human resource manual, annual reports have been reviewed to see to what extent they are aligned. Moreover secondary sources of data from related to the economic, social and ecological contribution were reviewed and assessed.

3.3.5. Household Survey

To assess local communities' experience of small scale urban agricultural production, productivity and income related to urban agriculture has been gathered. The urban agriculture types, purpose, and its ecological and socioeconomic contribution of have been gathered from the sample of households. To assess the occurrence and change over time, 'approximating longitudinal survey through cross sectional design' employed. Approximating devices employed was asking respondents to furnish data relevant to past events in addition to present ones.

The survey questionnaire included questions on household composition; urban agriculture production practices, experience, types and typologies used, ecological conservation perception, and experience.

3.3.6. Sampling Methods

A combination of different sampling techniques is used to get a selection of the final sample of respondents. Firstly, cluster sampling is used to choose the sampled sub-cities. There are eleven sub cities in Addis Ababa city Administration which are commonly termed as: Arada, Kirkos, Lideta, Gulele, Addis Ketema, Nifas Silk Lafto, Akaki Kality, Kolfe Karanio, Bole, Yeka and Lemikura) clustered together and Lideta Sub City and Nifas Silk Lafto sub-city were selected randomly from the list of sub cities. At the next stage of sampling, a word is selected randomly from each of the subcities. Accordingly, among the 10 woredas, Woreda 4 from Lideta sub city and Woreda 1 from Nifas Silk lafto sub city were randomly selected among the twelve Woredas. As the final stage of sampling, 70 households selected (35 HH from each of

the sample Woredas) using purposive snowball sampling and the heads of the sample of households were approached for an interview for the survey questionnaire.

3.4.Data Analysis and Interpretation

To identify the socio-economic characteristics of a sample of respondents, descriptive analysis techniques were employed on the basis of SPSS. Different types of analysis of data, such as descriptive assessments of socioeconomic data from samples of respondents, were used. Socioeconomic characteristics of households include educational level, marital status, age and sex, major sources of annual income), inferential analysis (correlation based on the nature of variables) to examine relationships between variables.

The correlation techniques were used to assess the association of household incomes from UA vs household size, purpose of production vs family size, settlement area vs total annual income from UA was conducted using SPSS and presented. The quantitative data generated from the sample of respondents was ordered, and then codified prior to the start of analysis. The qualitative data generated from the sample of respondents was tallied, reduced, described, and interpreted to reach into meaningful narration about the issue.

Information obtained through the various instruments was analyzed separately, but finally, the quantitative analyses of the data from the sample survey and the insight gained through qualitative analyses of the data generated through interviews with key informants, conducting FGDs, direct field observations as well as reviews of documents.

CHAPTER 4

4. RESULTS AND DISCUSSION

4.1. SOCIO-ECONOMIC AND DEMOGRAPHIC CHARACTERISTICS OF THE SAMPLE HOUSEHOLDS

4.1.1. Age, Sex and Marital Status Distribution of the Sample Respondents

As presented on Table 1, the mean age of the respondents was 45 years and the median was calculated as 45 years.

Table 1: Presentation of the Mean of age of the sample of respondents in years

	Number of respondents	Minimum age	Maximum age	Mean	Std. Deviation
Age of the Respondent in years	70	29	69	44.57	8.712

The study also shows there is a strong association between fruit and vegetable production and the age of the respondents. As indicated in Table 2, the value of the measure of association is 0.9, indicating the existence of an association between age of the respondent and the production of vegetables in the study area. The value presented on the table showed a strong association between the age of the sample of respondents and vegetable production in the study area. The older the respondents, the more they engage in production of vegetables specific to the study area. .

Table 2 : Test of measures of association: Age of the respondent and Vegetable Production

Measure of Association	Variable	Value
	Age of the Respondent in years independent	
Vegetables product types Dependent		.903

From the total of the sample of households (N=70), 64% were female whereas the rest, 36% of the sample of respondents, were males. As to the marital status of a sample of respondents, 70% of the respondents were responded as married and about 11.7% of the respondents were responded as never married. The rest, 6% and 5% of respondents were widowed and divorced, respectively.

Table.3: Distribution of Gender of the Sample Respondents by Marital Status

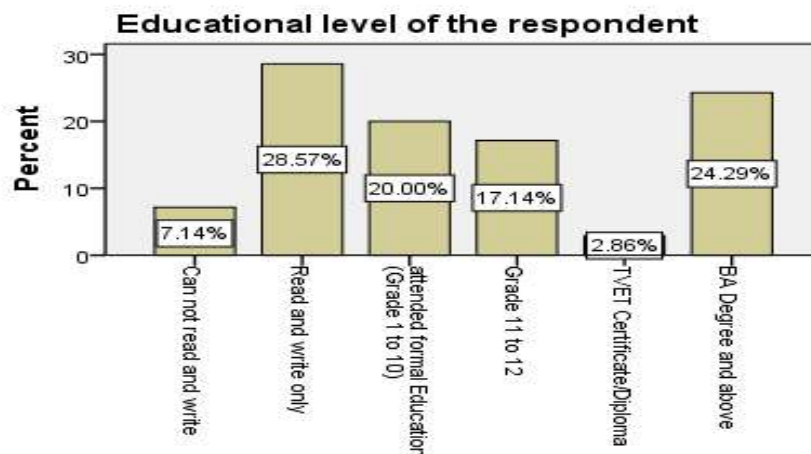
Gender		Never Married	Married	Widowed	Divorced	Total
Male	Count	2	23	0	0	25
Female	Count	8	23	7	7	45
Total	Count	10	46	7	7	70
	% within respondent	14.3%	65.7%	10.0%	10.0%	100.0%

The Table 3 shows that of the total of male respondents approached for the purpose of this study, about 91% of them were married whereas about 9 % of them responded as never married. Moreover, of the total of 45 female respondents, about 23 of the respondents were found married, 7 of them divorced and the remaining 8 responded as never married. According to the data, women were more involved in small-scale urban agricultural practices than men.

4.1.2. Educational Level of respondents

As presented in Figure 1, the frequency and percentage distribution of sampled households by educational status. The majority of the samples of respondents (about 27%) were able to read and write, about 23% of the respondents responded as they attended formal education (Grade 1 to 10). Moreover, about 21.7% of the sample respondents responded to their educational level as BA Degree and above.

Figure 1: Distribution of Educational Level of the Sample of Respondents



Among the sample respondents, 11 (18%) of respondents have completed Grade 11 to 12. The remaining 6.7% and 3.3% of respondents were categories for those who cannot

read & write, and TVET certificate/Diploma holders, respectively. The figure showed respondents who were able to read and write, attended formal education (Grade 1 to 10) and with an educational level of BA Degree and above were found more engaged in urban agriculture than those who completed grade 11 to 12 and those who cannot read and write.

4.1.3. Family size of the Sample of Respondents

Household family size is one of the factors that affect households' engagement in different types of urban agricultural activity. Table 4 presents the mean size of the sample of households by family size. The mean household size of the respondents was calculated as about 4. Moreover, about 60% of the samples of respondents have a family size of two to five members. The other 20% of the sample respondents have a family size of below 2 household members. The remaining 20% of sample respondents have a family size of six to nine members.

Table 4: Average Household size of the respondents in the study area

Family size	Frequency	Percent
under 2	12	20.0
2-5	36	60.0
6-9	12	20.0
Total	60	100.0

4.1.4. Household Income Source

According to Table 5, for the majority (52.9%) of respondents, the main sources of income comes from salary from employment; for 37.1% of the sample of respondents' main sources of income comes from trade activities. For the rest of 7 of the 70 respondents (10%), urban agriculture found as a major source of household income.

Figure 2: Frequency presentation of Responses of Respondents about Major Sources of HH Income

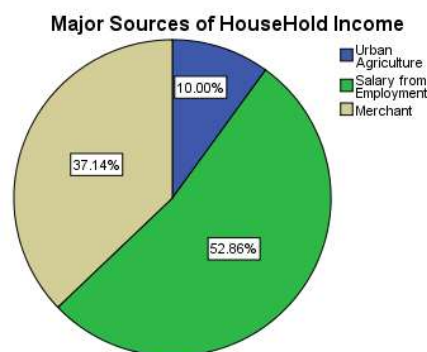


Table 5: Major Sources of Household Income by sub-cities

Sub city		Urban Agriculture	Salary from Employment	Merchant	Total
Ledita Sub city	Count	2	18	15	35
	% within Sub City	5.7%	51.4%	42.9%	100.0%
Nifita Silk Lafto Sub city	Count	5	19	11	35
	% within Sub City	14.3%	54.3%	31.4%	100.0%
Total	Count	7	37	26	70
	% within Sub City	10.0%	52.9%	37.1%	100.0%
	% of Total	10.0%	52.9%	37.1%	100.0%

Table 5 shows urban agriculture did not appear as a major source of income. For both sub city settlements conditions, salary from employment and trade mentioned as a major source of household income for the sample of respondents. For only 10% of sample respondents, urban agriculture appears as a major source of income. This shows that the majority of households engage in urban agriculture as a supplementary activity to other livelihood activities as a means of diversifying household income sources. Such activity needs to be promoted and supported as urban agriculture has a role to play both as a means of fulfilling fresh food and also contributing to the conservation of urban biodiversity and environmental sustainability.

