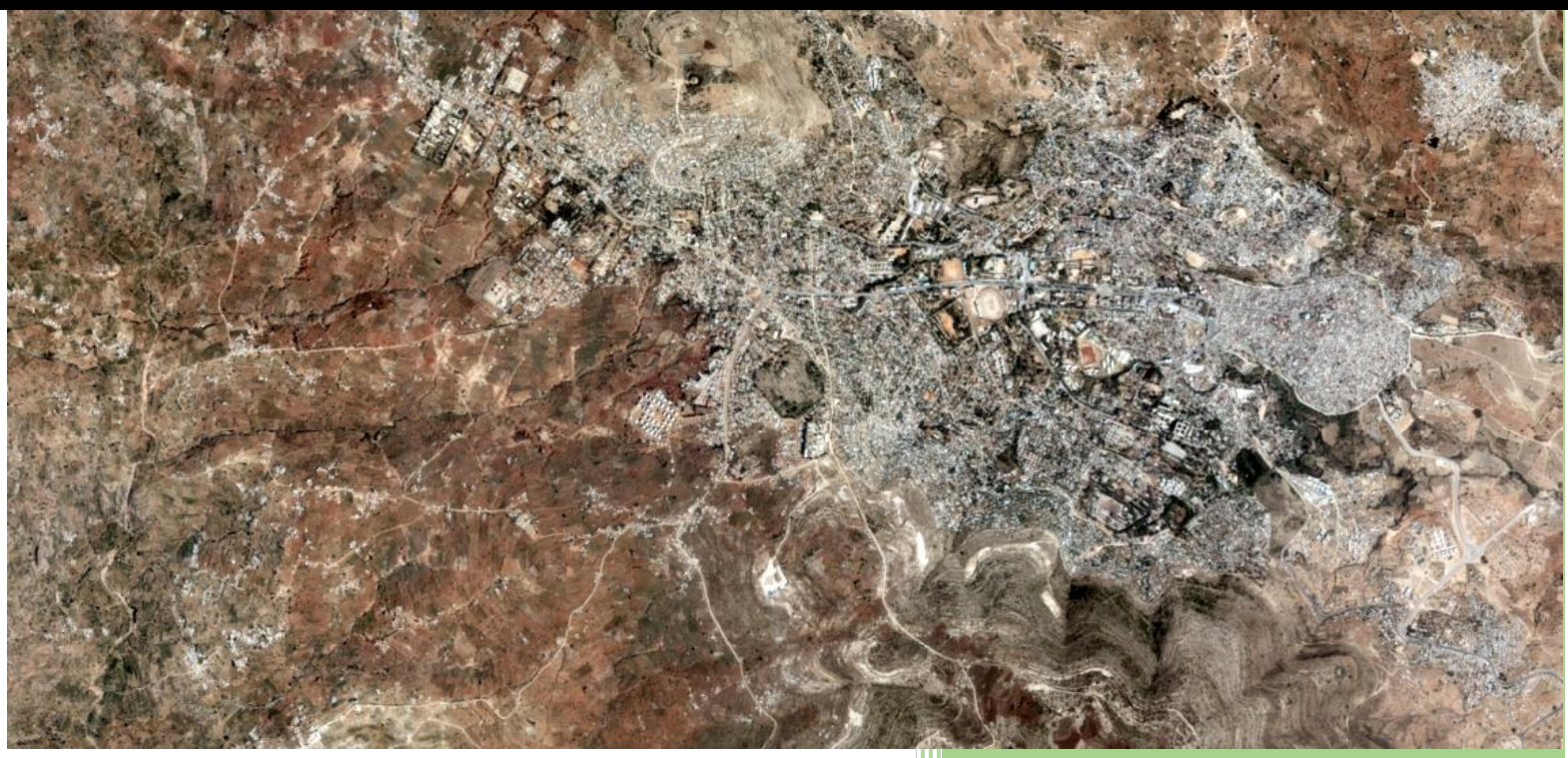
2021

# THE IMPACT OF SPATIAL URBAN EXPANSION ON PERI –URBAN AGRICULTURAL LAND USING GIS AND REMOTE SENSING, HARAR CITY, ETHIOPIA



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# ASSESSMENT OF IRON DEFICIENCY ANAEMIA AMONG POST MENOPAUSAL WOMEN AT MAYO HOSPITAL LAHORE

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# Preface

In developed and developing countries, Spatial Urban Expansion is a common phenomenon. It is associated with economic progression and urban centers are seen as engine of growth enhancing rural development by creating market for agricultural products and providing agricultural inputs for more productivity. However, in developing countries urban expansion are with negative Impacts.

The major factors contributing for rapid urban expansion in Ethiopia are higher natural population growth, rural to urban migration and spatial urban development. Harar city is one of the most expanding cities in the country. The main objectives of this study are to assess the impact of spatial expansion of Harar city on peripheral agricultural farming communities. This study has employed descriptive research design; the study had applied mix methods of both qualitative and quantitative approaches. household survey conducted on 146 households sampled thorough systematic sampling and non - random sampling techniques .method backed by tools such as open-ended interview closed ended questionnaires and focus group discussions while the secondary data was collected from different written and documented sources. Socio economic data was analyzing by SPSS software and also spatial data was analyzed using erdas2014 and arc gis10.1 software. For this study the populations were 3694 farmers that are already registered to take land certification since 2014. The sample size was 146 respondents. The result of the study indicated that urban expansion program around harar city was not participatory, people were not given awareness, and the dislocated households did not have opportunity to bargain in the determination of the amount and kinds of compensation and calculating the value of assets. The compensation package provided so far did not capacitate the dislocated farming community around the city. urban expansion, displacement and compensation program that may be proposed in the future needs to adequately aware and involve the community and compensation should be revised both in kind and amount involving skill development and other training and follow up.

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**STATEMENT OF THE AUTHOR**

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Sufian Shafi
June 2016

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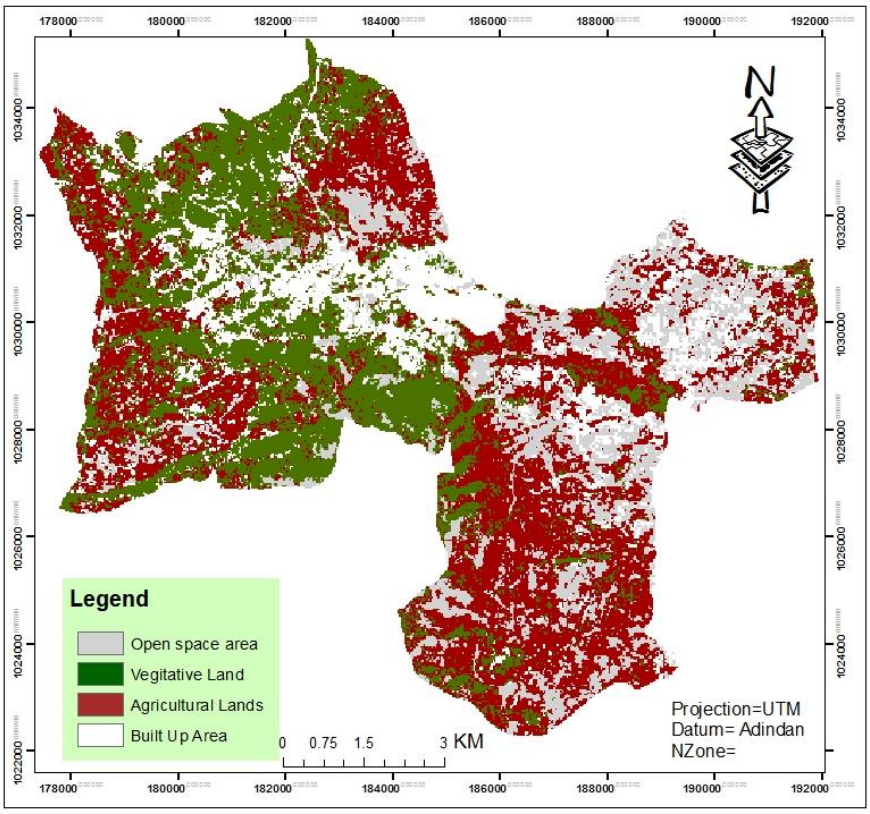


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**LIST OF ABREVATION AND ACRONYMS**

| | |
|---|---|
| BoUFED: | Bureau of Urban Finance and Economic Development |
| CSA: | Central Statistical Authority |
| CSO: | Central statistical office |
| FDRE: | Federal Democratic Republic Of Ethiopia |
| Ha: | Hectare |
| HHs: | House Holds |
| NGO: | Non-Government Organization |
| RNH: | Rural Neighborhood |
| RUL: | Rural Urban Linkages |
| SSA: | Sub Saharan Africa |
| SES: | Socio-Economic Systems |
| CPRE: | Council for the protection of rural England |
| CLA: | County landowners association |
| NFU: | National farmers union |
| LULC | Land use and land cover |
| GIS- | Geographic Information System |
| GLCF | Global Land Cover Facility |
| DEM | Digital Elevation Model |
| ETM+ | Enhanced Thematic Mapper plus |
| TM | Thematic Mapper |
| GCP | Ground Control Point |
| HBFED | Harari Finance and Economic Development Bureau |
| HADB | Harari Agricultural Development Bureau |
| UN | United nation |
| UNFPA | United Nations Population Fund |
| ECOSOC | Economic and Social Council |
| UNCHS | United Nations Centre for Human Settlements (Habitat). |
| UNESCO | United Nations Education and science commission |
| HUCDB, | Harari urban and construction Bureau |

# CHAPTER ONE
# INTRODUCTION

## *1.1. Background of the study.*

At the start of the 20th century, approximately 15 percent of the world's population was living in urban areas .In recent times, cities and towns in developing countries have been observed to be experiencing unprecedented growth in size and number. It is estimated globally that more than five billion people will live in urban areas by 2025 and eighty percent of these are expected to live in cities in developing countries (ITC, 2005). According to a recent UN estimate, by 2050 almost three-quarters of the world's population will live in cities and towns - with most of this increase occurring in the developing countries of the global south (United Nations, 2009).As pointed out by Dayong, (2004) uneven urban expansion will occupy a considerable valuable farmland around urban centers, which in turn causes contradiction and conflicts with the farmers who are displaced from their farmland urbanization negatively affects the peri-urban areas in moneywise. As urban centers expiated by occupying fertile farmland and displacing farmers cause to reduce number of farming community and leads to more migration to the urban centers. In addition, Abebe et al., (2002) also pointed out that the towns and cities in developing countries are growing at an unprecedented rate because of rural urban migration and urban population growth rate. As the population living in cities is growing the procuring cities require that an enormous amount of land which has been used for agriculture.

The spatial expansion of urban centers consumes large amount of farmland throughout the world. For instance, due to rapid urbanization China loses close to one million hectares of cultivable farm land each year to accommodate various demands such as construction of roads, industrial buildings, and commercial centers and for residential purposes (Dayong, 2004). In developing countries, it is also estimated that in the year 1990 and 2000 approximately 14 million of hectares (475, 000 hectares per annum) of rural farm land will be converted to urban uses. As a result a huge number of farmers will be forced to leave their farmland (Drescher, 2002).

Ethiopia urban centres are growing like that of most developing countries, and over spilling into the peri-urban agricultural areas in terms of space and population. even though the status of urbanization is the lowest with only 17% the total population residing in urban canters, the current annual urban growth rate is one of the most rapid which is about 6 %. Estimation by UN also shows that Ethiopia's urban population will triple between 2010 and 2040 (UN-HABITAT, 2010).

The spatial extent (built-up areas) of Ethiopian cities can also be expected to expand at an even faster rate than their population. Recent studies in Ethiopia shows that, urban expansion did not immediately/directly affect the income of the farmers in the peri-urban area rather affected it by affecting their sources of incomes that is land(Shishay, 2011).

According to the major findings of study in Kombolcha town, in the process of urban expansion, the town's spatial coverage grew out in all directions from the center towards the peripheral rural areas (Muluwork, 2014).expansion has negatively affected the life of the dislocated farming community by affecting natural, physical, human, financial and social assets of the farming community in the periphery. Addis Ababa is expanding at an alarming rate changing large productive farmlands to urban settlement in displacing and dislocating the settled farming community in the periphery. Consequently, farmers are exposed to joblessness and forced to depend on vulnerable livelihood that tend to add up to their poverty and food insecurity(Feyera,2005).According to the major findings of the studies in Gonder Town shows that, the rate of urban expansion over the agricultural land use is rapidly increasing from time to time with the reduction of agricultural land (Eyaya, 2014).

It is obvious that, peri-urban agricultural land use around city are in danger and insecure as a result of spatial urban expansion and enforced changes in land rights through expropriation. one of the greatest challenges to urban policy makers in the global south in the era of rapid urbanization is providing decent and affordable land and housing (Midheme and Moulaert,2013).

As a reaction to accommodate the growing demand of land and housing, most governments in sub-Saharan Africa have been employing the conventional and traditional way of acquiring land compulsorily from the peri-urban areas (Toulmin,2006) and (Durand-Lasserve, 2003).as a consequence, agricultural land is converted to build up area ,local peri-urban communities around cities are more likely to be displaced and dispossessed from their land in the process of urbanization.It seems clear that urbanization and urban based economic development in Ethiopia is expected to be achieved through the sacrifice of the local peri-urban landholders/ farmers' interests. as the demand of land for urban development purpose arises, local peri-urban landholders/farmers adjacent to the municipal boundary are obviously expected to lose their land on which their families have lived for generations(Adam,2014).This compulsory and rapid land tenure transformation through expropriation has been generating a number of problems in the peri-urban areas such as: tenure insecurity and widespread sense of fear to loss land; unregulated land development; informal transaction of land and proliferation of informal settlements(Achemyelehe,2014).

**1.2. Statement of the problem.**

The basic problem is that spatial urban expansion causes not only loss of agricultural farmlands but also changes and challenges their livelihood sources as well as food security as result of urban expansion to its peri-urban territories. Hence, as the global population growth increases and the expansion of human settlement, particularly the trends towards urbanization are contributing to the conversation of prime agricultural farmland to urban land uses (UNCHS, 2000).

Like other city of the country, the spatial expansion of Harar city especially on the per urban agricultural land use increase from time to time. Different physical development such as, investment (diaspora village or rich house constructions), condominium, commercial, residential houses associated with informal settlements are taking place in this area.

A number of studies conducted in different part of Ethiopia indicated that, there is spatial urban expansion on per urban agricultural land use (Fayera, 2005, Shishsy, 2011, Muluwork, 2014, Eyaya, 2014). Among these agricultural land use is vulnerable to the impact exerted much more than that of the other land uses. this resulted from the intensified land use transformation due to urban land use encroachment in peri urban especially that of new residential development in to the fringes of the city(Lodder,2012).

With the beginning of the industrial revolution and globalization, the world economy associated with the expansion of population in the urban areas has accelerated diversified land use change (Fazal, 2000). as the world population concentration in the urban area rapidly increases, the proportion of urban poor also equally increases than the rural poor. In many ways, spatial urban expansion is a spontaneous phenomenon that leads to spontaneous growth displacing rural farming community (Tegegne, 1999). Even planed displacement has its own effect on the agricultural land use conversion that affect farmers livelihood. The effect of urban development or expansion on the rural farming community where agriculture is the mainstay of livelihood like Ethiopia. It is obvious that, a rural community surrounding the expanding city has an advantage due to high land value, access to the urban services and urban rural development linkages or the trickledown effect of development.

Despite this opportunity, rural communities around the city face problems of socio-cultural, economic challenges, environmental deterioration and land tenure insecurity (Feleke,2003). access to and sustainable use of land for agriculture in urban periphery is now becoming a critical issue for many areas of Ethiopia. in spite of the seriousness of peri-urban agricultural land problems associated with the impact of spatial urban expansion, there is limited comprehensive research and investigation has been done on the impact of spatial urban expansion /urbanization on peri-urban agricultural land use and its impact on the livelihoods of the local communities in the transitional areas of harar city. this in turn causes, difficult to precisely tell the state of land right and livelihood issues in the transitional peri-urban areas of Harar cities where the land is highly demanded for urban purposes. In other words, this gaps call the need for this research on the challenges, prospects/projections and trends of land acquisition for urban expansion from the transitional peri-urban areas with an emphasis to land use land cover change detection.

Like that of other cities of Ethiopia, the spatial urban expansion towards the rural community is sever. The problems of the rural community in urban periphery arise from exclusion of the original farming community and displacements are becoming the modern disasters in the region. Currently, the administration boundary of Harar city is increasing as a results the conversion of prime agricultural land to urban land use is also increasing that affects the living standard and food security of many agrarian economy of the peri urban community.

This invasion process leads to the loss of agricultural farmlands and reduction of crops/food productivity. Generally, the Rural Communities have little knowledge and know-how to cope up with the situation of urban living conditions since majority of rural neighboring farming communities are uneducated and unskilled to compete for urban job opportunities. As a result, most of the dislocated households could be exposed to impoverishment. Specifically, those farming community who possess their own farming land that provides them sufficient livelihood can be exposed to economic and social problems that lead them to impoverishment. From the severity of problems mentioned above, the researcher developing interest and selecting areas of the study.

### 1.3. Objective of the study

#### 1.3.1. General objectives of the study

- Assess the impacts of spatial urban expansion on of peri urban agricultural land use using GIs and Remote Sensing, Harar city.

#### 1.3.2. The specific objectives:

- To identify the major factors for the spatial urban expansion of Harar city on peri urban agricultural land.
- To identify the consequence of spatial urban expansion on household livelihood of peri-urban agricultural community
- To analyze the impacts of spatial urban expansion of harar city on tenure security of the farmers
- To investigate rate of spatial urban expansion of harar city between 1996, 2006 and 2014

### 1.4. Research questions

- What are the factors that contributed to spatial urban expansion in Harar city?
- What are the impacts of spatial urban expansion on agricultural land use and farms house hold livelihood?
- What are the impacts of spatial urban expansion on tenure security of peri urban farming community?
- What is the rate of spatial urban expansion of Harar city?

### 1.5. Significance of the study

Spatial urban expansion in developing countries like Ethiopia is more pronounced and given due attention by state managers, scholars and by other stakeholders for different reasons. One of the ground reasons for this could be the need to reduce the negative impacts of urban expansion in economic, social and environmental effects to attain development and symbiotic integration of rural and urban life that enlarges socio-economic development of the community.

