



**CONTRIBUTION OF URBAN AND PERI URBAN AGRICULTURE ON
HOUSEHOLD LIVELIHOODS; CHALLENGES AND IMPLICATIONS
ON LAND USE PLANNING IN JIMMA CITY OROMIA, ETHIOPIA**

MSc. THESIS

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Contribution of Urban and Peri Urban Agriculture on Household Livelihoods; Challenges and Implications on Land Use Planning in Jimma City Oromia, Ethiopia

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A Thesis Submitted to the School of Graduate Studies of Jimma University in Partial Fulfillment of The Requirement for the Degree of Master of Science (M.Sc.) in Land Use Planning and Management

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DEDICATION

I dedicated this thesis document to my parents for their nursing me with affection and support, encouragement, patience and for their contribution in the success of my life.

STATEMENT OF THE AUTHOR

By my signature below, I declare and affirm that this thesis is my own work. I have followed all ethical and technical principles of scholarship in the preparation, data collection, data analysis and compilation of this Thesis. Any scholar matter that is included in the Thesis has been given recognition through citation. This Thesis is submitted in partial fulfillment of the requirement for MSc Degree at the Jimma University. It is deposited in the Jimma University Library and is made available to borrowers under the rule of the library. I solemnly declare that it has not been submitted to any other institutions anywhere for the award of any academic degree, diploma or certificate. Brief quotation from this Thesis may be made without special permission provided that accurate and complete acknowledgement of the source is made. Request for permission for extended quotation from or reproduction of this Thesis in whole or in part may be granted by the head of the school or department when in his or her judgment the proposed use of the material is in the interest of scholarship. In all other instances, however, permission must be obtained from the author.

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LIST OF ACRONYMS AND ABBREVIATIONS

CSA	Central Statistical Agency
FAO	Food and Agriculture Organization
FGD	Focus Group Discussion
IFPRI	International Food Policy Research Institute
JTAO	Jimma Town Administration Office
LULCC	Land Use Land Cover Changes
LUPM	Land Use Planning Management
MDG	Millennium Developmental goals
ORAAMP	Office for the Revision of Addis Ababa Master Plan
PUA	Peri-urban agriculture
RUAF	Resource Centre for Urban Agriculture & Forestry
SAS	Statistical Analysis System
SDG	Sustainable Development Goals
SPSS	Statistical Package for Social Science
UA	Urban agriculture
UNDP	United Nations Development Programme
UPA	Urban and Peri-urban Agriculture

ABSTRACT

Urban and peri urban agriculture include socioeconomic and environmental benefits in addition to benefits for food production from vegetables, crops, and animal rearing. This study was conducted in Jimma town with the main objective of assessing the contribution and challenges of urban and peri-urban agriculture in improving household livelihood, its challenges and its implications on Land use planning in Jimma town. The study employed a descriptive survey design with quantitative and qualitative approach which is supported by qualitative data. The primary data was collected through questionnaires and structured interview specially designed for this study. About 202 households who are practicing urban and peri urban agriculture were selected using proportionate stratified sampling techniques, the stratification being the size of urban farmers in three kebeles namely Bosa Kito and Sato Samaro from urban and Ifa Bulla from peri urban kebele of the town. Percentage of respondents participating in their production are Vegetables, poultry production, Dairy, fruit production, coffee planting and fattening with percentages 32.8%, 27.7%, 16.7%, 15.0%, 7.1% and 0.7% respectively. Majority of the respondents about 34.7% of the respondents earn between 1500-3000, followed by 30.7% earn about 5000-10000 ETB per month. The major challenges/constraints to urban agriculture in Jimma town includes shortage of farmland, lack of credit services, lack of input, disease and death of plants and animals and problems related to easy market access. The result shows that there are many effects of urban agricultures on Land Use Land Cover Changes and change of LULCC on urban agriculture types. It can safely be concluded that urban agriculture is a livelihood strategy which positively affects the livelihood of the urban house hold in Jimma. In spite of these challenges however, urban agriculture is a great instrument to reduce urban poverty within cities. Land use planning should promote the expansion of urban and peri urban agriculture. Concerning bodies should urban and peri urban farmers to reduce constraints and increase their productivities.

Key words: Agriculture, Land use planning, Peri-urban, Urban agriculture

1. INTRODUCTION

1.1. Background and Justification of the study

Both urban and peri-urban areas have been growing rapidly in different parts of the globe due to population increase and other factors, e.g., economic development (Deng et al., 2015). According to Goldstein, 2011), urban agriculture (UA) is described as the production, processing, and distribution of food and other products within city limits through plant cultivation and livestock breeding. Urban agriculture concerns about food insecurity and nutritional value, poverty, and climate change have all contributed to the rise in the popularity of UA in recent years (Steenkamp *et al.*, 2021). Urban Agriculture is increasingly on the world agenda, as a critical component of a holistic solution to the issues of runaway urbanization in poor nations (Mougeot, 2006). Due to rapid urbanization, the conversion of land use/ land cover (LULC) types from one to another has been the main environmental problem in the world (Regassa *et al.*, 2020). This problem is more evident in many developing countries (Mohamed et al. 2020). Unplanned urban growth was occurred due to the sake of fast economic growth with rapid population in Ethiopia (Teferi and Abraha, 2017).

Studies indicated that more than half of the world's population resides in urban areas; however, this figure is anticipated to rise by 1.86 billion from 2009 to 2050 (Deng et al., 2015). As a result, the extent of urban areas is predicted to increase by 50–69%. Most of the time, people move from villages to towns and cities seek a better life and economic opportunities in urban and peri-urban areas (Bhatta, 2012).

Throughout the globe, agriculture today is increasingly a part of the city landscape. Like many urban trends, agriculture crosses the border of the north and south and is evident in both rich and poor countries. UA plays a great role in developing countries (Drechsel *et al.*, 2008). The study carried out in five East African cities: Addis Ababa; Dar es Salaam; Kampala; Kisumu and Nairobi, found that urban livestock keeping, the one segment of UA, benefits the poor and provides a way of diversifying livelihood activities that are accessible to vulnerable groups such as female-headed households, children, retired people, the sick, and widows, as well as providing a source of locally produced food projects for people living near the livestock keepers (Richards & Godfrey, 2003). The study also revealed that Livestock are

kept as social safety nets, retirement policies, and deposits for funerals, sources of food, and income. Urban livestock keeping is of great relevance to those in need for a social security strategy (Paumgarten, F., 2007).

Moreover, (Kasumba, 2007) reported that UA enormously contributed to ‘sustainable development’ in such a way that it improves food security, helps to maintain environmental health, improves social interactions, improves economy the of the urban dwellers in particular, and contributed to the country’s development. Although UA is one of the poverty alleviation activities that create a large number of employment (source of income for the city residents) urban policymakers fail to give due attention to UA and much emphasis is not given to this activity during urban planning policy reforms and missing from municipal planning (Drechsel *et al.*, 2008).

In most Africa cities UA is receiving significant attention as it has the potential to contribute to household food security and nutrition (Mkwambisi *et al.*, 2011; Hampwaye *et al.*, 2007). However, there is a dispute regarding its contribution to employment and income generation due to unreliable data on the subject (Tevera, 2023). Nevertheless, aside from being a source of food, urban farming has other advantages such as fostering community building, promoting health, and providing education (Rao *et al.*, 2022). As a result of its multidimensional benefits, urban farming can aid in sustainable development (Game & Primus, 2015, Khosravi *et al.*, 2022). These benefits align with the three facets of sustainable development, which are social, economic, and environmental (Anzure *et al.*, 2019).

In Ethiopia, UA is a traditional practice, and the urban-based population does keep cattle, chicken, and sheep, or grows rain-fed crops and vegetables, on the plots adjacent to their houses (Gittleman, 2009). UA and PUA include socioeconomic and environmental benefits in addition to benefits for food production from vegetables, crops, and animal rearing. For example, UA in Addis Ababa generates a big number of jobs and is a source of income for city people. People often believe that urban agriculture is a chaotic industry with little awareness of the environmental benefits of UA and the need for food production (Robeta, 2011). In general, types of UA practices in the terrestrial land are animal husbandry, crop production, mixed farming, and forest development, as opposed to (Smit, 1994) which he classified as aquaculture, horticulture, livestock, agroforestry, and others (snail raising,

ornamental fish, silkworm, worm larvae, horses, pets, and medicinal and culinary herbs). Similarly, the attention given to UA in Jimma town from a nutrition and environmental perspective is very minimal. UA can be utilized as a technique to combat rising urban unemployment, poverty, and hunger, as well as provide other socioeconomic benefits to the urban poor in general and disadvantaged populations in particular (Mpofu *et al.*, 2013). However, UA continues to confront increasing constraints from municipal planners and policymakers, in part due to a lack of data concerning its contribution to producer welfare. The results by (Abafita, 2020) indicates that urban agriculture is constrained by a number of factors among which access to credit, access to extension services, access to improved inputs, household size and non-farm income were the major ones in Hossana Town. Cultivating vegetable crops is the most common practice for crop producers, and this may be associated with the size of landholdings (being small), and suitability of vegetables for cultivation, piece by piece harvesting and their liquidity in Addis Ababa city (Tewodros, 2007).

Currently Ethiopian government is initiating peoples for production of vegetables and other agricultural products from their gardens, by programs such as “*lemat tirufat*”. This and other practices are also being practicing in Jimma Town and bringing visible changes in town. Jimma Town administration office reports the social infrastructure in Jimma Town's urban regions is inadequate, and the financial futures of the Town's urban population are in poor shape (JTAOR, 2019). Although, according to (Tamirat & Tegen, 2018), Jimma town is exposed to a variety of economic settings including low-return industries such as government work, UA and small-scale trade). Therefore, going to this existing fact it is straightforward to understand the existence of poverty in urban areas of Jimma Town and there is a need for the improving household livelihood by introducing UA&PUA in Jimma cities. Also, there are many contributions of urban and peri urban agriculture and as well as there are many implications of urban and peri urban agriculture on future land use planning. Therefore, this study is done to fill the gap of practice and types of Urban and Peri-Urban agriculture in improving household livelihood, its challenges and its implication on land use planning in Jimma city Southwest Ethiopia to increase its diversification and practices.

1.2. Statement of the problem

UA and PUA are extensively practiced as an informal monetary quarter throughout many African cities (Bryceson & Potts, 2005). Urban agriculture has been a widespread strategy adopted by urban dwellers in many sub-Saharan African cities to cope with increasing poverty, caused by increasing population pressure and economic collapse. This phenomenon is also evident in Ethiopia. In the context of widespread urban unemployment and poor living conditions, the formal support of UA activities could play an important role in alleviating urban poverty (Ashebir et al., 2007). The Urban and Peri-urban Agriculture Policy and Strategy for Addis Ababa planned to address broad aspects of the sector. One of these is ensuring proper space for UA since space is vital for the proper operation of the activity (Mekuria and Messa, 2018).