4.2. Major urban agricultural Practices

The urban agriculture practice of the study areas can be grouped in to four categories. Vegetables, fruit production, poultry and non food crop items. Of the total sample respondents, 91.4% (64 of 70) of them responded they produce vegetables, 60% (42 of 70) of respondents responded that they were producing fruits and 38.6% of the respondents responded as have spice produce. Of the total of sample of respondents, 13 (18.5%) of the respondents responded as they have been engaged in poultry production. And only 10 (14%) of the respondents responded as they have been engaged in livestock production.

Table 6: Frequency of types of urban agriculture Produce by the sample respondents

Urban Agriculture types	Frequency	Percentage
Respondents producing Vegetable	64	91.4%
Respondents producing Cereals	2	2.9%
Respondents producing Fruits	42	60.0%
Respondents producing Spice	27	38.6%

Both in-depth interviews with key informants and a sample of respondents indicated that households engaged in multiple urban agricultural production types. Those who engage in vegetable production also produce fruits and non-food types. Those who engage in livestock also produce fruits, vegetables and non-food types of urban agricultural produce.

Table 7: Frequency Presentation of Urban Agriculture types by Sub city Cross tabulation of the Sample respondents

Urban agriculture types	Count and percentages	Ledita Sub city	Nifas Silk Lafto Sub city	Total
Vegetables	Count	31	34	65
	% within Sub city	34.4%	37.8%	
	% of Total	17.2%	18.9%	36.1%
Fruits	Count	17	20	37
	% within Sub city	18.9%	22.2%	
	% of Total	9.4%	11.1%	20.6%
Poultry	Count	10	3	13
	% within Sub city	11.1%	3.3%	
	% of Total	5.6%	1.7%	7.2%
Livestock	Count	4	6	10
	% within Sub city	4.4%	6.7%	
	% of Total	2.2%	3.3%	5.6%
Cereal Crops	Count	1	2	3
	% within Sub city	1.1%	2.2%	
	% of Total	0.6%	1.1%	1.7%
Non food trees and flowers	Count	27	25	52
	% within Sub city	30.0%	27.8%	
	% of Total	15.0%	13.9%	28.9%

4.2.1. Vegetable Production

Data shows a sample of respondents from the study area engaged in the production of vegetables for household consumption and for market. As presented in Figure three, out of the total 65 sample of respondents responded as they were producing vegetable produce, about the majority of them also responded as they are producing cabbage, tomato, potato, onion, salad, Kosta.

Figure 3: Frequency of responses of respondents about types of Vegetable Produce

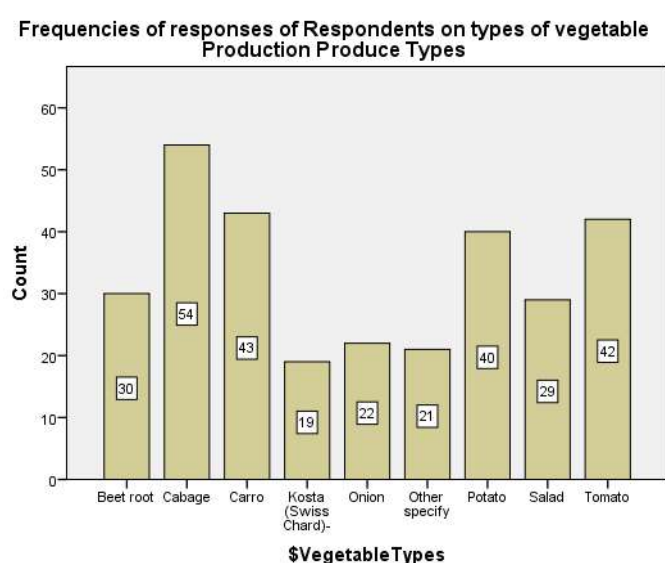


Table 8: Frequency of responses of the sample respondents on types Vegetable Produce

Vegetable produce types	Frequency	Percentage of cases
Onion	22	7.3
Carrot	43	14.3
Salad	29	9.7
Kosta (Swiss Chard)	19	6.3
Cabage	54	18
Potato	40	13.3
Tomato	42	14
Beet root	30	10
Other specify- Vegetable types	21	7
Total	300	100

As presented on table eight, those who produce cabbage also produce potato, carrot, and tomato. Of the total of 65 samples of respondents responded as producing vegetables, 42 of them produce tomato, 54 of respondents produce cabbage. Picture 1 taken during the participant observation conducted for the purpose of this study.



Picture 1: showing sample of Households producing different kinds of vegetables and fruits at a time (taken during field observation at Lideta Sub City Woreda 4

4.2.2. Cereal Crop Production

As presented in table seven, only one respondent from the Woreda 4 of Lideta sub city and two from the Woreda 1 of Nifas Silk responded that they are producing cereal crops. 4.2% of the sample of respondents responded that they are producing cereal crops. Among the cereal crop types, Teff, Beans and Barely are among the reported cereal crop types in the sample of study area.

As to the study area, the production of the cereal crop is not as much as vegetables. This may be because vegetables can be easily grown in backyards and homesteads and do not require as much land as production of cereals requires.



Picture: 2 Enset intercropped with Salad and none food tree

During direct field observation, the researcher observed in the study area that the residents were found producing perennial crops like Enset, Avocado, Mango in their vicinity. It was also observed that the practice seemed to be a recent activity. Many of the trees planted recently are mainly food crop types, unlike those trees found to seem to be 5 years old and above. The tree types planted within the last 1-3 years are mainly edible fruit tree types, like Enset, Avacado, Mango and Banana tree types.

4.2.3. Fruit Production

Table 9: Frequencies of Responses of Respondents Regarding types of Fruit Produces

Fruit Produce types	Frequency	Percentage of cases
Mango	9	8.7%
Papaya	14	13.6%
Coffee	7	6.8%
Avocado	30	29.1%
Other fruits types	37	35.9%
Total	103	100.0%

Data from a sample of respondents indicates Avocado fruits were found the most favored fruits in the study area, followed by Enset (False Banana) and papaya. A sample of respondents indicated that they have been producing avocado, Enset and Banana trees in their homestead and backyard. Field observation in the study area also evidenced that Avocado, Papaya and Enset were commonly seen fruit types in the study area. Pictures below show the Inset crop that has been intercropped with other vegetables and other fruit produce.



Picture: 3 Enset, avocado, Papaya and other spices intercropped

4.2.4. Spice Produce

As indicated in table 10, samples of respondents also have experience of producing spices. Of the total of 70 samples of respondents, 11 of them responded as they had been producing Rosemary, 14 of the sample of respondents responded as they had been producing Koserete.

Table 10: Frequency of responses of respondents on Spice produces types

Spice produce types	Frequency	Percentage
Rosemary	11	21.6
Koseret	14	27.5
Black peppere	4	7.8
Other Types of Spice	22	43
Total	51	100

As indicated in table 10, different types of spice produce are reported as among the urban agricultural production types in the study area. Koseret is among the most responded

urban agricultural produce under the spice category in the study area, followed by Rosemary.

4.2.5. Poultry, Livestock produce

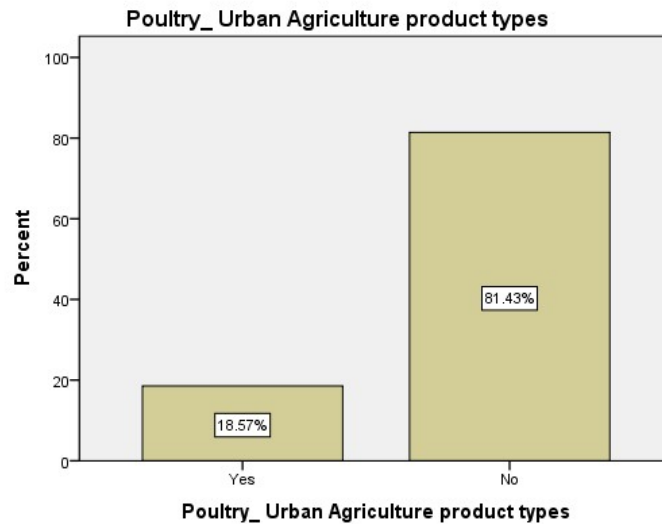


Figure 4: Frequency of Responses of Respondents about Poultry Production in the HH

Moreover, as presented by figure 4, among the total sample of respondents, about 18.57% of them responded that they are producing poultry and the remaining 81.43% of respondents responded that they don't have poultry production.