Recently, urban expansion for development investment and resettlement is broadly observed in the major cities and towns of the country in general and in Harar city in particular. If urban expansion is inevitable, due to induced development or socio-economic factors of the society, it must be considered in a manner that protects the welfare of the neighborhoods that are affected. “If this is not done, then some people will share or enjoy in gains, while others will share only in the pains of urban expansion program.

Despite the fact that, there have been various researches undertaken on urbanization, urban growth and development and urban rural-linkages, the studies conducted on the impacts of spatial urban expansion on peri urban agricultural land is limited. Hence, it is believed that there is a gap to explain and clarify the impact of spatial urban expansion on the peri urban agricultural land, livelihood farmers and tenure security. This study is therefore hoped to fill this gap. Better understanding and knowledge of the nature and state of displaced and

dislocation of the neighboring communities around Harar city due to spatial urban expansion could give evidences about the nature of urban expansion.

Furthermore, the study examines the current life condition of the displaced neighboring farming community at household level will provide genuine and constructive information (inputs) for policy makers, urban planning experts, urban managers and others to evaluate their development programs. Finally, this research is believed to indicate possible areas of intervention that call government and non-government institutions and thereby paves the way for more research to be conducted in this area

**1.6. Scope the study**

The scope of this research will be limited to assess the impact of spatial urban expansion on agricultural land use of the peri-urban /neighborhood community/ kebeles. According to this research, the agricultural land, tenure security and household livelihoods an angrily issues which not separate one from the others. Therefore, the agricultural land conversion, livelihood and tenure security is major area of this research.

**1.7. Organization of the thesis**

The thesis organized in five chapters; chapter one presents the background of the study, statement of the problem, and research objectives. it also addresses the significance of the research ,scope and definitions of key operational terms. Chapter two presents the literature review, where a general review of current knowledge relevant to the research topic is provided. chapter three describes the description of the study area and the methodology used in the study and data collection techniques and in depth analysis are explained as well. subsequently, chapter four presents the results and discussions; finally, the paper present chapter five that was gives an overall summary of the research findings and recommendations.

# CHAPTER TWO
# REVIEW OF LITERATURE
## 2.0. Introductions
This chapter is all about different literatures pertained to the study. Hence, the key words and
Concepts' definitions, theories of urban expansion and growth, causes of urban expansion, trends of urban expansion, impacts of urban expansion on the livelihood strategies of urban peripheries, legal and constitutional provisions on effects and compensation packages to expropriation and theoretical frameworks all have been intensively discussed turn by turn.
## 2.1. Conceptual definitions of related terminologies
**Urban**: in this study context, urban (as opposite to rural) refers to areas characterized by denser population settlement per-unit of land, higher heterogeneity of in habitants (in terms of ethnic background, religious adhere-ship, livelihood strategies and sources, educational levels etc…), greater organizational complexities as well as higher formal social control.
peri-urban areas: as used in this study context, peri-urban areas are amidst between densely settlement (urban areas) and less densely settlement (rural areas).
agricultural community: refers to that community whose economic base and livelihood sources are directly based on farming or /and raring of animals under traditional production, distribution and consumption patterns.
**Livelihood:** the definition of 'livelihood' has been extensively discussed among academics and development practitioners including; chambers and Conway, 1992
Livelihood assets can be understood by the notion of five main capitals:-human capital, social capital, physical capital, natural capital, and financial capital.
natural capital: consists of land, water and biological resources such as trees, pasture and biodiversity.
Financial capital: consists of stocks of money or other savings in liquid form. in this study context, it includes not only financial assets but also it does easily disposable assets such as livestock, which in other senses may be considered as natural capital. it includes income levels, variability over time, and distribution within society of financial savings, access to credit, and debt levels. Physical capital: is that created by economic production. it includes infrastructure such as roads, irrigation works, electricity, reticulated equipment and housing.
The term tenure is derived from a Latin term for 'holding' or 'possessing' land. Therefore, land tenure refers to the manner in which land rights are held, used and transacted (Bruce, 1998).Land tenure is a social construct which defines the relationships between individuals, groups of individuals and the state with respect to land (UNECA, 200).
## *2.2. Theories of urban expansion*
### 2.2.1. Central place theory
The term "central place" has meant "urban center." initially the theory sought to account for these urban centers. it consisted of a series of assertions and definitions, logical consequences which are a hierarchical ranking of urban centers and associated market areas and transportation networks (William, 1970).In addition, Chris taller, (1993) also hypothesized that the distribution of centralized services accounts for the spacing, size and functional patterns of urban centers. This theory stood on the assumption that urban settlements locate on a uniform plane, centralized service centers would be distributed regularly within a systematic pattern. Hence, the main function of each town would be to supply goods and services to the countryside town and country being interdependent (Paul, et al. 2000).According to Paul, (2000) however, the central place theory is criticized as it is dependent upon the evolution of settlement on a uniform plane-Chris taller ignored variable topography.
Unlike the central place theory, which was concerned with the distribution of products from an urban center to its hinterland, the urban base theory involves a consideration of demand from anywhere outside the boundaries of the settlement (Paul, et al. 2000).
### 2.2.2. Dependency theory
The other theory which is applicable to developing countries as well as to the developed world is dependency theory. This theory maintains that -under laissez-faire-cities grow parasitically by exploiting and holding back their neighbors or surroundings. Myrdad (1957) suggested that economic growth follows

the principle of cumulative causation, whereby-once established in a city-economic development promotes further local development-the spread effect, but this is only at expense of urban neighbors in general and land owners in particular-the back wash effect (Paul, et al, 2000).

With reference to developing countries, dependency theory is very much based on the contention that in relative terms the poor countries of the world are getting poorer and poorer, not so much because of their separation from advanced capitalist countries, but, because of their closer association.Frank,1967) stated that this interdependency is attributable to the developing countries joining the global economic system at the bottom and being held in a dependent position by cities in the developed world and even within developing countries themselves (potter and Llyod-Evans, 1998).

**2.2.3. The modernization theory**

As an alternative to dependency theory, modernization theory suggests that urban growth is primarily generative rather than parasitic. it is rather based on the observation that developing countries are characterized by a traditional, indigenous and under developed sector. the innovating, westernized and modernized sector in these countries, and urban growth eventually trickles down to poorer regions-even though economic activity and wealth are initially concentrated or polarized in major cities (potter, 1992). furthermore, since the modernization theory implies that urban growth occurs in a hierarchical sequence from the largest urban places to the smallest, Hudson (1969) argued that the trickling down process could be applied to the central place system, whereas (Rostow, 1960) saw cities as the 'engines' of growth for a country as a whole. Finally, from the above mentioned major theories of urban expansion, depending on the level of relevance and applicability, the researcher is intended to use the dependency theory of urban expansion as a base for this study. This is due to the fact that for the welfare of a given country, urban centers and rural areas in general and neighboring country side to the city in particular should support each other.

**2.3. Causes and consequences of urban expansion**

**2.3.1. Causes of urban expansion**

Worldwide, urban systems are expanding into lands that are valuable for agricultural and forest production and impinging on the health and resilience of socio-ecological systems These land use changes produce current benefits at the cost of eliminating future options for ecosystem goods and services (Farber, et al. 2006).Urbanization in worldwide has resulted in cities that are rapidly growing and expanding to be able to host their increasing population and this expansion is termed as urban sprawl. The expansion of urban to the neighboring rural environment is caused by two major factors, namely spatial urban growth and increase in urban population due to high birth rate and rural to urban migration. The first source of urban expansion-urban development is induced by the economic advancement, urban clearance and/ or industrialization (UN, 2004).

Hence, places or sites that are adjacent to urban areas might be needed for social, economic, industrial and communication, road construction and for other infrastructure and investment that may in turn need resettlement and displacement of the neighboring rural farming community. This displacement and relocation requires the city government to provide compensation and rehabilitation (Cernea, 1991).

In addition, the natural population growth in the urban area is the largest cause of urban expansion. In 1990s, the world population was projected to be about 5.8 billion, and the UN estimation was 6.4 at the end of the decade. the world population is projected to be 8.5 billion by the year 2015 from which 84 percent will be residents in developing countries and hence the rate of urban population growth in developing countries is very high as compared to developed countries (Todaro, 1997).besides the natural population growth in the urban areas, the rural to urban migration contributes much for the pace of rapid urban expansion in many developing countries (Batchin, et al, 2004). The rural to urban migration is due to push and pull factors. The push factor is the rural living condition which remains to be subsistence for a long period of time whereas the pull factor includes urban economic advancement, better opportunities for employment, education and overall better life. In this regard, research findings revealed that Africa shows the highest urban population growth with rapid urban expansion (Fueken and Mwengi, 1998).

**2.3.2. Consequences of urban expansion**

Rapid urbanization is presently taking place in developing countries in general and in countries with the lowest levels of economic development in particular. Consequently, dramatic urbanization over the past two

or three decades has been concentrated in these countries, where the urban population has been expanding at rates that are twice the observed rate in the countryside (World Bank, 1987).

Urban expansion and the attendant's social and environmental changes it introduces remain to be a topic of popular debate and active policy formulation. Hence, there is no specific theory to study the consequences of urban expansion on rural farming community in the urban neighbors. however, scholars in the field of development studies have argued the issues of urban development and growth from different perspectives. Accordingly, the interaction of urban to rural was described in modernization theories of economic development. The main paradigm in this regard is the structural transformation model formulated in the mid-1950s. the main focus of this model was the transfer of agricultural labor and growth of output and employment to the modern urban industrial sector through wages that is higher than subsistence agriculture (Burchell,1998 and Barnett, 1995).In contrary to this structural transformation theory the dependency theory maintains that cities grow parasitically by exploiting and holding back their surrounding regions. Established economic development in the city is only takes place at the expense of the surrounding areas (Balchin,et. al. 2000).

**2.3.3. Social consequence of urban expansion**

Urban expansion results in displacement, dislocation and segregation of urban neighbors in general and neighboring farmers in particular that result in social makeup disorder. People in the extended urban areas "live still partly rural and where many of the residents live in the country side but are not socially and economically of it". They usually do not participate in the planning and design of resettlement and dislocation options as well as the distribution of associated costs or benefits. Since social infrastructure is concentrated in the center people in the extended area rely on proximity to facilities. This involves long commute or travel for work, market and other basic social needs. Specifically, low-income households will continue to live in such sever social constraints in the periphery (carter, 1995).According to Mejia, (1999) there is also a possibility of urban neighbors isolation from the city development and sandwiched between the rich creating class differences.

This began to accelerate the migration of the disadvantaged groups particularly the farming community who already inhabited the area. Even urban rich or middle class incomers whose income permits to commute perhaps many could be attracted to the liveliness and benefits of the facilities in the center. thus the community in the periphery could face problems of survival strategies, solidarity network, and systems of power to which the social and economic activities are linked to their original location.

**2.3.4. Economic consequence of urban expansion**

In developing countries people are migrating from rural areas to urban centers and from the center the poor also move to the periphery for urban renewal or squatting. These areas need

Provision of infrastructure like road, power line, water pipes and drainage line. This requires high development cost that draws on the financial capacity of the municipal government. In many cases the municipality cannot afford to provide and people remain deficient of basic means of life. Because of this most of the residents are exposed relatively to high cost of living (Todaro,1989).

**2.4. Impacts of Urban Expansion on Agricultural Land Use.**

Long lists of evidences from Ethiopian and abroad scholars stated that, urban expansion has many positive and negative effects on farmers in the peri-urban areas. Thus, center of market area, center for production and distribution of goods and services, an opportunity for access to employment are among the positive effects of urban expansion. the negative consequences of urban expansion are loss of prime agricultural farmland, displacement of farm communities, solid waste disposal and land degradation, enclosing surrounding rural land to urban territory, over exploitation of natural resources and conflict.

**2.4.1 Positive impacts or effects**

Urban centers have positive role/impact on the development of their surrounding peri- urban areas through different ways.

**2.4.1.1 Center of market area**

According to Satterth wiate and Tacoli (2004), the surrounding area of urban centers are mostly engaged in agricultural production either for local consumers or as links to national and export markets, urban centers act as access to market which is the pre-requisite to increasing rural agricultural incomes. Proximity

also contributes to minimize the risks of perishable products to produce timely to market areas and to get affordable transportation.

**2.4.1.2 Center for production & distribution of goods & services**

Tegegn (1998) and other practical activities approved that people who live surrounding urban centers can have possible access to both private and public services such as health, education, banking, postal & telephone and services of different professionals (lawyers) and private services like wholesale and retail, sales of manufactured goods.

**2.4.1.3 Access to Employment**

As to the view of Kamete andTvedten (2006) assure that people who live around urban centers, because of their proximity, have a better access to employment and modern way of living than those who far rural dwellers. Besides, urban centers create employment opportunities through the development of small and micro enterprises and cooperatives.

**2.4.2 Negative impacts or effects of urban expansion**

Urbanization has also some negative effects to its surrounding peri-urban areas in different aspects especially, in relation to displacement of farmers from their farmland and to degradation of valuable agricultural land. This is because as the nation's population increase, cities must grow spatially to their peri-urban areas to accommodate more people and to serve different services for them. In Ethiopia, the urbanization was increased from 5%in 1950 to 16% in 2000, on average 4.3% per year. Furthermore, it is estimated that by 2025, the world's, African's, and Ethiopian's population rate will reach 58%, 52%, and 32% respectively (Wabster,2005).The reason for an optimistic prediction towards the urbanization growth is that, it will have the following negative effects of urban expanding on their peri-urban areas.

**2.4.2.1 Loss of Farmland**

As pointed out by Dayong (2004) uneven urban expansion will occupy considerable valuable farmland around urban centers, which causes to sensitive contradiction and conflicts with the farmers who are displaced from their farmland. Urbanization negatively affects the peri-urban areas in different ways. As urban centers, expand by occupying fertile farmland, and displacing farmers cause to reduce the amount of production and number of family farmers and move to the nearby urban centers.

In Ethiopia, land taking by regional governmental for expansion of cities and towns is raising rapidly because urbanization leads to outward expansion of cities and results to change in land use and landscape where by the federal and regional agencies and the municipality are expropriating of agriculture land for public purposes. in addition, the federal law on rural land expropriation and compensation, have been crafted by the agencies that are taking land seem to disfavor that are losing the land (Solomon, 2006).As a result, the farmers with their large family size will be exposed to unemployment and poverty (food insecure) for the reason that they are not well educated and skilled rather depending on their agricultural production. It is understood that, people without basic qualification or literally skilled are unable to compete and get job in the labor market.

**2.4.2.2 Solid Waste Disposal and Land Degradation**

Kamere, Tostensen and Tvedten (2002) assure that urban centers produce more solid waste products than they can absorb within their own borders. Predominantly urban centers pollute the rural landscape. industrial, residential and institutional waste in urban area is often dumping directly on to the farmland of their peri-urban areas. These solid wastes, hazardous, plastic, and medical product wastes degrade or structurally change in its size and quality of production of the landscape. In consonant with this Mc Granahan and Tacoli (2004) claimed that inadequate and improper municipal waste collection and disposal methods are increasingly becoming major sources of land degradation in the peri-urban areas and in turn affect the health and quality of life of the peri-urban residents

**2.4.2.3 Enclosed surrounding villages to urban territory**

Tostenen and Tvedten (2002) stated that expansion is one of the causes/effect of population growth of urban centers. according to them, about 10-15% percent of urban growth of the developing world stems from boundary expansion or change while their livelihood style is based on agriculture which is not the core issue of the urban centers administration unit.

**2.5. Urbanization in Ethiopia**

Much of the urban history of Ethiopia following the Axumite period was characterized by the absence of fixed urban centers. This has resulted from the political nomadic that prevailed in the country until Menelik ii was able to build Addis Ababa as the permanent seat of the government at the end of the 19th century (Akalu, 1966 and Horvath, 1969, in Kebede, 1994). in addition, factors such as physical, socio-economic and political situation of the country have hampered the emergence, growth and development of urban centers in Ethiopia during the long history of the country (Kebede, 1994).At the end of the 19th century and particularly in the early 20th century, Ethiopia became urbanized rapidly due to the interplay of a variety of new forces. According to Horvath (1970), the first of these began at the end of the 19th century, at the time when the expansion of the shewan hegemony over much of Ethiopia resulted in the establishment of a series of garrison towns.

In line with this, current trends in flows of natural resources, people, goods, money and information and patterns of occupational diversification as well as level of poverty and environmental degradation in Ethiopia reflect a dynamic process of ecological, economic, social and cultural transformation that needs to be better understood and guided towards better direction using the changing situation as an opportunity. The high rate of urbanization, which is among the highest in the world though important, can have disastrous consequences on the already fragile economy and environment, unless properly managed (Tacoli2002)

Therefore, particularly under the current situation of high population growth and declining returns from agricultural activities for smaller farmers and increased cost of life resulted in food insecurity and serious environmental degradation in the country. it is also argued that strengthening rural-urban linkages can play an increasingly significant role in local economies and in the livelihoods of large numbers of people (Tacoli,2002).

After Nigeria, Ethiopia is the second most populated country in sub Saharan Africa (SSA). Of the estimated 73 million people living in Ethiopia in 2007, roughly 83 percent live in rural areas and derive their income primarily from agriculture based activities. The remaining 17percent of the population live in the urban, highland areas which comprise 35 percent of Ethiopia's territory. Most urban inhabitants live in small cities, and in comparison to other sub-Saharan African countries, Ethiopia's urbanization rate is low.

Due to this low urbanization rate, the economic weight of cities in Ethiopia remains low in comparison to other countries. in 2006/07, output of non-agricultural sectors (much of which is concentrated in Ethiopia's urban areas) contributed 54 percent to GDP whereas non-agricultural sectors contributed 85 percent in SSA as a whole, and 75 percent of GDP in low income countries in 2005 (Arndt et al. 2009, and Mofed 2005).From the above related literatures it is possible to infer that rural-urban linkage is multidimensional interactions between rural and urban areas and it is crucial concept since the development of the two areas could not be achieved in isolation. It is useful in maintaining the win-win relations between the two areas. However, the implementation of this concept in Ethiopia is limited both in scope and history. had the rural-urban linkages been applied and studied well, the neighboring rural farming communities would have not been negatively affected as a result of urban expansion and dislocation.

