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College of Development Studies

**Management of Urban Expansion and its Challenges in Mekelle City, Ethiopia,
The Case of Ayder Sub city**

By

Goitom Gebreslassie

April, 2019

Addis Ababa-Ethiopia



Addis Ababa University

College of Development Studies

Center for Regional and Local Development Studies

Urban land administration and management program

Management of Urban Expansion and its Challenges in Micelle City, Ethiopia, The Case of Ayder Sub city

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A Thesis Submitted to Addis Ababa University, College of Development Studies Center for Regional and Local Development Studies in the Partial Fulfillment of the Requirements for the Award of a Master's Degree in urban land administration and management.

April, 2019

Addis Ababa-Ethiopia

Declarations

I hereby declare that this thesis entitled Management of Urban Expansion and its Challenges in Mekelle city (the case of Ayder sub city) has been done by me under the continuous advice of Professor Tegegne G/Egziabher in the year 2017/2018. I also declare that this work is my original work and that it has not been submitted partially or in full by any other person for an award of a degree in any other university or institution.

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CONFIRMATION

This final Thesis has been submitted for examination with my approval as University supervisor.

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Abstract

Urban expansion management a strategically planned of urban areas, is vital to the sustainability of the community who live in both urban and rural community. The current global and local experience of urban expansion creates multiple environmental, social and economic problems to the urban and rural societies. Urban expansion management of large urban areas is an important issue in urban land administration and management. Studies on these issues are, however, scarce especially with respect to the problems existing in the cities. Sustainable urban expansion management for urban center can significantly reduce costs of infrastructure, decreases air pollution, decreases time spent and cost on transport as well leads to enhancing the quality of life.

This study assesses the urban expansion management and its challenges in Mekelle city mainly in Ayder sub city. This research employed mixed methods approach. Pragmatic knowledge claims collection of both quantitative and qualitative data sequentially This research has assessed the empirical-based evidence on the quantitative and qualitative dimensions of past, present and future urban expansion using GIS and Google-earth techniques and identified drivers behind urban expansion in conjunction with administrative boundary, structural plan and various socio-economic parameters.

The findings of the study indicate that, population growth and ceaseless housing demand; reclassification of urban boundaries/annexation; the increasing of land development for investment zones and industrial parks; speculative-nature and informal settlements; economic growth and expansion of roads and lack of full-fledged plans and failure to enforce planning laws were the major factors behind the urban expansion of the city. In addition, the findings indicate that the community participation in urban expansion and in compensation is low. In relation to this, the amount of compensation paid to the households was very little when compared to what the government has received by transferring the land to lease. Therefore, a comprehensive urban plan addressing the development needs of the city neighboring-hood and transforming its hinterland, establishing rigorous rural land use planning and rural residential land registration as well as ensuring robust adjudication system will minimize the means of illegal and excessive urban expansion. Furthermore, rural residential land registration reduces the speculative wealth creation and consolidating settlements that contribute for the effectiveness of urban land administration and management.

Key-Words: *Annexation, urbanization, urban sprawl and compensation*

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List of Acronyms and Abbreviations

⁰C -Degree Centigrade

CSA- Central Statistics Agency

EPRDF-Ethiopian People's Revolutionary Democratic Front

ETB- Ethiopian Birr

FDRE-Federal Democratic Republic of Ethiopia

FGD- Focus Group Discussions

GIS- Geographic Information System

GTP-Growth and Transformation Plan

HHS- Households

Ha- Hectare

IDP- Integrated Development Plan

IPDC-Industrials Park Development Corporation

KII- Key Informant Interview

KM² –Square Kilometer

LDP- Local Development Plan

LIS- Land Information System

M² -Square Meter

MUDH-Ministry of Urban Development and Housing

MUDHCo -Ministry of Urban Development Housing and Construction

NGO's-Non Governmental Organization

No- Number

SP-Structural Plan

CHAPTER ONE

1.1. INTRODUCTION

The purpose of this study was to analyze urban expansion and its challenges to suggest possible sustainable urban expansion management approaches in Ayder sub city. This chapter presents a brief background on the main issues of the research. A brief background, the main problem on the issue, the aim and extent of the study are dealt with. In addition to this, discussions on organization of the whole study are clearly stated in this chapter.

1.2. Background of the study

Urban expansion is a very serious issue in the world unless it is managed. By 2030, 60% of the world population or nearly 5 billion people are expected to live in urban areas. Worldwide, urban land is growing at rates at least twice as fast as urban population, and in some places, three and four times faster. A recent study suggests that more than half of the earth will be covered by urban land in the 2030. While there are uncertainties around the forecasts of urban population growth, there is even greater uncertainty about where and how much urban expansion will take place in different parts of the world over the next few decades. How the magnitudes of future urban expansion will vary across the world have important implications for protected areas and biodiversity (Güneralp & Seto, 2013).

The developing countries are facing the problem of ever-increasing urban population due to migration of population from rural to urban areas in search of employment and better facilities. This migration of population in effect, is putting pressure on land, water and biological resources in urban area. Recently, African urbanization is also characterized by rapid and uncontrolled urban growth. This has brought various socio-economic and environmental problems. Urbanization causes not only the loss of agricultural farmlands but also displacement of farm households and challenges to the livelihood of the farming community in the rural urban fringes. (Alemu, 2015 and Kumar et. al., 2016)

Ethiopian cities and towns are expanding to rural areas in order to fulfill their present and future needs. In recent years, there is a strong interest to improve these developments through proper planning (Zemenfes,2014). However, conflicts among the rural community and the urban administration often arise due to poor management of urban expansion.

Mekelle is one of the cities where a poorly managed urban expansion is taking place. The expansion of the city is leading to increased distance between people and work place increasing the time spent and cost of transport, increased cost of infrastructure, increased pollution and decreased quality of life. The urban sprawl or expansion is also leading to inefficient land use, low density, scattered and automobile dependent development (Hagos, 2016).

Ayder sub city of Mekelle is chosen for this study because the sub city is sprawling in all direction occupying the prime agricultural land that surrounded the city. In a large scale, it is never possible to bring back to nature the land that has been already developed. Therefore, this study help to Ayder and the surrounding rural *wereda* administrators and planners to have a good understanding of the potentials and liabilities inherent in the current urban expansion of the city in which they decide.

1.3. Statement of the Problem

Internationally, urban expansion is a spontaneous phenomenon that leads to spontaneous growth by displacing rural farming community. It is known that even planned displacement has its own negative effect on the livelihood and the post displacement life of the affected community. The current experience of urban expansion in Ethiopia shows that the affected agricultural communities are left with little compensation and no skills training to sustain in a city. This creates uneasiness among the farming community and hence the issue of urban expansion management has become the central issue of good governance with political, social and economic consequences (Zemenfes, 2014).

The city of Mekelle, which is located in the northern part of Ethiopia, has experienced significant increase in its population and physical growth. The physical growth is realized by the continuous annexation of the surrounding rural areas and more recently by engulfing small urban centers such as Aynalem, Qhiha, Ashegoda, Debri, Adha and Mariam-dehan. According to the city's new structural plan report of 2017, about 95,530 populations have become part of the urban administration from the rural community within the previous 10 years period. Most of the communities who joined the urban community live in substandard houses, with no pipe water and electric-city. In addition to this, some of the community members have neither a title deed nor a site plan of their parcel of land and properties yet.

In Tigray region, rural communities in the urban fringes were interested to join the urban administration. In Ayder sub city, which is one of the seven sub cities in Mekelle, before four years 560 households of *kebelle* Mariam-dehan were displaced from their houses due to investment around the expansion of the city. Majority of them were displaced without being paid of advance compensation. The compensation, the site plan and the title deed of their newly destination place was given after demolishing their houses. Due to this reason, some of the communities who live around the peripherals of the city would challenge to enter to the city administration. Even though the communities have officially entered to the city administration, they are not in good terms with the administration. The community likes to be administered by the rural *wereda* Enderta.

Furthermore, institutional behavior of illegal land deal in the area is another grey area, constituting part of this inquiry. The public claim indicates that informal institutions mediate land transaction for construction of illegal houses in the urban fringe. Residents within the fringe area, Adha, Mariam-dehan and May-duba in the sub city claim that the informal land transaction operates in a network of Rural Land Administration Committees, brokers, peasants, and people seeking land either because of a real need for residential use or speculative business.

There are also serious problems related to expropriation and compensation in the region. Some of these include the inadequacy of compensation rates, inordinate delays, arbitrary compensation assessment and lack of professional valuers in land and property. It is also noted that sometimes the local governments (municipalities) expropriated land without paying compensation in advance and or by giving very little compensation in the region. For instance, in Ayder sub city *kebelle* Mariam-dehan, the compensation and their replacement allotment were received after the demolition of their houses and the amount of money received was very little. Due to this, most of the households sell half of their plots while retaining half of their parcel land for the construction. Some households sold totally and squatters at the periphery of the city which is another burden for the municipality for the future.

Previous studies in Ethiopia, on the urban expansion management challenges and related field of study for instance; by Tirusew, 2012 on ‘the impact of urban expansion in Addis Ababa; the case of Yeka sub city, *wereda* 13 indicated that the rapid and uncontrolled urban expansion has inevitable consequences on the city and the surrounding agricultural community. Study by Dejene, 2011 entitled ‘Rapid urban expansion and its implications on livelihood of farming communities on peri-

urban area: the case of Sebeta Town, on the other hand, found that the main factors for expansion of Oromia Special Zone Surrounding Addis Ababa City are, their high potentials in attracting investments mainly due to their high proximity to the national market and accessibility to various types of infrastructures. And also study by Shishay, 2011 on ‘The impacts of urban built-up area expansion on the livelihood of farm households in the peri-urban areas of Mekelle City: found that the basic problem that urban growth and urbanization causes is not only loss of agricultural farmlands but also displacement of farm households and challenges for the livelihood sources in peri-urban territories. Moreover, study by Zemenfes, 2014 on ‘The impact of urban sprawl on the livelihood of fringe farmers: the case of Micelle City further found that, The city is experiencing high population growth and haphazard settlement expansion resulting in urban sprawl and displaced farmers are not only losing their livelihood but also the compensation due is delayed and insufficient to prepare them for a decent shift in life. He concluded that, the fringe farmers lack skill and experience to compete urban opportunities. As a result the overall income and livelihood of them is declining as a result of the rapid expansion of the city and conversion of farmlands.

Generally, all these studies concluded that urbanization process in Ethiopia has not been participatory and negatively influenced the livelihood of farming community living on the peripheral area. The main urban expansion management challenges in the urban-rural interface were not assessed mainly in the context of urban-rural linkage; driving factors that are shaping urban expansion in the city and the important thing to create mutual benefit between urban and rural area are not assessed well, furthermore, the highly increasing of illegal settlements around the periphery is not assessed by the researchers. So, this study focuses in assessing the main challenges of urban expansion management in Mekelle, Ayder sub city; by identifying driving factors that are shaping urban expansion in the study; assessment of the urban-rural linkage; the cause of the highly increasing illegal settlements around the periphery of the sub city and suggest possible sustainable urban expansion management approaches in the study area. Therefore, this research could be expected to have an important role in filling knowledge gap on this area, motivate future researchers to do further researches on it and as well as input for urban planner and decision makers for sustainable urban expansion in the field of urban land administration and management.

1.4. Research Objective

1.4.1. General Objective

The general objective of this study is to assess urban expansion and its challenges and to suggest possible sustainable urban expansion management approaches in the study area.

1.4.2. Specific objective

- ❖ To assess the process of urban boundary growth redefinition in the context of urban expansion management in the study area;
- ❖ To identify the driving factors shaping urban expansion in the study area;
- ❖ To assess the main urban expansion challenges and problems in the urban-rural interface; and
- ❖ To suggest urban expansion management approaches to seek an answer to the question of what can and should be done about urban expansion management.

1.5. Research Questions

- ❖ What were the practice and processes used in urban boundary growth redefinition in the context of urban expansion management in the study area?
- ❖ What were the driving factors that are shaping urban expansion in the study area?
- ❖ What were the main urban expansion challenges and problems in the study area?
- ❖ What urban expansion management tools can be adopted to achieve sustainable urban expansion management system?

1.6. Significance of the study

The first significance of this study will be suggesting policy options to seek an answer to the question of what can and should be done about urban expansion management. This study can bring a better understanding of the key dimensions of the urban expansion as well as of the forces that are driving it so as to be able to consider carefully the kinds of policies that are likely to be effective in the urban land administration management. The second importance of this study can also be used to increase public awareness or stakeholders' involvement in urban expansion in the study area. Thirdly, it will render academic advantages that will be used as reference or guideline while studying urban expansion. Finally, the outcome of this research can be used as a precursor for further scientific research.

1.7. Scope and Limitations of the Study

1.7.1. Spatial and Thematic Scope

Spatially, this study has been conducted in Mekelle city mainly in Ayder sub city. This study area was selected due to the presence of high urban expansion, high investment attraction and its familiarity to the researcher. The Thematic scope of, this study also focuses on the urban expansion management and its challenges in the urban-rural interface/in the expansion area of Micelle, Ayder sub city.

1.7.2. Limitation of the study

Since there is poor documentation, it is impossible to get hard copy or soft copy of some previous displaced persons in a data base that shows the city or the sub city trend. Shortage of budget and, difficulties to get certain officials due to meeting and other related reasons were the major limitations faced during the study. To overcome some of the limitations, the author has tried his best to trace planning related and other documents and contact knowledgeable resource persons.

1.8. Organization of the Thesis

This thesis is organized in five chapters. The first chapter introduces the general background of the study, statement of problem, objectives, significance and scope of the research, followed by an outline of the background of the study area, and finally, an overview of the structures of the thesis. Chapter two addresses review of literatures. Theoretical issues of urban expansion management, definition of key-words related to urban expansion and conceptual literatures about the experiences in good urban expansion management process. This chapter also elaborates and discusses about the research gap. Chapter three elaborates the research methodology adopted. Chapter four explains an overview of the contemporary approaches in the process of urban expansion and annexation in the study area. Collected data were analyzed against the literature and problems were identified which helps to finalize the findings. Finally, conclusions would be reached and creative solutions are suggested in chapter five.

CHAPTER TWO

2. LITERATURE REVIEW

2.1 Introduction

In this chapter, definition of important terms and other relevant concepts have been briefly discussed. Subsequently, the theoretical literatures that enable the researcher to grasp and progress better concept and fill the gap in relation to the existing knowledge which in turn increases the researcher's level of confidence were briefly discussed which after has in detail been referred. Under the theoretical literature, the empirical literature the policies, practices and experiences adopted related to urban expansion are discussed. Finally, the research gap mainly focuses on the challenges of urban expansion management approach in the study areas and conceptual frame work are clearly stated in this chapter.

2.2. Conceptual Literatures

Definition and Concepts of Some Terminologies

Compensation, means payment to be made in cash or kinds or both to a person for his properties situated on his expropriated land holding (FDRE Expropriation of land holdings for Public Purposes and Payment of Compensation Proclamation No. 455/2005, 2005).

Expropriation, it means the action of the government taking away private properties from its owner with legal authority for public purpose (ibid).

Public purpose, means the use of land defined as such by the decision of the appropriate body inconformity with urban plan in order to ensure the interest of the people to acquire direct or indirect benefits from the use of land and to consolidate sustainable socio-economic development (FDRE Urban Lands Lease Holding Proclamation No. 721/2011, 2011).

Satellite towns, are constructed around major cities to absorb the existing overpopulation and activities. In spite of having the economic base to contain them and providing housing and services to their populations, they are still correlated with and dependent on mother cities in terms of economic and social structure (Nadim, 2012).

Smart Growth Development

Smart growth development is compact, walk-able and provides a diverse range of choices in land uses, building types, transportation, homes, workplace locations, and stores. It is high-quality economically sustainable neighborhoods and communities. And also helping to create a cleaner and healthier environment (Melissa and Lee, 2012).