Figure 5: Frequency of Responses of Respondents on practicing Livestock Produce

Moreover, about 14.29% of the respondents responded that they are raring livestock, and this was also observed during the direct field visit.

4.2.6. None Food Tree and Flowers types of Production

Moreover, out of the total samples, about 80% of the sample of respondents responded that they were producing non-food trees and flowers in their backyards, or homesteads. During direct field observation, a sample of HH in the study area intercropping nonfood tree and flower types in the vegetable, fruit and or livestock production sites. This will make a positive contribution to conserving the environment.

4.3. Major Socio-Economic and Ecological contribution of agricultural Practices of the study Area

4.3.1. Purpose of Production

Data from the respondents showed that about 57% of the samples of respondents from a case study area produce urban agriculture only for household consumption, and about 37% of the samples of HH produce urban agriculture for both household consumption and for providing the produce to the market. The remaining 4.3 % and 1.4 % of the respondents responded that they were producing urban agriculture to provide the produce for a market and for beautifying their surroundings respectively.

Table 10: Cross Tabulation: Sub City (inner city vs expansion) and Purpose of Production: Responses of the Sample Respondent

Sub City		Purpose of Production				Total
		Household Consumption only	for Market	Household Consumption and for market	beautifying surrounding	
Ledita Sub city	Count	22	2	11	0	35
	% within Sub City	62.9	5.7	31.4	0	100
Nifas Silk Lafto	Count	18	1	15	1	35
	% within Sub City	51.4	2.9	42.9	2.9	100
Total		40	3	26	1	70
		57	4.3	37	1.4	100

Table 10 a: test of measures of association: Settlement (Inner Vs Expansion area) and purpose of UA produce

			Value
Nominal by Interval	Eta	Sub City (inner city vs expansion Independent	.183
		Purpose of Production Dependent	.145

The table 10 shows, of the 35 respondents from Lideta sub City, 62.9% of them reported that they produce urban agriculture only for household consumption, 31.4% of them

responded that they produce urban agriculture both for household consumption and for market. But only 2.9% of respondents from the Lideta subcity responded that they provide their urban agricultural produce to market.

On the other hand, among respondents from Nifas Silk Lafto 42.9% of respondents responded that they produce urban agriculture only for household consumption and for the market, and 51.4% of the responded that they produce urban agriculture for household consumption only.

Generally, although residents of the inner city (Lideta Sub City) seemed to mainly produce urban agriculture for household consumption and respondents from Nifas Silk Lafto sub city showed relatively engaged in urban agricultural practices to provide for market and household consumption, the test statistics show that there is no correlation/association between residence area and purposes of production. But this variation does not mean the existence of an association between the residence area (whether it is from the Lideta sub city and Nifas Silsk Lafto sub city) and the purpose of engagement in urban agricultural production.

As indicated on table 10 a, the value of the test of measure of association ¹ (a measure of strength of relationship) is .145 indicating no association between the settlement area and the purpose of engagement in urban agriculture practice in the study area. There were no sufficient evidence to agree the two variables (Settlement and purpose of production) were associated. The HH whether they are from inner city or expansion city, engaged in urban agricultural practices mainly for household consumption. This finding coincides with Degefa et al., 2006, 2006 research finding. According to him,

“According to the study finding much of the productions from the urban agricultural practices in Addis Ababa go mostly for family consumption, (Degefa et al., 2006) as cited Abraham Assefa 2016”.

¹ if value of measure of association is less than 0.2= No association; 0.21 to 0.40= Weak association; 0.41 to 0,70= medium association; and more than 0.70 =Strong association

The data shows that urban Agriculture contributes as a means of substituting market commodities by directly accessing household food needs through own production.

“Although it is difficult to fulfill household needs like tomatoes and onions, my engagement of producing very few of the vegetables making me at least to think how could I produce much of these vegetable products to fulfill but when I thought of it what come to my mind is always problem of land. I know I could not fulfill it only by producing in the backyard”

A 52-year-old urban farmer from Nifas Silk Laft Subcity Woreda 1 resident responded in response to my question about the benefits he has got from urban agriculture.

According to focus group discussants from the Lideta Sub Sub-City, the economic benefits of urban agriculture should not be something that should come for discussion. Rather, the discussion should be about how each household should be supported to get much out of it and fulfill their household needs and a sale for those who do not have access to such activity.

As shown on table 11, the cross tabulation of data gained from the sample of respondents shows the relationship between family size and purpose of urban agricultural production. Data gathered from the sample of respondents showed the greater family size a household has, relatively there is a possibility of participating in urban agriculture for both household production and for market.

Table 11: Household size Vs Purpose of Production Cross tabulation

Purpose of Production		Household size group			Total
		under 2	2-5	6-9	
HH Consumption only	Count	12	24	4	40
	% within Purpose of Production	30.0%	60%	10.0%	100%
For Market only	Count	1	2	0	3
	% within Purpose of Production	33.3%	66.7%	0.0%	100%
both HH and for market	Count	2	16	8	26
	% within Purpose of Production	7.7%	61.5%	30.8%	100%
for beautifying the surrounding	Count	0	0	1	1
	% within Purpose of Production	0.0%	0.0%	100%	100%
Total	Count	15	42	13	70
	% within Purpose of Production	21.4%	60%	18.6%	100%

Table 11 a : test of measures of association: Purpose of UA Production and HH Size of Respondents

	Value
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Nominal by	Eta	Purpose of Production Independent	.362
Interval		Household size group Dependent	.390

The table 11 shows a higher proportion of respondents (60% of a sample of respondents) producing urban agriculture for household consumption has a household size of between 2-5 family sizes. Of those who produce urban agriculture for market and house consumption, about 61.5% of them have a family size of between 2-5 family sizes.

As indicated on table 11 a, the value of the measure of strength of relationship) is 0.39 indicating the existence of an association between household size of the respondents and the purpose of urban farming production practices in the case under study. The value shows a weak association between family size of HH and the purpose of engagement in urban farming practices in the case study area. The Eta value (0.39) is above 0.2, showing a weak direct association between the two variables (family size and purpose of urban farming, both for household consumption and for market. This needs further assessment of whether the relationship is related to the availability of human resources or the need to feed more and more households.

The in-depth interview with a key informant indicated that in the study area relatively many households participating in the urban agricultural practices are mainly those who are the “low and middle income” group. This data complements a study by Thomas in 2013. . According to Thomas:

“The mass of urban agricultural farmers are from low income earners, who produce urban food for household consumption or as a means of supplementary income generating activities. These low economic groups of urban farmers produce urban farming produce mostly to fulfill their own needs and attain a mixture of dietary and socio-economic gains from the agricultural production activities.” (Thomas P. Z., 2013).

4.3.2. Economic contributions of Urban Agriculture

Urban agricultural production has been becoming a means of fulfilling household income generating activity in many urban centers with the rising cost of living in urban centers. It has been becoming a means of coping mechanism for rising urban poverty.

Of the total respondents, about 57% of the samples of respondents produced production of urban agricultural practices only for the purpose of household consumption, 37% of them reported that they have produced urban agricultural produce both for providing products for the market as a means of getting additional income and for household consumption.

4.3.2.1.Total Annual Income from urban agriculture

As presented on table 12, data gained from a sample of respondents showed the total annual income from urban agriculture varies across the sample of respondents. The mean total annual income of the respondents is 44,410 Eth Birr. The minimum annual income is found as 1000 Ethiopian Birr and the maximum is found as 362000 ET Birr.

Table 12: The mean of total annual income of the Respondents by sub city:

Sub City	Mean	N	Std. Deviation	Median	Minimum	Maximum	% of total Sum	% of Total N	Skewness
Ledita SC	38296.9	32	88259.6	7500.	1000	362000	41.2%	47.8%	3.373
Nifas Silk Lafto	50000.	35	74688.6	18000.	1000	362000	58.8%	52.2%	2.874
Total	44410.5	67	81038.4	10000.	1000	362000	100.0%	100.0%	3.068

Moreover, table 12 shows the mean of annual income from urban agriculture varies between respondents from the two subcities. The mean annual income of respondents from the Lideta subcity is calculated as 38,296.9 ET birr where the median was found as 7500 Et Birr. On the other hand, the mean of total annual income from urban agriculture for respondents drawn from Nifas Silk lafto city is calculated as 50,000 Et birr, where the median is found as 18000 Et Birr.

Table 13 Cross-tabulation of Mean of annual income from urban agriculture by Household income Source

Mean of total annual income Vs is Urban Agriculture serve as a major source of Income		
is Urban Agriculture serve as a major source of Income	Mean of annual income from urban agriculture	Std. Deviation
Yes	121933.3333	126916.99575
No	22048.0769	42420.65946

As shown on table 13, the mean annual income for households whose major sources of household income is from urban agriculture has been calculated as 121933 ETB. And

for those, urban agriculture appeared not as a major source of household income, the mean annual income from urban agriculture has been calculated as 22048 ETB, indicating urban agriculture play a significant role for whose households taking urban agriculture as a supplementary activity. Table 13 shows the existence of significant variation in terms of taking urban agriculture as a major source of household income or not.