The socioeconomic development, urban greening, food security enhancement and job creation roles of UA is found to be imperative in Addis Ababa and the surrounding towns. However, the sector suffers from lack of proper attention by stakeholders, poor implementation, organizational problems, management and supervision (Mekuria and Messa, 2018). Urban Job Creation and Food Security Agency/Office is also trying use UA as an outlet to create jobs and enhance the food security status of the urban dwellers. But still there is a huge gap between the desired goals and the actual practices on the ground in reality (Mekuria and Messa, 2018). Despite its significant role in fulfilling the basic demand of low-income families, however, it continues to get far less attention and lacks the rightful place among policy-makers, urban planners, and authorities (Abafita, 2020).

According to (Abafita, 2020), in Hossana town Urban Agriculture plays a very important role in decreasing hunger and poverty contributing towards sustainable food production and promoting the integration of environmental values in development. The result of the study by (Nure and West, 2020), in Bishan Guracha Town indicated that UA has played a major role in; employment generation, sources of income for farmers, supply of fresh product to the city dwellers and foods supplements to farm households. Moreover, the sector indirectly playing positive role to the development of other sectors such as industries, trade, hotel and cafeterias through provision of inputs and raw material, beautification and greening cities, and serves as an alternative source of energy (Biogas) (Nure and West, 2020).

The study by (Bizunesh, 2022) indicated that urban horticulture is the promising sector to increase food security in Jimma City. To increase food security for the increasing population adoption of urban horticulture is a viable option. Horticultural crops (fruit and vegetable) are the major source of local consumption and the only practical and sustainable way to ensure their supply. According (Aboye *et al.*, 2023) in Jimma Town feed scarcity for livestock was identified as the most important constraint especially during the dry season. Lack of access to land was reported as the most important cause of feed scarcity. Among these, food security attainment is crucial role, generating household income, serve as employment opportunities, urban greening and medicine are the major roles of urban horticulture in the area (Bizunesh, 2022). In Jimma town, like other towns in the country, the population is changing radically, so unemployment rates are increasing as of its population, food security is in risk and lack of income source is increasing. Though unemployment in the town is high; up to the knowledge of the researcher, there are different studies such to challenge these problems various tools for reducing unemployment which ultimately improve the urban and peri urban agriculture of the town as well as its implication on future land use planning are not given the proper attention they deserve. Therefore, this study aims to assess the contributions of Urban and Peri-Urban agriculture in improving household livelihood, its challenges and its implication on land use planning in Jimma City Southwest Ethiopia

1.3. Objectives of the study

1.3.1. General objective

The overall objective of this study is to assess contributions of Urban and Peri-Urban agriculture in improving household livelihood, its challenges and its implication on land use planning in Jimma City Southwest Ethiopia.

1.3.2. Specific objectives

- ✓ To analyze the contributions of urban and peri-urban agriculture in household food security and income in Jimma town
- ✓ To analyze the opportunities of urban and peri urban agriculture in the study area.
- ✓ To identify the challenges of urban and peri urban agriculture in contributing to transformation of urban households' livelihood.

- ✓ To evaluate the implications of urban and peri urban agricultural practices on the land use planning in Jimma town.

1.4 . Research Questions

- ✓ What are the types of urban and peri urban agriculture practiced in Jimma town?
- ✓ What are the opportunities of urban and peri urban agriculture in Jimma city?
- ✓ What are the challenges of the urban and peri urban poor confront in practicing urban agriculture in Jimma city?
- ✓ What are the implications of urban and peri urban agricultural practices on the future LUP in Jimma city administration?

1.5. Significance of the Study

The significance of the study of the above research lies in the fact that it have provided an understanding of the various agricultural production systems in Jimma Town, and it had also provided insights into the problems and opportunities faced by impoverished urban farmers in their agricultural practices, and additionally, how UA&PUA contributes to household income a and other aspects were investigated. Ultimately, this research would provide valuable information to help guide policymakers and other stakeholders in making informed decisions related to UA&PUA in Jimma Town.

1.6. Scope of the study

This research was geographically limited to selected Urban and peri urban kebeles of Jimma town. Generally, the study addresses issues related to the contribution and challenges of urban and peri-urban agriculture in improving households and its implication on land use planning Jimma Town. The specific focus of it includes: types of urban and peri urban agriculture practiced, contribution of urban agriculture in household food security and income, challenges of urban and peri urban agriculture in contributing to transformation of urban households' livelihood and implications of urban and peri urban agriculture on LUP in the study area. The data were collected from three kebeles of sample who practicing urban and peri urban agriculture from total population by using random sampling technique.

1.7. Limitations of the study

It's difficult to address all issues related to the contribution and challenges of urban and peri-urban agriculture in improving households and its implication on land use planning in case of Jimma Town due to time and finance resource constraints. The study is also limited to only 202 sample households in three kebeles of Jimma Town; Iffa bula, Sato Samaro and Bosa Kito Kebeles in Jimma Town of Jimma Zone, South West Ethiopia. Methodological it used simple random sampling technique and used simple statistics to analyze the data.

2. LITERATURE REVIEW

2.1. Concepts and Definitions

2.1.1. Urban agriculture

Urban agriculture is defined as Growing, rearing, processing, and distributing a range of food items, which can occur inside or outside of a city or metropolitan area. It sustains and benefits from the urban environment by making use of human labor, urban resources, and services (Specht et al. 2014; Stewart et al. 2013). According to (Mwangi, 2015), UA is located inside or at the edge of a metropolis/city and comprises an expansion of production systems, starting from subsistence manufacturing and processing on the household degree to fully commercialized agriculture.

According to (Jatta, 2013), urban agriculture is described as crop and livestock production within cities and towns and surrounding areas. It can involve anything from small vegetable gardens in the backyard to farming activities on community lands by an association or neighborhood group. Similarly, (Veenhuizen, 2010) defined UA as the growing of plants and the raising of animals for food and other uses within and around cities and towns, and related activities such as the production and delivery of inputs, and the processing and marketing of products.

UA&PUA highly recognized by international organizations like UN-Habitat and FAO because they argued that UA can contribute for achieving the Millennium Developmental goals (MDG) particularly in reducing urban poverty and hunger (MDG 1) and (MDG 7) ensuring environmental sustainability (Mougeot, 2005). FAO supports the developments of urban and peri urban agriculture because it provides employment, income, and access to food for urban populations and reduce food insecurity and it is estimated that about 800 million people worldwide engage in urban agriculture (FAO, 2014).

UA has a pivotal role to create sustainable and climate-friendly urban centers as it integrates multiple resources such as land, water, waste and energy (Skar *et al.*, 2020; Hatab et al., 2019). As such, UA (and the whole urban food system in general) has the potential to strengthen national and international efforts to advance the Sustainable Development Goals (SDGs) (Ilieva, 2017; Indraprahasta, 2018). All in all, as also evidence from elsewhere shows,

UA has the potential to promote sustainable food production (Nicholls et al., 2020), foster sustainable urban development (Skar *et al.*, 2020), and hence advance the SDGs agenda (Ilieva, 2017) in Ethiopia. UA is generally linked to the SDGs of Zero Hunger (SDG 2), of Good Health and Well-being (SDG 3), of Reduced Inequalities (SDG 10), of Sustainable Cities and Communities (SDG 11), and of Climate Action (SDG 13) while it particularly contributes to achieve the SDG targets of 11.3 (to enhance inclusive and sustainable urbanization), of 11.6 (to improve air quality and waste management), and of 11.7 (to provide inclusive green and public spaces) (Indraprahasta, 2018).

2.1.2. Peri-urban

Peri-urban is an area of transition between rural and urban areas that are characterized by a mix of rural and urban characteristics. According to (Ravetz, 2013) PUA is a new kind of multi-functional territory that resists simple definitions. The concept of peri-urban is generally understood as the physical interface where complex rural–urban interactions take place (Lynch 2005; McGregor *et al.*, 2006). According to (Mbiba & Huchzermeyer, 2002) a peri-urban area is typically not spatially zoned, can be near a city center and occupied by poor households and the socially excluded. A Peri-urban is fringe or the geographic edge of cities as a place; the movement of goods and services between physical spaces and the transition from rural to urban contexts as a process; and finally, as a concept denoting an interface between rural and urban activities (Marshall *et al.*, 2009). Peri-urban areas result from extensions of urban activities beyond existing administrative boundaries in urban regions. As a space (Ubink, 2008) maintains that peri-urban areas are ‘tenurial flash points where property relations are subject to intense contestation and where access to wealth and authority undergo rapid change.

Peri-urban agriculture: Geographically, (Opitz *et al.*, 2016) observed that peri-urban agriculture means residual agricultural activities that occur in the transitional zones between cities and the rural areas. In relation to urban areas, peri-urban areas are characterized by lower population densities, relatively poor infrastructure and larger land areas for agriculture (Piorr *et al.*, 2011). The agricultural activities that take places in this area are characterized by: low land use conflicts due to the legal status of the farms, and the absence of space-related adaption even though there is pressure on the land due to price surges.

2.1.3. Livelihood

De Haan and (Zoomers, 2003) define livelihood as the means by which particular households or groups create a living, attempt to satisfy their needs and financial necessities, cope with uncertainty, and take advantage of new opportunities. (Ellis, 2000) defines a livelihood as the activities, activities (natural, physical, human, financial, and social capital), and access to these resources (with the aid of institutions and social relationships) that together determine the standard of living attained by an individual or household. A livelihood is sustainable when it can cope with and recover from stresses and shocks maintain or enhance its capabilities and assets, while not undermining the natural resource base” (DFID, 1999). In this research Livelihood in its simple sense refers to the way in which households secure a living to meet the basic needs for food, shelter, health and clothing. Assets in this particular context are defined not only as natural or biological assets such as land, livestock or common property resources but also as social assets which include social networks, empowerment, family ties and participation.