**2.5. 1. Rural- Urban Linkage**

Rural-urban interactions are important elements of the livelihood strategies of both rural and urban households, either in the form of flows of people (migration), natural resources, products, goods and services, information and money, or in the form of income diversification such as urban agriculture and non-farm rural employment. However, mostly rural and urban development has been considered in isolation in most developing countries. Their inherent linkage with each other's development is less considered or reduced to only market linkages. Although market linkages play significant role, rural-urban linkage (rural) is beyond this linear kind of assumption and it encompasses many complex interactions and processes. Rather it is important to recognize the close relation between urban and rural systems. This is due to fact that efforts and initiatives in one area, when properly conceived and planned, can have a positive spillover effects in the other (Tacoli, 2002).

'Rural' and 'urban' areas are parts of a continuous regional, national, and international landscape and are interrelated through complex economic, social, political and environmental forces. Rural development is increasingly taking place within a global urban matrix. Cities, through revolutionary advances in

transportation and communications are also changing in form and make-up. These new forms are no longer represented by the image of the metropolis as a single urban node surrounded by the countryside, rather by a more decentralized and vastly more complex system of rural-urban linkages. Rather than considering the rural and urban areas in isolation, they are more accurately part of emerging networks of rural-urban linkages within which flows of people, finance, production inputs, consumer goods, waste materials, technology, information, and decision-making array in constellation over space (Douglass, 1998).According to Lubo (1996), rural studies of the 1960s and the 1970s have slightly touched the influence of urban culture on country side; those of the 1980s and 1990s have focused on the spatial aspects of the rural areas only. True Parkins' findings seem plausible especially in developing countries where the interdependency between the rural and the urban milieus is an uninterrupted social phenomenon. There is a great movement of people from rural to urban and from urban to rural areas and in the process there is mutual influence. although there is strong conviction that urban areas exert more influence on rural areas, the expanding means of communication, the rapid flow of industrial and agricultural products between these areas by no means make the urban- rural interaction one dimensional; rather such interactions facilitate the mutual interdependence at all levels- social, political, economic and ideological (Parkin,1978 as quoted by Andreason,1990).From a policy perspective, facilitating these interactions is essential for economic growth. But industrialization is unachievable without sufficient increases in agricultural productivity, enabling farmers to release family labor to staff growing factories in the cities, while also maintaining food production at home. For agriculture to grow rapidly, farmers must have access to inputs, repair services, competitive output markets and processing industries. These emerge most economically in small cities and rural towns (Rondinelli1988).

**2.5.2. The Rural - Urban Linkages in Ethiopia**

Ethiopia is least urbanized, even compared to other developing countries and even within African countries. In the late 1980s, only about 11 percent of the population lived in urban areas which have at least 2,000 residents. There were hundreds of communities with 2,000 to 5,000 people, but these were primarily extensions of rural villages without urban or administrative functions. Thus, the level of urbanization would be even lower if one used strict urban structural criteria. Ethiopia's relative lack of urbanization is the result of the country's history of agricultural self-sufficiency, which has reinforced rural peasant life. The slow pace of urban development continued until the 1935 Italian occupation. Urban growth was fairly rapid during and after the Italian occupation of 1936-41. Urbanization accelerated during the 1960s, when the average annual growth rate was about 6.3 percent. Urban growth was especially evident in the northern half of Ethiopia, where most of the major towns are located (Beren,1985).

# CHAPTER THREE.
# RESEARCH METHODOLOGY

## 3.1. Description of the Study Area

Harari regional State is one of the Nine Regions in the country. Harar city is the capital of Harari people's regional state; which is located in eastern part of the country at a distance of 526 km from Addis Ababa. Administratively; Harari people's Regional State divided in six urban and three rural administrative waredas (main kebeles).These administrative kebeles are further divided into 19 sub-kebeles (inurbane) and 17 sub-kebeles (in rural). Jugol is the historical part of the city which covers a total area of 1 $km^2$ which has an estimated total population of 36,719.According to 2007 CSA. Harar is one of the rarest cities holding the dual UNESCO title the world heritage status and the peace prize city.

This is only place in the world where tremendous tourist attractions are situated within small land area. . This shows as jugol is one of the high ranking densely populated area. Know a day, the straggle to the land is a day to day activities is very high. The urban morphology of Harar city represents two main parts. that is the old city (jugol) and the modern one that are outside the jugol this shows that, urbanization start from the inner side of jugol(old city) to outside the jugol area of 1 $km^2$. Like other cities of the country, harar city also increases the area coverage toward the peri urban area. The settlement pattern of the region is different from other regions of the country where the majority 62% of the population reside in urban area respectively in regional, even if, agriculture is dominant economic sector for the surrounding rural community. According to CSA, the population of the region highly increasing rate both in the urban and the rural on part of the region (CSA, 2007).The land and farmers are highly related in many ways social value, cultural value. On the other hand, farmers making their livelihood by producing high value cash crop (chat) and food crops are leading their lives.

### 3.1.1. Location of the Study Area.

The Harari people 'National Region is located in eastern 526 km away from Addis Ababa. Astronomically it lies between $9^0$ 15' to $9^0$ 25' N Latitude, and between 420 05' to 42015'E Longitude. Figure (3.1and 3.2).

**Location of Regions and Study Area Maps**

Harari Regional State Maps

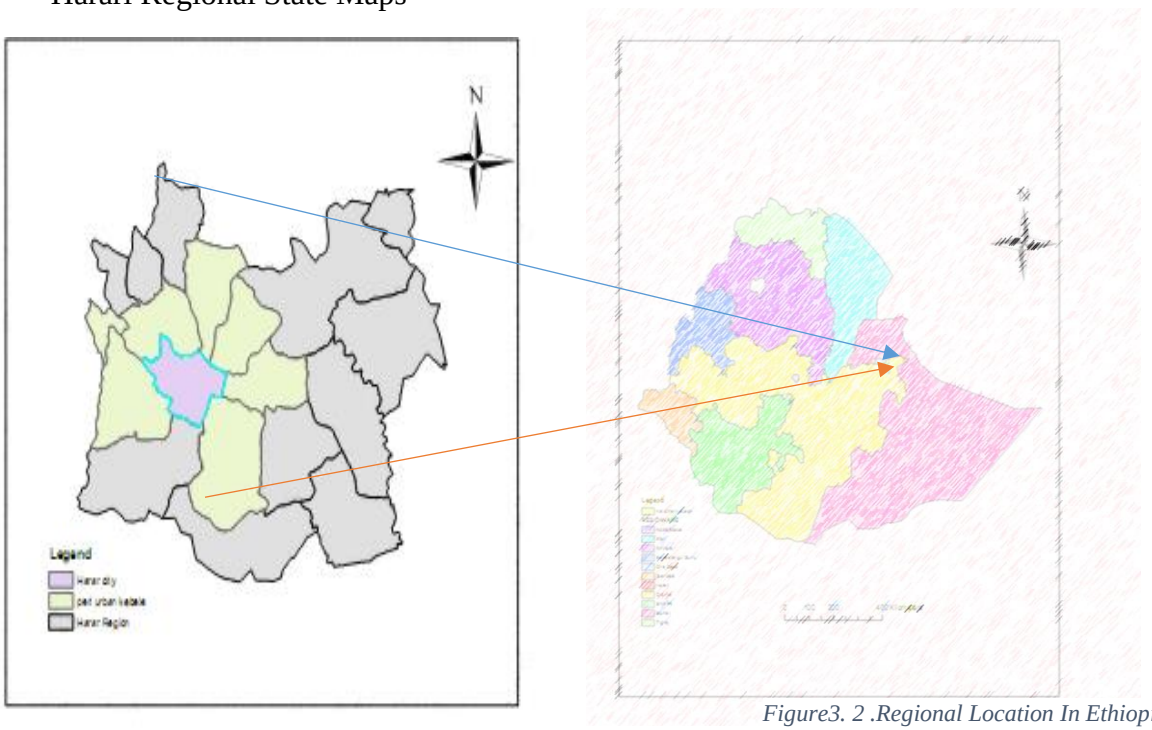



*Figure3. 2 .Regional Location In Ethiopian Maps*

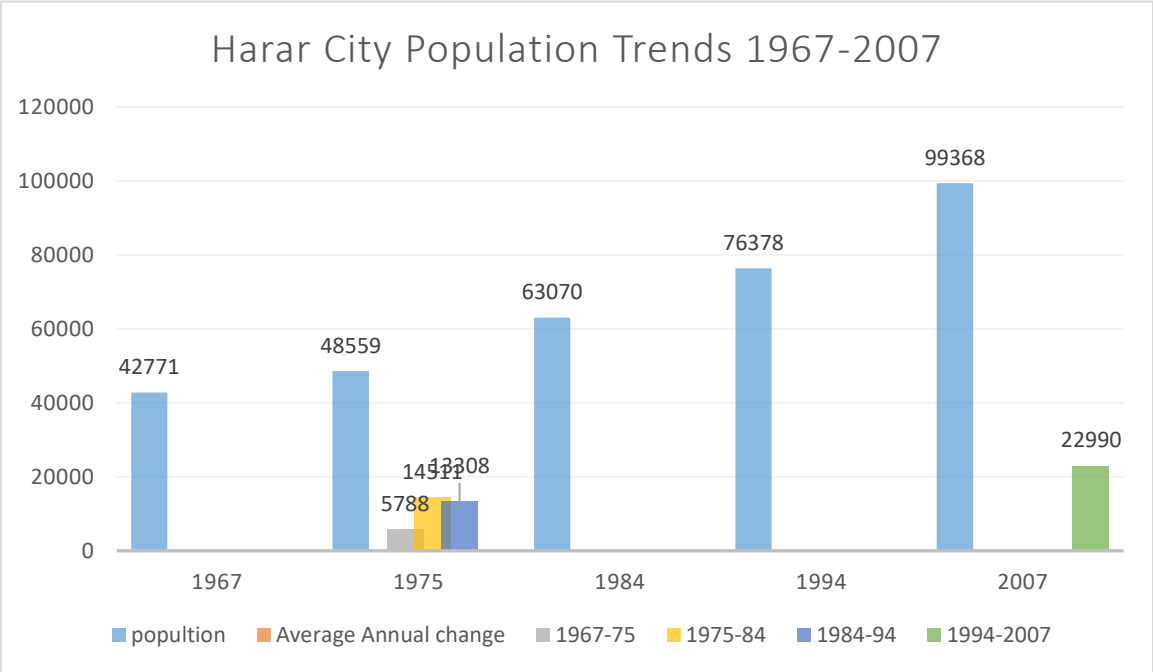
Figure3. 1 location of Study Area on Ethiopia maps

**3.1.2. Climate.**

It is important to realize that temperature and altitude are the two important factors which are strongly correlated to reflect the climatic condition of the region. The region lies within the altitudinal range of 1300 to 2300 m-a-s-l. Harari region has a tropical climate that modified by altitude and the mean maximum temperature reaches as high as26.9$^0$c, while the minimum also reaches as low as - 3.9$^0$ c. the rain fall pattern of the region is bi-modal, which amounts to about 657.9 mm, at harar, and 754.6 mm at Babile.

**3.1.3. Population of the Region**

population is a part of socio-economic information dealing with people of a certain locality in relation with environmental trends. according to 2007 population and housing census the total population of Harari region were 183,344 among which 92,258 are male and the rest 91,086 are female. the size of urban dwellers in the region, are 99,321 and the rest 84,023 are rural population. Regarding the density of population in 2007 Harari region had the population density of 534 populations in a kilo meter square. According to the calculation done in medium variant the growth rate of urban population and rural population is 2.0 percent and 3.3 percent respectively. Unlike the number of population in the other region of




Ethiopia, population of Harari region is dominated by the urban population. The urban population of the region consists of 54 percent.

*Figure 3.1 ..Harar City Population Trends 1967-2007*

**3.1.4. Research Strategy**

In order to elicit information on the impacts of urban expansion on the pre -urban agricultural land use rural community's livelihood assets that helps to understand the perceptions and attitudes of farmers and then determine the characteristics of the selected population on one or more variables, questioning the subjects was the research strategy employed for this study. For the case in point, two types of questionings were employed. these were written and oral questionnaires conducted to get the data from the samples and the selected key informants. Although they served for similar purposes in gathering information, each of the questionnaires had its own advantages. close questionnaire was chosen as a research strategy to be used not only in the social , health, political economy, psychology, educational aspects of the respondents but it was also sound advantageous for the following issues. In the first place, it initiated the respondents to give accurate information that was highly valuable for the research. the

other was that the written questionnaire contains the same item for all respondents and it was easy to summarize and analyze. The last advantage was that it is easier in collecting information comparing with others.

This questionnaire had been administered through trained enumerators. As far as interview is concerned, a face-to-face strategy was employed for collecting information. It naturally affords greater flexibility than others do. In this case, interviewers could shift from one set of question to another without confusing the interviewee and the interviewer could have vast possibility to clarify the cases freely to avoid misunderstandings of questions and concepts. on the other hand, as interview it is easy to observe the physical, emotional as well as facial expressions of the respondents .so, the researcher could manage all the factors and then got reliable data that helped the researcher to triangulate the information and ensure its reliability. the strategy employed to administer the oral interview was through focus group discussions .Data analysis for this study was started by geo-referencing the coordinate system for each GIs data layer thereby ensuring spatial consistency with demarked structure plan of harar city. Geo-referencing entailed making sure that all spatial data layers used the same coordinates of the map projection. Therefore, all the data sets were projected to WGS1996 UTM zone 38N to avoid image distortion and have the same geographic coordinate system. The spatial extent covering the entire Harar city was then extracted from the images using spatial analyst tool in ArcGIS. All GIs shape files were clipped in arc map using the boundary of the community. data analysis for this study was started by geo-referencing the coordinate system for each GIs data layer thereby ensuring spatial consistency with demarked structure plan of Harar city.

| No | types of materials | Description | Source |
|---|---|---|---|
| 1 | Instrument | Garmin gps60 | Harari Agricultural Development Beau. |
| | | digital camera | |
| 2 | Software | Arc GIs 10.1 | Baher Dar University, ILA;GIs lab |
| | | ERAS 10 | |
| | | SPSS 20 | |
| 3 | Maps | wareda map | CSA |
| | | Kebele map | |

### 3.2. Description of Materials, Data and Methodology

#### 3.2.1. Description of Materials

The materials required and its source used for this research was describe in the following

*Table3. 0-1. Material Description*

#### 3.2.2. Data Description

The study used three types of data set to reach the desired goals. These are remote sensing data, field data (GPS readings) and household survey data.

**Remote sensing data**.

**Landsat satellite imageries.**

Landsat satellite images of tm, and $ETM^+$ were used to extract land use/land cover of the study area at 1996, 2006 and.2014.

Landsat TM: is the multispectral scanning system that record reflected /emitted electromagnetic energy from visible, reflective, middle and thermal infrared of the spectrum. They scan 7 spectral bands (0.45 to 2.35 µm) and have higher spatial (28.5 m) and radiometric (8 bit) resolutions than Mss. For this study TM image of path/row 169/054 and 169/055 acquired during the dry season of the area 1984. It is obtained from

the GLCF online imagery portal. $ETM^+$: is a sensor of landsat7 satellite that observes the earth and is capable of capturing scenes without cloud
obstruction. It scans 7 multi spectral bands (0.45 to 2.35 µm) and has higher spatial (28.5 m) and radiometric (8 bit) resolutions than Mss. They are applicable for different feature identification. It also scans thermal band in the range 10.4 – 12.5 µm ems with 60m spatial resolution. $ETM^+$ also has an $8^{th}$panchromatic band with 15m spatial resolution (Lille sand et al, 2004). For the study, the image with 166/054 and166/54 path/row acquired in May 2006 and 2014 has been obtained from the online archive of the GLCF (see Table3.2).

| Satellite Sensors | spatial resolution | spectral resolution | row & path | date of acquisitions | source |
|---|---|---|---|---|---|
| Land sat TM | 30m | 7 bands | 166/55 &166/54 | 1996 | GLCF |
| Land sat ETM+ | 30m | 8 band | “ | 2006 | |
| Land sat ETM+ | 30m | 8 band | “ | 2014 | |

*Table 3.2 Landsat imagery data sources*

***3.3. Data analysis***

After collecting all necessary data, data analysis and processing was made by digitizing, calculating and classifying the necessary information of each thematic layer using ERDAS imgine10 and arc gis10.1 software. Furthermore, some simple statistical methods, such as percentage, average and graphic tabulation also be employed for the analysis and interpretations.