To test the association of the variable settlement area and annual income from urban agriculture, measures of the strength of a non linear association between a nominal variable and scale variable) calculated using SPSS. As indicated by table 14, value of Eta² (a measure of strength of relationship) is .073 indicating existence of no correlation between settlement area and annual income from production of urban agriculture produce in the area under study. Calculated value showed no association between settlement pattern and annual income in the area under study.

Table14: Measures of Association: Settlement (Inner Vs Expansion area) and Total annual Income from UA produce (Directional Measures)

			Value
Nominal by Interval	Eta	Sub City (inner city vs expansion Independent Total annual income Dependent	.690 .073

The data on total annual income from urban agriculture of the sample of respondents is right skewed and the distribution is not symmetrical. The calculated skewness value (3.068) as found statistically significant as presented on table 15.

Table 15: Measure of Skewness: total annual income from UA using responses of respondents

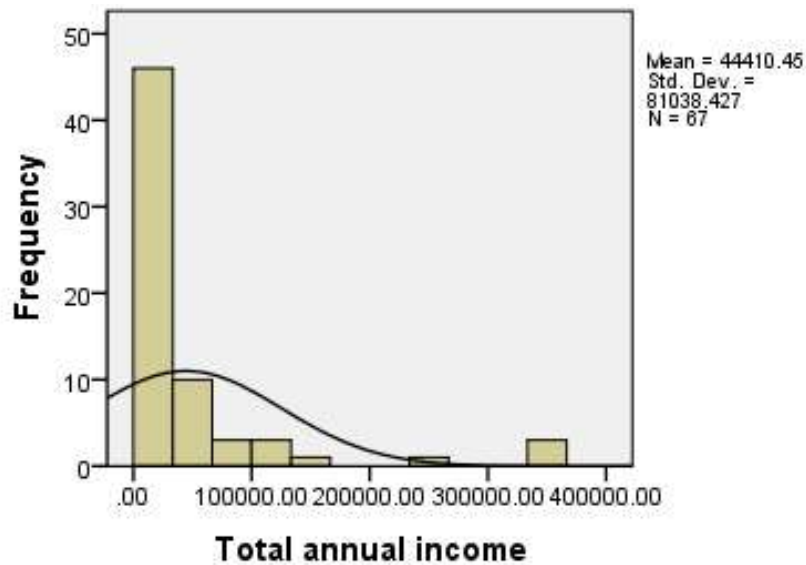
Total annual income	Statistic	Std. Error
Mean	44410.4478	9900.41964
95% Confidence Interval for Mean	Lower Bound Upper Bound	24643.6222 64177.2733
5% Trimmed Mean	29805.9701	
Median	10000.0000	
Variance	6567226707.372	
Std. Deviation	81038.42735	
Minimum	1000.00	
Maximum	362000.00	
Range	361000.00	
Skewness	3.068	.293

² if Eta coefficient value is less than 0.2= No association; 0.21 to 0.40= Weak association; 0.41 to 0.70= medium association; and more than 0.70 =Strong association

Kurtosis	9.390	.578
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As the Skewness value, which is (3.068) divided by standard error (.293) is calculated as 10.47099, which is larger than 1.96, we can conclude the skewness value is statistically significant. Thus, the mean and median values are greater than the mode (most frequently repeated responses) for the total annual income from urban agriculture.

Figure.6 Measure of Skewness of total annual income from urban agriculture



Both key informant interview and Focus group discussants indicated that income from urban agriculture has market stabilizing role.

“If managed in structured and coordinated way, urban agriculture can have price stabilizing potential” explained a 34 year old farmer from Nifas Silk Lafto Sub city explained.

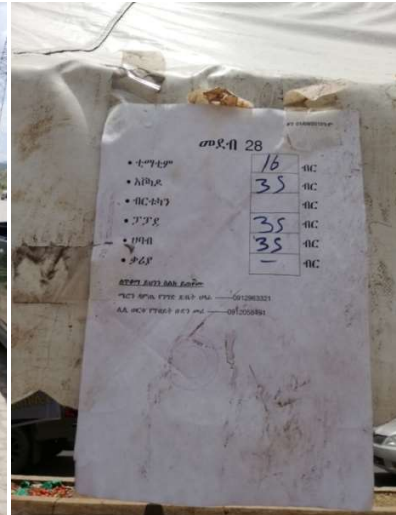
A 34-year-old informant has been producing tomatoes and onions on 1 and ½ hectare of land. During the field visit conducted for the purpose of data gathering, he was selling a kilo of tomato at 13 ET birr, which is 3 Et birr cheaper than even a Sunday as indicated on Picture5.

This finding is also complements a study by Amsalu Woldie 2020. According to him,

“UA has the potential of contributing to reducing part of the price effects on actual income and expenditure among city households as the majority of urban farming products have high transaction margins.”



Picture 4 a farmer selling his produce for the local residents a kilo of tomato-13 ET bir



Picture 5 Price of a kilo of tomato -16 on Sunday market

According to informants, the majority of households who engage in urban agricultural activities are from “low economic” backyard. Although the majority of households practicing are those who are from the “low income” group, there are also “medium income” groups practicing urban agricultural activities in the study area.

4.3.3. Social Contribution

Data drawn from the subjects under study indicated involvement with urban agriculture also has a social contribution. According to the focus group discussants from Lideta sub city of Woreda 4, households engaged in urban agriculture start planting trees in their compound in conformity with their neighbors. One of the 42 year old key informants from Nifas Silk sub city, Woreda 1 resident, explained that close neighbors, especially women, use the practice as an opportunity to get together to discuss social issues.

The focus group discussants from Nifas Silk Lafto sub City also highlighted that, as urban agricultural produce practices, especially fruits and non-food trees and flowers are HH and or neighbors’ mechanism/place for coming together for discussions about different social, economic and political issues for elderly men and women of neighbors. On the top of these, data from the sample of respondents indicated that urban agriculture is also a means of employment.

Table 16: Response of respondents on participation on Urban agriculture from Household and non Household members

	N	Minimum	Maximum	Σ	\bar{x}	Std. Deviation
Number of Household Participating in urban agriculture	70	1.00	4.00	106.00	1.5143	.69663
Number of urban agriculture participants other than members household	70	.00	5.00	40.00	.5714	1.14931
Valid N (listwise)	70					

The table 16 shows the numbers of households' members totaling 105 individuals from the sample of respondents found participating in urban agricultural produce. This data show, on average 1 member of the sampled respondents was found participating in urban agricultural practice. This may have the potential to contribute to sharing of knowledge and experience about urban agriculture and agricultural types and practices for generations.

As shown on table 16, the mean number of non-household members engaged in urban agricultural practice for the sample of households was 0.57 (below 1). The data from focus group discussants from Lideta sub city highlighted the same. According to the focus group discussants, those households engaged in the production of urban agriculture within their backyard, homesteads mainly do the practices by themselves. According to them, a man or woman may employ daily laborers only when they prepare their homestead /backyard for urban agriculture and they do the rest of the work themselves.

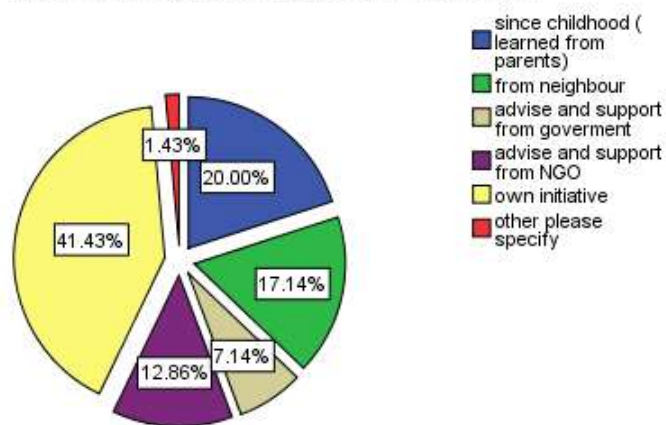
On the other hand, discussants from Nifas Silk Lafto sub city highlighted urban agricultural practices within the backyard and homesteads do not need a labour force other than household members, but for those who are producing on leased lands and or on their farm land inherited from their ancestors may employ up to 5-10 daily laborers for their urban agricultural practice depending on the production season. This was also observed during field observation of some of the urban farming fields in Nifas Silk Lafto Sub city Woreda 1 around the Jomo 1 area.



Picture 6: Daily laborers on cabbage farm at NSL, Woreda 1 around Hope University College

The samples of respondents were asked about how they have started producing urban agriculture. The pie chart below shows respondents' response.

Figure 7 **Frequency of responses of the respondents on how they started urban agriculture practice**



A significant number of the sample of respondents (20%) in the study area indicated that they learned from their parents to start the practice and around 17.14% of the respondents started urban agriculture following their neighbors, still around 41.43% of the

respondents started the practice by their own initiative. Among the total of respondents, 7.14% of the respondents started the practice following the advice and support from the government and 12% of respondents started urban agriculture with the advice and support from NGOs.