2.1.5. Land use Planning

Land use planning is systematic assessment of land and water potential, alternatives for land use and economic and social conditions, in order to select and adopt the best land use options. Its purpose is to select and put into practice those land uses that will best meet the needs of the people while safeguarding resources for the future (FAO, 1993). The land use planning process can serve to screen preliminary land use options that should be considered for land evaluation, a process useful for setting national priorities for development, as well as for selecting specific projects for implementation at local or sub-national levels. Land use planning has become a central prerequisite for (spatial) development that aims at social, ecological and economic sustainability (Bourgoin et al., 2012)

2.2. Empirical review of literature

2.2.1. Types of urban and peri-urban agriculture

According to (Mireri et al., 2006) the choice of what to produce and how to produce is determined by the culture, tradition, markets, water supply, rainfall, and climate, exposure to the sun, soil condition, plot size, and distance to home. Family and individual resources, land availability, and location are critical determinants of the type of UA practiced put urban agriculture broadly as any agricultural production such as horticulture, floriculture, forestry,

fishery, poultry, and livestock mainly in public open spaces within or fringe of cities (Deelstra & Girardet, 2004). Type of UA Green roofs are not only a unique form of urban agriculture, but they also help control and confine urban flooding. They reduce surface runoff by raising the infiltration to runoff ratio (Whittinghill and Rowe, 2012). Installing green roofs is the best solution, according to (Walters and Stoelzle Midden 2018), to the issues with urban runoff caused by impermeable surfaces.

Participatory Garden, these gardens are made by a group of friends and neighbors who work together to grow flowers and vegetables in order to promote positive social contact and leisure time. Beyond merely growing plants, participatory gardens are meant to be entertaining areas, have a positive impact on biodiversity, or even be used as healing gardens (Siegner et al., 2018). The goal of these gardens is to revitalize abandoned urban areas. The objectives of these urban gardens are to revitalize idle urban areas, improve environmental sustainability, boost urban biodiversity, promote carbon sequestration through tree planting, and assist regional food production projects (McDougall et al., 2019). Participatory gardens are low-cost, high-impact instruments that urban managers can use to improve the quality of their communities by fulfilling a variety of purposes. They serve as examples of how chaos theory emphasizes how small actions can have a big impact with little funding (Doron, 2005).

Family gardens are collections of land managed by individuals or families that are separated into hundreds of small plots either inside or outside of cities. Separate cultivation is done for each plot (Siegner et al., 2018). These gardens benefit the city's exterior and surrounding areas on a cultural, social, economic, and environmental level. They make possible in addition to offering a nice area for family leisure time, they allow families to participate in economic activities and small-scale horticultural and agricultural production (Orsini et al., 2013).

2.3.2. The Role of urban and peri-urban agriculture

2.3.2.1. The Role of urban and peri-urban agriculture in food security

UA is mainly practiced in city open spaces, along river sides, and on urban fringes where land is not suitable for building construction. According to (Bryld, 2003) UA brings with it great potential for enhancing the situation of the urban citizens, especially those with the lowest incomes who are dependent on the access to locally grown food. The acceleration of urbanization in developing countries has been accompanied by increased demand for food

consumption. Yet, the number of poor urban households has also significantly been rising along with urbanization, and so do many households who cannot afford to buy enough food for their consumption (Bryceson & Potts 2005).

Most urban farming is practiced by the urban poor who consume most of the production and supply the surplus to the market (Bryld 2003, Mireri *et al.*, 2006). The major expense for most of the urban poor is purchasing food; thus, they will be left with nothing for health, education, and other necessities. They also hardly consume varieties of food. Thus, it is not surprising that urban farming contributes to improving livelihoods for the urban poor. It improves not only the quantity of food intake but also the nutritional value of the poor self-grow vegetables, fruits, chickens, and soon (Bryld 2003; UNDP, 1996).

The significance of urban agriculture (UA) for food insecurity and the urban poor is examined from a comparative international perspective using empirical evidence from a sample of 15 developing nations using data from nationally representative household surveys (Zezza & Tasciotti, 2010). According to the study, there is generally consistent evidence of a favorable statistical relationship between nutritional adequacy indices and participation in UA. Thus, UA does appear to be associated with greater dietary diversity and calorie availability, both measures of an improved diet and hence closely related to food security. UA can be seen as a survival strategy for the urban poor during crisis periods and contributes to household food security, especially for women and the elderly. Investigations carried out in the city of Hanoi, the capital of Vietnam showed that urban agriculture supplies about one-half of the food demand, and engages 10% percent of the urban labor force in processing and marketing, retailing, input supply, seed, and seedling production (World Bank, 2005).

Urban farming in Addis Ababa was found to contribute significantly (65 %) to the livelihoods of urban farmers at both sectorial and household levels, for which livestock and crop production accounted for 40 % and 45 %, respectively (Duressa, 2007). The urban farmers produce a variety of crops and livestock for home use and/or market. The fact that mixed farming is the most common activity by many urban farmers in the city implies farmers' options for diversification. Cultivating vegetable crops is the most common practice for crop producers, and this may be associated with the size of landholdings (being small), the suitability of vegetables for cultivation, piece-by-piece harvesting, and their liquidity. Despite

its substantial sectorial contribution, livestock production, mostly the rearing of milk cattle, is practiced by a few urban farmers, and it may be because of capital (credit) constraints since the sub-sector requires high initial investment (Tewodros, 2007).

2.3.2.2. The role of Urban and peri-urban Agriculture in Livelihood improvement

Urban dwellers in Ethiopia derive their income from a variety of activities such as agriculture, self-employment, and wage labor. For example, 7% of the urban population in Ethiopia depends on agriculture as their main source of income, and 30% derive part of their income from agriculture (Muzzini, 2008). In terms of size, this number is high in medium and small cities, which account for 10 percent, compared to 1 percent in large cities (Muzzini, 2008).

The extent of UA varies widely depending on land availability and legal restrictions. Studies show that as much as 40% percent of the population in African cities and up to 50% in Latin American cities are involved in urban or peri-urban agriculture. In the 1980s UPA in China's largest cities met more than 90% of vegetable demand and more than half of meat and poultry demand (IFPRI, 2002). In light of the livelihood security, the study conducted in city of Lima, capital of Peru located in the western of Latin America revealed that urban producers use a variety of assets, which they combine in order to deal with risks and vulnerabilities. These assets are divided into five categories: natural, physical, human, financial and social. Here, one of the principal threats to urban producers is rampant urban sprawl. In addition, urban households involved in agriculture contend with a lack of recognition and understanding from policy makers (Villavicencio, 2008). Studies undertaken in the capital of Zambia; Lusaka revealed that the basis for UA is the availability of resources. Also, the same study showed UA can act as an alternative income-generating activity and as a buffer for household food security (Drescher, 2000).

The case study research conducted in the city of Nairobi indicated that several land holdings potentially increase the diversification and intensification of food-production systems. As a result of this diversification of crops and livestock-rearing, household income increased in several ways. First, if they were marketed, the surplus food crops and livestock as well as their products fetched extra income. Second, the increased availability of food crops relieved the households' income from food purchases. Therefore, households' food security was enhanced by increased availability and access to diversified diets (Njogu, 2008).

In Ethiopia, UA&PUA has been shown to be a final stage by households in their sequence of survival strategies. Households in the urban areas respond to the extreme threat of poverty and food insecurity by carrying out urban farming on any vacant space available. UA is also practiced because of shortage of income and unemployment in the urban centers (Lamba, 1993). Exploratory research conducted by (Axumite, 1994) in Addis Ababa on five horticultural cooperatives found out those urban households in Addis Ababa start UA&PUA when they lack options and/or fail to satisfy their needs with better income options. She also put the survival strategies of urban farmer households as that urban farmer households passed through three common sequential stages while looking for better income and better survival options for themselves and their family members.

Most head of households worked in the informal sector, then they became tenants and waged farm laborers, and finally they all became state land occupiers, after which they formed a producer cooperative. The same scholar has also discovered that in Ethiopia like in other African countries, although UA is significantly contributing for fulfilling the basic demands of the low income, it still lacks proper consideration and the right full place from policy makers, urban planners and authorities (Axumite, 1994).

2.3.3. Opportunities and Constraints of urban and peri-urban agriculture

2.3.3.1. Opportunities of urban and peri-urban agriculture

Urban agriculture, including food production, is typically practiced over smaller and more dispersed areas than rural agriculture uses land and water more sparingly and efficiently, integrates systems more effectively, and produces much higher yields and more specialty crops and livestock. As with other land uses, urban agriculture adapts to city development, with the less space-dependent forms surviving in central areas and the more land-demanding forms migrating to less coveted locations (Mougeot, 2000).

UA products may reach urban consumers and processing points the day they are harvested. These systems are also characterized by the small scale of production, a high proportion of perishable crops (especially leafy vegetables), disease and insect pressure, the intensity of input use, crop diversity, and low use of mechanical power (World Bank, 2005).

UA is generally characterized by closeness to markets, high competition for land, limited space, use of urban resources such as organic solid wastes and wastewater, low degree

of farmer organization, mainly perishable products, high degree of specialization, to name a few. By supplying perishable products such as vegetables, fresh milk and poultry products, urban agriculture to a large extent complements rural agriculture and increases the efficiency of national food systems (Veenhuizen, 2006).

Urban farmers are closer to markets than their rural farmers and have an advantage in targeting specific consumer segments like the high income and responding quickly to change in the demands of these, provided they have good access to market information (World Bank, 2005).

Urban farmers are mainly small-scale family enterprises, but also medium sized and large enterprises are encountered. UA (especially and more so intra-urban agriculture) is often done in addition to other employment. Urban producers cope with greater competition over resources, environmental stress, tenure and crop insecurity, and inadequate or nonexistent legal, financial, and technical support (Mougeot, 2000). UA is so typically opportunistic because practitioners have evolved and adapted diverse knowledge and know-how to select and locate, farm, process, and market plant, tree, and livestock types in the urban fabric (Mougeot, 2005).

2.3.3.2. Challenges of urban and peri-urban agriculture

Despite the advantages of UA mentioned above, it has some limitations worth noticing. In many cities, it is being practiced as an informal sector and has little support from local councils (Bryceson 2005, Bryld 2003, & Deelstra & Girardet 1999).

Space for cultivation

According to (Bryld, 2003:82) besides feeding the poor in the cities, there is an urgent need for providing shelter for the homeless. Knowing that growing food in cities requires land, it may not be prioritized in urban land uses since the demand for urban spaces to build houses is higher than using spaces for agricultural activities. Agriculture requires land. However, there is lack of space for growing crops in cities. (Argenti, 2000) further emphasized that agricultural productive lands are likely to be lost in this competition.

Health problems

UA poses a risk to one's health and its production process makes use of urban resources like water and garbage. Utilizing untreated compost, wastewater, or dirty rivers can contaminate

crops and livestock and pose health risks to people. Numerous instances of health issues resulting from urban gardening have been documented (UNDP, 1996).

In addition to these, the main obstacles to urban farming in Addis Ababa are overuse of resources, a lack of policy concerns on urban agriculture, which led to less focus on the industry, and a lack of working capital for farming (ORAAMP, 2000).