**3.3.1. Spatial Data Analysis.**

The major information of land use/land cover types of the study area at different time periods has been extracted from Landsat satellite imageries. The procedure followed during accurate for LULC change analysis from Landsat imagery followed the following major steps:

**I .image pre-processing**

**A. geometric correction**

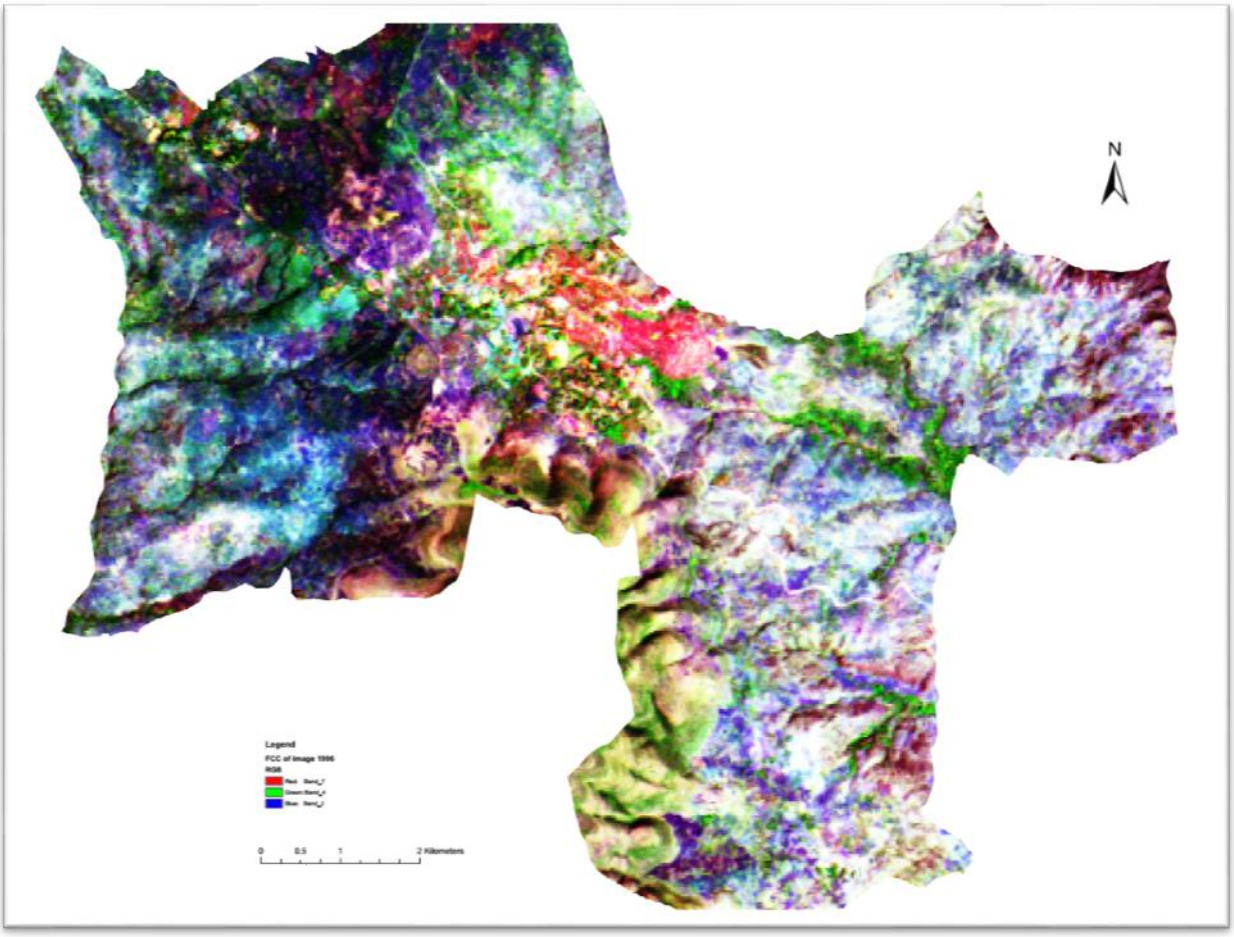
Raw digital images usually contain geometric, radiometric and atmospheric distortions of which cannot be used directly as a map base without subsequent processing. The sources of these distortions range from variations in the altitude, attitude, and velocity of the sensor platform to factors such as panoramic distortions, earth curvature, atmospheric refraction, relief displacement. Image rectification and restoration normally precedes any further manipulation and involves geometric and radiometric and/or noise removal and correction (Leicageosystems, 2005). In pre-processing phase, it is usually necessary to geo reference the images on projection and datum that Ethiopia has already selected, UTM projection and Adindan datum. In this respect, all the images used which are in wgs84 projection have been re-projected in to the country’s datum and projection. This is mainly because datum and projection conflict would undoubtedly limit the use of various themes (layers) at time.

**B. image enhancement**

Enhancements are used to make it easier for visual interpretation and understanding of imagery. there are many different techniques and methods of enhancing satellites image, for this study in order to visual interpretability in determining major land use/land cover types of the images of the area under investigation, false color combination(FCC) and principal component analysis(PCA) method were employed.

**False color combination (FCC)**

A color composite that is usually composed of three bands is assigned to one of the basic colures: red, green, and blue. Two types of color composites i.e. a false color composite (FCC) and a natural color composite (NCC) are distinguished here. In order to create a clear feature on the Landsat TM images, it is necessary to know the reflection characteristics of the basic cover types of the earth surface. The best FCC depends on the purpose of the study. From several FCC produced for visual interpretation the best



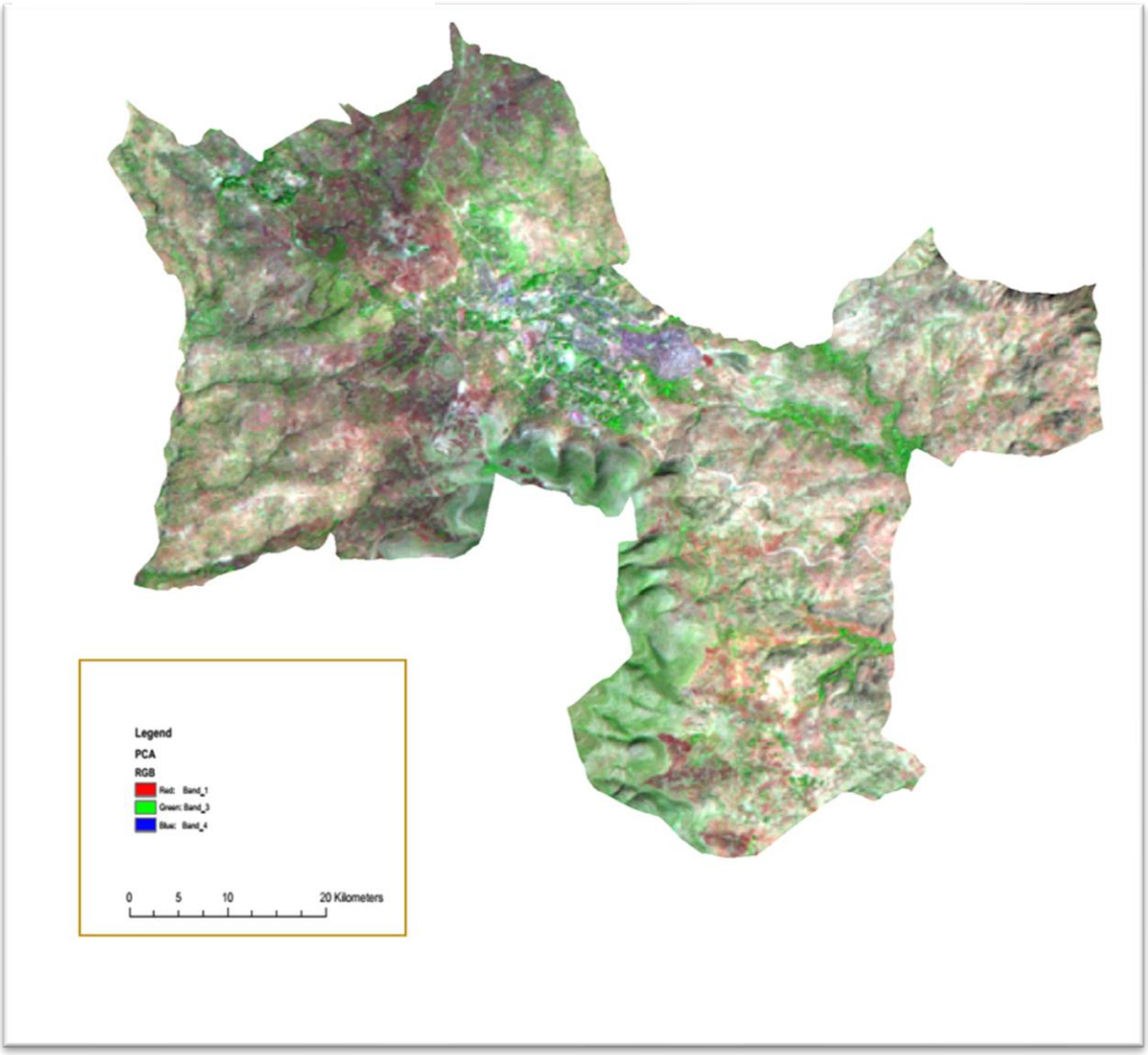

combination was 742 (RGB). In this band combination, built up area, vegetative land, open area and agricultural land was easily distinguish (Figure 3.5).

*Figure 3.5...FCC.1996 Images*

**Principle component analysis (PCA)**

Principle component analysis is a statistical method used for compressing the original data set without losing too much information. PCA is collecting the information of the spectral bands used in a cloud of points in a multidimensional space and calculates a new optimum set of axis through this cloud of data points. The number of principal components is equal to the number of bands. The first PCA is defined by maximum variance of the original data set; the last pc de- fines the leftover variance (Meijerink et.al, 1994). In this research from several PCA produced for visual interpretation the best combination was 742 (RGB) that distinguish bush land, grass land (see Figure 3.6).

*Figure3.6.PCA Enhancements Image 1996.*



**3.4.1.2. Land use/land cover description**

In order to make sample collection and classification easy, land use/land cover nomenclatures are required to create and define the possible land use/land cover classes first. Although the focus of the paper was on built-up areas, the land use/land cover map of the study areas were first generated using land use/land cover classes The land use/land cover classes applied in this paper are used the knowledge of harar. for the sake of simplicity, the researcher modified the descriptions of some of the land use/land cover classes considering the land use/land cover diversity of the study area. Therefore, four major land use/land cover nomenclatures: urban areas, agricultural lands, vegetated areas and bare fields were used to produce the final land use/land cover map of the study area.

*Table 3.0-1.Land use Land Cover Classes and Description of the study Area.*

| | land use/land cover | descriptions based on the land cover classes |
|---|---|---|
| 1 | urban/built-up areas | continuous and discontinuous urban fabric, residential, industrial and commercial units, road and railway Networks and other associated lands (AFRICOVER, 2002). |
| 2 | agricultural lands | irrigated and rain fed arable lands, crop land with Permanent crops, farming and fallow fields (AFRICOVER, 2002). |
| 3 | vegetated areas | natural and manmade forests, natural grasslands, Woodland shrubs, sparsely planted trees. (AFRICOVER, 2002). |
| 4 | bare fields/others | All vacant spaces, sands, rocky areas (AFRICOVER, 2002). |

**3.4.1.3. Training Site Selection for Image Classification.**

In this study, supervised classification was used, to cluster pixels in data sets into classes corresponding to user defined training classes. This classification type requires selecting 203 training areas for use as the basis for classification. In this research, the most common supervised classification techniques, maximum likelihood classifier (MLC) for parametric rule was applied. Garmin GPS60 was used to collect 203 representative points of land use/land cover classes during the field visit .

**3.4.1.4. Socio Economic Data Sources**

The required data were collected both from primary and secondary sources. the primary sources of the data were the selected household heads of evicted farmers and key informants treated through questionnaires, interviews and focus group discussion (FCD) in the target local rural communities. Therefore, qualitative and quantitative data were collected for the in-depth analysis and understanding of the status of the affected farmers. These data helped to take advantage of comparison of the two types of data to understand the issue. The modular questionnaire prepared and administered to the household heads were the primary source of the quantitative data such as demographic characteristics of household members, asset possession, income, and others. It further complemented by qualitative data generated using focus group discussions; key informant interviews and observation.

**3.5. Sample Size Determination and Sampling Method.**

3.5.1- sample size determination

To determine the desired sample size out of the target population, the following statistical approach was used with the following equation.

$$\frac{2z^{2pq}}{d^2}$$

Where: n = the desired sample size,

z = the standard normal deviate set at 1.96 which corresponds to the 95 percent confidence level

p = the proportion of behavior under study set at 50%

q = 1 – p,

d = desired precision of results set at 0.05, and 2 is the correction factor.

n = 145.9808

n = 146

To determine the sample respondents from the 3694 population targeted for the study, the Kothari formula used for calculating, (Kothari, 2004).

**3.5.2. Sampling Method.**

Both probability and non-probability sampling techniques were applied for this study. With regard to non-probability sampling, the researcher purposively selected the 4 pre-urban rural kebeles that surrounding Harar city in which the highest expansion has been observed since 1996.After determining sample size respondents of 146 out of 3694 farmers in the four pre urban kebeles, the stratified sampling technique was employed to determine the corresponding share of each kebeles representative number of sample size respondents. This was due to fact that number of farmers in each target kebeles was not proportionately equal in number. Regarding the selection of sample respondents, a probability random sampling technique, and random table was used to obtain the required number of respondents.

**3.6. Data collection Methods and Instruments.**

A preliminary field assessment was conducted in the study area, and it was after this brief visit that the research instruments were slightly touched to fit to the local context. both primary and secondary data were used for the study to obtain the required data and information accordingly. this section provides a brief overview of the different primary and secondary data collection techniques, and the type of information gathered from each source.

**3.6.1 Primary data collection**

In the primary data (both qualitative and quantitative) were collected from primary sources through household survey, focus group discussion, key informant interview and field observation.

**3.6.1.1- Household Survey**

Information related to household demographic and socio-economic characteristics, extent and types of livelihood asset loss, amount of annual income of the household, the support made to rehabilitate evicted farmers for better living and status of food security before and after eviction collected through household survey.

**3.6.1.2- Focus Group Discussions (FGD)**

Knowledge creation and the generation of potential solutions should be carried out by those whose livelihood strategies are the subject of agricultural community. Thus, well- informed individuals in the community usually have valuable information, especially with respect to qualitative issues that was not captured by the household survey. In light of this, FGD participants were selected to represent the different cross-sections of the community in terms of sex, age, social position, and affection by urban expansion. In order to obtain relevant information as well as to triangulate and validate data, two FGD groups were organized having a total number of 5-8 participants. The one group was drawn from wareda land administration and use offices that contained experts. The other FGD group that contained 8 participants were selected from targeted population of which 2 representatives drawn in each 4 rural kebeles

**3.6.1.3- Key Informant Interview (KII).**

Similarly, key informant interviewees deliberately selected from individuals those have comprehensive knowledge and information about the area .efforts had been made to include the different spectrum of views from various individuals of different professional and social backgrounds. consequently, two experts from municipal administration office, two experts from urban development and construction beau, two experts from Agricultural Development beau, one experts from development agents and one experts from wareda were involved in the key informant interview. The interview was conducted in the presence of the researcher based on a predesigned checklist. The information collected from KII was used to triangulate and increase reliability of the information collected by other techniques. Eight (8) individuals have participated in the key informant's interview.

**3.6.1.4. Field Observation.**

First hand data on the field were collected by direct observation on the selected area for this study. The researcher observed and collected the necessary visual information with the help of camera from the existence of urban expansion. Observation used by the researcher in order to get more information to accurate the information gets from the other tools. Observation checklist was used by researcher to conduct field survey systematically.

### 3.6.2 .Secondary data collection

Secondary data were collected from published and un-published sources at 'Wareda and Regional level. The major sources were reports, plans, and publications of various government departments working in the area. Furthermore, information from CSA was utilized. Area locations and demographic and socio-economic profiles of the study 'wareda' and Region are some of the information generated from these sources.

### 3.7. Methods of Data Analysis And Presentation.

The tools for quantitative data analysis were descriptive statistics such as percentage frequencies, mean and standard deviation. The data obtained from interview and group discussion with government office experts and community members selected in the pre-urban farmers were analyzed qualitatively. With regard to the data gathered from household survey, field supervisor checked every completed questionnaire on the same day. The pre-coded questionnaires entered and analyzed using the statistical package for social sciences (SPSS) computer software program. Descriptive statistics such as frequencies mean and percentages, finally, the results presented in tables, figures and charts.

## CHAPTER FOUR.
## RESULTS AND DISCUSSION

This chapter presents and discusses results from the classified Landsat images of TM 1996, $ETM^+$ of 2006 and 2014 images and field survey conducted with sampled households. LULC of the three periods, magnitude and rate of LULC changes, factors contributing to land-use change and their influences on the environment and livelihoods of society as well as measures being taken to mitigate negative externalities also presented and discussed.

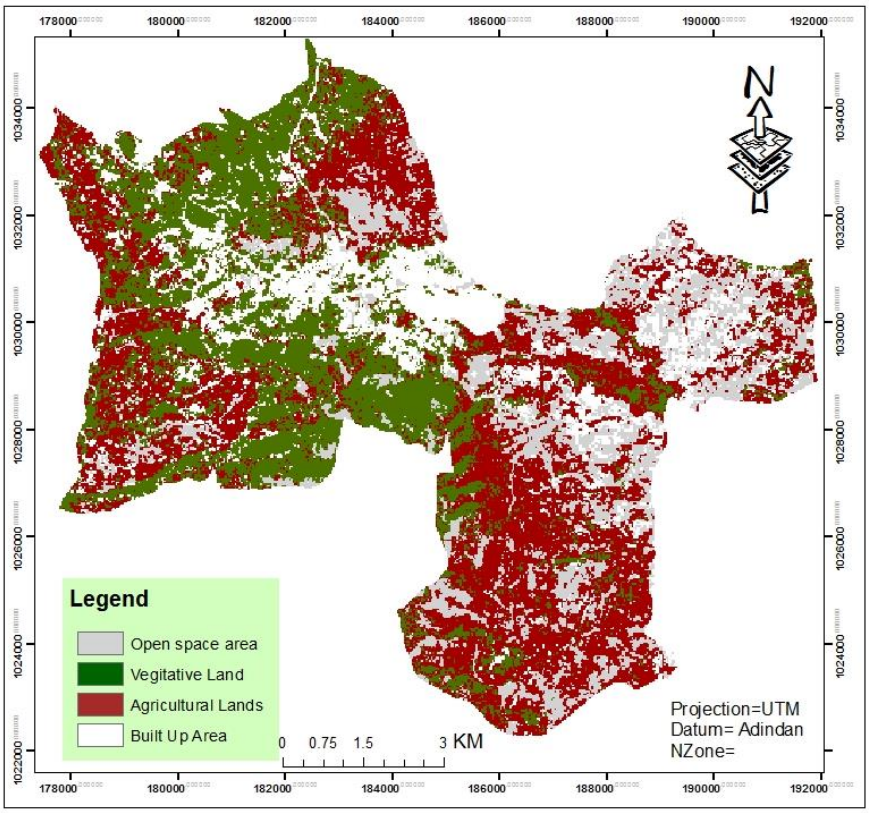
### 4.1. Land Use Land Cover of the Study Area.

For the purpose of observing the land use land cover of the study area, it is undoubtedly paramount important once to select major classes. Accordingly, only the most important major LULC classes in the study area is selected. These classes are open area, agricultural land, Built up and vegetative area.

#### 4.1.1. Land use land cover of the study area in 1996

The result obtained from the classified Landsat image of 1996 show that; the dominant land cover of the study area within this period is agricultural land which account 47% of the total study area. The other dominant land cover class is open area, vegetative land and built up area which account 27%, 17% and 4.84 % respectively.