4.3.4. Ecological Benefit of Urban Agriculture from Perspectives of a Sample of Respondents

Data from a sample of respondents shows, practicing urban agricultural activities has been contributing to ecological conservation in their vicinity. A 34-year-old key informant explained that “Urban agriculture practice is a means of keeping the environment clean”. According to the informants, once a household starts producing urban agricultural produce, he will keep his eye on his farm, invest his labor in conserving and protecting the soil and also avoid plastic materials from that area making the vicinity clean. The focus group discussants from the Nifas Silk also agree with the idea that urban agriculture’s role in conserving the ecology by sharing examples from a specific site located near to Hope University college. According to them, the location was a place used to dump garbage from the surrounding residents, but according to the focus group discussants, the place is now relatively clean and one cannot find the dumped materials. The picture below was taken as per their recommendation to visit.



Picture 7: used to be place for dumping household wastes but following start of urban agriculture in the vicinity the area seems free from household wastes

During the direct field observation, it was observed that urban agriculture practitioners started teaching their residents and pedestrians to keep their environment clean, and not to urinate in urban agricultural fields. The picture below which was taken during the data gathering can be clear evidence of this.



Picture 8: taken during the field visit, sign board informing not urinate on vegetables

The samples of respondents were asked to choose multiple alternatives among the choices offered, among which they think as the ecological benefits they have been gaining from agricultural practice. The multiple response analysis showed that, of the 70 sample of respondents, 63 of them agree that their urban agricultural practice has been contributing to the conservation of the soil, 62 of the sample respondents responded that urban agricultural practices contributed to reduced flooding in their vicinity.

Moreover, from the sample of 68 respondents, about 45 of them responded to “reduced temperature during the dry season” as one of the ecological benefits they have been getting from their urban agricultural practice. Similarly, 59 respondents responded with the choice that urban agriculture “provided a pleasant smell” as the benefits they have been getting from their urban agriculture practice.

Table 17: Urban agriculture’s benefit as dust absorption

Do you think Urban agriculture’s benefit as dust absorption	Response	Frequency	Percent
	Yes	33	47.1
	No	34	48.6
	I don’t know	1	1.5
	Missing	2	2.9
Total		70	10

As indicated on table 17, of the total sample of respondents, about 47 of respondents responded that they agree in that their urban agricultural practice has been contributing to “dust absorption by the trees, vegetables and plants”. Moreover, as many urban agricultural practices are implemented in the backyard and homestead gardens. These have the potential of improving the aesthetic and wellbeing.

Moreover, samples of respondents were asked about whether or not their engagement in UA enabled them to collect and produce different varieties of crops? About 78% of respondents responded “yes” to the idea that their engagement with UA enabled them to have different varieties of vegetables, fruits and nonfood trees and flowers, and about 11% of the respondents don’t recognize whether or not their engagement with urban agriculture enabled them to have different varieties of vegetables, fruits, crops.

Data from the sample of respondents indicated that households have experience of producing different varieties of vegetables, fruits, different varieties of fruits and vegetables, livestock and fruits at a time.

Table 18: Frequency presentation of types of urban agriculture produce by the respondents in the study area

Urban Agriculture types	Frequency	Percentage
Respondents producing Vegetable	64	91.4%
Respondents producing Cereals	2	2.9%
Respondents producing Fruits	42	60.0%
Respondents producing Spice	27	38.6%

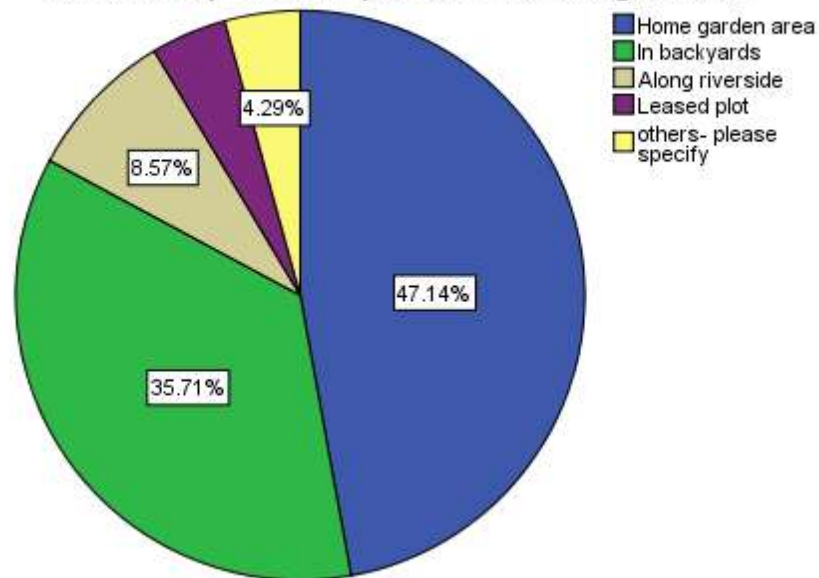
As shown on table 18, a sample of respondents producing vegetables also produce fruits and some types of spices. Moreover, among 70 of the sample of respondents, 54 of them

responded that they have been producing cabbage, 42 of them responded that they have also produced tomato, 40 responded that they have produced potato, 43 responded that they have been producing carrot, 22 of them responded that they also produce onion, 29 of them responded as they have producing salad. This means that households in the study area have experience of producing more than two vegetable types. This has a potential of enhancing and conserving urban biodiversity. As Brenda B. Lin et al, 2017, explained:

“Practically, the diversity of urban agricultural types allows for significant differences in vegetative diversity and complexity. Practices of urban farming that allow landscape elements to accommodate multiple species may be critical for the persistence of biodiversity in cities over time.”

Figure 8

Frequency of response of the respondents on place where Respondents produce urban agriculture



As figure 8 shows, about 47.1 % of the sample respondents responded that they produce urban agriculture in their home garden, around 35.7 % of the respondents responded they are producing urban agriculture in their backyard. Around 4% of respondents produce in other public areas like schools, health centers and also government office compounds.

4.4. Major Challenges of Small Scale Urban Agriculture in the Study Area

A study showed that coordination and cooperation among the sector is a very important determining factor to make urban settlements carbon neutral and resilient to climate change (Tigezaw L., Belay Sand Tesfaye Z. 2022). Data from secondary sources and key informant interviews were conducted to understand the existence of structured systems for implementation of actions specific to urban agriculture, consistency of city strategic and annual plans, regulations, policies and strategies, as well as the existence of inter sectoral cooperation of different offices.

For the researcher, asking questions about urban agriculture, especially issues related to policies and procedures on urban agriculture, found a highly sensitive issue. This is because the government has been compensating those who were dislocated from their farm land due to urban expansion and such activity is not perceived positively, which may be highly influenced by the polarized campaigns on social media against the remedial measures that have been taken by the local government. During the data gathering, it was found that some of the informants seemed to mix urban agriculture only with those farmers who were negatively affected by urbanization and the remedial measures being taken by the local government. Although during the data gathering, a detailed explanation about the objective and purpose of the study was given, respondents were taking caution and selective in responding to the interview questions.

The key informants were asked how the city legislation and policies supportive of urban agriculture? Key informant from Nifas Silk Lafto sub city office explained that:

“Although there is a Directive allowing urban residents to invest in urban agricultural produce in open spaces, the directive contradicts with urban land proclamation. As a result, we (he mean experts at the urban agriculture and the Farmers affairs office) are always seen as a mouse and cat.”

When asked where to find a copy of the procedure that stipulates that open spaces can be used for urban agricultural practices, he responded he can't do that. He explained that the researcher could get a copy from an official (he mean head of the office) but I could

not meet the official physically. According to Proclamation No. 721/2011 (Urban Lands Lease Holding proclamation):

“Any person/ group/ organization can’t fence and make use of any plot of land adjacent to his/her legitimate control for use without the authorization of the appropriate body. Moreover, according to article 7 of the proclamation, any urban land shall be authorized to be held by leasehold either through modality of allotment or tender.”

In an attempt to gather data from the land Administration Office at Zonal and Woreda level from the two sub subcities on how they are cooperating on urban agricultural activities, they responded that the agricultural sector is not their mandate and referred the data gatherer to refer such questions to the Farmer’s and Urban Agriculture commission office. Similarly, Job Opportunity Creation and Enterprise Development offices responded in the same way by saying any questions related to urban agriculture need to be addressed by the Farmer’s and Urban Agriculture commission office..

The city Government Executive Proclamation No.64/2019 did not explicitly stipulate how the two organs (Farmers and Urban Agriculture Development Commission and Job Opportunity Creation and Enterprise Development Bureau) should strive to promote urban farming as job creation and employment opportunity for urban disadvantaged groups, including youth and women.