Structural plan, is a legally binding plan along with its explanatory texts formulated and drawn at the level of an entire urban boundary that sets out the basic minimum requirements regarding physical development the fulfillment of which could produce a coherent urban development in social, economic and spatial spheres (FDRE Urban Planning Proclamation No. 574/ 2007, 2007).

Urban area, it is defined based on the number of residents, the population density, the percent of people not dependent upon agriculture, or the provision of such public utilities and services. The precise definition of an urban area can vary from country to country. Some countries define an urban area as any place with a population of 2,500 or more while some countries set a minimum population of 20,000 for this criterion. In general, there is no universal standard. So each country develops its own set of criteria for distinguishing urban areas (MUDHCo, 2014).

Urban expansion, horizontal expansion of cities and or towns towards outskirts and defined as a form of low density spatial development characterized by scattered and discontinuous leapfrog expansion or segregated urban land uses. Recently, it has been evident that cities encroaching towards outskirts at the expense of farm lands and natural resources (Tirusew, 2012 and Tamirat, 2016)

Urban expansion management, It is a strategically planned and management of urban areas mainly around the urban fringe.

Urban sprawl, it refers to the horizontal encroachment of towns or cities towards their fringes at the expense of livelihood of peri-urban community. Urban sprawl is an extension beyond the municipal limit. It has been observed that outward expansion of urban areas poses a threat to the land use pattern. And also urban sprawl is the ever increasing demand which creates pressure on surrounding fertile vulnerable lands in and around the city causing frequently land conversion from agricultural land and forest area to urban use in the absence of any planning policy (Kumar et. al., 2016).

Urbanization, it is a process by which a population becomes concentrated in cities and or urban places. Urbanization process takes place in either of the two distinct ways.

- I. Through an increase in the number of urban places and or
- II. Through an increase in the size of the population residing in each urban place (Shishay, 2011).

2.3. Theoretical Literatures

2.3.1. Urban Land Administration and Management

Land administration provides a range of systems that help to administer the land use rights, land use regulations, land valuation and taxation and it also provides security of tenure. As an important tool of urban land management, urban land administration rules have to be implemented effectively through the participation of different actors and institutions like; land registries, land surveying, urban planning, land valuation and taxation, the court system, and others (Lemmen, et al. 2015).

Urban land management is the process that includes many interrelated activities (such as management of expansion area, environmental, social, economic, infrastructure, human settlements, planning of urban areas.) taking place within the urban system. Effective urban land management is critical to meet the proper functioning of urban areas in the developing world, so that these areas can play their roles in the social and economic development of their people. Land is one of the several resources, which should be managed and it need proper planning because of its scarcity. The rapid growth of urban population these days brings an increased demand for urban land. This enforces urban governments to be devoted on providing facilities, services, and urban management institutions in this field (ibid).

Urban areas of developing countries are faced to many urban problems, which are directly or indirectly associated with urban land management activities and working for the achievement of social and economic development of their people. Poor urban land expansion management and control system of local governments is one of the major problem areas in urban centers of developing countries. The uncontrolled migration of people to cities and towns brings high competition for the existing infrastructure and facilities, which finally create a congested and unsafe living environment. To cope with this problem, towns should have effective system of managing the greater demand on the scarce of urban land (ibid).

2.3.2. Urban Land Policy

Land policy is an instrument used to design, regulate, change and manage the use and right to the land. Land policy is one of the major factors which influence the course of development and development goal of a country. From this point of view, land policy can be taken as one of the means that could ease the goals of development policy of a given country. Land policy is one of the factors which influence the development process, the implementation of the development aim and goals. Urban land management involves routine working decision made each day by land administrators such as surveyors, planners and urban managers. Besides to this, an efficient land policy should respond to the dynamic change of urban forms. Generally, the aim of urban land policy is to meet the socio-economic minimization of land use and bringing the demand and supply of urban at equilibrium position (Kubis, 2010).

Urban land policy is a very important instrument for proper management of urban land. The rapid urban expansion process and political changes in countries created an enormous problem on land and this resulted great importance to formulate land policy to solve the problems and meet the socio- economic optimization of land use and other related goals. The goal of urban land policy is to offer a framework that ensures the nation's land resources are used to promote equitable social and economic development (Kubis, 2010 and Tiwari, 2012).

In order to make sure that urban land can be benefiting to all level of society and equitable, it is necessary to set up an integrated system of land controls which basically will prevent land speculation investment by government in providing basic infrastructures like road, drinking water and electric-city. The added value from such government investment should not benefit only the owners of land concerned but also become capable of recovery by government so that eventually it will be a source of cross-subsidy for the lower-income group (Kubis, 2010).

Generally, urban land management involves the implementation of fundamental policy decisions about the nature and extent of investments in the land. Efficient urban land policy promotes equitability of land provision for all level of society, established integrated system of land controls to combat land speculation and provide infrastructure services by government and cross subsidy for lower income groups to attain sustainable development goal of a nation.

2.3.3. Land registration, Cadaster land recording

Land registration, cadaster and land recording are important components in modern urban land administration and management. Developing countries are particularly concerned due to rapid urbanisation and population growth resulting in increased poverty and environmental degradation with few solutions in sight. Improving land management in both rural and urban areas is an extremely complex process involving a whole range of historical, legal, institutional, economic, social and environmental issues. However, it is increasingly being recognised that an efficient and appropriate land recording system is a key factor in improving land management in both rural and urban areas. An appropriately designed and implemented land recording system can contribute to economic improvement and the reduction of poverty. Both developing and developed countries require an appropriate land recording system for the economic development and efficient land management of both urban and rural areas. The full implementation of land recording systems must be seen in the long term. Hence, it is essential to start in the appropriate direction in an incremental manner as soon as possible within an overall framework for the improvement of land administration and land management. (Amalia and Daniel, 2017).

Land Registration

Land registration is a process of official recording of rights in land through deeds or as title on properties. It means that there is an official record of rights on land or of deeds concerning changes in the legal situation of defined units of land. It gives an answer to the questions "who" and "how" to acquire land right.

Cadastre

Cadastre is a methodically arranged public inventory of data concerning properties within a certain country or district, based on a survey of their boundaries. Such properties are systematically identified by means of some separate designation. The outlines or boundaries of the property and the parcel identifier are normally shown on large-scale maps, which, together with registers, may show for each separate property the nature, size, value and legal rights associated with the parcel. It gives an answer to the questions "where" and "how much".

Land Recording

Land registration and cadastre usually complement each other and operate as interactive systems. Land registration puts, in principle, the accent on the relation subject-right, whereas cadastre puts

the accent on the relation right-object. In other words, the land registration answers the questions as to who and how , while the cadastre answers the questions as to where and how much.

Because land registration and cadastre ("who and how" along with "where and how much") complement each other, the terms "land recording" or "land records" are usually used to indicate these two components together as a whole. Often, the term "land titling" is used instead of the the term "land recording" (ibid).

2.3.4. The importance of Cadaster

Cadaster is relatively a recent concept especially for developing countries, which has the potential to provide many benefits across all section of the community. These benefits are promoted to both leaders of government who are responsible for the allocation of resources and to the users of land and property related information. The modern cadastral system is very important not only to manage the development of urban area, but also uses for physical planning, levy of land related taxes and charges and legalizing tenure. To the contrast, without an adequate information, land development processes will be complicated and delayed, transactions in land and property can be costly and time taking (Barlow, 2011).

The establishment of an up to date cadastral system is concerned with the political, social and economic development of society. The wealth of this society is the land, which is the basis for almost all needs. Hence, introducing of improved cadastral system helps to the introduction of secure and effective system of recording and transferring interest in lands; the reduction of boundary dispute and expense related to litigation; to possess the ability to establish an efficient and equitable land taxation system; and to develop the ability to prepare an up to date land registration and control land transactions and ownership. Through an improved security of tenure, an improved stewardship of land improves public acquisition of land by assisting in the identification of the persons with whom the government must deal (Kubis, 2010).

2.3.5. Benefits of having a registered title deed

A land title is a written document providing proof of ownership, and this ownership is also recorded in a publicly recognized central land registry. Modern title deed registration is associated with high quality and accurate maps and coordinate that can be used to verify the exact spatial boundaries of such property. In many countries, especially in Africa this has been a demand-based process.

Because these countries faced to have often been associated with slow bureaucratic processes and numerous steps that have created opportunities for corruption, rent-seeking and “elite capture”. Among the benefits of land registering title deed, Clear and concise; Time saving; security of tenure; peace of mind and easy retrieval have discussed below (Bezu & Holden, 2014).

A. Clear and Concise

With older properties, often some of the deeds have been lost. The deeds for unregistered land are usually compiled of numerous old documents. Once the property has been registered, the land registry reduces the deeds to an electronic A4 document that is usually only one or two pages long with a clear plan of the property.

B. Time saving

Once the property has been registered at the land registry, it is easy to quickly prove ownership. This can be particularly helpful when there are time pressures involved in buying or selling a property.

C. Security

Registered property provides some additional security as to the extent of the property included within the ownership and can prevent adverse possession (possessory title) claims

D. Peace of mind

Registration helps for any dispute regarding ownership (such as boundary disputes) to be resolved amicably.

E. Easy retrieval

Once the property is registered with the land registry, all the documents are kept in one place; solicitors, banks or property owners are no longer responsible for storing these important documents. This means delays caused by trying to locate original documentation when an owner comes to sell or mortgage a property can be avoided.

2.3.6. Typologies of urban expansion

Although the typologies of urban expansion in different literatures remain largely unexplored, the typologies of urban expansions have been commonly linked to physical patterns of urban growth

and sprawl. It is summarized as infilling, extension, linear development, sprawl and large scale project (Camagni, Gibelli & Rigamonti, 2002).

- A. **Infilling.** New developments are set in areas that were previously unused or being redeveloped to new uses. Brownfield redevelopments are a good example of urban expansion opportunities on sites that have lost their economic purposes, such as old industrial sites or abandoned terminals (waterfronts or rail yards).
- B. **Extension.** A standard form of expansion where land use development is directly adjacent to existing land uses. The new infrastructure such as streets and utilities is expanded from the existing network.
- C. **Linear development.** Similar to extension, but in this case the expansion is shaped by an existing corridor of circulation such as a highway or a transit line (subway, light rail). It directly takes advantage of the accessibility offered by the transport infrastructure. In some cases, the development is the rationale to expand an existing corridor.
- D. **Large scale projects.** The setting of a large infrastructure project such as new port, airport, industrial zone, logistics zone or intermodal rail terminal consumes a large amount of land. Its operational rationale is often very different from the existing landscape. So, the level of integration to existing land uses is problematic.
- E. **Sprawl.** A standard form of suburban development taking advantages of scattered lots. Each developer is taking advantage of an existing plot of land without much consideration to the existing urban pattern.

2.3.7. Causes and effect of urban sprawl

Conditions favorable to create urban sprawl can be identified as follows:

- ✓ Lower land price compared to developed areas of the main city;
- ✓ Availability of un-built agricultural land;
- ✓ High rate of urbanization and rapid development activities;
- ✓ Less control on urban development being located outside the urban limit;
- ✓ Influence of speculators on the agricultural land owners for selling land to developers; and
- ✓ Results of failure to match demand of urban infrastructure and services.

Encroachment of built up areas on the agricultural land rendering agricultural worker jobless or displaced to move to other areas for different occupation. Large areas are

characterized by the initial scattered land users so that balanced planning of the areas become impossible. Land resources are also wasted because the land is divided in to small parcels which are difficult to utilize efficiently (Parvaneh, Hajipour, & Hosseinpou, 2016).

2.3.8. Rural Urban-Linkages

Rural-urban linkages can be defined as the structural, social, economic, cultural, and political relationships maintained between individuals and groups in the urban environment and those in rural areas. Rural-urban linkages can also refer to spatial and sectorial flows that occur between rural and urban areas. Spatial flows include flows of people, goods, money, technology, knowledge, information, and waste. By contrast, sectorial flows include flows of agricultural products going to urban areas, and goods from urban manufacturing areas going to more rural areas. Typically, rural-urban linkages are often articulated in the nature and forms of migration, production, consumption, financial and some investment linkages that occur within the rural-urban relationship. The exchange of money, goods, visits including social activities, and communication with relatives and friends can all be used as indicators of rural-urban linkages. Therefore, the nature and form of these linkages are not homogenous as they are determined by both push and pull factors as highlighted in figure one below.

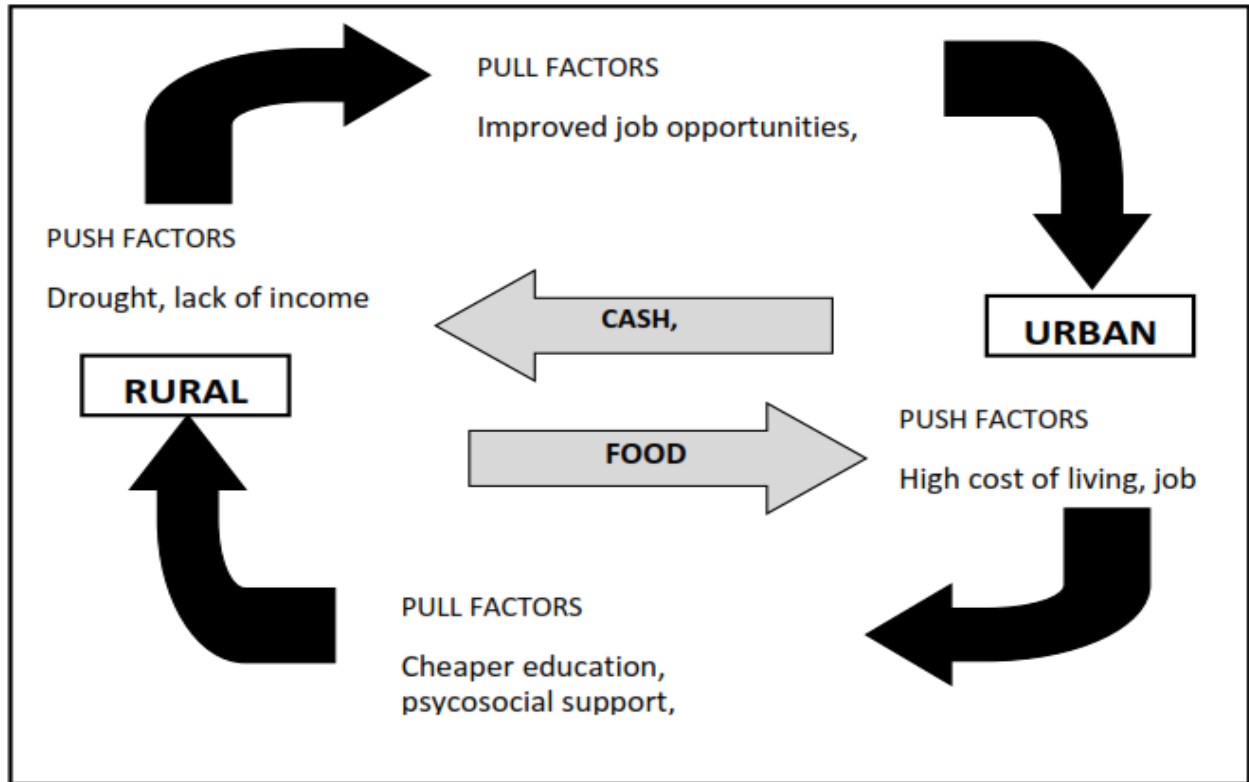


Figure 1: Push and Pull Factors in Rural- Urban Linkages

Source; Ndabeni, 2013

The influence of push and pull factors can differ from one place to another and for different sectors. In most developing countries, especially low-income ones, urban areas symbolize a number of good things. They offer better jobs, decent house, safe drinking water, and shorter distances to medical doctors and healthcare facilities. These factors do not only represent rural-urban dynamics but can also be an important source of rural poverty reduction. The relationship between rural and urban areas is increasingly changing throughout the world. Rural and urban areas are no longer mutually exclusive. Farming areas and the megacities coexist along a continuum with multiple types of flows and interactions occurring between the two spaces. Typically, it is now widely recognized that there exist economic, social and environmental interdependences between urban and rural areas. For example, rural areas depend on urban areas for university education, credit, agriculture-led services such as farm equipment and advice, hospitals and government services. By contrast, urban areas depend on rural areas for water resources, food production, and waste disposal. Urban waste can be used as a source of organic matter or as source of nutrients for agriculture which can help rural farmers to restore degraded soils and turn unproductive land into valuable agricultural land. Rural

communities are responsible for the stewardship of ecosystem services that are essential for human survival and wellbeing such as clean air and water, flood and drought mitigation, pollution mitigation, bio-diversity, and climate stabilization. Therefore, the management of rural-urban linkages is necessary for the maintenance of environmental resources (Ndabeni, 2013).