*Figure 2.5 .Result of Image classification and land cover/land use 1996.*




**4.1.2. Land use land cover of the study area in 2006.**

The classified Landsat image of 2006 shows that of 3866 hectare (39.39%) of the study area is covered with agricultural land. the open area, on the other hand declines in to 995 hector or 10.13%. built up area and vegetative land increased to 2620 hectors of 26.68 %, 2339 hectors of 23.81 % of the area respectively(Figure 4.5).

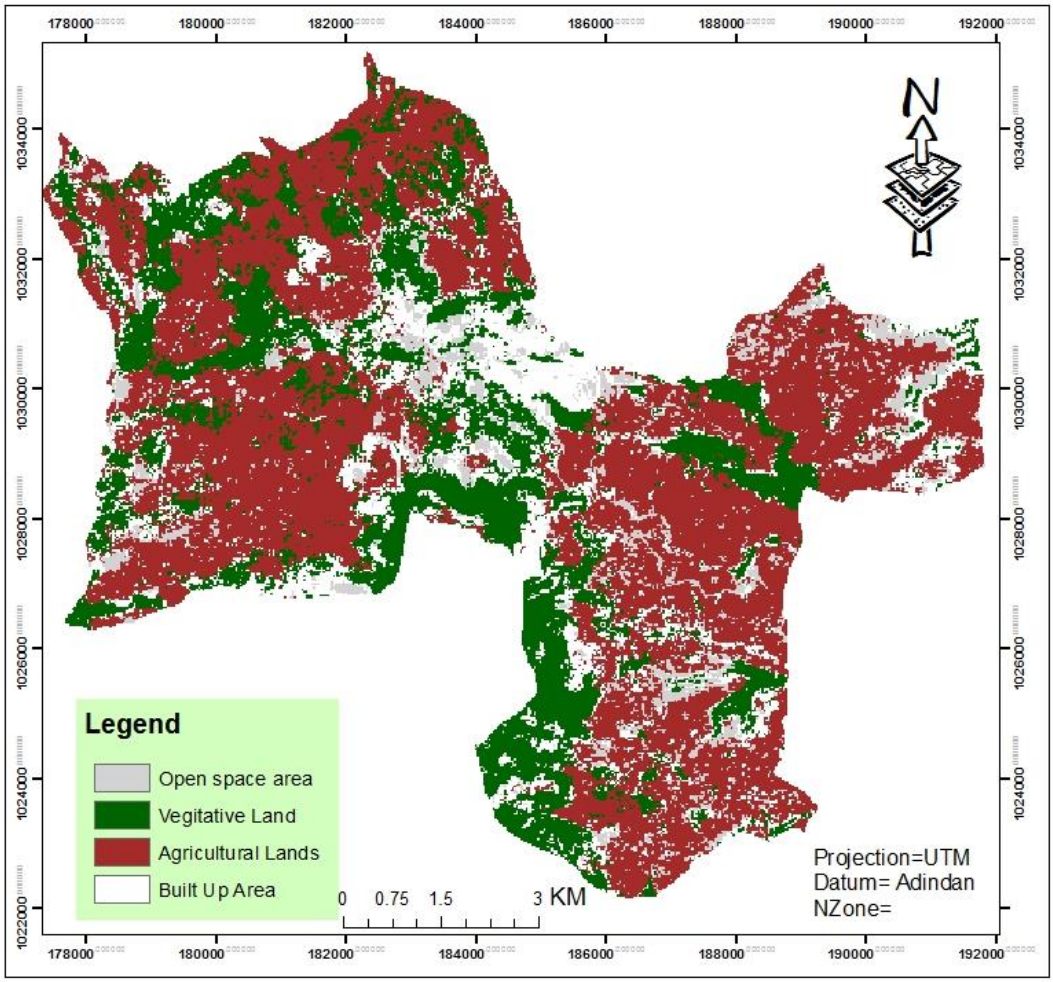


*Figure 4.4. Result of classified image and land use/Land cover 2006*

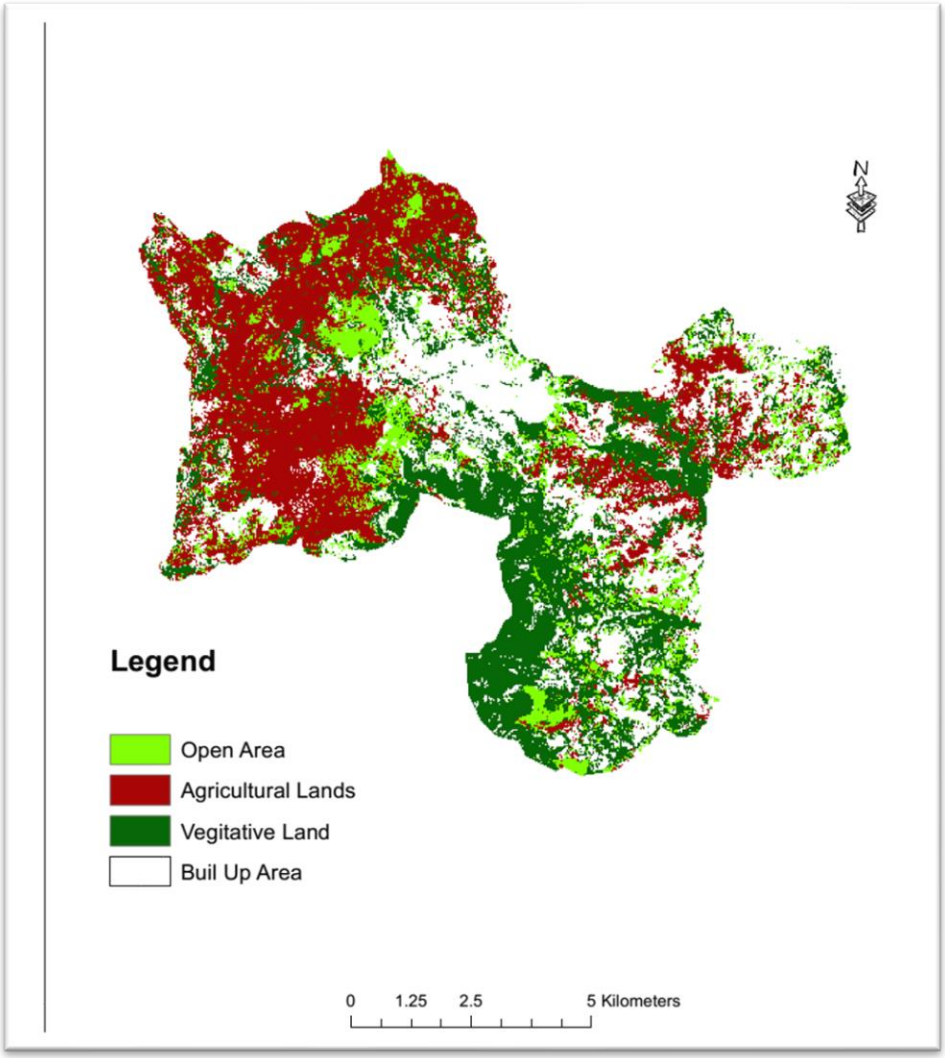
### 4.1.3. Land use land cover of the study area in 2014

Furthermore, land use land cover image classification for 2014 from ETM+ satellite image shows that that agricultural land, vegetative land and open area a dramatic decline and they account 26.71% , 8.97 % and 5.57 % respectively, whereas built up areas demonstrates a significant gain that accounts 58.73% of areal coverage respectively within the period(see 6).

*Table 4.18. Areal Extents of each land use/cover classes of the three periods.*

| LU/LC category | 1996 | | 2006 | | 2014 | |
|---|---|---|---|---|---|---|
| | area(ha) | % | area (ha) | % | area (ha) | % |
| Built up area | 516 | 4.84 | 3620 | 33.97 | 6259 | 58.73 |
| Open land | 2654 | 24.90 | 1632 | 15.31 | 594 | 5.57 |
| Agricultural land | 5013 | 47 | 3866 | 36.28 | 2847 | 26.71 |
| Vegetative land | 2473 | 23.20 | 1538 | 14.43 | 956 | 8.97 |
| Total | 10656 | 100 | 10656 | 100.00 | 10656 | 100.00 |

*Figure 4.3 Image classification 2014 results*




**4.2. Image Classification and Accuracy Assessment**

**4.2.1. Image Classification.**

Land cover classes are typically mapped from digital Remotely Sensed data through digital image classification and interpretation. Image classification process replaces visual analysis of the image data with quantitative techniques for automating the identification of features in a scene. This normally involves the analysis of multispectral image data and the application of statistically based decision rules for determining the land cover identity of each pixel in an image. The overall objective of the image classification procedure is to automatically categorize all pixels in an image into land cover classes or themes (Lillesand et al., 2008). In this study, two approaches (unsupervised and supervised classification were used for image classification and mapping of LULC of the study area.

The three time period images of the study area were first classified through computer automated unsupervised method in ERDAS IMAGINE 10 classifier. The output classes, though not exactly related to the direct meaningful characteristics of the scene, were assigned with names. It was this unsupervised classified image, that has been analyzed during the preliminary field visit and aid the subsequent supervised classification. Supervised classifications of all images were carried out using the Maximum Likelihood Classifier Technique in ERDAS Imagine software version 10. Moreover, during preliminary field visit, Ground truth points were collected by going to a specific GPS location in order to assist supervised classification and Accuracy assessment. These field assistance data were collected based on accessibility, practicality, locality and logistically feasibility; finally, data were entered into a spreadsheet and subsequently overlaid on the satellite images. These points made up the training areas where representative polygons for each classification were drawn. These training areas were then used to define the digital signature used for the supervised classification. For the purpose of this study 4(four) major land use/land

covers classes were identified these are: Agricultural land, vegetative land, open space land, built up/urban land were identified.

**4.2.2 Accuracy Assessment**

Once images had been classified (supervised) then accuracy assessment of an image classification was done by creating the classification error matrix. In this confusion matrix, classification results were compared to ground truth data obtained during fieldwork. A measure for the overall classification accuracy can be derived from this table by counting how many pixels were classified the same in the satellite image and on the ground and dividing this by the total number of pixels:

**The user and producer accuracy.**

The user and producer accuracy widely used measures of class accuracy. The producer's accuracy refers to the probability that a certain land-cover of an area on the ground is classified as such, while the user's accuracy refers to the probability that a pixel labeled as a certain land-cover class in the map is really this class. After classification of satellite images, the accuracy of the classification derived from remote sensing sources is required to be assessed. One of such a method is the use of a confusion matrix which is produced from the random sample of individual pixels/clusters compared to known cover conditions over the same pixel areas. In this regards, only the accuracy of the classified Landsat images of 2014 is evaluated by taking a total of 203 ground truth point from the field from each land caver categories. (Table 8).

| | | Ground Truth | | | | | |
|---|---|---|---|---|---|---|---|
| Classified in Satellite Image as | LU/LC category | Vegetative land | Open land | Agricultural land | Built up | Total | User accuracy |
| | Vegetative land | 36 | 6 | 0 | 0 | 42 | 85.71 |
| | Open Area land | 3 | 46 | 0 | 7 | 56 | 82.14 |
| | Agricultural land | 0 | 6 | 69 | 2 | 77 | 89.61 |
| | Built up | 0 | 0 | 0 | 28 | 28 | 100.00 |
| Total | | 39 | 58 | 69 | 37 | 203 | |
| Producer accuracy | | 92.30 | 79.31 | 100 | 75.67 | | |

*Table 4.0-1.Accuracy evaluation result of classified image 2014*

The overall classification accuracy of the classified Landsat images of 2014 was; 88.4% with kappa coefficient of 0.84. In this classification the Agricultural 89.61 % and Built-up land class has 100% producer and user accuracy, while built up area has the lowest producer's accuracy.

**4.3. Land use/ land cover change**

To drive LULC changes of the study area satellite images of 1996, 2006 and 2014 have been considered. The whole time range has been segmented into two; 1996 – 2006 and 2006– 2014 and finally the overall change (1996 – 2014) has been assessed. the rate of change (difference in area from the final to the initial state of each land use/cover category over the specified time period or number of years in each period) across the study period has also been analyzed based on the statistical data derived from the images.

**4.3.1. LU/LC change between: 1996 to 2014**

Within 18 years i.e. from (1996-2014) in the study area, farm land and open land showed maximum changes. More specifically, built up area is increased by 3905 ha with 216.94 ha/yr. mean rate of change, whereas, agricultural land is decreased to 2847 ha or 120.33 ha/yr. vegetative land also shows significant changes the first one increased by 836 ha (46.44 ha/yrs. of change). On the other hand; open area of land is decreased with 2060 ha (-114.44 ha/yr. negative rate of change). Obviously, the increase in built up area is associated with the horizontal expansion of harar city. Finally, as compared to other land use types of the study area vegetative area showed that the lowest rate of change (46.44 ha/yrs.)

*Table 4.0-1 Extent of land cover/land use change in 1996 and 2006*

| LU/LC category | 1996 | | 2006 | | average rate of change (ha/yr) |
|---|---|---|---|---|---|
| | area (ha) | % | area (ha) | % | |
| built up area/urban land | 516 | 4.84 | 3620 | 33.97 | 310.4 |
| open area | 2654 | 24.90 | 1632 | 15.31 | -82.2 |
| agricultural lands | 5013 | 47 | 3866 | 39.36 | -114.7 |
| vegetative lands | 2473 | 23.20 | 1538 | 14.43 | 93.5 |
| Total | 10656 | 100 | 10656 | 100.00 | |

**4.3.2. LU/LC change between: 2006 to 2014**

When comparing 2006 LU/LC classification with 2014 LU/LC classification, there are changes that showed decrease or increase in particular land use land cover. The land use land cover categories, which showed increase are only built up area. In 2006, 33.97 %of the study area covered by built up area which was increased to 58.73% in 2014 with 329.87ha/yrs.on the other hand, the land use land cover categories like agricultural land, open area and vegetative land showed decreasing pattern with 127.37 ha/yr, 129.75 ha/yr and 72.75/yr average rate of changes respectively (table 11). This is mainly related to human induced factors on existing natural resource of the area.

Table 4. Extent of land use/cover change in 2006-2014

| LU/LC category | 2006 | | 2014 | | average rate of change (ha/yr) |
|---|---|---|---|---|---|
| | area (ha) | % | area (ha) | % | |
| built up area/urban land | 3620 | 33.97 | 6259 | 58.73 | 329.87 |
| open area | 1632 | 15.31 | 594 | 5.57 | -129.75 |
| agricultural lands | 3866 | 36.28 | 2847 | 26.71 | -127.37 |
| vegetative lands | 1538 | 14.43 | 956 | 8.97 | -72.75 |
| total | 10656 | 100 | 10656 | 100.00 | |

Open area of land was radically diminished land category in the period about 1632 hectors or16.32 $km^2$ of land was converted to other land category mainly into built up area (62.59 $km^2$) The built up area (with over 58.73 % coverage), has expanded throughout the period due to largely the conversion of the initial agricultural land (28.47 $km^2$) followed by forest land (9.56 $km^2$) and open area of land (5.94 $km^2$). This was mainly related to the observed rapid population increase of the study area. As indicated in (table 4.6) the

built up area is dramatically increasing and the other land use is decreasing, this is mainly related to spatial urban expansion that lead agricultural land conversion to build up area that was resulted from frequent LULC changes of the in the study area. Although, built up land category expanded over the period this also mainly related to the fast population growths in the study area.

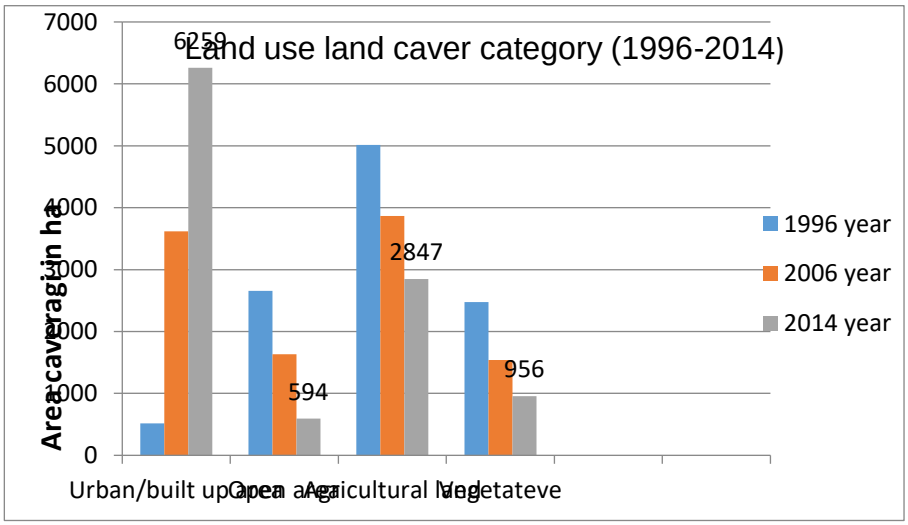
**4.3.3. LULC change between 1 996 to 2014**

Generally, the LULC types in the three study periods gradually changed with differing rates depending on the existing socio-economic, political, and environmental situation. considering the overall study period (18 years), there was a remarkable increase in the a real extent of built up area of land from 516 ha (4.84%) in 1996 to 6259ha (58.73%) in 2014.open area, agricultural land, and vegetative land were diminished at a higher rate.. within this 18years; agricultural land, open area and vegetative land also show that a reduction in areal extent (table 6)

Table 4.0-2.Statistical summary of land use/land cover from 1996-2014

| LU/LC category | 1996 | | 2014 | | |
|---|---|---|---|---|---|
| | area (ha) | % | area (ha) | % | average rate change (ha/yr) |
| built up area | 516 | 4.84 | 6259 | 58.73 | 319.05 |
| open area | 2654 | 24.90 | 594 | 5.57 | -114.44 |
| agricultural land | 5013 | 47 | 2847 | 26.71 | -120.33 |
| vegetative land | 2473 | 23.20 | 956 | 8.97 | -84.27 |
| total | 10656 | 100 | 10656 | 100 | |

The whole period clearly indicates how much dynamic the land use/land cover of the study area (table14).for instant; urban/built up area of land was the greatest land category of the final period were increased in a real extent, it got from agricultural land with 50.13 $km^2$, open area of land 26.54 $km^2$ area and vegetative land with 24.73 $km^2$ were converted to build up area of land. The open area and vegetative land has increasingly decrease due to its conversion to build up area.