The data show consistency and diffusion of roles across institutions also remained as a challenge. As the Job Opportunity Creation and Enterprise Development Bureau mandated job opportunity creation and enterprise development, however, the whole aspect relating to production and productivity of urban agriculture has been given to the Farmers and Urban agriculture development commission. Based on the available evidence, the writer believes this could leave urban agriculture from being seen as a potential sector for job opportunity and enterprise development sub sector by the bureau of Job opportunity creation and Enterprise development. Causing challenge in bringing transformative change in the production, productivity and market opportunities within the subsector.

The proclamation did not explicitly mention urban agriculture as employment and job creation sector under mandates vested to Job Opportunity Creation and Enterprise Development Bureau. According to Amsalu Woldie Yalew, 2020,

“The lack of coordinated, well aligned and problems of consistency and a complementary legal framework to urban agriculture implies two main issues to be considered. Firstly, the existence of the challenge may affect allotment (and property rights) of necessary land resources for urban agriculture as it competes with other land use types.”

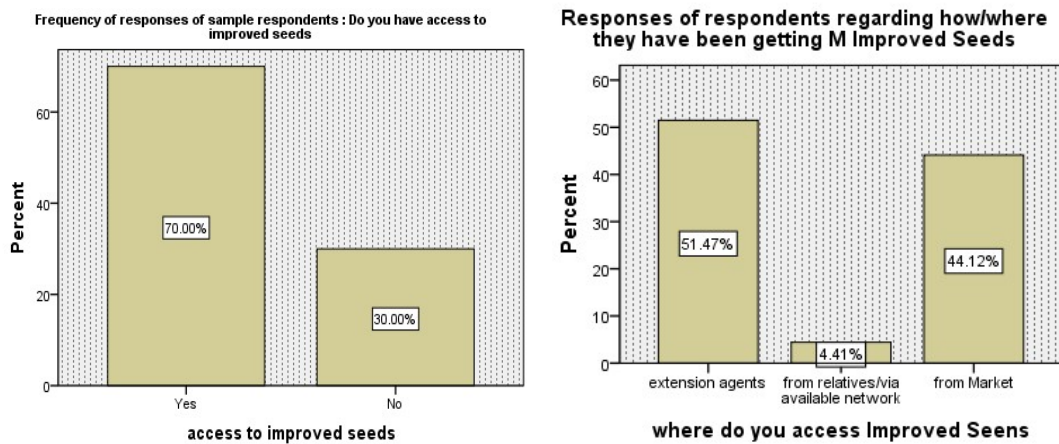
A sample of respondents and key informant interviews indicated that Farmers and Urban Agriculture Development Commission has been providing extension services to those who engaged in the practice of urban agriculture. The respondents were also asked to respond to whether they have been getting urban agriculture extension services or not and, accordingly, about 67% of the sample of respondents responded that they have been getting extension services from Farmers and Urban Agriculture Development offices and the remaining 31.4% of the respondents responded that they did not get urban agriculture extension services. This shows the Farmers and Urban Agriculture Development Commission actively promoting urban agriculture to urban residents.

Table 19: Urban Extension services to small scale urban farmers

		Frequency	Percentage
Have you been receiving urban agriculture extension services	Yes; received extension services	47	67.1
	Don't have access to extension service	22	31.4
	Total	69	98.6
Missing	System	1	1.4
Total		70	100.0

The samples of respondents were asked to respond whether or not they have easy access to improved seed/agricultural inputs.

Figure 9: Responses of respondents on access to improved seeds



Moreover, the respondents asked where they have access to improved seeds. As shown on the pie chart above, about 51.47% of respondents responded that they have been getting seeds like cabbage, tomato, onion, salad and from urban extension agents from the Farmers and Urban Agriculture development office. About 44% of respondents in the study area responded that they have got improved seeds from the market.

Interviews with the offices of the land Administration, Green Beautification and water and sewerage authorities show the existence of very loose and closed boundaries among the institutions on provision of public services. Integrated and coordinated support services are important for improving the production and productivity of urban agriculture. The subsector requires coordinated and collaborative support services from bureaus of land administration, green beautification and development, water and sewerage authorities. Although the Farmers' and urban agriculture development Commission have been providing extension and input services to those who show interest in working in urban agriculture, such support services should be aligned and coordinated with other public services to enhance the production and productivity of urban agriculture.

Moreover, to identify major challenges related to urban agriculture in a study site, respondents were provided with lists of challenges to the most pressing challenge they have faced. Data from informant interviews, FGDs as well as sample surveys indicate that access to land, water, access to improved seeds and technology as the major challenges negatively affecting their agricultural production. The section below presents

major challenges relating to the production and productivity of urban agriculture from the perspective of a sample of respondents.

Table 20: Frequency of Responses of sample of respondents on major Challenges related to Agricultural production

What are major Challenges Related to UA Production	Frequency	Percent
access to land	48	71.6
access to water	7	10.4
access to improved inputs	8	11.9
price of agricultural inputs	1	1.5
access to Food for livestock	3	4.5
Total	67	100.0
System	3	
Total	70	

Access to Land

Access to land appeared as the most frequent response in the sample of respondents. For 71.6% of the sample of respondents, access to land is the major challenge to HH in a study area in relation to expanding production of urban farming. Access to land was also mentioned as a major challenge by Focus group discussants and interviews with informants.

Access to Water

For the total sample of respondents, availability of water was mentioned as a major challenge by 82% of the sample of respondents. As key informant interview and focus group discussants agree with the consensus, access to water has been a major challenge to urban agriculture in the study area. The study subjects were also asked questions on which sources of water they mainly depend on for their farming.

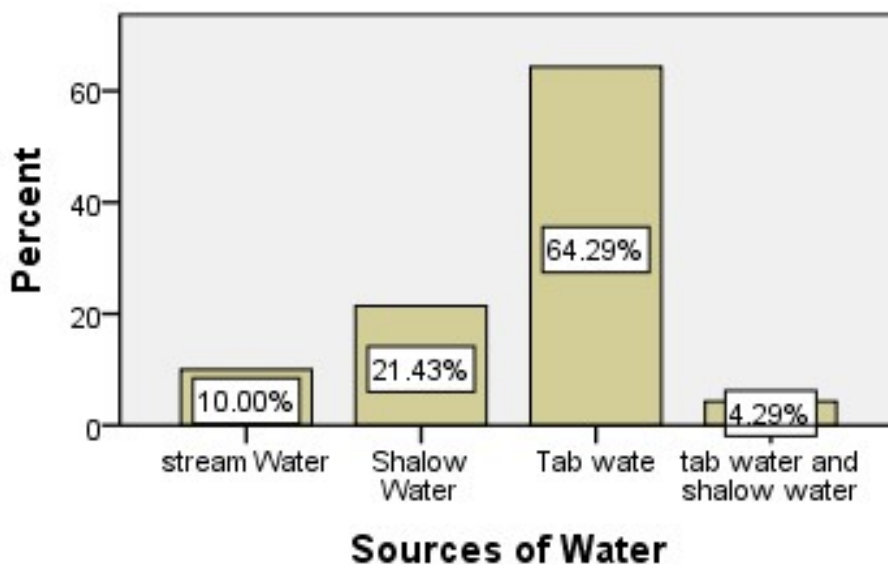


Figure 10: Major Sources of Water to urban agriculture Practice

The Bar chart above indicates that about 64.3% of respondents are using tab water to their urban agriculture, 21.4% of them use shallow water to their urban agriculture work. The remaining 10% and 4.3% of respondents use stream water and both tab and shallow water respectively in their urban agricultural practices.

Access to improved inputs

Similarly, access to improved inputs appeared as a major challenge to urban agricultural production in the study area. Totaling 11.4% of respondents responded to access to improved inputs as a major challenge to their farming. The samples of respondents were also asked to respond to the prices of urban agricultural inputs.

Table 21, Response of the Respondents on the Price of inputs for urban agriculture

How do you rate the prices of agricultural inputs	frequency	Percentage
very expensive	33	47.1
expensive	18	25.7
relatively cheap	3	4.3
I can't determine	11	15.7
11.00	4	5.7
Total	69	98.6
Miss System		
ing	1	1.4
Total	70	100.0

As the responses of respondents indicate, for about 47% of respondents, the price of urban agricultural inputs is very expensive; for about 28% of respondents, the price of urban agricultural input is expensive. And about 16% of respondents cannot determine whether the price of urban agricultural inputs is expensive or cheap. From this, one can conclude that the access to urban agricultural inputs is also a major challenge for urban farmers in the study area.

CHAPTER 5

5. CONCLUSION AND RECOMMENDATION

The study was conducted in two sub cities (Lideta and Nifas Silk) in Addis Ababa with the objective of assessing the contributions of small scale urban agriculture to ecological conservation, economic and social contribution to the city residents, as well as assessing cooperation among stakeholders regarding urban agriculture intensification. Major results of the research are summarized as follows:-

Urban Agriculture is found not as a major source of household income in the study area; rather a supplementary activity with other income-generating activities. It has been practiced as a means of substituting market commodities by directly accessing household food needs through own production.