Overall, the analysis of rural-urban linkages focuses on their complexity, inter-dependencies, and dynamics. Indeed, regional food systems offer an interesting insight and a practical way of analyzing rural-urban linkages. For example, rural farmers depend on urban markets to secure their livelihoods. A growing agricultural sector needs technical inputs of fertilizer, seeds of improved varieties which are supposed to be of better quality and yield, veterinary services, sprayers, equipment and repair services either produced or distributed by non-farm enterprises often found in small towns and urban areas. Furthermore, increased agricultural production stimulates forward production linkages by providing raw materials to further value-adding activities like milling, processing, and distribution by non-agricultural firms. Indeed, urban areas are linked to the rural sector through several channels such as supply of raw materials, affordable supply of food, and migration (Akkoyunlu, 2015).

2.4. Empirical Literatures

2.4.1. Urban Land Policy in Ethiopia

The important dimensions of Ethiopia's urban development policy as they relate to the urban land policy are;

- Allocating land in a sustainable way;
- Stabilizing the price of land and marketing of real property;
- Ensuring the equitable distribution of land to both the rich and the poor;
- Facilitating mechanisms by which low income groups are allocated adequate land at reasonable cost;
- Facilitating efficient and sustainable delivery of land to investors engaged in the construction of residential and commercial buildings for sale or rent;
- Creating a system for registration and marketing of real property as well as issuance of title deeds;
- Ensuring that land is delivered for construction of residential houses and that commercial uses have adequate provision of infrastructures and

➤ Bringing economical uses of land for intended development works.

The urban land policy gives priority to land allocated (in order of priority) to saving houses, social services, industry, micro and small business institutions, residential houses, commercial organizations and recreational centers (FDRE Policy Study and Research Center, 2017).

2.4.2. The Practice of Land Delivery System in Ethiopia

Land delivery system in Ethiopia has undergone through different land tenure systems. This has largely been a reflection of the prevailing land policy and land holding tenure systems of the country under different governance regimes. Notable examples include the free hold land tenure system (pre-1975), public controlled permit system (1975-1992) and public lease hold system (1993 up to date). Besides these, there are also customary and informal land holding systems, which are commonly known in Ethiopia and other developing countries. The Monarchical feudal regime of Ethiopia had a monopoly of political and economic power for centuries, including the monopoly of ownership of land, (both rural and urban) and other property. Some intellectuals and few emerging owners of capital managed to buy some plots of urban lands. On the other hand, the urban poor or low-income groups were compelled to acquire land for their proprietors as a gift, tenancy, in heritage of family, and informal settlement by group. The bulk of the most productive land assets remained in the hands of a few. It is now mostly acknowledged that the urban poor in developing countries including Ethiopia have resorted to informal means of accessing urban land especially it is mostly common around the urban fringe of big urban center (Hagos, 2016).

2.4.3. Urban Land Management and good government in Ethiopia

The main objective of good governance is to enhance transparency and accountability with the intention of lifting tolerance for corruption. It is then inferred that, modern urban land management system is developed and that the urban spatial planning system will be improved to ensure land is used economically and in a transparent and accountable manner. Indeed, much remains to be done in urban management, development as Ethiopia is bound to face rapid urban expansion, and this requires proactive management and long-term planning. That is the reason the GTP I and GTP II, which have been implementing for the last ten years, has given priority in fostering the governance and management of rapid urbanization (GTP I and GTP II document).

As the GTP II document specified, particular emphasis have been given to increase job opportunity, address housing problems, improved contribution to the agriculture sector productivity through

strong backward and forward linkage with rural development. Similarly, due attention have been given for infrastructure developments, road, water, electricity as well as adequate solid and liquid waste disposal management system (ibid).

2.4.4. Formal Land Delivery System in Ethiopia

The lease mechanism is a formal land delivery system for residential housing and investment in Ethiopian big cities. But, in some smaller towns, it is on a rental basis. Land is a public property and an individual can enjoy only the use right of land under his/her possession. Thus, the means to acquire a plot of land in a formal way for housing development, and investment purpose is dependent on the efficiency of lease policy application. Lease proclamation No 721/2011, is the current active law regarding land provision, and indicates different ways on how one can acquire a piece of land. This includes lease and allotment system (FDRE Urban Lands Lease Holding Proclamation No. 721/2011, 2011).

The land tenure system for urban areas is comprehensively dealt with by the Urban Lands Lease Holding Proclamation No. 721/2011. Land is allocated through the leasing system. While the leaseholder of urban land is free to dispose-off part or all of the interest by sale or other means of exchange, the lessee of public land is prohibited by law to sell the land or enter into any contract that binds the land. The policy allows that the government to retain land needed for public interest and individual holdings for better development activities by paying compensation to owners for the properties located on such pieces of land (FDRE Expropriation of land holdings for Public Purposes and Payment of Compensation Proclamation No. 455/2005, 2005).

2.4.5. The Role of Urban Land Information System for Urban Land Management

The rapid growth of urban population and urban expansion are becoming the most challenging task for the urban management of the city managers and urban planners. Furthermore, it is very difficult for urban planners to design a special planning without detailed information about the land and property invested on the land (Amalia Velasco and Daniel Steudler, 2017) .

Land information system (LIS) is a tool for a legal, administrative and economic, decision making and aids for planning and development. It consists of on the one hand, data base containing spatially referenced land related for a defined area , and on the other hand, of procedures and techniques for the systematic collection, updating, processing and distribution of the data. Among other objective

of LIS include for better access to land related information, for better revenue collection and to manage more sensitive land use and development (Ibid)

2.4.6. Driving Forces for urban expansion/sprawl

The driving forces behind the urban expansion are different in different countries. They are even different in the same country within different region. For example, in Indonesia, global and external economies, local demographic, infrastructural, and natural elements are driving forces spatially affecting urban expansion. However, urbanization in Jakarta city, as the core of the megacity, is least affected by local driving forces it has been characterized as a global tends to be more connected to the world market as well as the other large cities in Indonesia. Outside the core of the megacity, urban expansion in most areas of the Jakarta region is significantly affected by local driving forces and natural elements. In many developing countries, the core deriving forces for urbanization and urban expansion are political, economic, social, education, natural population increase and lack of urban planning (Abraha and Samson, 2016; Teketel, 2015; Pravitasari et al. 2015).

Political Causes

During times of political unrest, families are forced to leave their rural farming villages, and they migrate to the urban areas in search of shelter, food and employment. When large numbers of people are driven from their rural villages, especially in war-ravaged countries, the cities become saturated, and slums start to grow on the outskirts of the cities (Abraha and Samson, 2016; Teketel, 2015; Pravitasari et al. 2015).

Economic Causes

Poverty in rural areas, due to large companies creating commercial farms and small farmers finding it harder and harder to make a living, forces people to move to the urban areas in search of better employment opportunities. The rise of industry in developing countries has provided more job opportunities in urban areas, and cities have increased significantly in size due to this (Ibid).

Social Causes

Many young people migrate to urban centers in search of lifestyle changes and with the desire to become associated with the club scenes in large cities. Such scenes provide employment opportunities, but sadly they are attracted by gambling and crime syndicates (Ibid).

Education

Opportunities for education at universities and technical colleges draw young people to the urban centers, where they hope to provide better prospects for the future for themselves and their families. Urban centers in developing countries have become hubs of education and training, as they are also in developed countries (Ibid).

Natural Population Increase

There has been a natural increase of population in many developing countries due to improved medical care, immunization programs, better sanitation and more widespread education. Death rates have decreased, and there are fewer infant deaths, resulting in population growth. As populations grow so does the urban sprawl. As the cities become overcrowded with not enough employment to go around, more and more people live in substandard housing (Ibid).

Lack of urban planning

People love to find areas that are less trafficked and more calm, which leads them to sprawl out to other sections of the town. Unprecedented development, cutting of trees, loss of green cover, long traffic jams and poor infrastructure forced people to move out to new areas (Ibid).

2.4.7. Benefits of Urban Expansion

A. Center for production & distribution of goods & services

People who live surrounding urban centers can have possible access to both private and public services such as health, education, banking, postal, telephone, services of different professionals (lawyers) and private services like wholesale, retail and sales of manufactured goods (Mehari, 2011).

B. Access to Creation of job opportunity

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 (Ibid).

C. Center of market area

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 prerequisite to increase rural agricultural incomes. Proximity also contributes to minimize the risks of perishable products to produce timely to market areas and to get affordable transportation (Ibid).

2.4.8. International Experiences on Urban Expansion and Procedures of Boundary Redefinition/Annexation/

2.4.8.1. Urban Expansion Management and Boundary Redefinition Procedures in USA

During voluntary annexation a petition requesting an ordinance annexing the area described in the petition must be signed by 51% of the owners of land in the territory sought to be annexed or signed by owners representing 75% of the total assessed value of the land for property tax purposes. If the city or town initiates (or accepts) a land owner petition, annexation must pass through five steps as the Document published by Indiana Rural Community Assistance Program (March 2005) sighted in Abraha & Tilahun, 2016 .

Step One

An ordinance of annexation must be drafted. The ordinance must include the following components:

- A description of the boundaries of the territory to be annexed, including any public highway or right-of-way.
- The approximate number of acres in the territory to be annexed.
- A description of any special terms and condition

Step Two

A notice must be mailed via certified mail to landholders within the proposed territory and a notice of a public meeting must be published at least 20 days prior to the public hearing. The notice must include the following components:

- A legal description of the real property proposed to be annexed.
- The date, time, location, and subject of the public hearing.
- A map showing the current municipal boundaries and the proposed municipal boundaries.
- Current zoning classifications for the area proposed to be annexed and any proposed zoning changes for the area proposed to be annexed.
- A detailed summary of the fiscal plan related to the annexation.
- The location where the public may inspect and copy the complete fiscal plan.

- A statement that the municipality will provide a copy of the fiscal plan after the fiscal plan is adapted immediately to any landowner in the annexed territory who requests a copy.
- The name and telephone number of a representative of the municipality who may be contacted for further information

Step Three

A public hearing regarding the proposed annexation must be held.

Step Four

There must be at least 30 days but not more than 60 days between the public hearing and the ordinance adoption meeting.

Step Five

A meeting to adopt the annexation ordinance must be held. In this document, it was also indicated that there are certain basic issues to be considered before initiating an annexation process. Some of them are listed below

- Is there sufficient level of interest among impacted citizens?
- Is there sufficient support to prevent dissatisfaction or disapproval?
- Is the proposed area seeking incorporation reasonably compact and contiguous?
- Clearly define what the annexation goals are, some common goals include:
 - ✓ Economic growth
 - ✓ Incorporate urbanized areas
 - ✓ Simplify service boundaries
 - ✓ Planning and zoning
 - ✓ Population growth
 - ✓ Environmental protection
 - ✓ Increased assessed value and sometimes levy

The literature that draws on the experience of American cities recommends seven main factors to define urban boundary, which include:

- A. Land demand / need to accommodate long-range urban population growth requirements consistent with development goals;
- B. The need for housing and employment opportunities;
- C. Orderly and economic provision for public facilities and services;
- D. The maximum efficiency of land uses within and on the fringe of the existing urban area;

- E. Environmental, energy economic and social consequences;
- F. The retention of agricultural land; and
- G. The compatibility of the proposed urban uses with nearby agricultural activities.

However, the practice of boundary definition in the study area is not done with due consideration of the aforementioned comprehensive factors. The process is handled adopting an ad-hoc approach and based on trial and error. Though the city is making concerted efforts to manage the urban growth by way of implementing the structural plan, it is worth mentioning that all planning frameworks and tools adopted by concerned institutions in the city, referring to those which are already outdated and the recently crafted ones, place more emphasis on the urban residents, while placing less focus on the residents of the annexed rural areas. As a matter of fact, this is the main reason why there are boundary disputes, and conflicts among local government entities and the residents annexed in the recent years.

2.4.8.2. Experience of urban expansion and annexation in India cities

Fast-paced urban expansion has had a profound impact on the physical structure of India cities. Urban growth and expansion has transformed them into complex urban formations. Contemporary urban settlements in the country are dynamic entities marked by the frequently unordered assemblage of the traditional core city and its residential, commercial and industrial zones with a variety of new, typically suburban peripheral areas, which arise in an array of configurations and social realities, and which contain a diverse range of economic functions and social activities. Urban change concentrates in the periphery with ongoing urban expansion is a constant redefinition of urban boundary. Urban boundary frequently occurs beyond municipal borders, and through a process of the de concentration of population and economic activity (Kumar et. al., 2016).

2.4.9. Effective measures of avoiding excessive urban expansion/sprawl

2.4.9.1. Need for use of new techniques

In order to deal with the messy conditions of unplanned development of the urban sprawl instead of using the traditional methods of management, new techniques of urban planning and management are required to be applied for effective actions to tackle the urban sprawl in the fringe areas of the big cities .In America, a new technique divided a model termed as a modular urbanization, which are included units of self- governed satellite town units planned with integration of provision of necessary urban services around the big city. The model includes almost

all aspects of the ingredients of functioning of the modular urbanization technique such as area, size of optimum population, necessary urban infrastructures and services, all whether network of road connections, solar power, small manufacturing industries, trade and commerce and a regional framework for a balanced economy. The model more or less conformed to well-known ‘New Town concept’. Another important new technique which may be helpful to efficient urban planning and management of the areas under urban sprawl is the geographic information system (GIS) information gathering and feedback system. This is application of Remote Sensing and GIS for land use/land cover mapping and change detection in the rural-urban fringe area (Zhao, 2010 and Abraha & Tilahun, 2016)

2.4.9.2. Some other important measures to prevent urban sprawl

The following could be mentioned as examples of further important measures to prevent urban sprawl.

- ✓ Protection of prime agricultural land
- ✓ Control of sub-urban sprawl
- ✓ Provision of adequate services
- ✓ Maintenance of life style in the face of growth
- ✓ Jurisdictional, legal and financial limitations
- ✓ Maintenance of environmental quality
- ✓ Planned greenbelt.
- ✓ The controlling authorities should have adequate legal provision, skilled manpower, and priority action by the authorities stand on the way.
- ✓ Introducing Smart growth management (ibid).

2.4.10. Urban expansion trend in Ethiopia

Population growth and prevailing urban development planning practice of the cities government have contributed significantly for the rapid expansion of urban centers in Ethiopia. And, this has resulted in the loss of arable land and most importantly the loss of agricultural lively-hood of the farmers in the peripheral areas (Mehari, 2011).