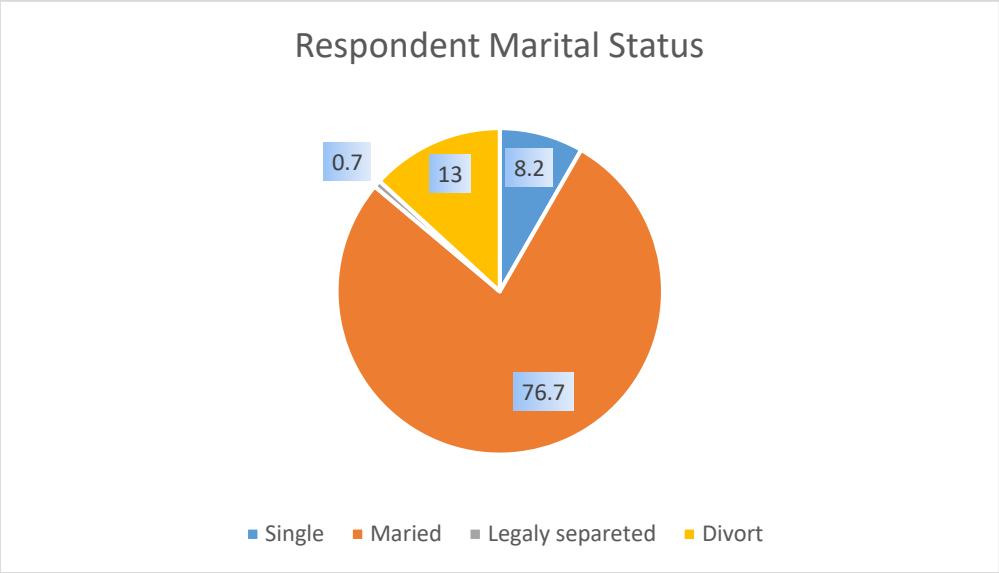



There was different magnitudes of changes has been recognized over the study period. Some of the land categories increased and thus has positive mean rate of change but others were diminished and thus have negative rate of change (figure 6) the rate of change of built up area of land indicates an ever expanding in positive direction. Agricultural land are the next showing decrement from year to year. In opposite direction, both Open area of land and vegetative has diminished much more at a faster rate from year to year.

### 4.4. Socio-Economic Characteristics of the Respondent

Population size and characteristics are directly related urban expansion .in order to fulfil the demand of basic human necessities which in turn influence the peri urban LU/LC/l. Hence, examining socio economic and institutional characteristics of sample house hold is paramount importance.

*Figure 4.10. Marital Status of the Respondents*




#### 4.4.1. Size of Land and Means of Acquiring Land.

Land is one of the most important factors of agricultural production. In Ethiopia, the size of land holding varies among households for different reasons, on one hand rural land redistribution occurred in the country during the Dirge regime in 1970's (Zelelam, 2015). Since then, farmers who got land in the system became permanent owners. On the other hand the land distribution of the time was based on family size. The larger the family size, the greater the land holding size and the smaller the family size, the lesser the land holding size.

The current Ethiopian government states that peasant farmers, pastoralists and semi-pastoralists can transfer their rural land-use rights through donation or inheritance to members of their family and can also rent/lease part of their holdings to other farmers or investors for a specified period (FDRE, proc. no. 456/2005). As indicated in table- 7, significant number of land users i.e., 84.9% have their own land and 22(15.1%) respondents have not their own land at this moments. this shows that despite the fact that land is one of the most important factors of agricultural production, farmers in the study area owned small size of land compared with their family size.

Table 4.9.land owner of respondents.

| Do you have your own land? | frequency | percent | valid percent | cumulative percent |
|---|---|---|---|---|
| yes | 124 | 84.9 | 84.9 | 84.9 |
| no | 22 | 15.1 | 15.1 | 100.0 |
| total | 146 | 100.0 | 100.0 | |

As indicated in table 4.10 below, majority of respondents have got land from their parents, 75.2 % of the respondents have got their land from governments and 29(18.6%) sharing from other land owner.

*Table 4.0-1 Means of land acquisition of respondents*

| Means of acquiring land. | | frequency | Percent |
|---|---|---|---|
| | from parents | 109 | 75.2 |
| | from governments | 9 | 6.2 |
| | sharing from other land owners | 29 | 18.6 |
| | Total | 146 | 100.0 |

**4.5. Impacts of Spatial Urban Expansion on Agricultural Land Use.**

The researcher also observed that farming land around harar city is converted and ongoing to convert due to this urban sprawl which in turn may force the displacement of original neighboring farmers whose livelihood is primarily agriculture. to assess the impact of spatial urban expansion in the study area; data were gathered through structured interview with sample households and FGD with government office and selected farmers almost, all of the respondents (100%) of claimed that urban expansion has impact on agricultural lands both positive and negative impacts. in the study area there was unprecedented built up area increase towards rural agricultural land is one of the reasons for urban land use/cover dynamics in the study area (Figure 4.11).

To know the impacts of the fast population increase in the study area on urban expansion; farm households were asked to respond whether or not urban expansion in the study area. Majority of respondents feel that there is urban expansion in their area, confirmed by 94.4% of surveyed respondents. Small proportions, (4.6%) of respondents, feel that there is no urban expansion. respondents were further asked to give their views on the possible reason(s) for urban expansion. they feel that population increase is the most important factor, which is confirmed by 94.45%. Urban expansion is one the major proximate or direct causes of LU/LCC in the study area which was viewed by 94.44 % of the respondents. The coverage of total built up area of urban land increased overtime. As indicated in figure 26, urban land accounts 516ha (4.84%), 3620ha (33.97%) and 6259ha (58.73%) in the year from 1996, 2006 and 2014 respectively. as resulted from population growth of the area the built up area of land in the study area increased by 319.ha/yrs. during 1996-2014. the response from FGD indicated that the urban expansion on farm land which affects their livelihood.

Figure 4.12. Trends of spatial urban expansion in 1996, 2006 and 2014

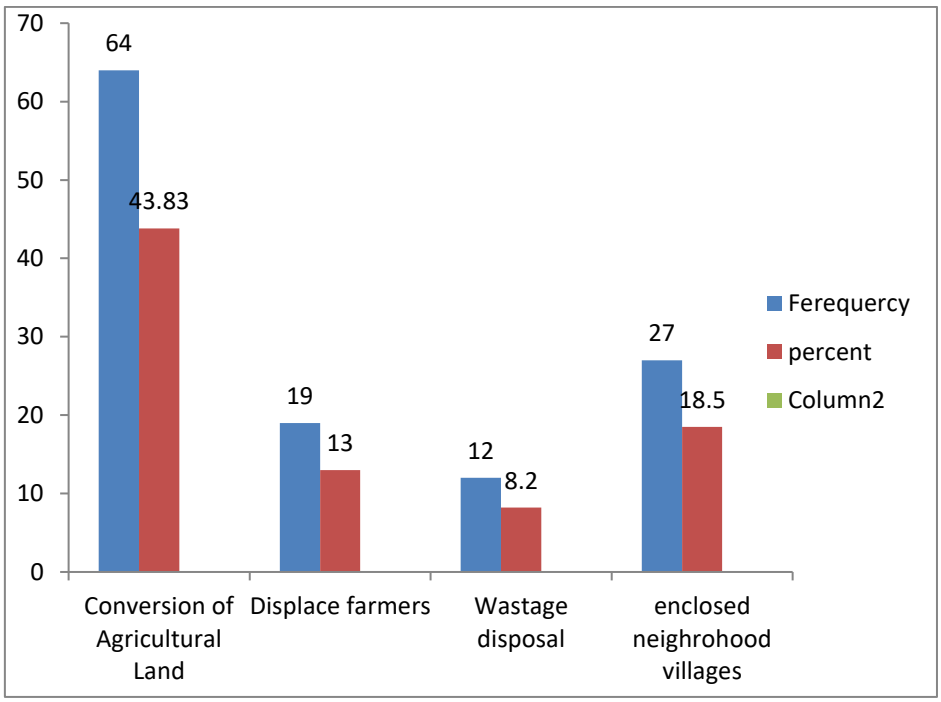
Hence, the major cause of agricultural land, open area of land and vegetative land change is related to spatial urban expansion in the study area. For instance; from 1996 to 2014, built up area was extremely expanded to the peri urban agricultural land. The response from FGD indicated that their agricultural land has been converted significantly in the past 18 years.

*Figure 4.13. Prime Agricultural farm Land, photo by authors*

*Figure 4.14. Prime Agricultural farm land converted to build up area*

The research reveal that Harar city extremely expanded into peri urban Agricultural Land which is major source of income for the farmers. The land use/cover change shows that built up area is dramatically increasing towards prime agricultural land. For instances, 1996 image classification result data shows that built up area was 516 ha, in 2006 the total area of built/ urban increased to 3620 ha finally, in 2014 dramatically increased to 6259 ha . long lists of evidences from Ethiopian and abroad scholars stated that, urban expansion has many positive and negative effects on farmers in the peri-urban areas. Thus, center of market area, center for production and distribution of goods and services, an opportunity for access to employment are among the positive effects of urban expansion. the negative consequences of urban expansion are loss of prime agricultural farmland, displacement of farm communities, solid waste disposal and land degradation, enclosing surrounding rural land to urban territory, over exploitation of natural resources and conflict.

Indicate that whether urban expansion has positive or negative impacts respondents were asked.accorging to their responces,mojority of them were give the answers to negative impacts such as ; 64(43.83%) of them were said conversion of agricultural land use to urban use,19(13%) were said displacement of faermers,12(8.2%) were said wastege disposal,27(18.5%) were enclosed neighrohood villages and 24(16.4%) of respondents were siad all.




In litrature revies ,as pointed out by dayong (2004) uneven urban expansion will occupy considerable valuable farmland around urban centers, which causes to sensitive contradiction and conflicts with the farmers who are displaced from their farmland. Urbanization negatively affects the peri-urban areas in different ways. As urban centers, expand by occupying fertile farmland, and displacing farmers cause to reduce the amount of production and number of family farmers and move to the nearby urban centers. In Ethiopia, land taking by regional governmental for expansion of cities and towns is raising rapidly because urbanization leads to outward expansion of cities and results to change in land use and landscape where by the Federal and Regional Agencies and the Municipality are expropriating of agriculture land for public purposes. In addition, the federal law on rural land expropriation and compensation, have been crafted by the agencies that are taking land seem to disfavor that are losing the land (solomon, 2006).As a result, the farmers with their large family size will be exposed to unemployment and poverty (food insecure) for the reason that they are not well educated and skilled rather depending on their agricultural production. it is understood that, people without basic qualification or literally skilled are unable to compete and get job in the labor market.

**4.6. The Impacts of Spatial Urban Expansion on Livelihood of Peri Urban Community**

**4.6.1. The shift of occupational categories of farmers**

Data gathered from the study area show that due to spatial urban expansion their agricultural land were converted to build up area which is source of income, as a result they shift of occupation from agricultural to none agricultural activities. In the literature review, there are two opposing perspectives forwarded in relation to the interpretation of the impacts of rapid growth in peri-urban areas of farmers. one school of thought characterizes peri-urban growth as an advantage for the evicted farmers to bring new development that leads to greater entrepreneurialism. another school of thought see peri-urban development as a destruction of agricultural livelihoods that leads to the rapid growth of a semi proletarian informal economy having a high potential in absorbing more participants in the field which of course associated with an increase in overall economic outputs, (Maxwell and et.al, February, 1998). The implication here indicates that the process of urban expansion in the per urban areas that affect to loss the agricultural livelihood assets that were previously used as the main source of income would enforce evicted farmers to change their field of occupation to other alternative sources of income.

**4.6.2. Land Use Change and Extent of Dispossession for Farmlands Assets.**

In the study area, urban expansion is the process of expropriation of agricultural land of farmers for the purpose of public use. Harar city urban expansion has taken place since 1996 through the peri-urban development on the peripheral rural community farmlands. The urban expansion in harar city that dispossessed the agricultural farmlands of farmers in the peri-urban rural areas was aimed at keeping space

ready for settlements to attract private investors to attain the overall investment program. according to the focus group discussion participants of the municipal key informants statement, packages of benefits that includes only money compensation. Data gathered from sample respondents show that, in the study area, there is no supporting institution, any training were not given to farmers before and after receive their compensation.(Table,4.9)

Table 4.9. Training related issues how to use received compensations

As

| No | Did you get any training how to use compensation | Frequency | Percent |
|---|---|---|---|
| 1 | Yes | 20 | 13.7 |
| 2 | No | 126 | 82.9 |
| | Total | 141 | 96.6 |

indicated in above table 10, majority of respondents 126(82.9%) of were not given any training to them after receive their compensation. As a results, Data gathered from respondent shows that, the farmers uses their compensation based on local knowledge. Accordingly, 25(17.1%) 0f respondents were divided up with children, 26(17.8%) were saved in bank, 13(8.9%) were repair/building their houses, 20(13.7%) were bought furniture's, 9(6.2%) were used for trading, 31(21.2%) were used for daily consummation and 22(13.7%) respondents were divided to other land owner.(below table,4.11)

Table 4.11. Uses of received compensation of respondents

| How to Use of compensation | Frequency | Percent |
|---|---|---|
| Divided up with child | 25 | 17.1 |
| Save in bank | 26 | 17.8 |
| Repair/building houses | 13 | 8.9 |
| buy furniture | 20 | 13.7 |
| Used for trading | 9 | 6.2 |
| Daily living | 31 | 21.2 |
| Divided up with other land owners | 20 | 13.7 |
| Total | 146 | 100.00 |

| Reaction Toward Compensation | Frequency | Percent |
|---|---|---|
| Satisfied | 19 | 13.0 |
| Slightly Satisfied | 40 | 27.4 |
| Highly satisfied | 8 | 5.5 |
| No satisfied | 79 | 54.1 |
| Total | 146 | 100 |

On the other hand, 57 (39%) out of 146 respondents expropriated all the farmlands for public use they owned previously and they are at present landless. this implies that farmers who are totally gave away their farmlands assets are more vulnerable to risk and shock for shortage of food than partially evicted. even though partially evicted farmers currently owned small plot of farmlands for the time being it is inevitable that the land will be taken in the near future, as far as demand for investment is coming forth. Unless measures are taken on time, displaced farmers vulnerability to poverty is associated with the loss of livelihoods assets because of urban expansion. one of the questions forwarded to sample respondents of farmers focused on to investigate whether the urban expansion has affected negatively on their livelihood assets or not. In table4.12. Below indicates, that all the respondents responded 'yes'. this idea was one of the top priority issue raised during the focus group discussion that participants stated that urban expansion towards the peripheral agricultural farm lands have made significant loss on livelihood assets, which of course negatively affected farmers ownership status and found challenged the capability for making living among the evicted farmers.(Table4.12).

Table4.12. Respondent asset loss and trend livelihood change after urban expansion

| is there any change on your livelihood asset Changes due to urban expansion | frequencies | parent |
|---|---|---|
| Yes | 146 | 100 |
| No | 0 | 0 |
| Total | 146 | 100 |

Sources: survey 2016.

Livelihood assets in the context of rural agricultural communities include permanent tree and fruits such as chat for cash crop, eucalyptus tree, banana, mango, and orange in which the farming communities of the peri-urban areas depended on the cultivation planted once but the production give way from them long last. almost 96(65%) of households surveyed indicated that a typical harvest of permanent trees and fruits owned ranging from 1 to above 500 were used as additional means of income generating sources for livelihood creation. the extent of the assets loss in relation to permanent trees and fruits are highly depends on their agricultural land, table 12 below, shows that the number of farming communities who depended on the cultivation of permanent trees and fruits has decreased from 63% to 34.2% found impacted by urban expansion, are most likely to suffer from food insecurity in the coming period(table4.13).

Table 4.13.Permeants tree and fruit of sample respondents.

| permanent trees and fruits | before expansion | | after expansion | |
|---|---|---|---|---|
| | frequencies | percent | frequencies | percent |
| 0 | 50 | 34.2 | 92 | 63.0 |
| 1-100 | 21 | 14.3 | 13 | 8.9 |
| 1001-200 | 13 | 8.9 | 21 | 14.4 |
| 201-300 | 13 | 8.9 | 5 | 3.4 |
| 301-400 | 8 | 5.5 | 3 | 2.1 |
| 401-500 | 10 | 6.8 | 5 | 3.4 |
| 501 and above | 31 | 21.2 | 7 | 4.8 |
| Total | 146 | 100 | 146 | 100 |

Source: household survey, 2016.

**4.6.3. Livelihood Asset Change and Income of Households.**

Income in a peri-urban rural setting is a function directly related with livelihood asset ownership and capability such as for example farmlands. the transfer of agricultural and open space and vegetative land which is used for livestock before urban expansion were changed to urban land uses and infrastructure, are associated with general removal of vegetation to support urban ecosystem puts additional pressure on nearby areas.one of the several negative consequences of urban expansion process toward the peripheral rural communities of harar city was the livelihood assets loss basically agricultural land. questions related to income designed and addressed to the peri urban households through survey and focus group discussions to assess changes in the asset ownership and economic welfare after urban expansion. The focus groups confirmed that, urban expansion create land fragmentation and shortage of farmlands. As a consequences, some of them were exposed to food security problems. In the study area, some of peri urban kebeles supported by emergency programs and other were safety net programs.

**4.6.4. Consequence of the spatial urban expansion on peri urban community.**

The Table 4.14..Indicated that most farmers have frustration because of lack of orientation how to live in urban area were 52(35.6%a) and they were fear of in adequate attention from city administration 16 (11.0%) while the other29 (19.9%) were because of the lack of new

knowledge on newly urban form of life and 49(33.6%) were response to all are the consequences of urban expansion. There are many evidences that show the result of the urban expansion related problem at the expense of farmer's agricultural farmland in relation with displacement of farmers, loss of livelihood sources and problem in implementation of procedural requirements during displacement. According to the responses from respondent, document analysis as well as scholars" literatures; indicated that built up area expansion has several impacts to its periphery prime agricultural land use communities. Among them the major once effect are unjust displacement of farmers, decline farmer incomes or loss of sources of their livelihood (such as assets and land holding size) and finally leads to conflicts and create many problem on the farmers who live on the peripheral area of the city.