Impacts of LU-LC change on urban and peri-urban agriculture

Agricultural production has been practiced in the basin of Lake Victoria for many generations (Maitima and Gumbo, 2007). The most common mode of agricultural production is subsistence farming but due to several advances in strategic focus there is a potential for changes to commercial small- and large-scale farming like in many other parts of east Africa. However, availability of land is critical in this endeavor. Changes in land use have reduced the amount of land available for agriculture resulting in intensification of agriculture with implications for more farm inputs. This has confined grazing fields to smaller areas than before often leading into conflict between the cultivators and the herders. This has also led to heavier grazing pressures on land because livestock have to graze in an area for longer periods than before leading to more intensive grazing (UNEP, 2002).

Food security is determined by food availability (the overall production of food by the agricultural system), food access (distributional and entitlement issues), food stability (the risk of losing temporarily or permanently access to food), and food utilization (all food safety and quality aspects) (ANRS-BOFED 2015, ANRS-BOFED, 2016). Land-based production provides the major biophysical basis for food security. Land system change, that is, the spatial and temporal changes in the interplay of social and ecological systems in shaping land use and land cover change.

2.3.4. Implications of urban and peri urban agriculture on land use planning

Rapid urban expansion, especially in low-income countries, causes high food prices and urban food insecurity for urban dwellers who mainly buy food (Gebreslassie, 2014). This is due to the fact that land for urban expansion is frequently acquired from nearby, productive agricultural land. Modern urban expansion has heavily depleted the most fertile agricultural land in developing countries (Bonye *et al.*, 2020).

According to (Digafe *et al.*, 2024), urbanization affects the local people negatively. It transformed the land use patterns of the locality. We used to practice agriculture up till the beginning of 21st and it was our generational practice. Many were dependent on fishing for livelihoods. But urbanization changes the arrangements of environments. Agricultural practices have been reducing and fisherman community are disappearing due to the land use changes and commercial land uses. As urban land is scarce and expensive, especially in densely populated areas, access to vacant land becomes one of the most limiting constraints for farming in the city. Agriculture competes with other potential uses for soil, such as residential, industrial and commercial (Donovan *et al.*, 2011).

Urban land use planning should consider the reliable and sufficient supply of water so that it can contribute to the security of both food and energy. Urban land use planning should consider the efficiency of energy so that it can significantly enhance the security of both food and water (Zakeri *et al.*, 2022). A high-quality seed, fertilizers, pesticides, irrigation systems, tractors, ploughs, and other technological advancements have made it possible to increase agricultural productivity and yields. Expanding agricultural-producing regions can also be facilitated by innovative urban growth (Wang *et al.*, 2021). As a result, urban land use planning should consider the optimal development of agricultural land, as it can have a significant impact on water and energy security (FAO, 2023). Urban areas, in particular, are overusing natural resources due to the expanding urban population, which will make up 68% of the global population by 2050 (United Nations, 2019).

There is a consensus that urban agriculture improves the environment, landscape, and quality of life of urban dwellers, and that it contributes to food security, employment, and social cohesion (Gulyas *et al.*, 2021; Langemeyer *et al.*, 2021). It is important for local identification and societal interaction through local products, traditional production practices, landscape protection activities and seasonal events, but on the other hand, pressures for agricultural land conversion and fragmentation are strongest in peri-urban areas. Since the future for most of the global population will be urban, and as soil sealing corresponds with rapid urbanization, integration between spatial and agricultural planning policies is increasingly important for the prevention of conflict (Piorr, 2011).

3. METHODOLOGY OF THE STUDY

3.1. Description of the Study Area

3.1.1. Location

The study was conducted in the Jimma zone in the southwestern Oromia Region, of Ethiopia in three kebeles namely *Sato-Samaro*, *Bosa-Kitto* and *Ifa-bula*. Jimma city is located in the southwestern parts of Oromia National Regional State in Ethiopia. Jimma city is located 352 km from Addis Ababa. Total land cover or area of Jimma City is 11417.7ha. Geographically Jimma city is lie between 7° 37' 30" N to 7° 42' 00" N latitude and 36° 46' 30" E to 36° 52' 30" E longitude (Figure 1).

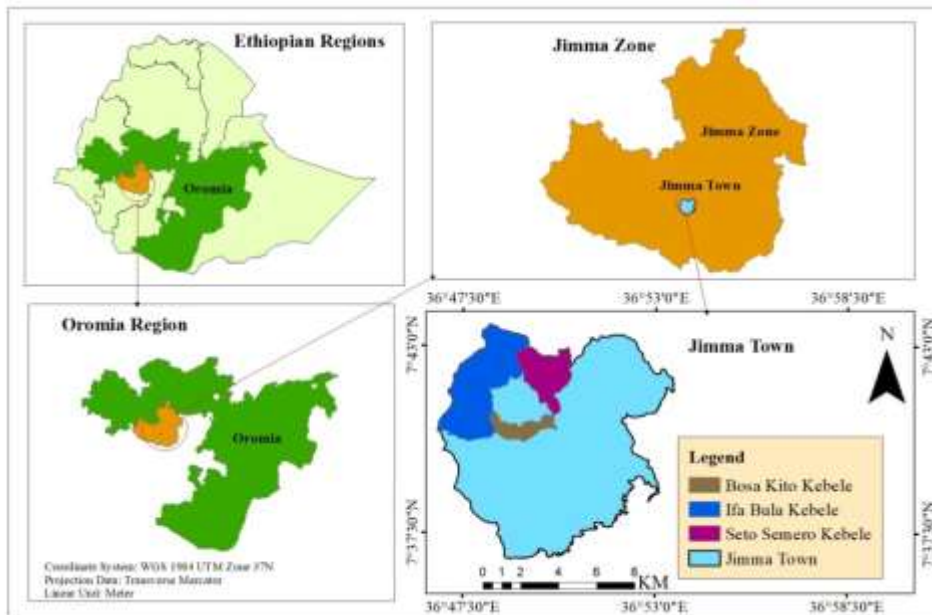


Figure 1. Location Map of the Study Area

Source: Ethio-GIS (2024)

3.1.2. Relief and climate

The major part of Jimma town, including the central, southern and western parts, is characterized by flat to gently sloping topography, while the northern and eastern parts of the town and its peripheries are characterized by hilly landscape. The elevation within the town boundary ranges from around 1700 masl in the south to over 2000 masl in the northern periphery of the town. Two major soil types, reddish brown residual soils and alluvial soils of

brownish gray and grayish white clay soils are observed in Jimma area (Haro *et al.*, 2012). Jimma has a relatively cool tropical monsoon climate. It features a long annual wet season from March to October. Afternoon temperatures at Jimma are very warm year-round, with the daily maximum usually staying between 24 and 27 °C (75.2 and 80.6 °F). Morning temperatures are even more consistent, being at a cool-to-pleasant 12 to 13 °C (53.6 to 55.4 °F) virtually every day (Kebebew and Urgessa, 2011).

3.1.3. Drainage and Soil characteristics

Tropical Residual fine-grained soils, like clays and silt-clays, developed mainly on basaltic bedrock represent the soils found in Jimma town. In flat lying location, massive dark silty clay soils (alluvial origin) formation has color ranging from gray to dark black. Even though most of the town is covered with soils colored from dark to gray clay soils, there are also red- and yellow-colored soils (Jibiril, 2014).

The types of drainage facilities in the city are trapezoidal, rectangular channel, circular, earthed channel, and natural waterway. The central part of Jimma is drained by a closed pipe drainage system built by the Italians. There is a more extensive network of piped drainage in core areas of Jimma as compared to urban centers of similar size (Dibaba, 2018). The other parts of the city where there is drainage system are being drained by open ditches of different shapes built of stones and some earthen. Most of the gravel and earth surfaced roads do not have proper drains except the side slopes that collect and drain storm water. Currently, most of the city has drainage facility and, however, most of the drainage lines in Jimma are in bad condition (Warati and Demissie, 2015.).

3.1.4. Demographic characteristics of the study area

Jimma city has a total population of about 120,000 (Central Statistical Agency (CSA) 2007). In 2013, the city's total population increased to 157,432, of which 75,451 and 81,981 were males and females, respectively while in 2023 the total population of Jimma city is 207,573 (CSA, 2023).

Table 1. Population of Jimma town at different years

Years	Initial point	Growth Number
1984	60,992	-
1994	88,867	27,875
2007	120,960	32,093
2014	157,432	36,472
2017	205,384	47,952
2023	207,573	2,189

Source: Jimma City statistical office, 2023

3.1.5. Socio-economic characteristics and livelihoods of Jimma town

The Jimma town is known by home of different nation nationalities and which is one of the popular towns of the region. These people live together with their varieties of believers and culture by tolerating one another. The economy of the community is based on commerce and different stakeholders' activities both in government and private sectors. The town is center of commerce due to its coffee production and distribution. The livelihood of smallholder farmers depends on the mixed crop livestock system on a subsistence scale. Teff, maize, sorghum, coffee, fruit crops, vegetables, potato, pulse, and enset are the dominant crops grown in the study sites (Kechero et al., 2013). Cows, oxen, goats, sheep, and poultry are a livestock commonly known in the study sites. Tree-based agroforestry land use practice is commonly known in the sites. Smallholder farmers have experience in the use of the home garden, farmland, coffee farm, and woodlot land uses agroforestry practices (Kebebew and Urgessa, 2011).

3.1.6. Land use planning implementation of Jimma Town

Table 2. Land use planning and classification in Jimma City

No	Land use type	Coverage in Ha	%
1	Residence	4441	38.9%
2	Commerce, Business and market Center	278	2.4%
3	Services	1052.4	9.2%
4	Green, recreation, and environmental sensitive area	2851	25%
5	Administration	64.4	0.6%
6	Manufacturing and storage	763	6.7%
7	Infrastructure, utility and transportation	1241.7	10.9%
8	Special function	34.2	0.3%
9	Urban agriculture	692	6.1%
Total		11417.7	100%

Source: Jimma Town agricultural office, 2023 (*un published*)

Jimma town has different types of land use land cover characteristics as shown in table 2 above. The major LULC of Jimma town and their coverage in hectare are listed in the table above. Among this urban land use 692 hectare which is 6.06% of the total land use land cover of Jimma town. This means the land cover change of urban agriculture from total land use land cover is 6.1%.

3.2. Research Design and Approaches

In this study, the descriptive survey design was employed to make intensive investigation of the contribution and challenges of urban and peri-urban agriculture in improving households, Livelihood and its implications on land use planning in Jimma city administration. Hence, to maintain triangulation in its findings, the design was manifested the basic features of both the qualitative and quantitative researches. The descriptive research design with survey research strategy was used in the contribution and challenges of urban and peri-urban agriculture in improving households, Livelihood and its implications on land use planning in Jimma city administration. A qualitative approach was used to provide an in depth understanding of the contribution of UPA in food supply, challenges of urban and peri-urban agriculture in

improving households, Livelihood and its implications on land use planning in Jimma city administration.