Due to rapid urban expansion, most urban areas in Ethiopia also lack proper waste disposal system. Therefore, the ground water is becoming polluted creating health hazard. These rapid urban

expansion together with rapid population growth of cities and towns in Ethiopia creates a huge demand and pressure on urban land use; there is a need of urban land for manufacturing industry, commerce, service, circulation, recreation, residential houses and other activities. The urban land demand is not satisfied mainly due to the problems and constraints in the land allocation system. Therefore, these situation leads to the urban expansion practice of Ethiopia to the problems like uneconomic use of land, unnecessary conflict of boundary dispute between adjacent land owners, illegal land holding of public green (even in some cases formal), buffer zones and other un occupied plot and left over spaces by individuals and in some cases and organizations (MUDHCo, 2014).

2.4.11. Urban expansion and compensation trend in Mekelle city

2.4.11.1. Urban expansion trend in Mekelle city

Mekelle city's urban expansion is among the fastest within the country. Between 1994 and 2005 the city's land area increases more than threefold or 221% from 23 square kilometer to 74 square kilometer as a direct consequence of the unscientific land acquisition process. During the period the population increases only by 67% from 96,938 to 161,828. As result, the gross population density decreased by half from 4215 people per square kilometer in 1994 to 2189 people per square kilometer in 2005. As Zemenfes, 2014 cited in the impact of urban sprawl on the livelihood of fringe farmers in Mekelle, the city's urban land expansion has huge mismatch with its population growth.

2.4.11.2. Urban compensation trend in Mekelle city

The compensation given in the city was not calculated based on current market conditions and has lacked timely reviews to bring it in line with the market. However, this is against the law, which says that the amount of compensation paid for the property should be commensurate within the expropriated land or property it is based on the basis of replacement cost of the property (Expropriation of land holdings for Public Purposes and Payment of Compensation Proclamation No. 455/2005, 2005 and Art 40/7 of the FDRE constitution). Accordingly, any amount arrived at without due regard to the market to ascertain the real value of the expropriated farm business could not be commensurate with the actual losses of farmers. A related and refreshing finding though, was that compensation amounts had been varyingly increasing is a welcome development, the fact remained that affected farmers still needed guidance and

other non-cash support systems to restore them as close as possible to their previous stable existence (Zemenfes, 2014).

2.4.11.3. The structural plan of Micelle city regarding urban expansion

According to the new structural plan report 2017, Mekelle city has been established as an urban center between the years 1869-1873 during the emperor of Yohannes IV reign. The city was relatively equivalent to a small village. After 140 years, the city has expanded tremendously by engulfing many small villages and towns surrounding the center of the palace. Later, the city was expanded horizontally. This expansion was on haphazard without systematic extension. This was supported by erecting of infrastructure. The density of the town became high with no planning. Access routes within settlements were for the foot and horse/mule path only. Public safety was at risk with frequent fire accidents. Much later, 80 years after the foundation of the town, some of the members of the royal families in Europe for higher education copied urban plan from abroad, and physical plan was introduced. This was mainly focused on the opening of roads and categorizing of different land uses. This pioneer plan has lessened the disaster of fire in the town, the main road and most of the present industrial areas are the remnants plan of this time.

Currently the city is growing into the south, southwest, west and northwest directions. The south, southwest, north and west parts of the city could be mainly used for residential and mixed (commercial and residential) purposes. The northwest corridor of the city is mainly proposed for industrial and manufacturing purposes. Based on the master plan 2008 growth trends, the south, southwest and west parts of the city seem highly preferred areas for residential purposes. This could be from two different reasons; one these areas are near and accessible to the existing and proposed city center and sub-centers and other higher social service areas. Secondly, these areas have relatively higher elevations and possess the better city landmarks (Structure plan of Mekelle City, 2017).

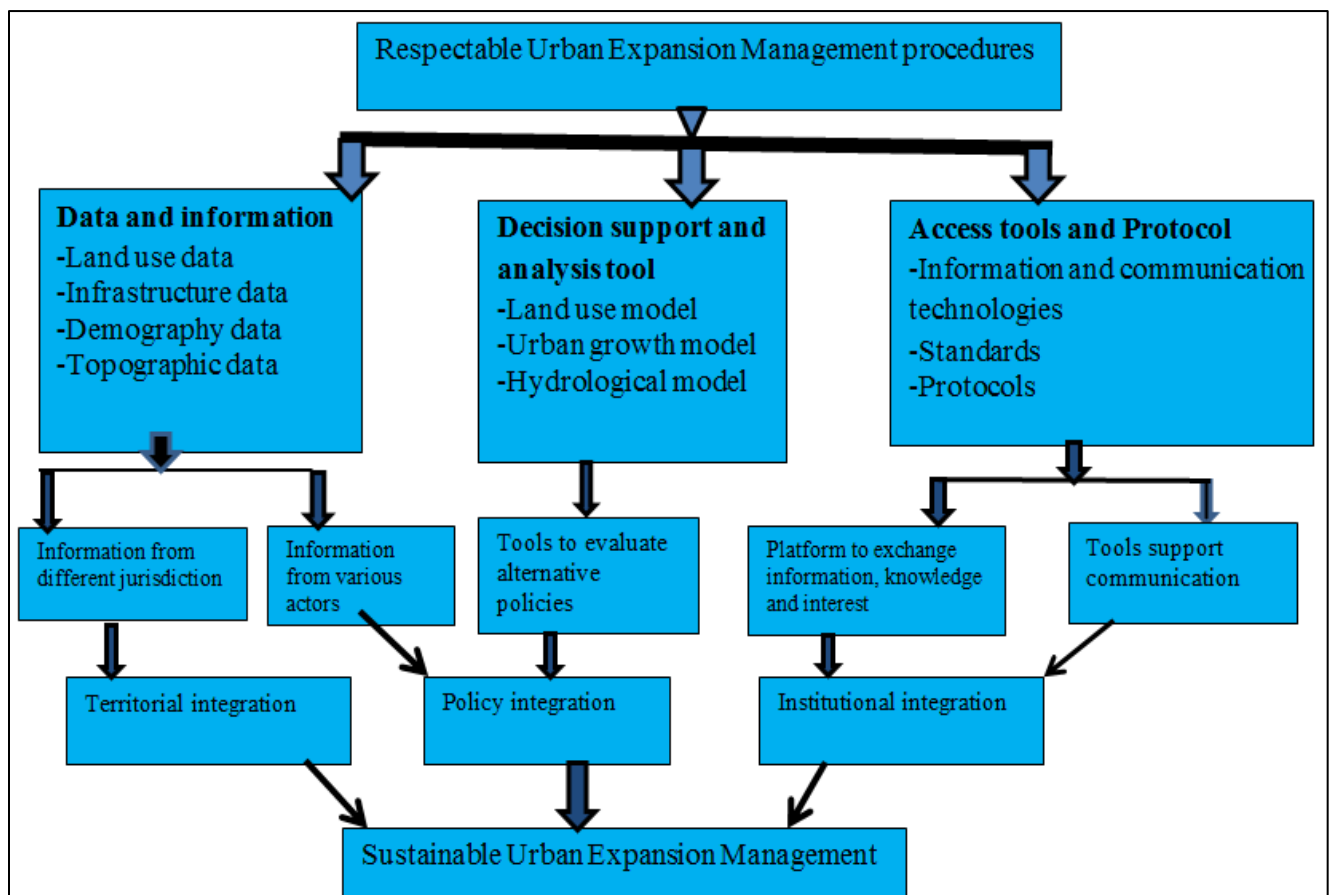
Based on the new structural plan 2017 report, the city incorporated 9 *kebelles* from the rural area within two years period (2006-2008) namely, Gunbet-20, Adha, Mariam-dehan, Hdasie, Lachi, Aynalem, Adiwelell, May-tsedo and Debri. About 3200 hectare of farm land was incorporated from these *kebelles*.

Generally, all the mentioned points in this review literature stress that urban expansion process in Ethiopia has not been participatory negatively influenced the livelihood of farming community living on the peripheral area and the amount of compensation given to the expropriated property is low. The money given to the expropriated property is also too small when compared to the income they were getting from their farms and the follow up method to rehabilitate the farmers is very poor.

2.5. Research gap

Currently, to manage urban expansion is becoming a difficult task due to uncontrolled and excessive urban sprawl. Therefore, this study mainly focuses on the challenges of urban expansion management approach in the study area. It focuses on all the issues of physical expansion, the practice and implementation of modern land information system, stakeholder participation in urban expansion and sustainability of the displaced community. Generally, this research study helps to providing recommendations and advices to address the existing problems regarding in urban expansion management.

2.6. Conceptual Frame Work



CHAPTER THREE

3. RESEARCH METHODOLOGY

3.1. Introduction

This study employed both qualitative and quantitative methods. Primary and secondary data sources were also used. In this chapter, description of the study area; research design; source of data and data collection: sampling technique and sampling size; method of data analysis and data presentation are stated as follows.

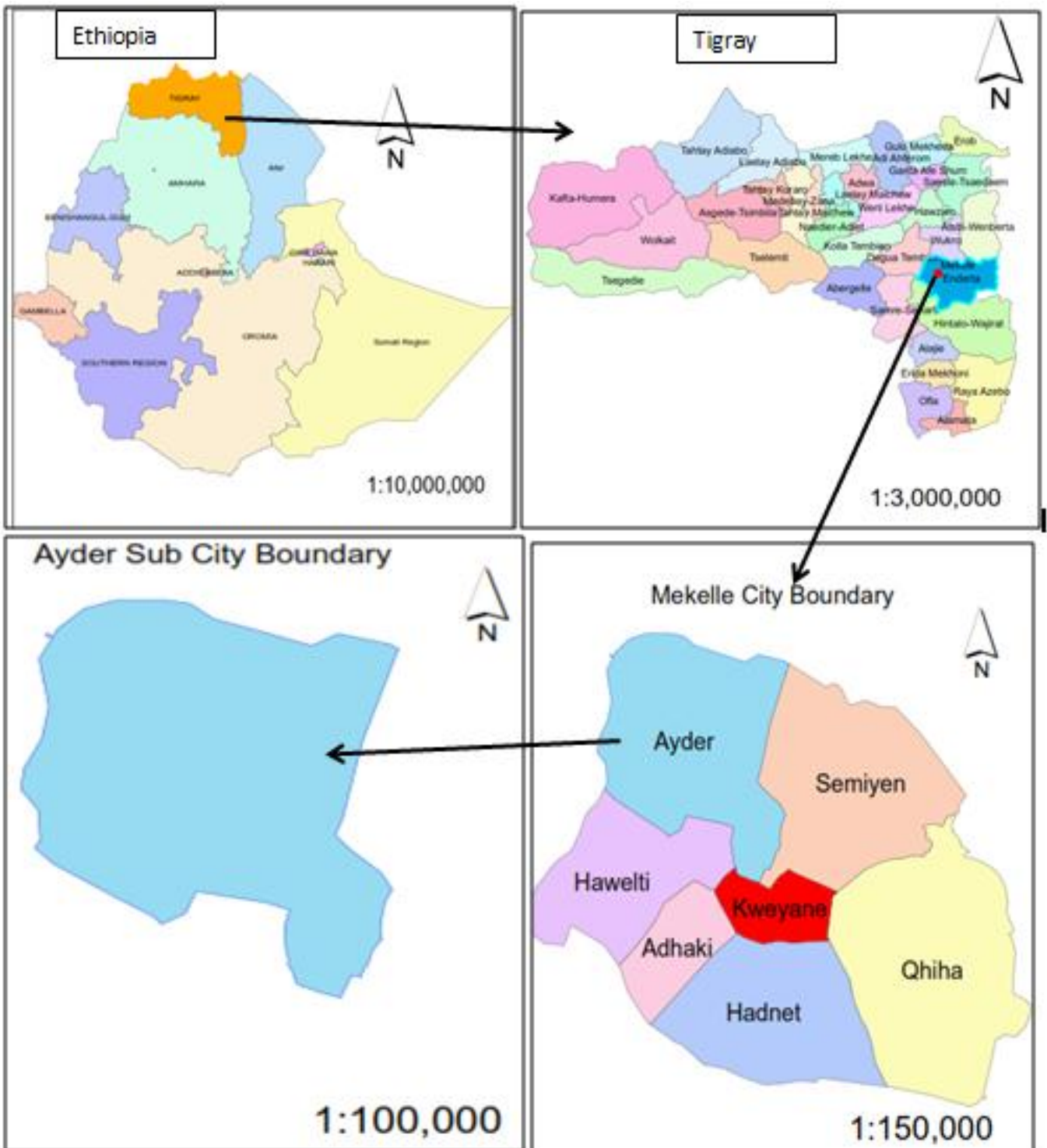
3.2. Description of the Study Area

According to the Central Statistics Agency (CSA) survey (2017), Mekelle city has an estimated total population of 386,773. As the Public Relation of Ayder sub city office report, the sub city has a population of more than 60,000. Mekelle city is located approximately 780 km away from the capital city, Addis Ababa. In terms of astronomical location, the city is located at “13°26’13.73 - 13°35’22.65” North and “39°25’6.16-39°35’8.13” East (Source: own measurement from UTM/ADINDAN, 1984 Clerk: Ellipsoid).

Mekelle city is serving as a capital city for Tigray regional state. Dominantly its economic activity of the city is on commerce and trade, industry, service, agriculture and small tourism. Spread out on a plain and partly encircled by a chain of mountains, Mekelle enjoys good weather all the year round *weina-dega* and the temperature falls from 11.1-24.1 °C (Hadush, 2016).

At the moment, the City covers an area of 32,000 hectares of land. The existing jurisdiction boundary of the city is defined based on the planning boundary of the structural plan and a recent proclamation passed on July 5/2012, Proclamation no. 223/2004 and has divided the city into 7 sub-cities and one main municipal service; Namely Ayder, Hawelti, Adi-Haki, Kedamay-Weyane, Hadnet, Semen and Qhiha.

This study focuses on management of urban expansion in Micelle city mainly on Ayder sub city expansion areas. The sub city is located on the northwestern part of the city. The area stretches from the city administrative office to Mecobo cement factory from south to north direction and from May-duba park to Medhanial church Adha (on the road Mekelle to Abi-adi), east to west direction. Currently, the sub city covers an area of 6485.5 hectare of land (Structure plan of Mekelle City, 2017).



Source: Mekelle Structural plan 2017
 Figure 2: Location of Mekelle and Ayder sub city

3.3. Research Design

Research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to research purpose as well as it can be used as conceptual structure to conduct the whole research process (Kothari, 2004). Hence, the research design of this research was used as strategy to integrate the different components of the study in a coherent and logical way so as to address the research problem effectively. Research design can be quantitative, qualitative or mixed (both quantitative designs and qualitative design). According to (Creswell, 2003) and Kothari (2004) mixed designs is the best approach if the study requires both quantitative and qualitative designs. Accordingly, this research employed mixed approach because the nature of the study involves both a quantitative design and qualitative design. The quantitative design focuses on the analysis and measurements like rate and extent of the urban expansion with respect to previous, present and future development of the cities. Whereas, the qualitative design was employed through focus group discussion and interview to deal with the perceptions in urban expansion management. This research was conducted in three phases which are namely called pre fieldwork, fieldwork and post fieldwork phases. The first phase was a preparation phase which consists of research proposal development and preparing (field) work plans. The second phase was information and data gathering phase (fieldwork phase). In this phase, important data required to carrying out the research including primary and secondary data were collected during fieldwork. These includes interviewing local experts, farmers and government officials on the issues of urban expansion driving forces, collecting ground truth data, visiting important places of the study area like new development sites, to have the general impression of the study area. At the end the collected data were processed, analyzed and the finding were presented (post fieldwork phase) so as to meet the predefined objectives of the research.

3.4. Research approach

This study employed mixed methods approach. Pragmatic knowledge claims collection of both quantitative and qualitative data sequentially. For qualitative data, a descriptive survey method is more appropriate to describe qualitatively while analytical survey methods were used for the data that are essentially quantitative in nature (Creswell, 2003). Ayder sub city was chosen as a case since it shows a high level of urban expansion problem.