Practice of small scale urban agriculture in the study area can be grouped into four categories. Vegetables, fruits, poultry and non-food crop items. Of the total of the sample respondents, 91.4% (64 of 70) of them responded that they produce vegetables, 60% (42 of 70) of respondents responded that they produce fruits and 38.6% of the respondents responded that they produce spices. Both in-depth interviews with key informants and data from a sample of respondents indicate households in the study area engaged in production of multiple urban agricultural produce types. Those who produce vegetables also produce fruits and nonfood trees and flowers, and also a few spice types. Moreover, those who work in livestock also produce fruits, vegetables and nonfood types of urban agricultural produce.

Urban agricultural produce goes mostly for household consumption. Data from the respondents showed that more than half of the respondents (57%) produce urban agriculture only for household consumption, and about 37% of the respondents engaged in urban agricultural activity for both household consumption and for providing the produce to the market. The remaining 4.3 % and 1.4 % of the respondents responded that they produce urban agriculture aiming at providing the produce for selling only and for beautifying their surroundings respectively.

Family size is one of the factors that affect households' engagement in different types of urban agricultural activity. The data gathered from the sample of respondents shows the more the family size a household has, relatively there is a possibility of participating in urban agriculture for both household production and for market. For instance, data from the sample of respondents showed higher proportions of respondents (60%) producing urban agriculture for household consumption has a household size of between 2-5 family size. Of those who produce urban agriculture for market and house consumption, about 61.5% of them have a family size of between 2-5 family sizes.

In the study area, urban agriculture's contribution to employment other than members of households is found insignificant. Rather, HHs engaged in urban agriculture do the practice mainly by themselves as a supplementary activity to other activities. Urban agricultural practice also serves as a means /mechanism for coming together for close neighbors to get-together to discuss different social, economic and political issues.

Engagement in small scale urban agriculture enabled HH to keep different varieties of vegetables, fruits, spices and nonfood trees and flowers: - contributing to conservation of urban biodiversity. Once they started producing urban agriculture, they kept their eyes on the product, invested a portion of their time on conserving and protecting the soil, keeping the surroundings away from household waste materials like plastics, making the vicinity clean; contributing to keeping their surroundings clean. Soil conservation, reduced flooding, reduced temperatures during the dry season and pleasant smells were mentioned as major ecological benefits of UA by the respondents in the study area.

In the provision of support services for urban households, major challenges in the study area include: lack/ weak consistency or alignment of directive and proclamation; weak/loose coordination of stakeholders, access to land, water and agricultural inputs. Provisions of urban agricultural support services should be aligned and coordinated with other public services to enhance production and productivity of the sub sector in the study area. For urban agriculture to contribute to the resilient urban systems, strategies designed should reflect the local context of the subsector as well as the diversity of systems and practices relating to urban agriculture at the local level. Working towards commercialization and marketing of the urban agriculture sector is dually important for brining transformative change to unlock multi potential benefits.

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Annex I

Addis Abba University

College of development studies

Department of Climate and Sustainable development

Dear Respondents

The aim of this questionnaire is to find out Contribution of Urban Agriculture taking Addis Ababa as a Case Study and to suggest possible recommendation. Please, your information will be kept certainly confidential and hence expect you to complete the information honestly. Therefore, your genuine cooperation in answering the questions listed below will be of a great importance to the study.

Household survey questionnaire

I. Identification

SN	Questions	Response
A1	Sub city (Ledeta=1, NifasSilk=2)	
A2	Woreda name the household is located	

II. Socio-demographics

SN	Questions	Response
1	Age of Respondent	
2	Sex of respondent [1=Male; 2=Female]	
3	Education level [1=Don't read and write; 2=Only read and write; 3=Formal education (Grade 1to 10); 4=TVET, 5= tertiary education]	
4	Marital status [1=Single; 2=Married; 4=Widowed; 5=Divorced]	
5	Household size: Total number of HH members	

III. Major types of urban agricultural Practicing

SN	Questions	Response
1	Do you have urban agriculture farm [Yes=1, No=2]	
1.1.	If yes, When did you start producing urban agricultural? In years	
1.2.	How did you start producing urban agriculture? [Started from my child age=1; Learned from my parents=2; Copied from my neighbours =3; With the support from and advise from Government =4; With the support and advise from NGO=5; Other reason? =6 (Please specify.....)]	
1.3	Where do you produce the urban agriculture products? More than one options among the alternatives possible [A) Home garden area =1; B) In backyards= 2; C) Along riverside= 3; D) In urban fringe areas = 4; E) Roadsides=5; F) Leased plot=6; G) Other place= 7 please specify----- -]	
1.4	What types of products grown in you farm (mark all you have been producing and list them as an example) [Fruits=1; Vegetables =2; Poultry=3; Cereal crops=4; Livestock=5; Fruits=6; Non-food trees =7; Other types =8 specify.....]	

1.5. Please tick products you are producing in your farm

Cereal Crops	<input checked="" type="checkbox"/>	vegetables	<input checked="" type="checkbox"/>	Livestock	<input checked="" type="checkbox"/>	Fruits	<input checked="" type="checkbox"/>	Ornamental plants
Teff	<input type="checkbox"/>	Carrot	<input type="checkbox"/>	Goats/sheep's	<input type="checkbox"/>	Orange	<input type="checkbox"/>	Flowers
Wheat	<input type="checkbox"/>	Potato	<input type="checkbox"/>	bee	<input type="checkbox"/>	Mango	<input type="checkbox"/>	Trees

SN	Questions							Response
Chick pea		tomato		cows		Papaya		others specify
Grass pea		Cabbage		Other types		Banana		Spices production
Beans		Beet root				Coffee		rosemary
Lentil		Other specify				Avocado		Koseret
Barley						Other fruits		Black peppere
Millet								Black cumin
Others specify								Others specify

IV. Access to inputs

SN	Questions	Response
1	What is the source of water for your urban agriculture? [From river in my vicinity =1; Well =2; Tap water =3; Other =4, please specify.....)]	
2	Do you have easy access to improved seed/agricultural inputs? [Yes=1; No=2]	
3	If yes, where do you get the seed from? [Extension agents =1; Relatives =2; Buy from market =3; Other =4 (please specify.....)]	
4	How do you rate the price of improved seeds [very expensive=1; expensive=2; relatively cheap=3; cannot demine=4]	
5	Do you use fertilizer for your farm? [Yes=1; No =2]	
6	If yes, Do you have easy access to the fertilizers? Yes=1; No=2	

SN	Questions	Response
7	Where do you get the fertilizers? [from market=1; From extension agents =2, Other=3 (specify ____ _____)]	
8	Have you been getting any extension support services? yes=1, No=2	
9	If yes, from whom? -----	
10	How often.....	
11	What types of services? -----	
12	Do you think all urban farmers getting such extension support? Yes=1, No=2	
13	If No, what types of services need to be offered? -----	
14	What types of technologies do you use in your urban agriculture? Please list all-----	
15	What are the major input related challenges of your urban agriculture production?-----	

V. Implications of Urban agricultural practice to Ecological Conservation

S N	Questions	Response
1	Do your urban agriculture related with protective soil erosion? Yes=1; No=2; Doint know?=3	
2	If yes, do you think	
	Which of the following benefits you gaining from agricultural practice? Selecting more than 1 possible <ul style="list-style-type: none"> • reduced temperature during dry season;=1 • Provided a pleasant smell=2 • dust absorption by the trees, vegetables and plants=3 • create shade =4 • Noise reduction=5 • Reduced flooding=6 	

S N	Questions	Response
	<ul style="list-style-type: none"> Conserved soil=7 	
3	Do you think Participation in urban agriculture enabled to collect and produce different varieties of crops types? yes=1; No=2	
4	Do you grow crops in along riverside/ urban fringe areas =? Yes=1; No=2	
5	Do you think your practice changed the place? Yes=1; No=2	
6	What are special products you think have in your farm? Please list?----- 9. Why do you think they are special-----	
7	In your opinion, what are the major challenges to your urban agriculture practice?----- -----	

VI. Social contribution of urban agriculture

SN	Questions	Response
1	How many of your household members participating on urban agriculture?	
2	How did you started urban agriculture? Learned from my parents=1, learned from neighbours=2; with technical support from Government/NGO=3; own initiative as a social activity=4; other =5 (please specify.....)	
3	Are you a member of a particular social group related to urban agriculture? Yes=1, No=2	
4	If yes, What is the objective, and benefits of the membership? -----	
5	In your opinion, what are the social benefits from the urban agricultural practice?	