*Table 4.14.Consequences of spatial urban expansion on agricultural community.*

| Consequences of spatial urban expansion | Frequency | Percent |
|---|---|---|
| Frustration, because of lack of orientation | 52 | 35.6 |
| inadequate attention from administration in community | 16 | 11.0 |
| inadequate provision new skill and knowledge | 29 | 19.9 |
| All | 49 | 33.6 |
| Total | 146 | 100.0 |

Sources, Author, 2016.

**4.6.5. Financial Capital of Farmers' Before and Urban Expansion.**

According to Data gathered from the sample households of respondents" 12 (8.2%) their average annual income were above 100,000, 41 (28.1%) their average annual income were between 70,000-100, 000, 39 (26.7%) of respondents average annual income were between 41,000-70,000, 37 (25.3%) were between 11,000-42,000 and 17 (11.7%) were below 10,000 that respondents used to earn an average annual incomes before urban expansion (table4.15).

*Table 4.15.Average annual income of respondents before urban expansion*

| Average annual income before expansion | Frequency | Percent |
|---|---|---|
| Above 100,000 | 12 | 8.2 |
| 70,000-100,000 | 41 | 28.1 |
| 41,000_70,000 | 39 | 26.7 |
| 11,000_42,000 | 37 | 25.3 |
| Below,10,000 | 17 | 11.7 |
| Total | 146 | 100.0 |

Sources, Author, 2016.

Urban expansion has impact on an average annual income of respondents urban expansion Data gathered from the sample households of respondents "shows that 1 (.7%) their average annual income were above 100,000, 1 (.7%) their average annual income were between 70,000-100, 000,17(11.6%)of respondents average annual income were between 41,000-70,000,28(19.17%) were between 11,000-42,000 and 99(67.8%) were below 10,000 that respondents used to earn an average annual incomes after urban expansion(table4.16).

Table 4.16.Average Annual incomes after urban expansion

| Average annual income after expansion | Frequency | Percent |
|---|---|---|
| Above 100,000 | 1 | .7 |
| 70,000-100,000 | 1 | .7 |
| 41,000_70,000 | 17 | 11.6 |
| 11,000_42,000 | 28 | 19.17 |

| | | |
|---|---|---|
| Below,10,000 | 99 | 67.8 |
| Total | 146 | 100.0 |

**Sources, Author, 2016.**

### 4.6.6. Urban Expansion Result on Farmers' Social Relation and Values

Data gathered from the sample respondents shows that urban expansion has impact on social relationship before expansion, 39 (26.7%) were have Very high social relationship, 74 (50.7%) were have High social relationship, 30 (20.5%) were have Moderate social relationship, 3 (3.1%) were have low social relationship before urban expansion. This indicate that, in the study area, the society give more place for land (table4.17).

*Table 4.17. Social relation and values of respondents*

| Social relationship before displacements | Frequency | Percent |
|---|---|---|
| Very high | 39 | 26.7 |
| High | 74 | 50.7 |
| Moderate | 30 | 20.5 |
| Low | 3 | 3.1 |
| Total | 146 | 100.0 |

**Sources, Author, 2016.**

As shown in Table 18, Data gathered from the sample respondents shows that urban expansion has impact on social relationship before expansion, 6 (4.1%) were have Very high social relationship, 16(10.95%) were have High social relationship, 84 (57.53%) were have Moderate social relationship, 40(27.39%) were have low social relationship after urban expansion. This indicate that, in the study area, the society give more place for land.

*Table 4.18.Social relationship and values after urban expansion*

| Social relationship before displacements | Frequency | Percent |
|---|---|---|
| Very high | 6 | 4.1 |
| high | 16 | 10.95 |
| moderate | 84 | 57.53 |
| low | 40 | 27.39 |
| Total | 146 | 100.0 |

**Sources, Author, 2016.**

As shown in Table 18, Data gathered from the sample respondents shows that urban expansion has impact on social relationship after urban expansion, 16 (11%) were decided to raised common business, 69 (47.3%) were decided to Followed their livelihood, 61 (41.7%) were decided fragmented social relationship.

Table 4.19.Decision of respondents about their family after urban expansion

| Decision of respondents family after displacements | Frequency | Percent |
|---|---|---|
| Raised common business | 16 | 11.0 |
| Followed their livelihood | 69 | 47.3 |
| Fragmented | 57 | 39.0 |
| Total | 146 | 100.0 |

***Sources, Author, 2016.***

Farmers have mentioned many problems that they faced while they are struggling to adopt urban way of life such as, Lack of knowledge in financial utilization, lack of follow up from the concerned organization, Lack of skill and knowledge for job opportunity and Discrimination by the new settlers are among the major problems which farmers faced in adopting urban ways of life. As shown in Table4.20., Data gathered from

the sample respondents shows that urban expansion has problems on 27 (18.5%) were Lack of knowledge in financial utilization, 22 (15.1%) were Lack of follow up from concerned body, 38 (26%) were Lack of skill and knowledge for job opportunity,59 (40.41%) were discrimination by the new settlers after urban expansion. Key informants of the municipality also confirmed that there was lack of follow-up from the concerned governmental organization /office and there is no any supporting institution(seetable4.20).

*Table 4.20. Major problems faced respondents after urban expansion.*

| Major problem faced Respondents after displacements | Frequency | Percent |
|---|---|---|
| Lack of knowledge in financial utilization | 27 | 18.5 |
| Lack of follow up from concerned body | 22 | 15.1 |
| Lack of skill and knowledge for job opportunity | 38 | 26.0 |
| Discrimination by the new settlers | 58 | 39.7 |
| Total | 146 | 100.0 |

**Sources, Author, 2016.**

**4.6.7.The Impact of Urban Expansion on Peri Urban Land Tenure Security in the Study Area.**

Land-based farming activity is an important means of livelihood for the sample peri-urban landholders and other residents in this study area. Despite the importance of land to the livelihood of peri-urban residents, however, the size of their agricultural landholdings has been decreasing year by year. The urban expansion and development programs in Ethiopia in general, and in the case of study area in particular, are based on the expropriation of land from local peri-urban landholders/farmers. Urban expansion and development in adjoining peri-urban areas has often led to the displacement of local landholders from the land on which they were farming and living. Therefore, the emphasis in this section is on examining the process of land acquisition from the peri-urban areas for the purpose of urban expansion.

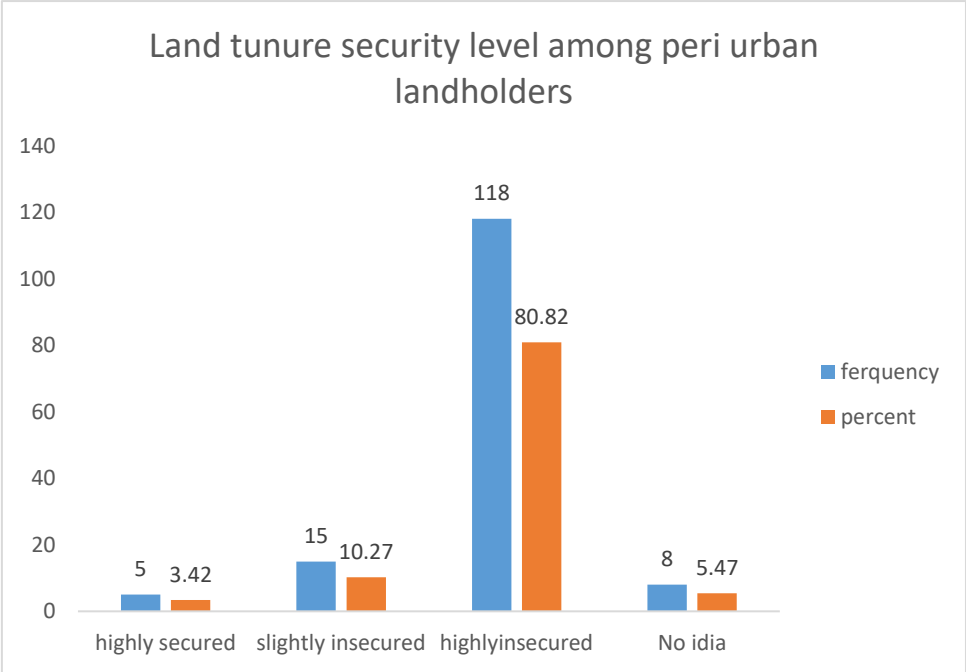



*Figure 4.19.Land tenure security level among peri urban landholder (n=146).*

As urban boundaries approach peri-urban territories, local landholders in these territories are assumed to be subject to expropriation. As consequence, a sense of land tenure insecurity is a more prevalent problem in the transitional peri-urban areas than any other geographic areas in Ethiopia. The responses from

questionnaires show that about 96.58% of the local peri-urban landholders in one way or another feel insecure in regards to their land rights (see Figure4.19) they expect that their land will be taken by the city administration at any time when it is needed for urban expansion programs. That means most people in local peri-urban communities are uncertain about how long their land will remain theirs.

**4.6.7.1. The Informal/Illegal Conversion of Land Rights in Peri-Urban Areas.**

In Ethiopia, Land is owned by the state: citizens and developers enjoy only use or development rights. Permanent land transfer through sale is forbidden by the constitution (FDRE, 1995), which means that local landholders in the peri-urban areas are permitted to use the land only for farming purposes. However, the unauthorized subdivision of agricultural land into smaller plots and the selling of these plots is widely practiced in the peri-urban areas adjoining large cities. Local landholders are also involved in the construction of substandard residential houses on agricultural land without building permission. Although almost all sample respondents have a habit of to deny that they themselves are engaged in either land transfer through sale or the accumulation of land, discussions with land administration experts and officials as well as field-visit realities disclosed that the illegal subdivision and selling of agricultural land is a widely practiced and visible phenomena in the study area. The great majority of local peri-urban landholders are directly involved in the informal market as primary suppliers of illegally subdivided plots (see tables4.21).

*Table 4.21.**Land right conversion channels/ways***

| land right conversion channels | Frequency | Percent |
|---|---|---|
| Formal channels/legal | 16 | 11.0 |
| informal channels/illegal | 125 | 85.6 |
| Total | 146 | 100.0 |

**Sources, Author, 2016.**

The actors /parties interested in acquiring an illegally subdivided plot in a peri-urban area for habitation and other purposes can be categorized into three groups. The first is composed of local people who need land to construct a wood and mud residential house. They are mainly newly established young households who need land for farming as well as for building a home. The second group consists mainly of the urban poor who can’t afford to pay for a lease or to buy a legally constructed house and who decided to buy a plot of land in a peri-urban area so as to construct a substandard mud house. Finally, the third group of people are speculators who buy a plot in the expectation that the price will rise in the future.

The involvement of local landholders in the illegal subdivision and transaction of peri-urban agricultural land has two dimensions. The most important motivating factor that leads them to become involved in the illegal subdivision of agricultural fields is the growing demand, largely from the urban poor. The anticipation of expropriation by the government/ city administration is another important factor driving the illegal subdivision and conversion of agricultural fields into informal settlement areas by the local landholders themselves.

The prevailing expectation on the part of the local peri-urban landholders that the land will not stay with them in the future has discouraged them from keeping it. Sooner or later the government/city administration will take their land and transfer it to urban residents, investors and others through lease contract, they believe. Most of the peri-urban residents expressed their feelings openly in the informal discussions: they would never think of selling and transferring their land on the informal market if the government/city administration had not forcefully acquired it. They also have a feeling that compensation may not be paid at all if their land is taken for urban development purposes (tables22).

*Table 4.22 **.involved parties in land right conversions***

| involved parties in land right conversions | Frequency | Percent |
|---|---|---|
| Government body | 23 | 15.8 |
| Farmers | 38 | 26.0 |
| middle man | 36 | 24.7 |
| Farmers and middle man | 9 | 6.2 |
| Total | 146 | 100.0 |

**Sources, Author, 2016.**

The majority of the affected farming communities were not satisfied with the compensation provided. As it can be inferred from focus group discussion, this dissatisfaction emanated from improper calculation of the value of assets dispossessed in general and calculation of the value of their land in particular. This regard, the cash compensation made was calculated based on the size of the land and the amount of the products-(cash crops like chat) per annum from one hectare. Hence, those affected (dislocated in the year 2005/06), their land was calculated to be Birr 6.5 per square meter, for those displaced in the year 2007/08, the calculation for their land was 17Birr per square meter while it was 18 Birr per square meter for those displaced in the year 2009 . In all cases the payment is made assuming the annual agricultural outputs of ten consecutive years. However, the focus group discussion indicated that the Municipality after displacing the farming community, it re sales 1 square meter of land by Birr 800 for 40 years on contract bases for investment and industry construction.

The groups further complain that the Municipality did not consider the current living cost. This indicates that the value of land is steadily appreciating over time and cost of living is also becoming more expensive. The survey data reveals that the communities are not aware of the criteria and calculation of the value of the dispossessed assets and they have no say on the amount and kinds of the compensation. As a result, the focus group discussion members agree that no one is aware of and satisfied with the criteria used for calculating the dispossessed assets. From this fact it is possible to infer that the mechanisms and criteria used by the Municipality for the calculation of asset's value lacks transparency. The payment was made by the Bureau of Urban Development and construction beau (UDCB) to the dislocated households on cash. This negatively affected today's life of the community since they had no financial utilization know how before. However, there are few individuals who received the cash compensation on time and engaged in other productive activities like, farming by contracting land from other farmers who were not dislocated while others engaged in business.

*Table 4.23.* The Reaction towards compensation received

| The reaction towards compensation received | Frequency | Percent |
|---|---|---|
| Satisfied | 19 | 13.0 |
| Slightly Satisfied | 40 | 27.4 |
| Highly satisfied | 8 | 5.5 |
| No satisfied | 77 | 52.7 |
| Total | 146 | 100.0 |

**Sources, Author, 2016.**

In a regard to appeals these the dissatisfied households presented to the concerned body of the city's administration, about 91% of them agreed that they had presented although the rest did not for unknown reason None the less, the responses to their appeals from the responsive government institution as can be seen from the "Table 3" varied from the "very satisfactory" to the "very unsatisfactory" according to the responses of the2.6 % and 36.5 % respondents respectively. On the other hand, 52% of the respondents which represented majority share of all respondents regretted that they were not satisfied with the responses to their appeals from the government institutions while 13% were satisfied. Moreover, the key informants and the focus group discussion participants' results shown us, the farming community was not happy with both the process the compensation's decision was made and the offered compensation itself.

## 5. SUMMARY, CONCLUSION AND RECOMMENDATIONS

### 5.1. Summary

As a social-economic dynamics, urbanization underwent different phases in Ethiopian urban history, where the current rate is very much unprecedented before. Based on this facts, the Harar city is expanding with higher rate and this acceleration of the expansion is the highest the way by which a given society is shaped and reshaped with better socio-economic development. Conversely, urbanization has the shadow feature which is the negative impacts it has on the community towards whom it reached. This study has assessed such impacts the urban expansion had brought on the livelihood of the peripheral agricultural community in Ethiopia by taking the case of Harar city expansion .Having employing the descriptive research methods,

the researcher collected data based on survey on 146 households, those who Exposed to urban expansion/displaced and hence whose livelihood had been adversely affected. The key informants‟ narrations, different stakeholders‟ focus group discussion, the researcher's participatory observation and documentary resources were tools to collect data. With the application of the both quantitative and qualitative approaches used for data collection.

**5.2. Conclusions.**

Remotely sensed data are very useful in urban studies. Studying land use land cover change in Harar City, using remotely sensed data and GIS techniques provides some relevant results. This study shows that the inadequacy of data for urban management can be reversed through the use of remote sensing data coupled GIS environment. There has been rapid conversion of land covered by Agricultural to nonagricultural use; spatial expansion has occurred around the city of Harar, with major sprawling taking place in all direction of the city. The study also revealed that the study area has lost some 20.29% of Agricultural land to urbanization between 1996 and 2014. At the same time urban area has gain some 54%. The expansion of the city has also destroyed vegetative land in the study area. Open area of land which used to grazing land for through the farmers are now encroached upon. Finally, the study showed that with reliable data, planning and good coordination, urban expansion into other land use/land cover can be monitored and managed in a sustainable way in order to protect agricultural and natural land covers of the Region.

During the city's expansion, despite of the community's awareness of the expansion via orientations and warnings by the city administration, the farming community was not made participant on the decisions about the kinds and amount of compensations and related benefits to them for the farming land displaced from them, for the property they lost and hence for their livelihood interruption and the resulting impacts on their family. Hence, these households stood to counter the expansion program although the opposition was settled with a combination of common bargaining and a coercive power. while bargaining, for most of the households in this community, the city administration did security to offer commensurate compensation of money, housing plots, to create job opportunity, to provide different social services, trainings and capacity buildings.

At the end however, the promise was not implemented entirely. Even though there was no unanimity among all households, most of the households agreed, but with higher dissatisfaction, that they had been given the housing plot, some money and some social services. The city had no definite displacement and compensation policy although different international, national legal provisions and scholar findings have an advice on it. As a result of this, decision of compensation remained under the subjectivity of the government program executers. There was almost scant data showing the skills and entrepreneurial trainings these households were given so that they pursue their livelihood in urban settings. Nor they were provided with job opportunity. Thus, these households undertook to present their appeals to concerned bodies no matter how it was futile. Because of this, the rights and legal provisions of compensation and benefits land displaced households were deserved for by law remained at the table of conciliation. The urban expansion, that was carried out in this manner had brought a significant negative impacts on the livelihood elements of the peripheral farming-community as this study examined.