3.5.Sources of Data and Methods of Data Collection

3.5.1. Sources of Data Collection

3.5.1.1.Primary Data Collection

The researcher employed both spatial and non-spatial data sources. The spatial data were captured from Google earth map, structural plan of the city and field observations. The non-spatial data, on the other hand, were collected using the following tools:

Focus Group Discussions (FGD)

FGDs participants were selected in such a way that they would represent the different cross-sections of the relevant offices as well as those members of the community who were living for long period as part of and hence they are knowledgeable about the expansion of the sub city. The FGDs were organized with two broad groups of respondents namely professionals and rural residents. Each FGD comprised 8 individuals who were identified through purposive sampling procedure. The FGDs are from Tigray Urban Land Development, Trade and Industry Bureau; Micelle Municipality, Urban Land Development Office and Ayder sub city Urban Land Development office. Their professions are two urban planners, lawyer, two Surveyors, environmentalist, GIS expert and urban manager.

The main issues covered in the FGDs included: the extent to which the process of administrative boundary adjustment was participatory; the actors involved in the process and their relationships; identification of the main argumentative issues, that were raised in the process of annexation; the set of criteria used to define the extent of new boundaries; and knowledge about the presence and actual use of legal frameworks employed in these efforts. The FGDs were administered by the researcher in such a way that, the leader for the experts is an urban planner from the FGDs and for the rural residents by the researcher.

Household Survey

A detailed household questionnaire was prepared considering the preliminary findings from secondary data collected from the available documentary sources as well as from the focus group discussions. The items included both close ended and open ended questions. To insure that questionnaires' consistency, it was prepared in English and later translated to Tigrigna which is the official language of the region so that respondents can easily understand and respond as intended.

Interview to officials and leaders

Detailed open and closed ended questionnaires were prepared for the municipal experts and leaders to know about their current and past sub city expansion management trend.

Key Informant Interviews

Key informant interviewees who were believed to have comprehensive knowledge about the study area and the subject matter under the study were selected. Pre-designed checklists were flexibly employed in these KIIs (see annex D). The researcher exerted maximum efforts to include the different spectrum of views from various individuals of different professional and social backgrounds. Consequently, the interviews were conducted with experts working in the municipal administration office adjoining the Sub city, zonal and regional administrations. Long-time residents of the study area and former officials were interviewed.

3.5.1.2. Secondary Data Collection

With regard to secondary data, relevant information was collected from different interrelated offices established at the city and sub city level to gain insights about the extent and direction of urban expansion. Furthermore, information from censuses and surveys conducted by CSA were utilized. On the other hand, graphic or spatial information about the administrative boundaries of the city and sub city sources including the new structural plan done by Mekelle University and from Google earth, aerial photographs of the city expansion area were used to quantify the expansion of the sub city.

3.5.2. Sampling techniques and Sample size

3.5.2.1. Sampling techniques

Due to the nature of the topic, probability and non-probability sampling techniques were used. For the non-probability sampling, purposive sampling was used to select FGD members (Focus Group Discussion) and KIIs (key informant interviews) in consultation with concerned bodies or stakeholders who are directly or indirectly involved in urban land administration and management in the study area. Key informants were selected from Tigray urban development, trade and industry bureau, Mekelle urban land development office, Ayder sub city urban land development office professionals and administrative leader. Moreover, individuals who were displaced due to investment expansion in the sub city were selected using random sampling technique from each

block. Since these displaced households are a recent data and recorded with a block and a percale number it is easy to be selected using random sampling method.

3.5.2.2. Sample size

From municipal professionals three individuals from Ayder sub city were selected for interview; 8 members for FGDs and 10 members to KIIs were selected purposively. Administrative leader of the city and the sub city were also selected. Moreover, within the past four years in the sub city about 560 households were displaced from their neighboring-hood to other area. A sample size determination formula was used to determine the sample size households displaced in the sub city.

$$n = \frac{z^2 * p * q * N}{e^2 * (N-1) + z^2 * q * p}$$

Source Kotharie, 2004

Where, n= sample size,

e= the accepted error/0.05/ at 95% confidence interval

p= proportion of the population that is estimated to have characteristics under consideration=0.5

q= 1-p

z= 1.96 and N= the total population (560) displaced households within the past four years.

From the given formula 228 displaced households were selected using simple random sampling method to yield representative sample.

3.5.2.3. Sample Frame and Sample Unit

The sample frame is a population from which a sample is drawn (Creswell, 2003). The sampling frame of this study area was Tigray Urban Development, Trade and Industry Bureau experts; Mekelle Urban Land Development Office experts; Ayder sub city Urban Land Development Office professionals and administrative leaders; and individuals who were displaced due to investment expansion in the sub city. Whereas, the sample units of this study area was the ‘household’.

3.5.3. Method of Data Analysis and Interpretation

The data obtained from primary and secondary sources were analyzed using both qualitative and quantitative methods because the data collected had both qualitative and quantitative nature. The data which were gathered from observations, different officials and experts and key informant

interview were analyzed by rephrasing and restating method of qualitative analysis, whereas the quantitative data were analyzed using descriptive statistics by employing different statistical tools like tables, maps, percentages and ratios by using different analysis tools such as GIS, Excel and SPSS. Finally, the data was presented in the form of text, tables, photos, graphs and maps.

3.6. Ethical Consideration in the Field Work

During gathering information in the field from different concerned bodies the researcher was showed positive approach at any time for the respondents. The researcher was being asking different types question to the respondents. The information the respondents providing to the researcher is completely confidential.

CHAPTER FOUR

4. RESULTS AND DISCUSSION

4.1. Introduction

The expansion of urban land has grown much faster than the growth of urban population, resulting in less dense and more inefficient land use utilization that in turn causes annexation of rural villages. Over the last two decades, annexing rural areas was not recognized as serious issue. Hence, this phenomenon has vividly created an immense pressure on the surrounding rural areas by injecting negative externalities such as displacing rural households, social disaggregation, loss of fertile agricultural land and loss of rural sentiments.

Thus, the analysis presented in this section explores the process of boundary redefinition, mainly the level of community participation in urban expansion, the main driving factors for the excessive urban expansion and the main challenges of urban expansion in the urban-rural interface. Moreover, the impacts of excessive urban expansion in the study area are discussed as follows.

4.2. Socio Economic Characteristics of the Displaced Households

4.2.1. Age and sex distribution of the households

The age of the respondents is important to analyze how many of the displaced farmers are economically active and old aged. Similarly sex of the respondents is also very important variable for the study in order to analyze how many of the respondents are female headed and male headed household.

Table 1: Age distribution of the displaced households

	Category	No of respondents	Percent
Age	25-45	153	67
	46-60	57	25
	>61	18	8
	Total	228	100

Source; Household surveyed data, 2018

The result of the household survey (table 1) conducted from displaced farming households shows that 67% of displaced farming households are between 25 and 45 ages. This indicates that most of the households are in economic active groups. Even 25% of them are also within the range of

working age groups (45 – 60 years). So the Municipality provided them with some basic inputs that support them to engage in productive work in their final destination.

Table 2: sex structure of household heads

Sex	Category	N _o of respondents	Percent
	Male	201	88.15
	Female	27	11.85
	Total	228	100

Source; Household surveyed data, 2018

The investigation of households according to the sex of the household head is motivated by two common assumptions arising from the understanding of the role of household heads and from relevant research on gender differences in access to resources. Therefore, most of the displaced households are male heads which account about 88% of the sample households. This shows that most of the family income is generated by the male occupation.

4.2.2. Marital status of the displaced household heads

Table 3: Marital status of displaced household

Marital status	Category	N _o of respondents	Percent
	Married	176	77
	Divorced	14	6
	Widowed	6	3
	Single	32	14
	Total	228	100

Source; Household surveyed data, 2018

The marital status of the displaced households data showed that, majority of the household heads are married which accounts 77% as shown in table 3. And the single households which account 14% have also a probability to be married in the future. This is additional work for the municipality as the probability of having kids and forming large families. This, in turn, makes the process of displacement difficult as it can cause the dismantling of the families and subsequent exposure to many social problems in the final destination.

4.2.3. Educational status of the displaced households

Table 4: Educational status of household heads

Education status	Educational states	No of respondents	Percent
	Illiterate	119	52.2
	Read and write	63	27.6
	Primary	23	10.1
	Secondary	13	5.7
	Technical and vocational graduate	7	3.1
	Degree and above	3	1.2
	Total	228	100

Source; Household surveyed data, 2018

The role of education to join employment opportunity either in public or private sector is not questionable. Educational status of the household is important to predict their fate after displacement. The household survey data shows that more than 52% of the household heads could not read and write. This indicates that majority of the displaced households earn their income mostly from agricultural farming and other informal economic activities as they do not have the necessary educational qualification to be employed either in governmental or nongovernmental institutions. Furthermore, their chance of working in agricultural activities in the future is very small, because they have lost their farm lands because of the city urban expansion. Due to this factor, those displaced households are not on the way of progressive life and under the problems of unemployment after expropriation of their agricultural land. So the Municipality should be adjusting different training opportunities to the displaced households in order to sustain their living condition against the way of urban life.

4.2.4. Family size of the displaced households

Table 5: Family member of the displaced households

Family member	Category	No of respondents	Percent
	Single(one family size)	32	14.1
	2-4	64	28.1
	5-7	81	35.5
	>7	51	22.3
	Total	228	100

Source; Household Surveyed data, 2018

Knowing of the family size of the respondents is a very important variable for the study in order to analyze the number of family which the displaced farming households have. And it is also important to analyze how many of the family members are affected by the displacement of the farming households in order to facilitate basic infrastructures like water, electric-city and education. The result of sample household survey that summarized in the table 5 indicates that 57.8% of the households have more than three children in their families. This shows greater amount of income is required for basic needs and necessities. In addition to this these children need additional space for school and other services.

4.3. Process of Defining Boundary and Annexation in Mekelle, Ayder sub city

Annexation that takes the form of administrative decisions made by technocrats considers the proposals of newly developed city-wide plans with little participation and negotiation with the community is the most common type of urban administrative boundary adjustment. According to the participants of the experts' FGDs, the redefinition of urban growth boundary is mostly undertaken on reactive basis. Even though at the plan preparation process promises the demand for a land to be developed by the government policy directions are fulfilled, to create prosperous urban centers and to protect farm lands, green area and open spaces from encroachment, the ground realities both during and after implementation do not fit with this promise. Furthermore, gaps in the procedures for urban boundary redefinition, endorsement and implementation contribute to the conflicts among the longstanding residents in the rural areas to be converted to urban uses and government bodies and the new settlers and former settlers in the periphery area. According to the experts in the sub city's urban planning and the land management leader, the process of boundary redefinition is exercised on ad-hoc basis and without adopting participatory approaches.

As the experience of cities in developed countries, which is documented in the literature review section, the goal of annexations apart from getting access to additional land resources, is to provide efficient delivery of urban services, infrastructure and to protect open spaces and farm lands. Accordingly, such cities make use of sophisticated mapping techniques and population growth determination. However, the main rationale behind the redefinition of the administrative boundary in the sub city is to draw a line around an urban area with the main purpose of incorporating the surrounding rural areas and changing huge agricultural lands to industrial without

giving adequate emphasis towards safeguarding the welfare of citizens who reside in the rural settlement.

4.3.1. Community Participation in Urban Expansion process in the sub City

Literature asserts that public participation is double-sided instrument which helps to ensure that planning would work towards reflecting the priorities and interests of all major groups (Abraha And & Tilahun, 2016). As such these groups would be committed to discharge their role in translating planning into action. In recent years, a shift has taken place to incorporate local communities as active partners into urban land development interventions in the Ethiopian context. Some reports show that whereas participatory approach is recognized by many stakeholders, in practice nothing has been achieved. The level of urban and/or affected rural community participation in urban development is still very low. According to participants of KIIs and FGDs, reliable and valid indicators of stakeholder participation have not been developed yet. The existing practices indicate that stakeholders often play a limited role in the annexation process in the sub city. Interventions focusing on communication, preference assessment, opportunities for choice, and participation in meaningful activity were not demonstrated. Participants of KIIs, FGDs and households interview identified the following issues:

4.3.1.1. Participation takes place only at the initial stage

According to the FGD of the experts, annexation meetings were always organized at the beginning of planning attempts. This implied that participation in the context of the city was only limited to the first stage. Critical stages like consensus building on vision, goals and mission, generating alternative plans, adoption of best planning option and implementation of the plan including monitoring and evaluation are not part of the sub city Council Planning process.

4.3.1.2. Participation is limited to a few mass meetings and individuals

Meetings to discuss urban planning and/or annexation related issues are organized at the city and sub city level in connection with city planning processes, whereas the rural community rarely participates in such processes. Ideally, such meetings would have been meaningful if they were also organized at the community level. According to respondents of KIIs, this level was too high for most participants to deliberate freely. If issues are raised at all annexations in such meetings, it would not be more than an informative task for such meetings is organized merely to fulfill formalities.

4.3.1.3. No formal strategies and guidelines exist for community participation in annexation

The KIIs and FGDs revealed the absence of formal and systematically organized strategies, guidelines and working systems that provide for community participation in urban planning and annexation processes. Efforts in this regard are ad-hoc and fragmented, as the household survey data indicated.

Table 6: Level of awareness on the displacement and expansion

Level of awareness	Frequency	Percent
At the time of displacement	99	43.4
Through Meeting	86	37.7
Through training and Meeting	43	18.9
Total	228	100

Source; Household Surveyed data, 2018

As the data obtained from the questionnaires distributed to the sample households in the study area, 43.4 % of the sampled households had not awareness during the planning time of the expansion. They knew about the expansion at the time of displacement. Even 37.7% of the sample households knew to displace from their former place in a meeting. Only 18.9% of the sampled households had awareness through a training and meeting. As the sample households interview the training was not provided based on the sustainability of the households like creation of job rather it was simply undertaken to convince them to relocate from their former places by paying advanced commensurate compensation to serviced land, despite the sub city administrative leaders were not paid as they were promised.

4.4. The Driving Factors for Urban Expansion in Mekelle City

4.4.1. Population Growth and Ceaseless Housing Demand

Historically, city's spatial growth has been driven by increasing urban population and mainly attributed to land demand for housing. Land use budget allocated in the city during the new structural plan 2017 preparation reveals that as urban population continues to increase, the size, shape and patterns of the city dramatically changes. In this new structural plan proposal, land share of housing in Mekelle city is about 40% that is 5705.44 hectare of land. This shows population growth and land demand for housing has been the most visible indicator of the human footprint and among the most drivers of urban expansion. In addition to this,(Silva & Li, 2017) also witnessed

that urban population growth plays a bigger role for urban expansion in the City of Praia and Cape Verde.

According to Tigray Bureau of urban development there are 63 large, medium and small cities and towns in Tigray region. According to the same source these urban centers inhabited with more than 1,220,599 population size. Share of Mekelle city out of the regional total size is 313,332 that account about 25.7%. But according to population estimation of CSA, 2017 the size increases to 386773. When population growth trend of Mekelle city compared with a preceding census year, present urban population increased by 32.8% within six years and the growth rate account about 5.5% per annum (CSA, 2007 and Tigray Bureau of Urban Dev't 2013). However, according to CSA estimation, population size of Mekelle city was growing by 6.9% during a period of 1995 – 2007 and 4.13% till 2013 respectively. Based on the later reference, population size and growth rate of Mekelle city is still found at first rank next to Addis.

According to the public relation office report the population of the sub city in 2004 were only 10,000, after ten years this number reached to 30,000, and now the population reaches more than 60,000. When the time breaks in to two the first 10 years and the next 4 years, the population of the sub city has grown about three times in the first 10 years and the population of the sub city doubles within only four years period. This, the sub city practices an alarming population growth rate.