3.3. Sampling Techniques and Sample Size Determination

3.3.1. Population of the study

The population of the study was households practicing urban and peri urban agriculture in full-time or part time of Jimma town. It is suggested that information richness is often the most important factor in the selection of samples (Bradley, 1993). In order to strengthen the results of the findings, three kebeles of Jimma town were purposely selected. Study Informants of interview and participants of FGD were selected proportionately from these three kebeles. From this three kebeles total of 202 were selected.

3.3.2. Sampling size determination approaches

Jimma town has 17 kebeles from which 12 are urban kebeles and the remaining five kebeles (Jiren, Bore, Horagibe, Kofe and Ifabula) are peri urban kebeles surround Jimma town. Among these 17 kebeles 3 kebeles (2 namely Bosa kito and Sato samara from urban and 1 Ifabula from peri urban) were selected by considering distance and capital of the researcher as well the presence of large urban agriculture practices at large land size in the kebeles. Knowing the exact number of UA participants is very difficult (Messay, 2010). Similarly, the exact number of UA&PUA participants in Jimma town is not known. Proportionate sample of UA&PUA practicing HH were drawn in the Jimma town. Since all target populations are UA&PUA participants, formula developed by Yamane (1967) was applied. Sample size is determined at 95% confidence level and 7% level of precision.

The formula used for total sample size determination is as follows:

$$n = \frac{N}{1 + N(e)^2}$$

$$n = \frac{11562}{1 + 11562(0.07)^2}$$

$$\underline{\underline{n=202}}$$

Where,

n is sample size,

N is total population of the three kebeles and

e is the precision level, or sampling error

Table 3. Sample size of the study area

No	Kebeles Name	Total no of households	Sample size
1	Bosa Kitto	6,890	112
2	Sato Samaro	2,972	52
3	Ifa bula	1,700	38
	Total	11,562	202

3.3.3. Sampling Technique

For this study, a stratified random sampling technique was used to get information from different level of urban farmers. Urban and peri urban farmers were classified into strata of type of the Urban and peri urban they practicing (vegetable, livestock, fruits, chats, chicken and coffee). This technique is preferred because it is used to assist in minimizing bias when dealing with the population. With this technique, the sampling frame was organized before selecting elements for the sample into one time investigation. Accordingly, stratified sampling step increases the probability that the final sample was representative in terms of the stratified sampling. The stratified sampling technique was used in the livestock production, vegetable cultivation and fishery activities. According to (Catherine Dawson, 2009), the correct sample size in a study is dependent on the nature of the population and the purpose of the study. Although there are no general rules, the sample size usually depends on the population to be sampled.

3.4. Data Type and sources

In order to attain the main goal of the research, both primary and secondary data were collected and used. The primary data were collected from focus group discussions; in-depth interview of the key informants, participant observations and questionnaires. The secondary data were collected from all available written documents, published and unpublished journals & electronic sources.

3.5. Method of Data Analysis

The data which collected from the different bodies were analyzed using frequency distribution, mean and percent in order to explain the major determinant variables. Different data analyzing methods were used as much as possible to meet the variables. The qualitative data collection and analysis go simultaneously. Qualitative data gathered through focus group

discussions and key informant interviews were analyzed by using conceptual generalization. After the data gathered, it has been properly read and annotated, categorized based on objective and then combined categories so as to infer and build up a picture of the data. Therefore, there was the work of coding, arranging and analyzing of data in each day of data collection. Furthermore, frequency, multiple response and score, which were used to rank constraints according to the respondents' preference, were used in this study. Quantitative data was analyzed by using SPSS software and the results were presented in form of tables, graphs, map and figures. Descriptive statistics such as mean, percentage, frequency, standard deviation and cross-tabulation were employed for the study. Furthermore, statistical tests were used to know the degree of association and the mean difference between the dependent variable (HH monthly food expenditure) and each independent dummy and categorical variable respectively.

4. RESULTS AND DISCUSSIONS

4.1. Demographic and socio-economic characteristics of Respondents

As table (4) below indicated that 165 (81.7%) of the respondent were males and the remained 37(18.3%) were females. Based on this evidence majority of the respondent were males. However, these gender differences of the participant do not affect the information obtained from them. This shows that both male and female actors are almost equally engaged in the practice of urban agriculture in the city. This finding is contrary to what has been mentioned in FAO (2012) claiming that women are to a greater extent, more engaged in the field of urban agriculture than that of men.

Table 4. Demographic and socio-economic characteristics

		Frequency	Percent
Sex	Male	165	81.7
	Female	37	18.3
	Total	202	100
Age	18-30	21	10.4
	31-40	122	60.4
	41-60	59	29.2
	Above 60	0	0
	Total	202	100
Marital status	Married	198	98
	Unmarried	4	2
Family size		202	100
	1-3	38	18.8
	4-7	161	79.7
	Above 7	3	1.5
	Total	202	100
Education Level	Uneducated	5	2.5
	Read and write	35	17.3
	Primary school	31	15.3
	High school/preparatory	87	43.1
	Diploma/ above	44	21.8
Employment status	Employed	56	27.7
	Unemployed	146	72.3

The age respondents were started from 18-above 60. Majority of the respondents aged from 31-40 (60.4%) followed by age group of 41-60 (29.2%) and finally followed by age group of 18-30 (10.4%). Hence, the majority of the participants were at age group of 31 to 40 age groups of the study area followed by 41 to 60 age groups. Majority of the respondents about 98% married the remaining 2% respondents were single (unmarried). Majority of the

respondents as shown in table 4 above, about 79.7% have the family size of 4-7 followed by 1-3 members which accounts about 18.8% and the remaining 1.5% of the respondents has family members above 7. Educational level of the respondents, the result shows that majority of the respondents were learned up High school/preparatory (43.1%) which followed by Diploma/ above (21.8%), followed by Read and write (17.3%) followed by primary school 15.3% and finally followed uneducated (2.5%). Where as to carry out this study, review interview were used to fill the questionnaire for those who could not capable to fill the questionnaire themselves. Regarding the employment status of the respondents, 72.35 of the respondents were unemployed and the remaining 27.3 % only were employed.

Income of the respondents per month

The respondents for this study have different income levels per month as indicated in figure 6 above. Among the total respondent's majority of the respondents about 34.7% (70) of the respondents earn between 1500-3000, followed by 30.7% (62) earn about 5000-10000, followed by 28.2% (57) of the respondents get between 3000-5000 ETB per month. Only 8 (4%) of the respondents reported their income was between 1 and 1000 ETB (Ethiopian birr) per month followed 2 (1%) of respondents reported that their income was greater than 10,000 ETB per month. These incomes are not only the livelihood of the households, but it is in addition with urban agriculture

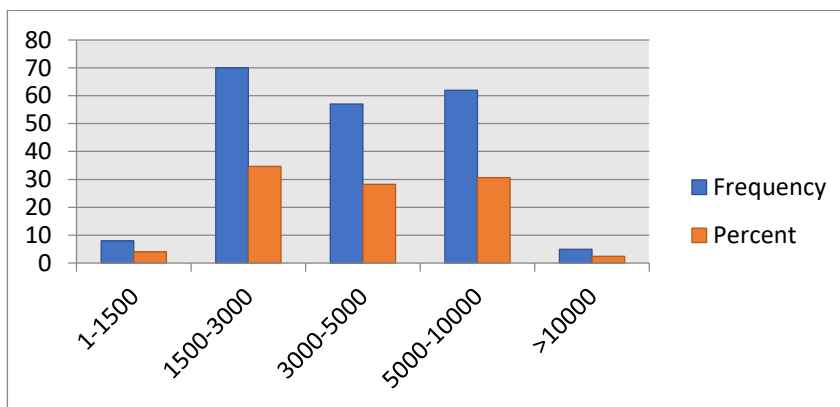


Figure 2. Income per month

4.2. Types of Urban and peri-urban Agriculture practiced in Jimma town

As showed in figure 8 below particular type of crops and livestock produced by the farming HHs (HHs engaged in production of different crops and livestock). Accordingly, different

vegetable crops, fruit crops, coffee and livestock both cattle (for beef and dairy) and poultry (for egg and chicken) were produced by the farming HHs. As compared to the other agricultural products, majority of the HH level respondents produces poultry and vegetables dominantly. Numerous numbers of HHs were engaged in production of economic crops by engaging into UA&PUA. Percentage of respondents participating in their production are Vegetables 32.8%, poultry production 27.7%, Dairy farming 16.7%, fruit production 15.0%, coffee planting and fattening with percentages, 7.1% and 0.7%, respectively. the result is line with study by Alemayehu *et al.* (2017) the farmers' conducts different types of agricultural practices in view of increasing their income through different ways. Farmers of the area conduct various farming activities and use to feed their families as well as sell agricultural product for cash profit which in turn enable them to earn money (Alemayehu *et al.*, 2017). Livestock production is an important component of agriculture activities in developing countries like Ethiopia. Such types of farming activities are kept in both urban and rural areas of the country for various uses including milk and milk products, meat, eggs, food, cash and various cultural uses (Bossio, 2009).

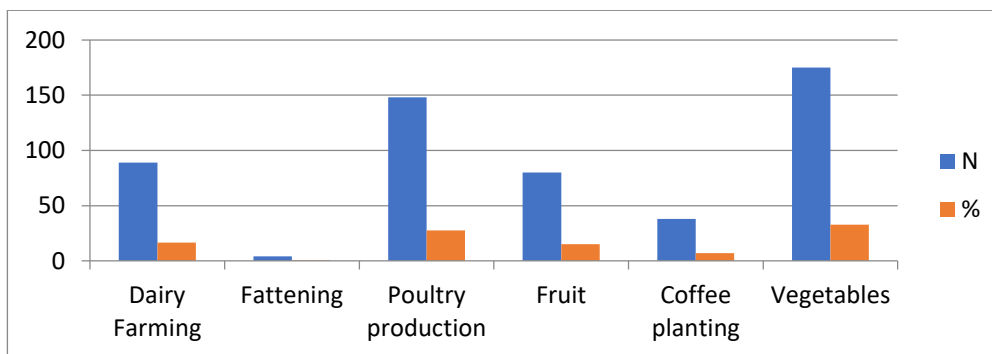


Figure 3. Types of UA practiced

4.3. Contribution of Urban and Peri-urban Agriculture in Household Food security

One of the primary benefits of urban agriculture is improved food security. Urban and peri urban agriculture can help to increase access to fresh, nutritious food for city residents, especially in low-income neighborhoods where access to healthy food is often limited. By growing food locally, urban agriculture reduces the reliance on long-distance food transportation, which can be costly, energy-intensive, and environmentally damaging. Study

by Almeyehu et al. (2017) supports this result as Peri-urban and urban agriculture has the potential in achieving food security for many people in Addis Ababa in Ethiopia. UPA are allowing urban residents to grow their own fruits, vegetables, and even some animal products within the city limits.