Checklist for key informant interview

1. How is the extent of urban farming in the Addis Ababa city?
2. Which types of crops and livestock are commonly produced? start with the most important ounces

3. How do you evaluate the significance of urban farming in terms of :
 - Economic benefit? Can we estimate average annual production of Cereals, vegetables, fruits, Poultry and others?
 - Social benefit? Start with the most important ones
 - Ecological benefits? Start with the most important ones
4. What problems do the urban farm HH face? in terms of provisions of:
 - Provisions of agricultural inputs?
 - Technical Assistance?
 - Institutional challenges?
 - Economic challenges?
 - Social challenges?
 - Marketing?
5. Do you think current /recent urban agricultural initiatives have implications in terms of ecological conservation in Addis Ababa? If yes how?
6. What kind of assistance do the urban households get? And by whom? Start with the most frequent assistance
7. How do you evaluate the cooperation of stakeholders in provisions of support to urban agriculture in Addis Ababa
8. Which offices are very good in aligning their activities in provisions of support to urban agriculture farmers?
9. What are the major bylaws related to enhancing production and productivity of urban agriculture in Addis Ababa?
10. What are the major institutional challenges related to provisions necessary support to urban agricultural practices?
11. How the city legislation and policies supportive of urban agriculture? , Have there been any changes affecting the policy/legal framework? Is there any changes positive/negative which you consider to be important?

Checklist for FGD

1. How is the extent of urban farming in the Addis Ababa city?
2. Which types of crops and livestock are commonly produced? start with the most important ones

3. What are the main uses of crops and livestock? Start with the most important ones?
4. How do you evaluate the significance of urban farming in terms of :
 - Economic benefit? Can we estimate average annual production of Cereals, vegetables, fruits, Poultry and others?
 - Social benefit? Start with the most important ones
 - Ecological benefits? Start with the most important ones
5. Do farmers have access to adequate agricultural inputs?
6. What problems do the urban farm HH face? in terms of provisions of:
 - Provisions of agricultural inputs?
 - Technical Assistance?
 - Institutional challenges?
 - Economic challenges?
 - Social challenges?
 - Marketing?
7. Do you think current /recent urban agricultural initiatives have implications in terms of ecological conservation in Addis Ababa? If yes how?
8. How the city legislation and policies supportive of urban agriculture? , Have there been any changes affecting the policy/legal framework? Is there any changes positive/negative which you consider to be important?
9. How and where urban farmers access water to their farm activities?
10. Do they have easy access to tap water? Do you think many of farmers use stream for their agricultural activities
11. What are the major bylaws related to enhancing production and productivity of urban agriculture in Addis Ababa? Is it easy workable in the context of your mandate?
12. How the city legislation and policies supportive of urban agriculture? , Have there been any changes affecting the policy/legal framework? Is there any changes positive/negative which you consider to be important?
13. What major institutional challenges in enhancing production and productivity of urban agriculture?

14. Do you think current /recent urban agricultural initiatives have implications in terms of ecological conservation in Addis Ababa? If yes how?
15. What do you think are the major problems that urban farmers are facing
16. What do you think the cause of the problems?
17. What do you suggest to address the major problems of urban farming

Checklist for Urban agriculture Development Commission, Beauty, Parks and Sustainable Resort Development and management Agency; Job Creation and Enterprise Development Offices; water and sewerage authority,

1. What kind of assistance does your office offer to urban farmers?
2. Do you follow up their activities? How and how often?
3. Is there any by law issued to govern the activity of urban farming?
If yes, how do you implement the bylaws? Any challenge in implementation?
4. How do you monitor whether the urban farmers are working on environment friendly activities?
5. What are the major bylaws related to enhancing production and productivity of urban agriculture in Addis Ababa? Is it easy workable in the context of your mandate?
6. Major institutional challenges in enhancing production and productivity of urban agriculture?
7. Do you think current /recent urban agricultural initiatives have implications in terms of ecological conservation in Addis Ababa? If yes how?
8. What do you think are the major problems that urban farmers are facing
9. What do you think the cause of the problems?
10. What do you suggest to address the major problems of urban farming
11. How the city legislation and policies supportive of urban agriculture? , Have there been any changes affecting the policy/legal framework? Is there any changes positive/negative which you consider to be important?

Annex: II

Roles and Responsibilities Farmers and Urban Agriculture Development Commission and Job Opportunity Creation and Enterprise Development Bureau

According to the city's Government Executive Proclamation No.64/2019 stipulates:

- 1. Addis Ababa city administration Farmers and Urban Agriculture Development Commission shall have powers and duties including:**
 - i. design strategies for the production and The commission managed to designing of systems for the production and supply of quality urban agriculture inputs as well as improvement of agricultural development;
 - ii. encourage residents of the city to engage in urban agriculture; provide professional support and the necessary inputs;
 - iii. distribute information in the agricultural sector for users through gathering, organizing and analyzing same;
 - iv. provide research and development services on the occurrence of animal diseases; inform actions to be taken due to the emergence of diseases for the government and other stakeholders and animal breeders; also mandated with vaccination, follow-up and medication of urban farming practices related to livestock and poultry
 - v. provide cross-breeding service for breeders; cause for the accessibility of improved agricultural technology products, selected seeds and fertilizers for farmers; follow up the effectiveness of same; provide capacity building and awareness raising training for urban extension professional and urban farmers;
 - vi. establish, expand and manage animals breeding and reproduction centers;
 - vii. follow up and control privately established veterinary clinics, laboratories, hide and skin stores, storages and sales shops of pesticides are constructed in a standardized manner;
 - viii. cause for the provision of vocational trainings for urban farmers displaced from their residential area due to urbanization and related development actions.
 - ix. Engaged on the designing of new development programs/ projects that can enhance and improve living condition of farmers in a sustainable way;

- x. cause for the provision of professional support and advise and supply of modern agricultural inputs for organ engaged in the various agricultural sector in the city to enhance their product and productivity;
 - xi. work in coordination and collaboration with other concerned government bodies to measure the size of land holding of farmers who are living in the environs of the city government and leading their life with agriculture to enable them to get an occupancy permit;
 - xii. cause those farmers, who don't have any income source and unable to work, to benefit from the social and direct support program in collaboration with the concerned organ;
 - xiii. organize and maintain information about those farmers who are relocated from their holdings due to urban development projects;
 - xiv. identify farmers and their families who are relocated from their landholdings due to urban development programs and have got better experience and wealth and design strategies for same to engage in profitable investment opportunities on their private holdings or in an organized manner; implement,
- 2. Addis Ababa city Administration Job Opportunity Creation and Enterprise Development Bureau mandated with:**
- i. take the lead, coordination and management of the food security and developmental safety net agency;
 - ii. carry out all the necessary things for the growth of micro, small scale and medium scale enterprises; facilitate conditions in collaboration with governmental, non-governmental and private organizations for supporting the thereof; establish a systematic procedure; ensure the execution of the thereof;
 - iii. provide and give trainings of entrepreneurship for residents of the city; make sure that they acquire knowledge and skills through identifying and organizing best practices and encourage them; provide business skills counseling services;
 - iv. give professional support and monitoring service so as to capacitate small and micro scale enterprises to effectively manage their business and scale up their product and productivity; organize, coordinate and control one stop service delivery;

- v. study micro and small scale projects to enable residents of the city productive citizens; prepare project profiles and promote same for interested unemployed youths; encourage them to engage in the job;
- vi. facilitate conditions for small and micro scale enterprises for financial loan access that enables them to effectively run the business they engaged in;
- vii. take lands from the concerned body to build manufacturing, displaying and marketing centers for small and micro scale enterprises; cause for the presence of maps for existing tenures without maps; displaying and marketing centers in compliance to the prevailing terms and conditions of the city and having a design conducive for working;
- viii. displaying and market places for small scale and medium scale enterprise operators through rental means; facilitate conditions for the presence of raw-materials, manufacturing materials and infrastructures;
- ix. issue and administer directives concerning the utilization and management of production, displaying and selling centers;
- x. follow up and control the illegal transfer of production, displaying and selling centers and manufacturing places ; if found transferred, properly investigate it and take or cause the taking of the relevant lawful corrective measures on the culprit;
- xi. register and maintain an organized information regarding production, displaying and selling centers; transfer same for users in accordance with a contract; follow up and control the proper utilization of same; follow up and receive same upon the termination of the contract period;
- xii. cause for the renewal of production, displaying and selling centers;
- xiii. control and administer sites, sheds, small kiosks and shops built by the City Government and various charity organizations that are constructed for the purpose of small and micro scale services;
- xiv. cause for the preparation of professional capacity building trainings and exhibitions for segments of the society engaged in micro and small scale enterprises;
- xv. cause for the creation of market linkage in collaboration with various bodies so as to overcome the market problem of operators; cause for the preparation of exhibitions and bazaars;

- xvi. facilitate conditions to organize micro and small scale enterprises operators as private trading, share holdings and cooperative associations; provide the necessary support and encourage same;
- xvii. identify enterprises that should be upgraded from small scale to medium level enterprise as per the relevant laws and implement same;
- xviii. Establish a strategy/ mechanism to avail necessary information and guidance service