Table 7: Demand and supply from auction 56 - 62 in Ayder sub city

	Auction 56	Auction 57	Auction 58	Auction 59	Auction 60	Auction 61	Auction 62
Demand	28	972	1423	5448	1490	4521	5062
Supply	11	48	67	155	17	19	30

Source: Mekelle Municipality, 2018

It has been found that the delivery of land for housing is far behind demand. And, the major causes for this were change of directions of land delivery approaches or modalities. For instance, the cooperatives approach has stopped after working for only one time in the last year in *Hadnet* sub city. The sub city does not take any effective and efficient remedial delivery strategies to cope with the housing deficit or plan.

It is well understood that land is the main input, among other things, for housing development. Although the existing structure plan of Mekelle city proposes different approaches to meet the

housing demand, the land delivery system currently under practice is only through lease auction for individual builders. The small amount of land or number of plots delivered on each bid is much lower than the proposed demand in the structure plan housing component. This inflated demand has resulted in higher prices per square meter of land. As observed from the results of the bid of the lease, the price for a square meter of land for housing has sky-rocketed from 200 Birr/m² few years ago to more than 17,000 Birr/m² in 2019.

Table 8: Average lease price for residential house from 2015-2018

Sub city	Average lease price per m ²						
	Auction 56	Auction 57	Auction 58	Auction 59	Auction 60	Auction 61	Auction 62
Hawelti	4544.61	5209.84	4999.72	8775.02	10673.84	16,825.23	
Hadnet	5368.78	3949.01	4749.52	8350.85	10812.99	18,033.10	
Ayder	3011.80	3344.79	3344.79	6188.82	8706.98	12,172.53	17965.54
Adhaki	4453.10	5396.60	5396.60	9074.87	13738.26	17,626.92	
Semien	2646.20	3604.35	3028.63	4536.54	14403.56	14,833.74	
Qhiha	2085.34	2977.42	2977.42	4129.71	5701.94	8,769.37	
Average	3684.972				10672.93	14710.14	

Source: Mekelle municipality, 2018

In principle, the Regional Urban Land Development, Trade and Industry Bureau gives a direction as to the developed land would be prepared for lease twelve times per year in all urban centers. However, the sub city delivered a land through lease six times within the past five years, on average one time a year. Therefore, the amount of lease price per m² is not affordable to the middle income groups. The winning price of lease dramatically increased from 3011.80 Birr in auction 56 to 17965.54 Birr in auction number 62. It is increasing more than five times within five years period. So, many people preferred to buy a land from the land sub-dividers with a low price to get a shelter for a residential purpose or for a speculative business in the expansion area.

4.4.2. Reclassification of Urban Boundaries (Annexation)

The city land demand has been dependent on the availability of neighboring rural area that can be used as potential for urban expansion. This phenomenon is more pronounced in large cities where continuous annexation of the surrounding rural and small urban centers to their administrative is undertaken. Participants in the FGDs mentioned that the process of reclassification was not

participatory and had not clear criteria or legal support. In the sub city, the areas identified as proposed annexation include not only the rural settlements but also a significant amount of undeveloped and vacant land which were not included even in the previous master plan 2008. As per the evidence obtained from the local administrative and the new structural plan report, Mekelle incorporated nine rural *kebelles* in to their administrative boundary from 2006-2008 within the two years period 3200 hectare of land incorporated to the city administration. From these three of them are incorporated to Ayder sub city namely, Gunbet 20, Adha and some parts of *kebelle* Mariam-Dehan. About 30.94% or 990.32 hectare of this land was changed from agricultural land and agricultural community to urban community in these two years to the sub city.

According to the new structural plan 2017 report, the master plan 2008 was the first plan prepared in integrated way and incorporated the three towns in metropolitan approach. For the study this master plan takes about three years and involves different disciplines and delivered different documents and graphics reports. Despite its efforts, the defect of the pioneer plan was to incorporate Mekelle city, Quiha town and Aynalem town under one comprehensive structure plan. After these 130 years the city has expanded tremendously by encroaching many small villages and towns up to 30 Km surrounding the center of the palace.

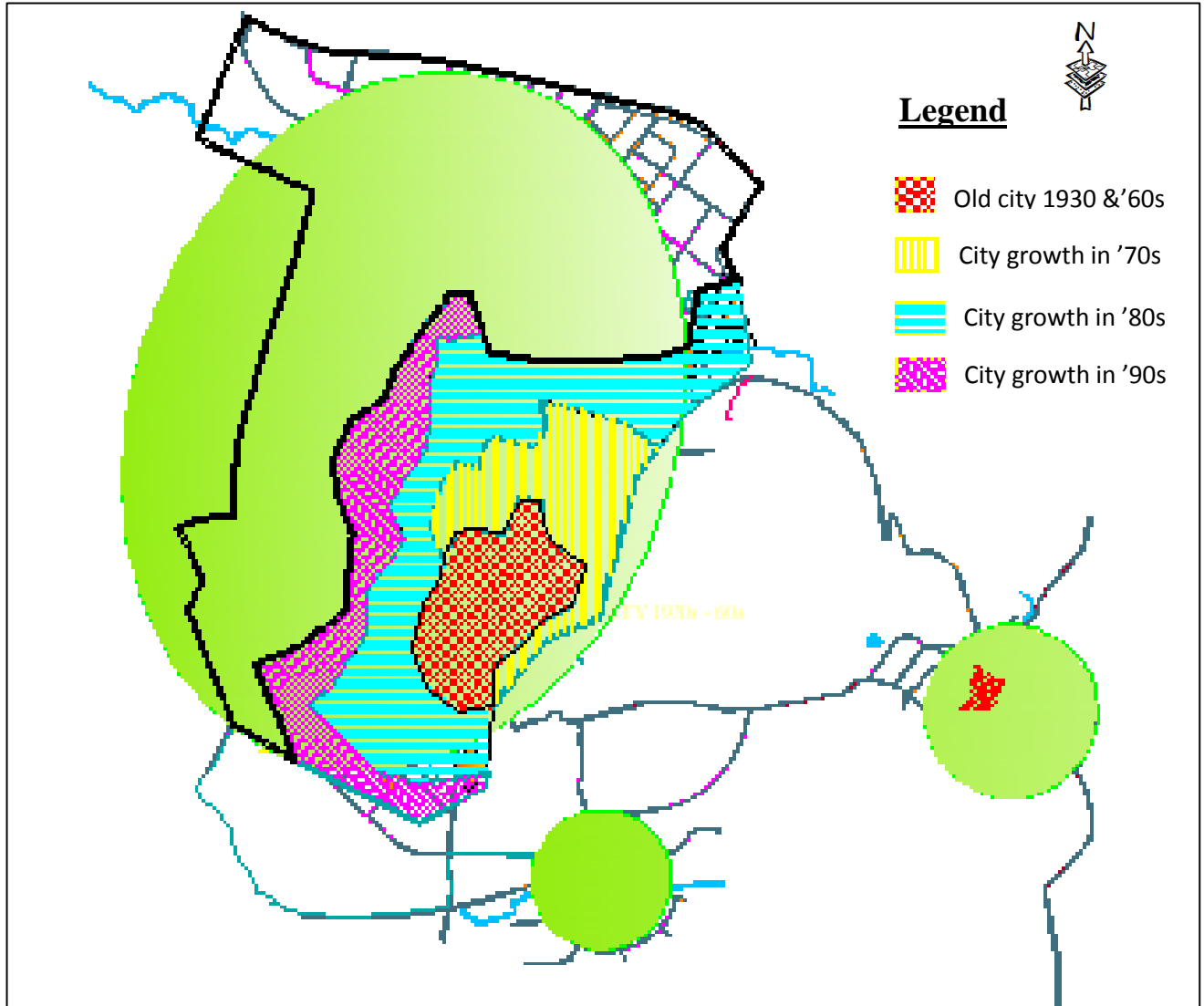


Figure 3: spatial growth trend of mekelle city

Source: Source: Mekelle structural plan 2017

Boundary expansion trends are exponentially growing from time to time. The unlimited expansion, as shown in the figure which is experienced in the city, is associated mainly with population growth and urban land policy. The current expansion rate of the city is about 26%. In the last ten years more than 16,000 hectare of agricultural land and rural villages is engulfed by the city municipality.

Table 9 Spatial growth trends of the city for the last 50 year

S/n	Year	Administrative boundary (Ha)	Administrative boundary (KM ²)	Physical change from previous referenced year
1	1963	240	2.4	Base year
2	1984	1,600	16	567% in 21 years
3	1994	2,600	26	62.5% in 10 years
4	2004	10,240	102.4	293% in 10 years
6	2017	32,000	320	212.5% in 13 years

Source: Mekelle structural plan 2017 and Compiled from various municipal documents

The city has grown about 133 times in 54 years. Its spatial expansion is geometric and growing much more aggressively since recent years. Besides fulfilling the current land demands of the city, possible impacts due to the transformation of rural agricultural land to urban related uses and other environmental consequences on both the city and the hinterland areas might be seen in the future.

4.4.3. The Increasing of Land Development for Investment Zones and Industrial Parks

The field investigation reveals that industry and industrial location have been also key determinants for continuous change in urban form and size of the cities. This is due to the fact that Mekelle city is now becoming one of the emerging industrial hubs in Ethiopia. According to participants from the city administration, the demand for serviced land is constantly increasing in the city because of the increasing demand of land for investment zones. The existing industrial development is causing urban expansion in two ways. In the first place, the industries need land for the placement of the industry itself. Secondly, the industries also require land for housing, store and other infrastructure development. As normal practice, most land required for industrial development is allocated in the urban periphery which causes excessive urban expansion. As per the Industrials Park Development Corporation /IPDC/ (2016) report, currently, Ethiopia is working hard to establish manufacturing industries that include agro-processing industries, textile and clothing, food and beverage industries, tannery and leather goods, pharmaceutical industries, chemicals and chemical products industries.

In addition to this, the intension of the government in the recent urban policy shows that Mekelle city was selected as a center for industrial parks. From the city, Ayder sub city is the most preferred place for industrial expansion due to the presence of Mesebo cement factory and the city structural plan. Thus, a number of large industries have been allotted in the sub city. For example, for a single

textile factory (Velocity Apparelz Companies PLC) 175 hectare of land was given from the neighboring rural *Wereda* Enderta in 2016 without a plan that was however incorporated in the new structural plan 2017. According to the information from the Municipal land development office leader, about 113 hectare of land was also given to 222 investors at a time in the sub city by the Municipality at the beginning of this year (2019).

4.4.4. Speculative-nature and Informal settlements

Participants of the FGDs mentioned that there were three main factors which trigger land speculation in the urban centers. These are (a) land hunger attitude (b) demand of more living space (c) competition for land and speculative real-estate market. The urban land development document also witnessed that in Ethiopia urban land provision faced several and complicated problems including rent-seeking and land hunger attitudes. Based on the information obtained from local administration, currently a large number of people are moving from rural areas and small towns in to the city to secure job opportunities. The huge population size commonly resides on the periphery of urban area informally. According to the experts and officials, land incorporated into the sub city limits is subjected to illegal subdivisions which causes for growth of informal settlement. In addition to this, as the field observation indicates, brokers aggravate to the subdivision of plots of informal land transaction in the newly incorporated *Kebelle* Mariam-Dehan especially in Hrshema, Halawlie, Adeki-Ayniwalid and Endarbaiete-Ensisa.

To facilitate the informal land transaction and sub-divisions the *kebelle* leader and the municipal leader play a major role here. As the field observation and KIIs information show, the land speculators buy for a single title deed certificate up to 15,000 Birr in addition to the monetary value of land. It is noteworthy to mention that the brokers have a high capacity to convince buyers to buy from the informal land sellers.

4.4.5. Lack of integration

Lack of integration between the urban and rural administrations also encourages informal developments beyond the city boundary that causes horizontal expansion of built-up land along with low-density development. This undermines the efficiency of urban areas in terms of infrastructure and service delivery and increases the cost of housing development. During the field visit, it was confirmed that when the landholders in the periphery realized that urban expansion was coming to their neighborhood they started building houses and illegal subdivision so that they can

sale it informally. As the information gained from the Municipality leader and FGDs, Mekelle Municipality demolished more than 827 houses in Gefih-Gereb. Despite their illegalities, at the end of 2012, 300 informal settlements regularized due to political reason. These regularized informal settlements were illegal houses that people bought from farmers. Because of this reason this situation is increasing at an alarming rate. People who bought land from farmers assume that the government may regularize their house in the long period of time.

4.4.6. Economic Growth

Since 1991, the nature and pattern of urban growth in urban centers of Ethiopia had fundamentally growth due to new economic reform. The infrastructural, service and industrial expansions have positively contributed a lot for the new urban reform in Ethiopia as discussed in the literature review part. Likewise, participants in the FGDs indicated that in the urban localities through the economic and development programs put in place residents were able to possess and run different economic activities that help them to own house, small scale industries and medium industries which have direct implication in urban land demand.

Ministry of Urban Development, Housing and Construction (2014) report has also witnessed that the concentration of people, infrastructure, and services that take place in urban areas (including small towns) has been considered as an essential ingredient for modern sector development and economic activity that is accompanied by huge land demand for housing, manufacturing and service provision which has impact on the urban spatial expansion of the urban centers.

4.4.7. Expansion of Roads

Road is considered as catalyst for urban expansion. In Mekelle city, expansion and construction of road plays vital role for the rapid urban expansion in two ways. In the first place, as per the new structural plan of the city, it has 20-25% coverage of network, which is very large. Secondly, road can act as catalyst for city size growth. Transport facilities are main factors for the growth of the urban footprint and the occupation of new areas located around the periphery of urban centers.

For example, the construction of new asphalt roads from Mekelle to Abiy-Adi starts from the new bus station through the sub city to Abiy-Adi. Due to the construction of this road, the sub city and the adjacent rural *Wereda kebelles* to the sub city become active. So, the land around there is being

affected by land sub-dividers and occupying by land speculators. Large farm lands change to illegal settlements. Even without construction permit, they construct a house and sell for other individuals.

4.4.8. Lack of Full-Fledged Plans and Failure to Enforce Planning Laws

Currently, in Ethiopia approximately half of the urban centers have no plans. Additionally, the existing urban plans generally lack clear statements of vision, goals, objectives, conceptual options and spatial integration with neighboring-hood rural areas (MUDHCo, 2014). As the FGDs and field survey data indicates the sub city and satellite villages near the study area lack full-fledged plans to construct basic infrastructures like roads, electric-city and water supply. There is also spread of sprawl in the periphery and growing informal settlements which mostly lack basic services and infrastructures. Because the planning process of the sub city was bothered in a rash activity and characterized by uncontrolled settlement which leads to sprawl and unsuccessful enforcement of land-use plan.

4.5. The main Urban Expansion Challenges and Problems in the Urban-rural interface

4.5.1. Inefficient Land Register and Cadaster in Rural and urban area as a whole

Modern Land registration is the process of documenting information about land parcel to give land ownership right that helps for efficient land management. The Chinese government is experimenting with methods to quickly and accurately register rural households' lands. This encourage so far more equitable wealth distribution throughout the country, and also, at a microeconomic level, to protect agricultural lands from rapid industrial, retail, and residential land development(Barlow, 2011).

Whereas, as the field observation and the municipality leader's information reveals, the existing land registration system of the sub city is not efficient even though some positive initiatives are started like registration of the plot of land with information owner name, building height, land use, boundaries of the parcel and yearly lease payment. But the very important information like the parcel coordinate point is missed in all the sub city land registration systems. In addition to this, most of the data are registered manually and the already registered data lack to link the non-spatial data with the spatial one. Especially all the spatial data except the parcels transferred by lease system are not known as to who owns them. Even some times, a parcel owned by someone announced in an auction and transferred to a lessee would be again announced and transferred the

same plot of parcel to another, such arise, conflicts between the former lessee and the new lease bidder.