Table 10. Contribution of UPA on food supply

UPA contribute on food supply	Frequency	Percent
Yes	179	88.6
No	23	11.4

As indicated in the table above majority of about 88.6% of the respondents accepted that urban and peri urban have high contribution on their daily food supply. But the remaining 11.4% of the respondents revealed that there is no any contribution of urban agriculture on their daily food supply. This indicates majority of the urban farmers get their food from their agricultural products. This is increasing the overall availability of fresh, nutritious food within urban areas, particularly in underserved communities with limited access to supermarkets or affordable fresh produce. this result line with the result of other studies like Urban and peri-urban agriculture is a proven means of livelihood and source of food for many urban dwellers, particularly low-income households in developing countries. However, its contribution towards urban food security and sustainable livelihoods has never been clearly recognized, simply because urban agriculture is largely assumed to be a poor replacement for rural agricultural activities (SADC, 2017). UA and PUA providing access to a wider variety of fresh, locally grown fruits and vegetables that may not be readily available or affordable in traditional markets. This can lead to a more diverse and nutritious diet for urban and peri urban residents, promoting better health outcomes. Urban agriculture is a good source of nutritional food for the urban poor who are victims to malnutrition (Egbuna, 2008). The study by Mahteme (2020) has found out that this form of benefit supports households in two terms. First, it directly reduces the food expenses of the households; as a result, contributes in increasing the dispensable income of the household. Second, it provides households with nutritious food for a dramatically low price. This second form of support is confirmed by one of the key informants who mentioned that the eggs that she obtains from practicing urban agriculture have enabled her to feed her family (Mahteme, 2020).

4.4. Contribution of Urban and Peri-urban Agriculture in Livelihood

Urban and peri urban agricultures have numerous types of contributions like as income source for house hold, employment opportunities and household food consumption. But in Jimma town of majority of urban agriculture participants use products of UA&PUA for household food consumption. Among the respondents about 92.6% revealed they were using for both household consumption and to market sell. Majority of them use vegetables and livestock products for household consumption. This indicates that majority of the respondents use products directly consume for themselves and change other foods by selling their products to market.

Table 5. Destination of agricultural products

Destination of the output of UPA	Frequency	Percent
HH consumption only	13	6.4
Both HH consumption and Market	189	92.6
Total	202	100.0

UPA are providing opportunities in generating of income through the sale of fresh produce, herbs and flowers in Jimma city. These are a significant source of income, particularly for low-income households and marginalized communities. Urban and Peri urban farms are creating jobs in production, processing, marketing, and distribution of local food. This is stimulating the local economy and providing employment opportunities within urban areas.

Urban and peri-urban agriculture can also provide economic benefits, including job creation and income generation. Urban farming can create opportunities for entrepreneurship and small business development, especially for individuals who face barriers to traditional employment. Growing their own food helping urban residents, especially low-income households in Jimma city, save money on grocery bills. This frees up resources for other necessities such as saving and other purposes. the study by Tewodros (2007) described as Urban farming in Addis Ababa was found to contribute significantly (65 %) to the livelihoods of urban farmers at both sectorial and household levels, for which livestock and crop production accounted for 40 % and 45 %, respectively.

4.4.1. Contribution of Urban and Peri-urban Agriculture in Income Generation

According to about 166 (31.1%) respondents, UPA providing direct income through the sale of fresh produce, livestock products, and processed goods. This is a primary source of income for farmers or a supplementary income for households. Also, many participants 122 (22.8%) responded that U&PA creates jobs along the entire food production chain, including farming, processing, packaging, marketing, and distribution. This is producing opportunities of getting benefit both skilled and unskilled labor. Majority the participants 181 (33.9%) accept that UPA allows families to grow their own food, reducing dependence on market purchases and increasing dietary diversity. This frees up household income for other necessities. But the small number 65 (12.25) of the respondents support that income generated through UPA gets circulated in the local economy, stimulating demand for other goods and services, leading to further economic growth. The urban poor are hence people who obtain low and insecure income which in turn leaves them at a worse position in life as they will be subjected to malnutrition and diseases (FAO, 2012).

Table 6. Contribution of Urban and Peri-urban Agriculture in Income Generation

Contribution in Income Generation	Responses	
	N	Percent
Direct Income	166	31.1%
Job Creation	122	22.8%
Increased Household Food Security	181	33.9%
Economic Multiplier Effect	65	12.2%
Total	534	100.0%

The mean income of UA producers and non-fruit producer urban farmers in terms of fruit production has mean of 0.40 with standard deviation of 0.49. The mean income of fruit producer urban and peri-urban agriculture participant is 0.29 with its standard deviation 0.46 whereas the mean income of non-fruit producer urban agriculture participant is 0.88 with its standard deviation 0.33. The chi square (0.018) result implies that the association between urban fruit producers and non-producers has positively association and significant at 1% probability level. The mean income of UA vegetable producers and non-vegetable producer urban farmers in terms of fruit production is 0.88 with standard deviation of 0.32. The mean

of vegetable producer urban agriculture participant is 0.29 with its standard deviation 0.46 whereas the mean of non-vegetable producer urban agriculture participant is 0.94 with its standard deviation 0.23. The chi square (0.039) result implies that the urban vegetable producers and non-producers has positively association and significant at 1% probability level.

Table 7. Statically result of income from different types of agricultures

Variables	Obse	Mean	Std.Dev	UA producers		UA non-producers		Chi ²	p-value
				Mean	Std.Dev	Mean	Std.Dev		
Livestock	202	0.87	0.34	0.86	0.34	0.88	0.33	0.103	0.74
Fruit	202	0.21	0.41	0.26	0.44	0.18	0.39	1.74	0.187
Cereal	202	0.19	0.14	0.43	0.61	0.31	0.17	2.26	0.13
Chat	202	0.40	0.49	0.29	0.46	0.46	0.50	5.57	0.018
Vegetables	202	0.88	0.32	0.94	0.23	0.84	0.36	4.28	0.039

Land size and tenure systems

Land holding size of the respondents

The figure 9 below shows that different land holding size of the respondents for this study. The result shows that majority of about 98 (48.5%) respondents have land holding size of <0.5 ha followed by 94 (46.5%) of the respondents 0.5-1ha, followed by 7(3.5%) of the respondents having 1-3ha and finally the remaining 3(1.5%) have land holding size of 3-5ha

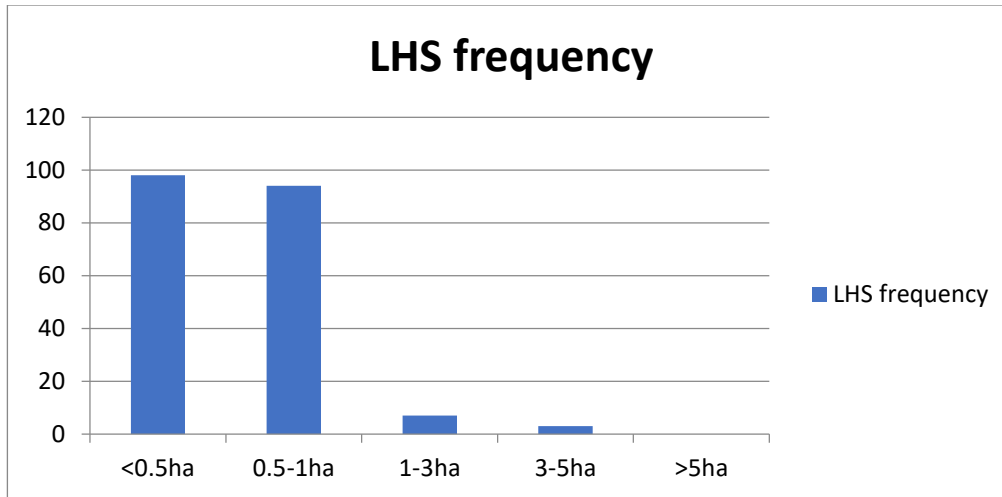


Figure 4. Land holding size of the respondents

Mechanisms to access of land

Information on land possession of HH level farming was presented in Table below 12. HH level of UA&PUA participants of Jimma town possess their farmland through different tenure systems. Inheritance, bought (purchased from other landholders), Governmental distribution, Gifted and lease, were land tenure systems of the surveyed farming HHs. Among other tenure systems, inheritance was the most dominant and 40.6% of the respondents possessed their farmland by this tenure system. Percentages of HHs possess their farmland through Purchased, Government distribution, Gifted, and lease was 21.8%, 19.3%, 10.4% and 7.9% respectively.

Table 8. Mechanisms of access to land

Mechanisms of access to land	Frequency	Percent	Valid Percent	Cumulative Percent
Government	39	19.3	19.3	19.3
Inheritance	82	40.6	40.6	59.9
Lease	16	7.9	7.9	67.8
Purchased	44	21.8	21.8	89.6
Gift	21	10.4	10.4	100.0
Total	202	100.0	100.0	

4.5. Opportunities and Constraints of urban and peri urban Agriculture in Jimma City

4.5.1. Opportunities of urban and peri-urban agriculture

Urban and peri-urban agriculture has different kinds of opportunities or benefits. The major ones discussed in this study are Supply perishable products, Knowledge on Farm Process, Closeness to market, know how to Handle Livestock, and High Degree Specialization with percentages of 38.8%, 29.4%, 16.2%, 15.0% and 0.6% Respectively. Urban and peri-urban agriculture, including food production, is typically practiced over smaller and more dispersed areas than rural agriculture uses land and water more sparingly and efficiently, integrates systems more effectively, and produces much higher yields and more specialty crops and livestock. As with other land uses, urban agriculture adapts to city development, with the less space-dependent forms surviving in central areas and the more land-demanding forms migrating to less coveted locations (Mougeot, 2000).

4.5.2. Challenges of urban and peri-urban agriculture

There are six major constraints as listed under table below. P value of the constraints except other constraints is $p < 0.5$ which indicates all constraints have significant effect in Urban and Peri-urban Agriculture products as shown in the table 14 below. The rank order given for each challenge was based on the frequency value assigned for each constraint. High frequency value was given for the first preference and a low frequency value was given for the last preference. Accordingly, all of the sample respondents had given a rank for each of the constraints in UA&PUA starting from the process of production up to marketing. Also, other studies support that there are challenges for UPA in Ethiopia like Alemayehu *et al.* (2017) rapidly increasing population in urban areas in Ethiopia, addressing constraints to urban agriculture has high prospects of improving the food and malnutrition challenges. Major factor determinants urban agricultural practices identified as Access to inputs, Inability to get land and its granting system, Absence of allotment gardening, Priority to non-edible trees in urban areas, Seasonal rain, Disease, Fragmentation of members group gardening, Market Accessibility, Availability and access to credit, Health risks, Lack of technical support from the concerned body, Lack of raining which supports current study (Alemayehu *et al.* 2017).