Before urban expansion over this community's residences, an average annual income these
Households used to earn per year was varying from 10,000- 100,000 ETB where the majority's
Income was in the range of 70,000-100,000 ETB However, after then, this study had scanned that there was only one households earning above 100,000ETB and majority fallen in the income group of below 10,000 per year. Similarly, four selected the households‟ that are the
Saving asset as financial asset had shown a significant decline currently from the average
Amount it was before arrival of urbanization over the residences of the sampled households. Moreover, the social values of the community had declined from above moderate through very high to very low while natural asset mainly land and permanent forest declined. Similarly, the study had also pointed out that the horizontal urban expansion affect tenure security, satisfaction level to their land tenure security were declined as a result of urban expansion,

These households expounded by inadequate food, poor nutrition, poor health, and poor education and very limited marketable skills and knowledge all of these are the function of the households‟ income level that in turn is determined by the type and nature of the livelihood alternatives each of the households have.

conversely, the physical capital, represented by the number of house rooms- buildings- these households had after urban expansion had shown the percentage increase. The increased physical capital after urban expansion had been offset by the poor quality attributed to low during construction. Thus, the income generating capacity of such capital was very much low. therefore, this study had assessed and found that the urban expansion has adversely affected the financial, social, natural, physical and human asset of the peripheral farming community's live livelihood which was why these community call themselves as "urban made poor". as a matter of this fact, most of the samples were against to urban expansion unless it was be run by a responsive institution, was to be participatory, willingness based and promissory to all stakeholders. As a copying mechanism, the households engaged in to different livelihood strategies. Some migrated in to urban areas and pursued small farming while some others who were wealthy and powerful even before moved in to urban centers and set up their own urban business. Majority however stayed at their residence which was limited to fragmented plot and engaged in agricultural activities.

In a regard to the newly started livelihood output, the findings shown that, most of the households believed that they had not secured their livelihood while the rest, especially those who were better even before displacement and others who migrated in to rural areas and engaged in small farming had done it. the reasons for poor output of the newly livelihood strategies included among others, poor training driven skills and lower educational sourced knowledge the households had on how to develop and manage money, low experience the households had about urban mode of livelihood and scant or inadequate institutional follow-up and support.

**5.3. Recommendations**

Based on the gaps identified and the impacts assessed by this study; the following recommendations have been forwarded .Basically, it was not the farmers‟ interest to be compensated with money, but alternative farm land. Nevertheless, if the money compensation is only a resolution, then it should be affected after the provision of trainings and other capacity building services to this community on how to make urban businesses & how to manage these businesses under the smaller and micro- entrepreneur institution.

The trends of urban expansion program implemented so far indicated that the communities were not given awareness and participated in planning and implementation of the process. however, ensuring sustainable development to cope up with the effects of urban expansion and dislocation, all actors of development particularly the involvement of peripheral farming communities is indispensable. thus, priorities should be given to the consent, awareness and participation of the farming community in the forgoing programs and decision making process before actual implementation of the program organizations where strong institutional follow- up exists.

Moreover, follow up needs to be made for displaced farming communities in general and, for female headed households and not educated in particular, by creating and enlarging job opportunities and access to education and services. There is also a need to establish an institution that facilitates the provision of technical supports such as training, skill development and education so as enable the dislocated farming Community create and maintain sustainable economic environment.

Harar city has been exercising horizontal urban expansion that follows comfortable land topography and infrastructure. This trend has brought social, economic identity and cultural problems to the peripheral farming communities. To overcome the negative effects and maximize its contribution to promote vertical urban development and wise use of urban land should be put in practice.

The institutions that operate in the community framework, NGOs, CBOs and private investors may influence livelihood outcomes; therefore, it is important to consider the various stakeholders before carrying out livelihood assets building in the development and poverty alleviation of affected farmers in the process of urban expansion. Local municipal government taking the lead for the formation of multi-

stakeholder partnerships through developing operational strategies early that could ensure systematic coordination, impact and effectiveness of implementation is vital for enhancing the living condition of affected community to attain sustainability.

Harari Agricultural Development Beau should be develop action document plan that contains various important integrated agricultural development packages such as vegetable production, fattening, poultry and bee heave production is very essential document for rehabilitation program evicted farmers in urban expansion process

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Appendix 1:- Questionnaire for Sampled households
Bahir Dar University Institutes of Land Administration
Dear respondents, the main purpose of this questionnaire is to gather information or data on the impact of spatial urban expansion of harar city on peri urban agricultural community for the partial fulfilment of master's degree in Land information system and Management.
Dear respondents, you are expected to provide genuine, accurate and balanced information with respect to the impact of spatial urban expansion on peri urban agricultural land use, livelihood of farmer community, tenure security ,displacement and compensation process. Your genuine information is highly valuable as it determine the success of this study. Therefore, the researcher is very much grateful for the sacrifice you pay to this end and the information gathered will be highly confidential and will be used only for the purpose of this research.
Thank you in advance!

I. The impacts of spatial urban expansion on peri urban Agricultural land use.
Background of the respondents
1. Kebele of Respondents
A .sofi B. Galmashira C. Abokermuti D. Awu-mar
2. Respondent age
A 10-20 B .21-30 C.31-40 D.41-50 E. Above 51
3. Sex of respondent A. Male B. Female
4. Marital status of respondent
A Married B. single c. divorce d. legally separate
5. Level of education
A. Illiterate B. Read and Write C. formal Education D. Tertiary (12 +)
6. Family size of Respondents

A.1-3 B.4-6 C.7-9 D.10-12 E. Above 12
7. Do you have your own land?
A. yes B. No
8. If you say yes from whom you get lands
A. From your parents B. From governments C. Others
9. If you say from parents how you do get?
A. Inheritance. B Gifts C. Other, specify_____
10. If you say from others how do you get?
A. buying in formal ways
B. buying informal ways
11. Do you use your land?
A. yes B. No
12. If you say yes for what purposes do you uses
A. agricultural land C. forest land use
B. housing constructions D. Grass land
E. Other, specify_____
13. Is their spatial urban expansion with in your boundaries?
A. yes B. no
14. if you say yes what is the causes of spatial urban expansions?
A. natural population growth in urban B. rural urban migration
16. Do you think spatial expansion has any impacts on peri urban community?
A. yes B. No
16. If you say yes what are these impacts
A. positive impacts .B. Negative impacts
17. If you say positive impacts what are these positive impacts of spatial urban expansions around your locality?
A. Road facility B. Electricity C. Water supply D. School
E. Market F. Clinic and other health institution G. Telephone H. Credit service
I. Recreation
J. Other, specify_____
18. If you say Negative impacts what are these Negative impacts of spatial urban expansions?
A. conversion of agricultural land use. B. Displacement of farmers
C. Waste Disposal and land degradation
D. Enclosed surrounding villages to their boundaries
II. The impacts of spatial urban expansion on land tenure security of peri urban community.
1. Do you have land tenure security in your area?
A.Yes B. No
2. If you say yes, what is your level of satisfactions?
A. feel security. B. slightly insecurity. C. very insecure. D. do not have idea/don't know
3. If you say No, what are the reasons?
3. Is there land right conversion/transformation in your area?
A. yes. B. No
4. Is there responsible institutions that support land right conversions/transformations in your area?
A. yes B. No
5. What are causes of land right conversion in your area?
A. urban boundary expansion. B. informal settlements. C. formal settlements
D. Other, specify_____
6. What are the channels/ways of land right transformation in your locality?
A. informal channels/ways.. B. Formal channels/ways.
7. What are parties involved in land right transformation informal channels/ways?
A. government body. B. Owner of the land/farmers.C. Middleman/brokers.
D. Other, specify_____

8. is there informal settlements in your area?
A. yes. B. No.
9. If your say yes, what are the main causes?
A. the expectation of peri urban community. B. there is no affordable land for low income society
C. inability to buy condominiums
D. Other, specify_____
10. is there spatial urban expansion in your area?
A. yes. B. No.
11. If you say yes, what are the impacts of urban expansion on peri urban land tenure security?
A. fear to loss their land.
B. unregulated land development
C. increase informal land transaction
III. Urban Expansion and Compensations
1. Is there displacements of farmers in your area?
A. yes. B. No
2. If you say yes, what are the cause's farmer's displacements?
A. due to urban expansion. B. informal settlements C. Road construction
D. formal settlements
E. Other, specify_____
3. do you have compensations when you displaced from you land?
A. yes. B. No.
4. What was your reaction towards the kind and amount of compensation (benefits) you received about?
A. satisfied. B. slightly satisfied. C .highly satisfied. D. No satisfied
5. If your answer is "D" for above question, did you apply your appeal for a concerned body?
A. Yes B. No
6. If "Yes" what response did you get?
A. Very satisfactory C. Satisfactory
B. Unsatisfactory D. Very unsatisfactory
7. How did you use your compensations?
A. Divided up with children B. Save in banks. C. Repair/building houses. D .Buy furniture.
E. Used for trading. F. Daily living.
8. Did you get any training how to use your compensations?
A. Yes B. No
9. If "Yes" in which of the following training did you participate?
A. private business development, management and supervision B. Financial management saving
C. Basic entrepreneurship D. Technical training for livelihood means
10. Did you get any advisory support from any institutions after displacement or/and dispossession?
A. Yes B. No
IV. Impact of urban expansion on the livelihood of peri-urban agricultural community and their coping mechanisms.
A-Impacts on their livelihood
1. What was the effect of the expansion programs you faced before its actual implantation?
A. Frustration because of lack of orientation on where and how to live in urban settlement
B. In adequate attention from the administration in community development activity
C. In adequate provision of new skills and knowledge on newly urban form of the life
D. All
2. What was average annual total income you used to get before displacement in ETB?
A. above 100,000 D. 11,000-40,000. B. 71,000-100,000 E. 1000-10,000
C. 41,000-70,000 F. Less than 1000.
3. What is an average annual total income you are gaining these days in ETB?
A. above 100,000 D.11, 000-40,000
B. 71, 000-100,000 E. 1000-10,000

C. 41,000-70,000 F. Less than 1000
4. How was your social relationship and value within your community before your land expropriation/ displacement?
A. Very high D. Low
B. High E. Very low
C. Moderate
6. What is your social relationship and value now?
A. Very high D. Low
B. High E. Very low
C. Moderate
7. Do you agree that urban expansion in to your area is advantageous to your family members (parents, daughters and boys)?
A. Strongly agree C. Disagree
B. Agree D. Strongly disagree
8. Which group of "Male" or "Female" is more disadvantages because of urban expansion in to your vicinity?
A. Male B. Female
B. Coping Mechanisms.
1. Were you engaged in nay of productive (income means) activities just right after the dispossession/ displacement of your land?
A. Yes B. No
2. If "Yes" is your choice for question no."1"above, in which of the following activity did you engage?
A. agricultural B. Non-agricultural
3. If your response for question number "2"above is "B", in which of these you engaged yourself?
A. Raising own business C. Migration to far areas of urban
B. Serving in some ones house D. Migration to far areas of rural
E. Daily labor in the city
F. Begging
G. Others specify _____
4. Do you believe that you get jobs or works easily these days than before?
A. Yes B. No
5. If "No "is your response for question ≠4 above, why?
_____
6. Do you have a job (work) now? A. Yes B. No
7. If "Yes" what type of job (work) it is?
A. Self-employer C. Employed in private business
B. Employed in government organization D. Daily labor
E. Other, Specify _____
8. Do you have any other source of income today?
A. Yes B. No
9. If "Yes", which of these?
A. Rental income C. farm land income from else where
B. Remittances D. Supplementary small and micro enterprises
E. Other, specify_____
10. What did your family decided to do as an individual or group after land expropriation (dispossession)?
A. Raised common business C. Fragmented
B. Followed each of their livelihood strategies D. Other, specify _____
11. Do you believe that the way they turned on become favorable to them to secure their livelihood?
A. Yes B. No
12. What do you think is major problems you and your family faced while coping up with (to) the urban type of livelihood strategies?

A. Lack of knowledge in financial utilization
B. lack of due follow-up from the concerned institutions
C. Lack of skill (knowledge) for job opportunity
D. Discrimination by the new settlers
E. Others, specify_____
13. Who is, as to you, a responsive body to improve the current status of your livelihood?
A. Government D. Private settlers
B. Philanthropies (NGOs) E. All
C. Private investors
14. What do you think as better to be done to improve your livelihood status?
_____
_____
_____

Appendex2: Interview questions

To be addressed by Harar City Administrators, Planers, Implementers, and Managers, agricultural Development Beau Officials as well as Experts.

Dear respondents, the main purpose of this questionnaire is to gather information or data on the impact of spatial urban expansion of harar city on peri urban agricultural community for the partial fulfilment of master's degree in Land information system and Management.

Dear respondents, you are expected to provide genuine, accurate and balanced information with respect to the impact of spatial urban expansion on peri urban agricultural land use, livelihood of farmer community, tenure security ,displacement and compensation process. Your genuine information is highly valuable as it determine the success of this study. Therefore, the researcher is very much grateful for the sacrifice you pay to this end and the information gathered will be highly confidential and will be used only for the purpose of this research.

Thank you in advance!

I.Background of Respondents

Address _____

City _____

kebele_____

Level of education_____

Your position in this organization_____

Year of services in this organization _____

II. Urban expansion Related issues

1. What do planning deals with urban expansion?

_____

_____

_____

_____

Is the city expansion rate going with spatial planning and local development plan?

_____

_____

_____

_____

How and who developed the spatial plans? Was there any participatory approach? Explain

_____

_____

_____

_____

What are factors that contribute for spatial urban expansion?

_____

_____

_____

_____

Do you Explain Consequences of spatial urban expansion?

_____

_____

_____

_____

III:- Displacement and compensation process Issues.

1. What do you think was the involvement and challenges of the community in the process of Harar City expansion, displacement and compensation?

Probe for:

a. Community awareness and participation in the process of urban expansion, displacement and compensation:

_____

_____
_____

b. Mechanisms and fairness of calculating the value of land, buildings and other assets during dislocation:

_____
_____
_____
_____

c. Whether the community acquired skill and knowledge or capacity created among the different social groups to manage own projects and properly utilize resources after displacement (how to use the money paid for assets):

_____
_____
_____
_____

d. Whether the skill and knowledge developed in the community enabled them to run private / group business ventures (cases if any, both positive and negative):_____
_____
_____
_____

e. Ways and means designed to support the community after Compensations/displacement (follow up ):

_____
_____
_____
_____

2. What was the satisfaction level of the rural farming community towards compensation packages provided for the lost assets?

a. Criteria set to calculate the compensation and how it was implemented:

_____
_____
_____
_____

b. Causes of compliance (if any):

_____
_____
_____
_____

c. Procedures of compliance application in case of disappointment:

_____
_____
_____
_____

d. How was the response of the concerned body?

_____
_____
_____
_____

IV Current situation of displaced farming community

3. Would you explain the current living condition of the farmers and his family after lost his assets displaced farming community?

Probe for:

a. Source of income:

_____

_____

b. Type of jobs or business they are engaged in at present:

_____

_____

_____

c. Social and cultural influence and adaptability:

_____

_____

_____

4. Would you explain changes that occurred in the life of the farming community in the settlement area (positive and negative)?

a. Created favorable environment for sustainable life:

_____

_____

_____

_____

b. Created opportunities and hopes for the community:

_____

_____

_____

_____

c. Contribution in terms of satisfaction of life compared to previous:

_____

_____

_____

_____

d. Social and economic changes:

_____

_____

_____

V. Role of Agricultural Development Beau and municipality.

5. What role could the governmental institutions play in improving the life of the neighboring farming community affected by urban expansion? (Capacity building, social organization and strengthening the available institutions.

a. Things needed to be introduced, revised or avoided:

_____

_____

b. Immediate need:

_____

_____

_____

_____

c. Future intervention:

_____

_____

_____

_____

6. Does displacement / dislocation scheme considered different aspects of social and economic activities of the neighboring farmers?

a. Areas that have historical and social significance to the community:

_____
_____

b. Interest of the local community /individuals in the processes and kinds of Compensations

_____
_____

c. Set criteria for beneficiaries' identification:

_____
_____

d. Infrastructure accessibility and conduciveness of the selected site for the people and other services:

_____
_____

VI. Over all consequences of Harar City expansion.

7. Would you explain the weakness and strengths of the expansion program?

_____
_____
_____
_____

8. Would you explain the impact of urban expansion on agricultural land use, land tenure security, social, economic and environment?

a. Impacts that appeared before actual implementation of the displacement program:

_____
_____
_____
_____

b. Impacts that appeared at the time of and / or after the implementation:

_____
_____
_____
_____

9. Would you explain the general problems, fears, prospects, incentives and other aspects of urban expansion, displacement and compensation for dislocated farming community around Harar City?

_____
_____
_____
_____

10. Would you explain the legal guarantee that ensures the right of farmers to get fair compensation for the asset lost as a result of urban expansion?

_____
_____
_____
_____

Appendix 3: Guideline for Focus Group Discussion

Bahir Dar University Institutes of Land Administration

Dear respondents, the main purpose of this questionnaire is to gather information or data on the impact of spatial urban expansion of harar city on peri urban agricultural community for the partial fulfilment of master's degree in Land information system and Management.

Dear respondents, you are expected to provide genuine, accurate and balanced information with respect to the impact of spatial urban expansion on peri urban agricultural land use, livelihood of farmer community, tenure security ,displacement and compensation process. Your genuine information is highly valuable as it determine the success of this study. Therefore, the researcher is very much grateful for the sacrifice you pay to this end and the information gathered will be highly confidential and will be used only for the purpose of this research.

Thank you in advance!

Warm-up:- For some people urbanization is said to be the better way of life and hence they advocate for it; however, it becomes opposite to others and hence they appear strongly against it. In whose side are you? And why?

1. What factors do you think have contributed for spatial urban expansion in this locality?
2. What are the impacts of spatial urban expansion on agricultural land use?
3. What are the impacts of spatial urban expansion on livelihood peri urban farmers?
4. What are the impacts of spatial urban expansion on tenure security peri urban farmers?
5. Had you been made participate for planning in urban expansion program and their implementation?
6. Had you discussed on the issues of compensation and benefit packages? And did you agree on a given (promised) compensation?
7. What are the set or kind of compensations you agreed and why?
8. What advantages and disadvantages you believe are the result of urban expansion towards your localities specially interims of social and economic aspects?
9. Discuss the copying mechanisms or livelihood strategy of the community at house hold levels and victims of social group's i.e. Newly means or sources of income, job opportunity, social and cultural influences (neighborhood reaction).
10. Discuss whether former agricultural practitioners of the today urban areas have secured their newly livelihood and adapted the urban way of life through resource utilization.

11. Discuss whether the technical trainings, orientations or institutional follow-up are being made to you by any of government, NGOs, privates or their Joints to assist you and your family adapt with, participate in and benefit from urban expansion programs and urbanization.
12. Who is, to you, the responsive body to day to reduce the negative impacts of urbanization on your livelihood and to take first action of rehabilitation of your livelihood strategies and means