The existing land registration system of the sub city as the information gathered from the field observation and municipal leaders, does not involve special documentary evidence for the total number of plots that are given with the title deed in the sub city. It is characterized by a cadastral system with incomplete coverage and is supplying most of the available land information without alternative source of comprehensive information.

For example, as the field observation and the municipal leader information in 2014, farming communities such as Hrshema, Halawlie, Adeki-Ayniwalid and Endarbaiete-Ensisa were incorporated in to the sub city from the rural *wereda* by a single hard copy document. This document is considered as a legal document to entitle the farming community in the sub city. Here, the sub city has faced problems like, some of the persons in the document are of under age and some of the others are either they do not reside in the farming community or they are land speculators.

All the sample households were registered in the form of excel in the sub city Municipality and also they are received a site plane, which have information like parcel owner name, land use zoning building height permit and boundary. However it lacks the very important idea which is coordinate points of each edge of the parcel and special and non-special data are not linked each other as a whole in the city and or in the sub city.



Figure 4: Filing system of Ayder Municipality during the field observation

Source: Own field Photo, 2018

According to the field observation and FGDs, a significant number of house owners have not a proper legal title of property registration. This leads the municipality to lose the revenue than it should deserve, because there does not exist a cadastral system of land information system in the sub city. The files are manually dis-ordered on the ground floor, a significant number of files have not a file cabinet, the room size is also small which all it makes inconvenient for the data recorders. Municipal experts put two reasons. The first reason is budget constraint while the second being the attention of the leaders given for filing is poor. However the first mentioned reason could not be a real fact because the sub city gains more than one million Birr from a single 140 m² plot of land when the land is transferred to the lessee.

Due to these poor land registration system problems like: inefficient land development, minimum income of the municipality from land charge/rent, proliferation of illegal settlement, sprawl of the city without service, difficulty in providing certificate of ownership, land dispute in the sub city periphery area and illegal transfer of urban land could be mentioned.

The sub city municipality could not have modern cadastral land registration system due to, technological and managerial constraints, as a cadaster project requires well trained and skilled manpower, high amount of budget and a continuous follow up and updating mechanism. However, it is obvious that without efficient cadastral system urban land expansion could not be efficiently managed.

4.5.2. Lack of community participation in Urban Expansion in the sub city

Community participation is very important factor in the process of urban expansion to build community support, improve public understanding of the agency's responsibilities and for better quality of decision-making in urban expansion of urban centers. In spite of such significances, the practice as the sample household survey and KIIs indicates the trend for community participation in urban expansion is low.

The response of the respondents indicated that all of the sampled households displaced from the former place did not participate on decision making in implementing of the expansion management when they were displaced from the former place. In addition, the evicted households did not participate on assessment of the amount of compensation paid. The latter was decided by the

government body in the sub city and they were obliged to take the amount of compensation decided by it. The amount of compensation was not done by professional land valuers. Thus, the implementation of urban expansion in the sub city lacked participatory development methodologies that could minimize the negative effects of urban expansion on the means of livelihood of the dislocated farming community. Due to this reason, the community lacked sense of ownership in controlling illegal activities like construction of illegal houses around the periphery and land sub divisions.

4.5.3. Disproportional payment of compensation to the Expropriation of farm land and for the property of the households

Fair compensation for farmers displaced from their former land is among the democratic rights envisaged under article 40(7) 1995 FDRE constitution. It is also provided that “ The Government has the duty to hold, on behalf of the People, land and other natural resources and to deploy them for their common benefit and development” set out as an economic objective under article 89 of the constitution. However, as the information gathered from the secondary data and FGDs indicated that there was state monopoly in value capture while paying compensation in the sub city. This proves, the act of the government taking land at a cheaper price from farmers, state transfers it to urban residents and investors at higher price. For example, the sub city administration takes a land from farmers within a price of 25.976 birr per meter square and leases the same land a minimum of Birr 10,000 or maximum 37,000 per meter square. This shows that, the municipality earns the highest profit from the land but the farmers get very low benefit from the same. And also when the farmers are displaced from their house, the compensation given to them is low because all the land belongs to state as justified by the municipality.

Table 10: The amount of compensation the government paid verses land leased (2014-2018)

Year	Land taken for development in M ²	Amount of compensation per M ²	Total amount of compensation paid	If it is leased by the government/Average lease price/M ²
2013	-	23.3 Birr	-	850
2014	1650000	23.3 Birr	38445000 Birr	3011.80
2015	1580000	25.976 Birr	41042080 Birr	3344.79
2016	1210000	25.976 Birr	31430960 Birr	6188.82
2017	1570000	25.976 Birr	40782320 Birr	12172.53
2018	-	25.976 Birr	-	17965.54

Source: Compiled from various municipal documents 2018

The Ethiopian constitution provides for the payment of compensation to be “commensurate”. This signifies that compensation must be equal to the loss sustained. In modern laws, this notion of equality can be attained by applying market value. However, as the data gained from the municipality shows that the sub city used to expropriate private property and agricultural farm land as per the regulation set before ten years by the region. A crucial idea worth of mentioning here is not as to the time that the regulation was enacted but the amount of money set for construction of minimum standard house was working for ten years that is 66,962.11 Birr, failed to take in to account the inflation of money and the current market value for construction material. To the worst, even such minimum amount of money was not paid for those households whose bill of quantity is less than 20,000 Birr.

As the information secured from FGDs, KIIs and field observation, when the farmers want to sell their land informally/illegally the value of the land is minimum 1500 Birr per m², even around Arbajete-Ensisat reaches more than 2000 per m² and if it is in the rural *Wereda* near to the sub city administrative its praiseworthy about 1000 Birr per m². However, if the land is needed by the government for investment, the amount of compensation payable to farmers is 25.976 Birr per m².

In addition to this the calculation of the compensation is not done by property valuers. The compensation was calculated by custom (traditional) as ten times the average annual income of the farmer secured during the past five consecutive years. The community complains that, why it could be done by market value.

When we see the difference between the amount of land compensation paid by the government body and the market value of money among informal dealers, what the farmers received is very insignificant amount of compensation from the government, which results, in dissatisfaction of farmers from the amount of compensation. So, farmers parceled their lands and sell for different land speculators in the sub city before the government reached. Due to the assumption land belongs to the state; the speculators construct illegal construction in the parcel without plan and permission of the municipality.

The sampled household survey indicated that only 8.8% of the respondents were satisfied with the compensation paid by the municipality in Ayder Sub city.

Table 11: Responses of respondents towards the compensation paid

Responses	Number of HH	percent
Satisfied with it	20	8.8
Indifferent	77	33.8
Dissatisfied	79	34.6
Highly discouraged and dissatisfied	52	22.8
Total	228	100.0

Source; Household Surveyed data, 2018

The data from the sampled households showed that 91.2% of the respondents were dissatisfied with the amount of compensation paid for them. This showed the amount of compensation paid was not enough and not taken in to account the annual income of the evicted farmers. The information gathered from the sampled households indicated that the evicted farmers had applied their compliant regarding the amount of compensation paid them, through their volunteer elected representatives to the concerned government body; no one could answer their question.

4.6. The Impact of excessive urban expansion in the sub City

The KIIs and FGDs with urban planning and land management experts provided the researcher with rich insight about the annexation and urban expansion processes. The impacts that had been faced due to the processes of excessive urban expansion in the sub city are increasing proliferation of illegal settlements in the urban fringe: lack of social and physical infrastructure: the problem of unemployment and difficulty to get job easily: environmental problem: lack of sustainability and weak urban rural-rural linkages.

4.6.1. Increasing Proliferation of Illegal Settlements in the Urban Fringe

The city and sub city initiative in preparing and implementing local development plans (LDPs) is slow, due to this the level of illegal land transactions and construction activities in the sub city is high. Land grabbing is also very high. As per FGDs, field observation and the data obtained from Google earth, some households construct illegal houses in the periphery of their parents' land and in their farm lands. Thus, such situation is an encumbrance of the sub city administration for tomorrow. When we compare the morphology before 2014 and in 2017 in picture 5 and 6 from the Google earth image, 50 illegal houses were constructed in 2.5 hectare of land within the last three years.