Table 9. Constraint of UPA Frequencies

Constraint of UPA	Responses		Rank
	N	Percent	
Farmland Related Constraints	202	37.6%	1 st
Marketing Constraint	24	4.5%	4 th
Input Constraints	134	25.0%	3 rd
Extension Constraints	15	2.8%	5 th
Disease and Death constraints	161	30.0%	2 nd
Other Constraints	1	0.2%	6 th
Total	537	100.0%	

4.5.2.1. Farmland related constraints:

Farmland related constraint was ranked it as the first of all other challenge constraints (includes different issues like fear of losing the farmland, smallness of the farmland, etc.) which accounts for 202(37.6%) that makes it the highest of all constraints. Home gardeners in Jimma town are located in the slum areas of the town. Hence, producing HHs fears they may lose their farm area to the municipality for other activities, such as construction of big buildings, roads construction and different types of urban expansion activities. In addition, unsecure land tenures were among the challenges of the producing HHs. Participants of FGDs indicates that failure of the municipality to renew their lease agreement make them not to be sure about the future. According to key informant interviews (KIIs), proximity of the farmlands to the main City, fast expansion of the city was among the challenges that may make producers to loss their farmland in the future. In some corners of Jimma town there is expansion of wetland into agricultural land that damages agricultural crops during rainy season that needs attention to limit its expansion. Also, there is highly expansion of eucalyptus tree plantation that damages vegetables and crops of neighbors next to them. It affects the productivity of the crops and vegetables by competing the resources for growth of crops.

One of the primary challenges of urban and peri-urban agriculture is limited space. Urban areas are often densely populated, leaving little room for agricultural activities. Finding suitable land for urban agriculture can be a significant barrier, especially in low-income neighborhoods where land ownership may be limited. Urban soils can be contaminated with a

variety of pollutants, including heavy metals, pesticides, and industrial chemicals. Soil contamination can pose health risks for both farmers and consumers, making it essential to test soil before planting and to take appropriate measures to remediate contaminated soils. Urban and peri-urban agriculture may face limited access to resources, including water, seeds, and other inputs. In many urban areas, water is a scarce resource, and farmers may face restrictions on water use. Access to high-quality seeds and inputs can also be limited, which can reduce crop yields and quality.

4.5.2.2. Diseases

According to the respondents this challenge ranked as a second of all the major challenges. The livestock sector also suffers from lack of proper medication. About 30% (161) of the respondents revealed that sometimes there is death and diseases of livestock and vegetable plants in Jimma town. Majority of the livestock producers were suffered by diseases and death of their livestock. According to the FG and KIIs discussion, livestock producers were unable to get proper medical treatment for their livestock as well as fast treatment for plant disease as the result their products damaged. Medication was mainly private based and most of the time conducted without proper diagnosis. Study conducted by Zelalem *et al.* (2017) supports this finding.

4.5.2.3. Market constraints

Majority of the respondents were engaged in production of perishable produces like milk, egg, vegetables, and fruits. About 4.5% of the respondents revealed that get marketing constraints in different ways. The major types of them are distance of market places, fluctuation of market and lack of good roads for transporting the products by different means of transportation. Some of the items produced led to additional cost if they are kept for longer periods (fattened animals, chicken and eggs). Despite of the nature of their produce, the majority of the respondents did not have their own market place and they were forced to sell their produce in public places this includes local markets, private processors, local collectors, other households, cooperatives, and restaurants. Results from FGDs and KIIs showed that demand and price of agricultural products was not constant in the past 12 months. Sometimes there is high demand for fruits and livestock products but also there is no demand for this at

other times. This sometimes related with the holidays and fast times of orthodox and Muslim religions.

Table 10. Places to sell farm products

Where to sell the product	Responses	
	N	Percent
Local Market	200	40.2%
Other Cooperatives	13	2.6%
Local collectors	51	10.3%
Other Household	192	38.6%
Private Processors	34	6.8%
For Restaurants	7	1.4%
Total	497	100.0%

4.5.2.4. Extension constraint

The respondents also mentioned lack of extension service among other major constraints. Majority of the respondents did not know if extension service is given to UA&PUA participants. Results from the key informant interview of experts from the municipality office of agriculture showed that extension service is only provided for rural farmers. According to the respondents, UA&PUA participants got an extension service only if they make personal contact with the office. Similarly, result of FGDs showed that producers got extension service only if they make personal contact with the agents.

4.5.2.5. Credit constraints

In Jimma town, there are many governmental and non-governmental loan institutions. According to FGDs and KIIs Even there are many institutions in Jimma town it is not usual to distribute credits in different way for urban farmers. However, it is very difficult to access loan especially in the absence of collateral.

4.5.2.6. Input constraints

The respondents of survey revealed that they were using different types of inputs for their agricultural activities. They were using inputs like Feeding for livestock (30%), followed by Improved and selected seeds 28.9%, Different agricultural equipment 18.3%, Improved Livestock breed (17.4%), chemical fertilizers (urea and dap) (2.5%), and pest sides/herbicide (2.4%).

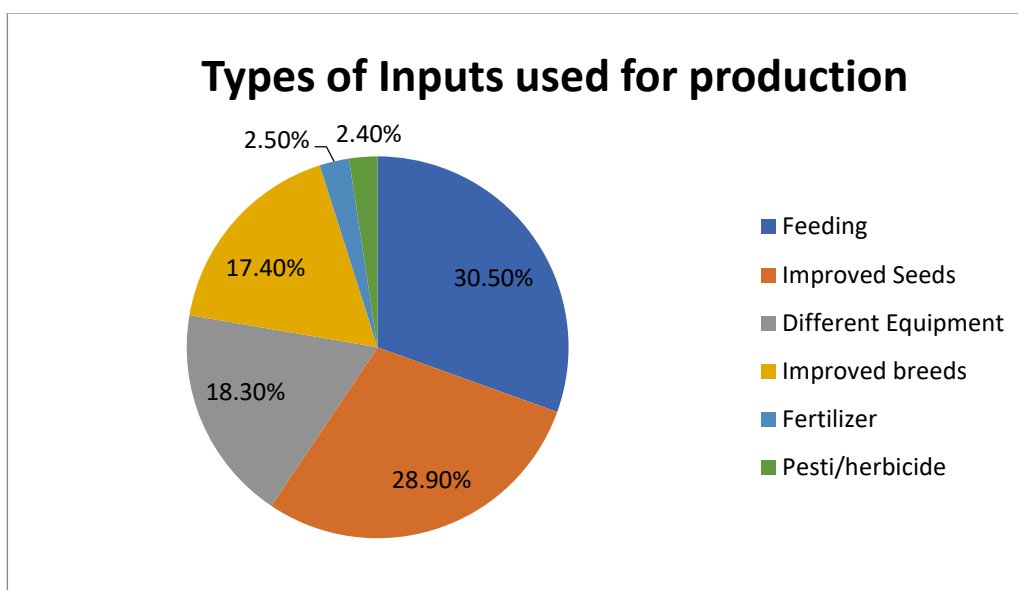


Figure 5. Types of inputs used for production

According to respondents about source of agricultural inputs majority of them about 61.6% get their agricultural inputs from local market followed by from private suppliers 25.6%, from other farmers 6.7% and finally from cooperatives 6.1%. Within input constraints, respondents identified a number of input constraints like high price of input (53.7%), followed by none availability of some inputs locally (23.9%) and shortage of input supply (21.3%). According to FGDs, cost of inputs especially improved livestock breeds and animal feed is increasing from time to time in high quantity of price.

4.6. Implications of the current practices of urban and peri urban agriculture on LUP in Jimma city

4.6.1. Positive implications

Table 11. Implications of practices of urban and peri urban agriculture on LUP in Jimma city

Implications of UPA on land use land cover change	Frequency	%
Land Conversion	82	15.6%
Urban Greening	107	20.4%
Changes in Vegetation Cover	81	15.6%
Socio-economic Effects	184	35.3%
Land Management and Planning	68	13.0%

There are implications of UPA in future land use planning as indicated in table 17 above. UPA activities often require the conversion of land from other uses, such as vacant lots, brownfields, or green spaces. This can lead to changes in land cover as agricultural activities replace natural or built-up areas. Among the total respondents 82 (15.6%) responded that there is land conversion from other land use types to urban agriculture. UPA is contributing to urban greening by introducing vegetation and agricultural spaces within urban areas of different cities in Ethiopia. According to the 107 (20.4%) of the respondents like other cities there is urban greening as the result of urban and peri urban agriculture, which has various environmental benefits, such as improved air quality, reduced heat effect, and enhanced biodiversity. Urban farms are helping as natural filters, absorbing pollutants and dust particles from the air. In Jimma city wastes from different day to day activities are being using as fertilizer and as well reducing environmental damage by wastes. UA practices was also helping as of filter rainwater and reduces runoff, lessening the burden on storm water management systems and reducing risk of flooding for own.

From the view of 184 (35.5%) of the respondents UPA have social and economic implications for land use and land cover. It is contributing to food security, local food production, and income generation for urban and peri-urban populations. UPA is also promoting social cohesion, community engagement, and educational opportunities related to agriculture. According to key informants' discussion with different office leaders and employees Urban and peri Urban have given attention in previous three years including this year and there are increasing food securities and good food supply for communities in the Jimma City. But there is no recorded quantitative data about the quantity of food and other resources obtained from Urban and peri urban agriculture.

UPA agriculture have also there are many implications on land use land cover change. The presence of UPA requires adjustments in land management strategies and urban planning. City planners and policymakers need to consider UPA practices and their spatial requirements when making decisions related to land use, zoning regulations, and urban development plans. Vacant lots and abandoned lands at the corner of wetlands and bounded institutional lands were being transforming into productive urban farms. This is not only increasing the aesthetic appeal of these areas but also reducing problems associated with vacant properties like crime

and dumping. In Jimma city urban agriculture office as well as urban food security office, there is no recorded data about the quantity of food and other resources obtained from Urban and peri urban agriculture. This implies that there are high benefits from UPA that requires high emphasizes for future land use planning of Jimma City. The office of agriculture of Jimma city administration responded that they are planning for increasing Urban and peri urban agriculture for coming five years in the city land use planning.

4.6.2. Negative implications of UPA

Table 12. Negative Implications Frequencies

Negative Implications	Responses	
	N	Percent
Land Availability and Competition	128	38%
Water Management	88	39.2%
Public Health Concerns	77	22.8%
Total	293	100.0%

According to the table 18 above, the result shows that 128 (38%) of the respondents accept that finding suitable land for urban and peri-urban agriculture can be challenging in dense urban areas. Additionally, competition with other land uses like housing development can limit space for agriculture. 88 (39.2%) revealed that there is not enough water and efficient irrigation system in Jimma city. urban and peri-urban agriculture requires water, and efficient irrigation systems are needed to minimize water waste and avoid groundwater contamination. Composting food scraps and managing agricultural waste sustainably is important to avoid attracting pests and creating sanitation issues, but in Jimma city according to 77 (22.8%) of the respondents there is no good composting in urban and peri urban agriculture of Jimma city and which leads to some health problems.

5. CONCLUSION AND RECOMMENDATION

5.1. Conclusion

This study had an overarching objective of assessing Contribution of Urban and Peri Urban Agriculture on Household Livelihoods; Challenges and Implications on Land Use Planning in Jimma City Oromia, Ethiopia. Serving the practitioners as a good source of food is another direct benefit derived from practicing urban and peri-urban agriculture. Another important contribution that urban and peri-urban agriculture provided the respondents with is the creation of employment opportunities for unemployed household members. Therefore, it can safely be concluded that urban and peri-urban agriculture is a livelihood strategy which positively affects the livelihood of the urban households in Jimma. The other thing that the study set out to do is to assess the challenges in the process of practicing urban and peri-urban agriculture. To this effect, the study has found out that challenges like market access, absence of technologies supporting the activity, lack of inputs, feeds and treatment to vegetables and animals, lack of access to credit and absence of social institutions supports the activity in Jimma town. In spite of these challenges however, urban and peri-urban agriculture is a great instrument to reduce urban poverty within cities. As the indicated in the result of the UPA activities often have both positive and negative implications of land use planning and management in Jimma City.

5.2. Recommendation

Hence, to improve these challenges and to further promote urban and peri-urban agriculture,

- Jimma town Administration, should play their role to curb the challenges by facilitating a fair and easily accessible market opportunity for practitioners, promotion of technologies to support urban and peri agriculture,
- the City's Agricultural Office and other stakeholders that are engaged in improving the livelihood of the urban household and providing training providing trainings and assistances, and input which include feed and treatment for animals and vegetables, and making the practitioners part of a local saving and credit service institution to have access for credit.

- Land use planning should promote the expansion of urban and peri urban agriculture. Concerning bodies should urban and peri urban farmers to reduce constraints and increase their productivities.
- Also, the concerning bodies give attention on Urban and peri urban agriculture at time of land use planning.

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APPENDIX 1

Jimma University

Questionnaire

This semi- structured survey questionnaire is prepared for formal interview of household head on **Contribution of Urban and Peri Urban Agriculture on Household Livelihoods; Challenges and Implications on Land Use Planning in Jimma City Oromia, Ethiopia**

Dear Respondent: This questionnaire will be filled for research purpose only. The outcome of this research will help to identify the major Contribution of Urban and Peri-Urban Agriculture in Enhancing People Livelihood. It is believed that it will assist the community, the government and non-government organizations in identifying varies types of urban and peri urban agricultures with their challenges and opportunities, therefore, the practice and opportunities in Jimma town will be recommended. I confirm you that all data will be treated confidentially and only average information will be published. Therefore, I kindly request the cooperation of respondents in filling out the questionnaire accurately considering the importance of the study. Thank you for your time and cooperation in advance!

1. Socio Demographic Characteristics

- 1.1. Sex of respondent: 1=Male 2=Female
- 1.2. Age of respondent _____ years
- 1.3 Marital status respondent : 1=Married 2=unmarried
- 1.4.Household size _____
- 1.5.Family members aged below 10 _____
- 1.6.Family members aged between 10 and 13 _____
- 1.7. Family members aged between 14-16 _____
- 1.8. Family members aged between 17 and 50 _____
- 1.9. Family members between 50 and 64 _____
- 1.10. Family members aged above 64 _____
- 1.11. Educational level of household head 1= uneducated 2= read and write 3= primary school 4=high school/preparatory 5= diploma/above
- 1.12. Formal employment status of the respondent 1=Employed 2=Unemployed

2. General Information on urban agriculture

- 2.1. What was your reason to engage in urban agriculture? You can tick more than one if any

Reason to stay in/join UA	Mark
Unemployment	
Lack of skills other than UA	
To supplement HH income	
Profit expectation	
Other reason	

2.2. What is type of urban agriculture you /your/ family engaged? (You can select more than one farm activity if any).

Farm activity	Remark	Remark
1, Dairy	6, Coffee	
2, Fattening	7, vegetable	
3, poultry	8, Cereals	
4, Fruit	9, small ruminant	
5, Chat		
Other		

2.3. Why do you prefer to engage in particular type of urban agriculture?

1= because it requires small startup capital	5= it is not suitable for other activity
2= because it is more profitable	4= it requires small space
3= it is easy to manage	
6= other reasons (specify) _____	

2.4. For how many months do you produce in the last 12 months? _____ months

2.5. If you do not produce throughout the year what is your reason?

1. _____
2. _____
3. _____

2.6. What is the ultimate destination of your farm production?

1= household consumption only	3 both market and HH consumption
2= market only	

2.7. If your answer to question 2.6 above is 1, then what is the estimated amount of produce your HH consume directly (in liter or kg)?

Amount of farm produces consumed directly in KG (estimated)	Amount of farm produce consumed directly per month in litter (estimated)
1,	1
2,	2
3,	3
4,	4

2.8. If your answer to question 2.6 above is 2 or 3, then where did you sell your farm produce?

1= local market	4= collectors	7= restaurants
2=farm gate	5= other households	8 = other
3= cooperatives	6= private processors	

2.9. If your answer to question 2.7 above is 1, do you have your own shop to sell your produce? 1 = yes 2= No

3. Farm land

3.1. How do you get to possess your current agricultural land?

Land possession	Mark	Land possession	Mark
1) government distribution		5) purchased	
2) inheritance		6) gift	
3) temporary lease		7) shared	
4) Rented		8) Other	

3.2. If your answer to question 3.1 above is 4, did you renew your lease agreement?

1= yes 2= No

3.3. What is the size of your land in which you implement your farming activity?

_____ hectare.

3.4. Do you think your holding is sufficient to produce what your family needs?

1= yes 2= No

3.5. Do you need an additional farmland to carry out your activity? 1= yes 2 No

3.6. Do you have legally registered ownership or use right of the land you are using

1 = yes 2= No

3.7. If your answer to question 4.7 above is yes, do you feel security over the land use?

1= Yes 2 = No

4. Household income sources and other benefits

4.1. What are the main sources of income to your household?

1= urban farm alone 2= urban farm and nonfarm

A, urban Farm alone source of income

Select the type livestock produce that your household produced in the last 12 months?

Did your household produce any of these products in the past 12 months	Mark
Livestock	
Livestock products	
Vegetables	
Chat	
Coffee	
Fruits	
yCereals	
Other crops _____	

4.2. Did you produce throughout the past 12 months? 1= yes 2= No

4.3. If your answer for question 4.2 above is no, for how many months did you produce these products in the past 12 months?

B. non-farm income

4.8. Do you have nonfarm permanent employment? 1= Yes 2= No

4.9. If your answer to question 4.7 is yes, specify your job and estimate the amount of income you get per month? _____ birr

4.10. Does any member of your HH engaged in nonfarm activity? 1= yes 2= no

4.11. If your answer to question 5.9 above is yes, select the type of none farm activity you or any of your family members engaged and estimate the amount of income your household got in the past 12 months.

#	Types of nonfarm activity	For how many months did you perform those activities in the last 12 months	Net Income earned in the past 12 months?
1	salaried permanent employment		
2	daily wage labor		
3	petty trading		
4	Broker		
5	hand craft		
6	Hotel		
7	Cart		
8	Remittance		
9	temporary migration		
10	Other		

5. Assessing major Challenges and opportunities

5.1. Do you have constraints in practicing urban agriculture? 1= Yes 2= No

5.2.If your answer to question 7.1. Is yes, select the type of constraints you have and order them in order of difficulties?

No	Type of constraints	Rank
1	Farmland related constraints (farm land constraints)	
2	Marketing constraints	
3	Input constraints (Chemical, fertilizer, animal feed, etc.)	
4	credit constraints	
5	extension constraints	
6	Disease and death of livestock/	
7	plant Other specify	

Farmland related constraints

5.3. IF you have constraints related to your farmland, please select and order them?

Specific farm land related constraint	Mark
Fear of losing farm land	
Smallness of land size	
Lack of legal/ use right	

Marketing constraints

5.4.Do you have constraints in marketing of your farm produce? 1= yes 2 = No

5.5.If your answer to question 21.1 is yes, what kind of marketing constraints do you

have?

5.6. Distance of the market you sold your produce from home? 1 = far 2 = near

5.7. Do you face fluctuation in demand in the past 12 months?

5.8. Do you think the price you used to sell your produce was fair? 1= yes 2 no

5.9. Do you face government restriction in marketing of your produce? 1 = yes 2 = no

Agricultural inputs

5.10.	Do you use an input in your farm in the last 12 months?
5.11.	What are the types of agricultural inputs you use in the last 12 months?

Input type	Mark	Input type	Mark
improved livestock breed	pesticide/ herbicide		
Feeding	different equipment		
chemical fertilizer	improved seeds		
other specify			

5.12. What was your source of input?

Input source	Mark	Input source	Mark
local market	cooperatives or unions		
other farmers	own stock		
private suppliers	Other		

5.13.	Do you have any constraints on accessing of agricultural input in the last 12 Months?
	1= yes 2 = No
5.14.	If your answer to question 7.17 above is yes, what was your main constraint in accessing inputs?

Constraints in accessing inputs	Mark	Constraints in accessing inputs	Mark
price was high	not available locally		
lack of credit	skeptical about the output		
Not always available	other reason		

5.16. Which of the followings are the major opportunities you get from engaging in urban agriculture?

No	Opportunities	Mark
1	Closeness to market	
2	High degree of specialization	
3	Supply of perishable products	
4	Knowledge on farm process	
5	Know how to handle livestock	

Questions for FGD

1. What are major agricultural production systems in Jimma Town?

2. Do you participated or engaged in urban agriculture for long time?

3. Why do you prefer to engage in particular type of urban agriculture?

4. Is there any support from external bodies for further production? How?

5. Do you think your production have high contribution to your house hold income? How?

6. What are the major benefits you get from engaging in urban agriculture?

7. Are there any challenges in practicing urban agriculture? What are they? How they affect your production?

8. What do you think are opportunities of participating in urban agriculture?

9. Do you think land use change affect urban agriculture? How?

Thank you for your cooperation