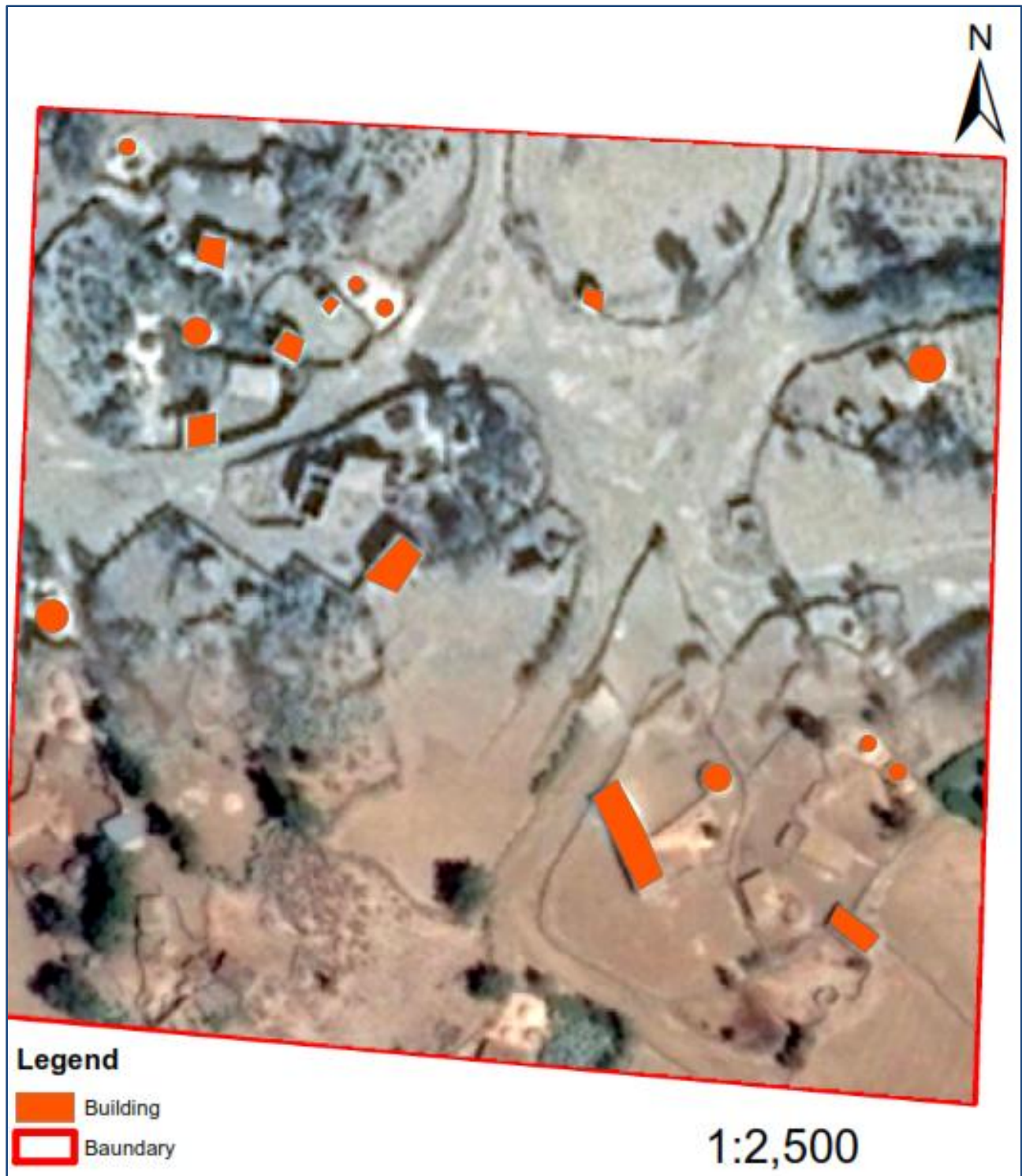


Figure 5: Morphology of some part of Mariam-dehan before 2014

Source; Google earth 2017; last accessed June 2018 and processed by GIS

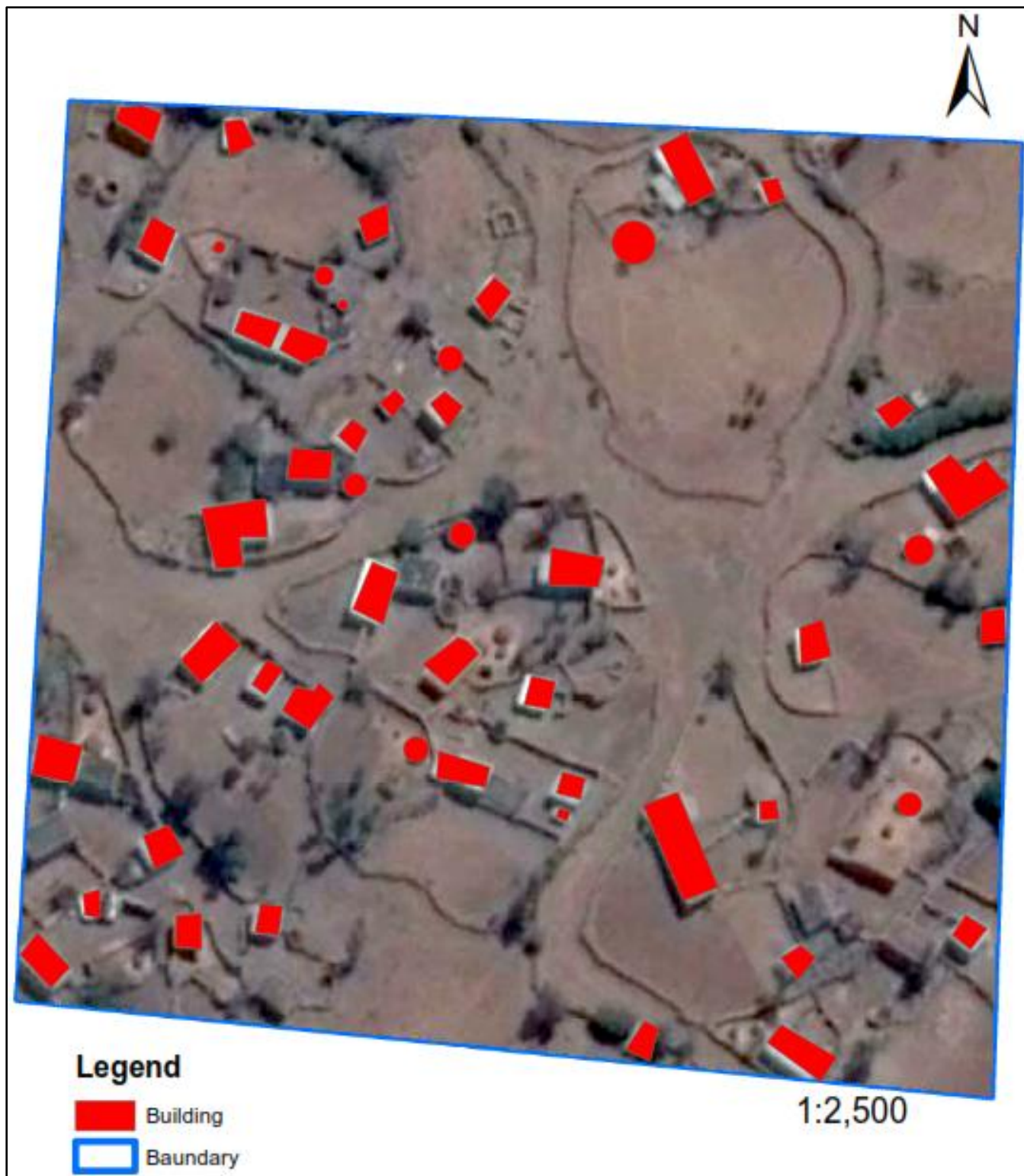


Figure 6: Morphology of some part of Mariam-dehan after 2017

Source; Google earth 2017; last accessed June 2018 and processed by GIS



Figure 7: Morphology of Gergembes before 2006

Source; Google earth 2017; last accessed march 2019 and processed by GIS

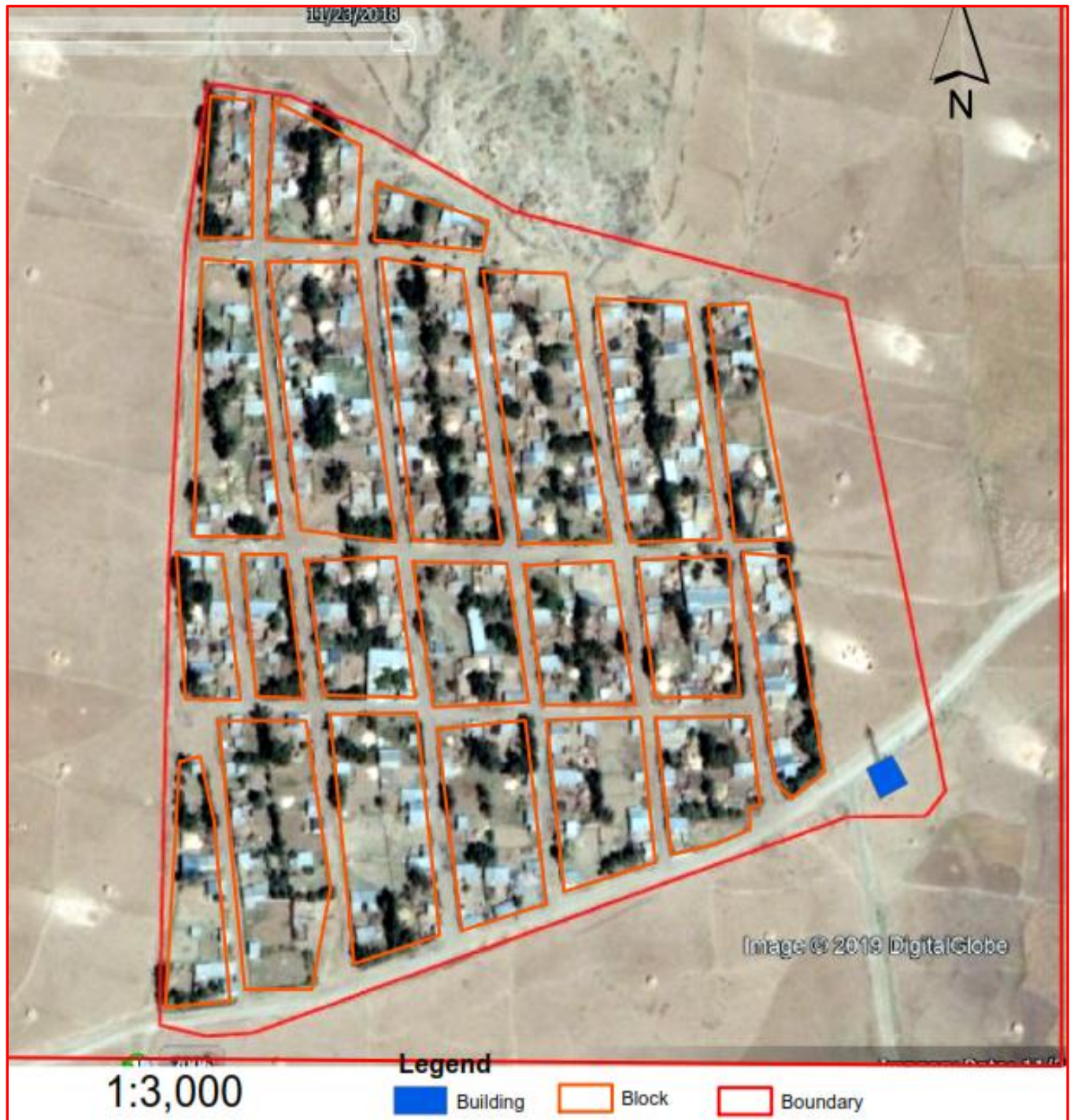


Figure 8: Morphology of Gergembes after 2018

Source; Google earth 2017; last accessed march 2019 and processed by GIS

The government assumes illegal settlement and illegal construction in Mekelle is not as such issue and it is under the control of the Municipality. However this issue may be seems minor when it compared to other regional cities but at this time the trend of expansion of illegal houses in the expansion area is very high. It will be head age to the musicality for the future unless protective measure should not do timely.

Example some communities around the city like Gergembes which is about two km east direction from Aynalem, decline illegal settlements in their neighborhood. Even they are interred to the city administration with the same time as the *kebele* Mariam-dehan; they minimize construction of illegal house to almost zero with the past twelve years as the morphology seen in picture 7 and 8. As the data gain in the field observation and Google earth, when we compare the two pictures their difference in the last twelve years period is only one block increment this is also a legal government house which is constructed by telecommunication office.

Whereas, in Ayder *kebelle* Mariam-dehan despite the farmers are entitled to a just compensation up on surrender of their holdings, illegal subdivision and transaction has been massive. Many farmers erect additional homesteads on their farms. A great deal of the youth squats on open public land. Others acquire plots from peasants illegally and build houses (Structures) there on. The overall result of huge magnitude of illegal land supply in the urban periphery has turned out the areas to be settlements hosting thousands of households. Both the rural Enderta *wereda* and the sub city used to report bulldozing as a resort for the illegal houses. The rural district, for instance cleared about 3000 units in a single settlement called Gefih-Gereb in 2011. Despite this fact, illegal land deal has continued. One can see mass sprouting of typologically "Rural" house around Arbaiete-Ensisa and Romanat. One important implication for the inquiry is then the reason for and the deriving command behind such unprecedented mass illegal land market while the measure against illegal land holding, both the sub city and the rural district contend has been non-accommodative.

Institutional behavior of illegal land deal in the area is another grey area, constituting part of this inquiry. The public claim indicated that informal institutions mediate the transaction. Residents within the fringe area in the sub city claim that the informal land transaction operates in a network of Rural Land Administration Committees, brokers, the peasants, and people seeking land either because of a real need for residential use or speculative business.

Currently, some mega projects also stops due to the massive illegal settlements and illegal construction activities in the city. Example, as the information secured from Adi-haki sub city planner, the industrial park project covers 1000 hectare of land the first phase is already done in 100 hectare. When the first phase started the surrounding areas was agricultural land but, know the area fill up with almost full of illegal settlement. This makes know a bottleneck to continue the construction of the next 900 hectare part of the industrial park in the city.

4.6.2. Lack of social and physical infrastructure

When the sub city expanded to its peripheries, the capacity of the municipality is to provide adequate infrastructure services like road, electric power, clean water, school and other important services to the community that are not grown concurrently. For example, the expansion areas of the roads are unpaved surface network which is not easily accessible to the people and vehicles especially in the rainy season. This road network is subjected to erosion, causes great mud in rainy season and dust in winter season in the settlement area. Apart from this, the water supply problem, as the sample household survey and field observation indicated that all the displaced houses did not have tape water. They get the services from public tape in the near settlement but the rest were forced to go long distance to get the service. Hence, the displaced households were subjected to use unprotected water which affects the health. And this leads them to unnecessary cost like paying of 50 birr per Metric cubic, health cost and spending of their time to fetch water, which can be used to other productive work. Educational service was also another problem as the displaced community had no access to public school in their near settlement area and their children were obliged to go long distance to get the service.



Figure 9: The electric line
Source: own field Photo, 2018



Figure 10: The unpaved road surface
Source: own field Photo, 2018

Regarding the electric-city, the households displaced did not have a meter private light to their houses. All of the housing units use shared electric meter from the houses already developed by lease and cooperative around them. Individual households forced to pay from 20 ETB (Ethiopian Birr) minimum to 40 ETB maximum per one lamp which may not be affordable to the poor. Even some of the households did not have the service because it was unaffordable price. Generally, the urban expansion and infrastructure management provision were poorly planned and developed.

4.6.3. Problem of unemployment and difficulty to get job easily

The means of economic income of the farming family was the farm itself. The entire households were engaged in their farming lands before they were displaced from their former place. Thus, they lose them employment opportunity and their means of subsistence.

Table 12: Level of employment in the displaced households

No	Type of work employed	Frequency	Percent
1.	Jobless	59	25.9
2.	Self-employment	24	10.5
3.	Employee of private firm	23	10.1
4.	Employee of government organization	10	4.4
5.	Employee of non-government	34	14.9
6.	Daily labor	78	34.2
	Total	228	100.0

Source; Household Surveyed data, 2018

According to the response of the household from the sample taken, 34.2% of them were daily laborers with less payment and, 25.9% of them had had without work as summarized in table 12. This shows that the local government did not assist to the displaced households to get employment opportunity to sustain their life within the urban style of life.

Table 13: Level of difficulty to get job easily

No	Level of difficulty to get job	Frequency	Percent
1.	Easily	28	12.3
2.	Difficult	175	76.8
3.	No difference	25	11.0
	Total	228	100.0

Source; Household Surveyed data, 2018

As to the interview of the sampled households in table 13, indicated that 76% of the responses could not get job easily after they were displaced from their farm land. Due to this factor, those displaced households are not on the way of progressive life and are under the problems of unemployment. So the municipality should give advices and trainings to the displaced households in order to sustain in the urban life style.

Table 14: Responses of respondents towards time stayed without job

Time stayed without job	Number of HH's	Percent
less than 6 month	66	28.9
from 6-12 month	86	37.7
greater than one year	76	33.3
Total	228	100.0

Source; Household Surveyed data, 2018

From the sampled displaced households, 71% of the responses indicate that after they were displaced from their former farm land, they stayed jobless for more than six month and 33.3% of them for more than one year as, it is summarized in table 14. To aggravate the problem, the compensation paid them was very low, which are not enough to stay jobless for long period. They used the compensation paid for them to survive and for non-productive purpose. This created a feeling of insecurity in the final destination place.

4.6.4. Effect on the Environment

Excessive urban expansion has become a key issue in relation to sustainable urban growth in rapidly growing big cities in developing countries. Following the problems of loss of farmland and green space, the environmental effects of transportation due to urban sprawl is increasingly

attracting attention in the context of global climate change (Zhao, 2010). Ended this, the evidence of the secondary data and field observation, the urban expansion of the sub city has been endangering and destroying important resources. These are deforestation, conversion of agricultural land to urban uses and land degradation. Even though the Tigray Regional State land lease regulation 76/2013 is not allowed to change land use from greenery, forest, parks, protected areas and archeological sites to other services by any reason, but some land uses (greenery and parks) which are very important to regulate environment violated the original land use to other services.

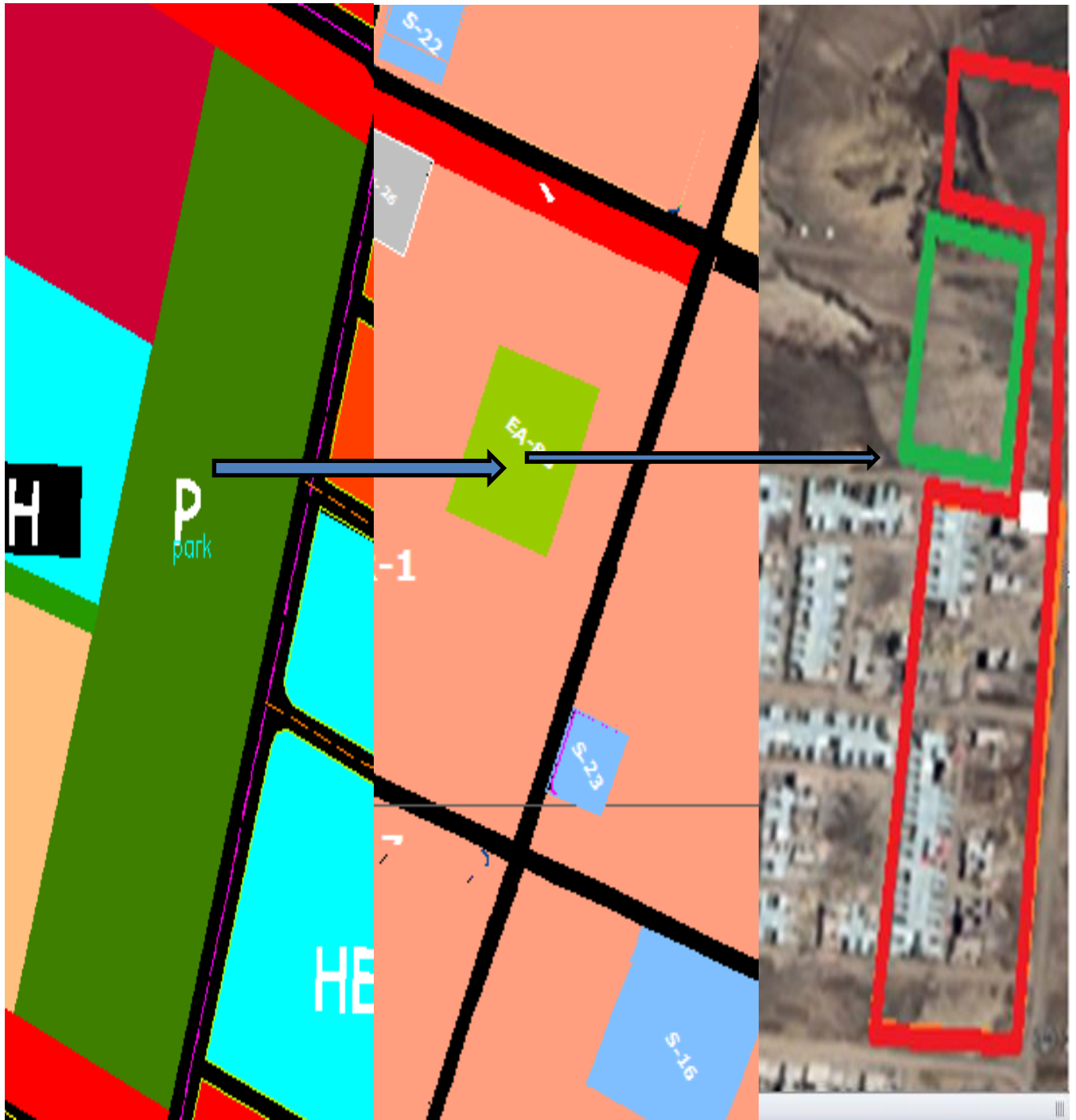


Figure 11: Comparisons between the plan preparation and implementation of the plan

Source: Adha LDP 2009

Source: Structural plan 2017

*Source; Google earth 2017;
last accessed June 2018*

The area of the park proposed in the LDP 2009 was 142517.73 m²/14.25 hectares; however, due to the problem of implementation, the land proposed to park was allotted to displaced households from the urban fringe due to investment expansion and some part also transferred by lease. When the plan was revised in 2017, the land which was previously proposed to park decreased from 14.25 hectare of land to 3.8 hectare against the law.



Figure 12: Comparisons between the plan preparation and implementation of the plan

Source: Adha local development plan 2009

Source: Ayder Municipality 2017

Similarly, the area of the Sport field proposed in the LDP 2009 was 96918.08 m²/9.69 hectares. However, when the plan was implemented the land proposed to Sport field was parceled to households displaced from the urban fringe due to industrial expansion and almost all the land that was proposed to sport field except 2200 m² /0.22 hectare/ changed to residential land use by the municipality itself without the permission of the regional land use regulatory office. However, this is against article 4(a) of the Regional land lease regulation 76/2013) which has the possibility of

changing land uses factions like sport field, market and bus stations to other land use function if obligatory conditions could happen.

4.6.5. Lack of Sustainability

As the MUDCo 2012 Revised Standards for Structure Plan Preparation and Implementation standard guide document among the main objectives; ensuring efficient utilization of land and efficient operation of structural plan and local development plans are stated clearly.

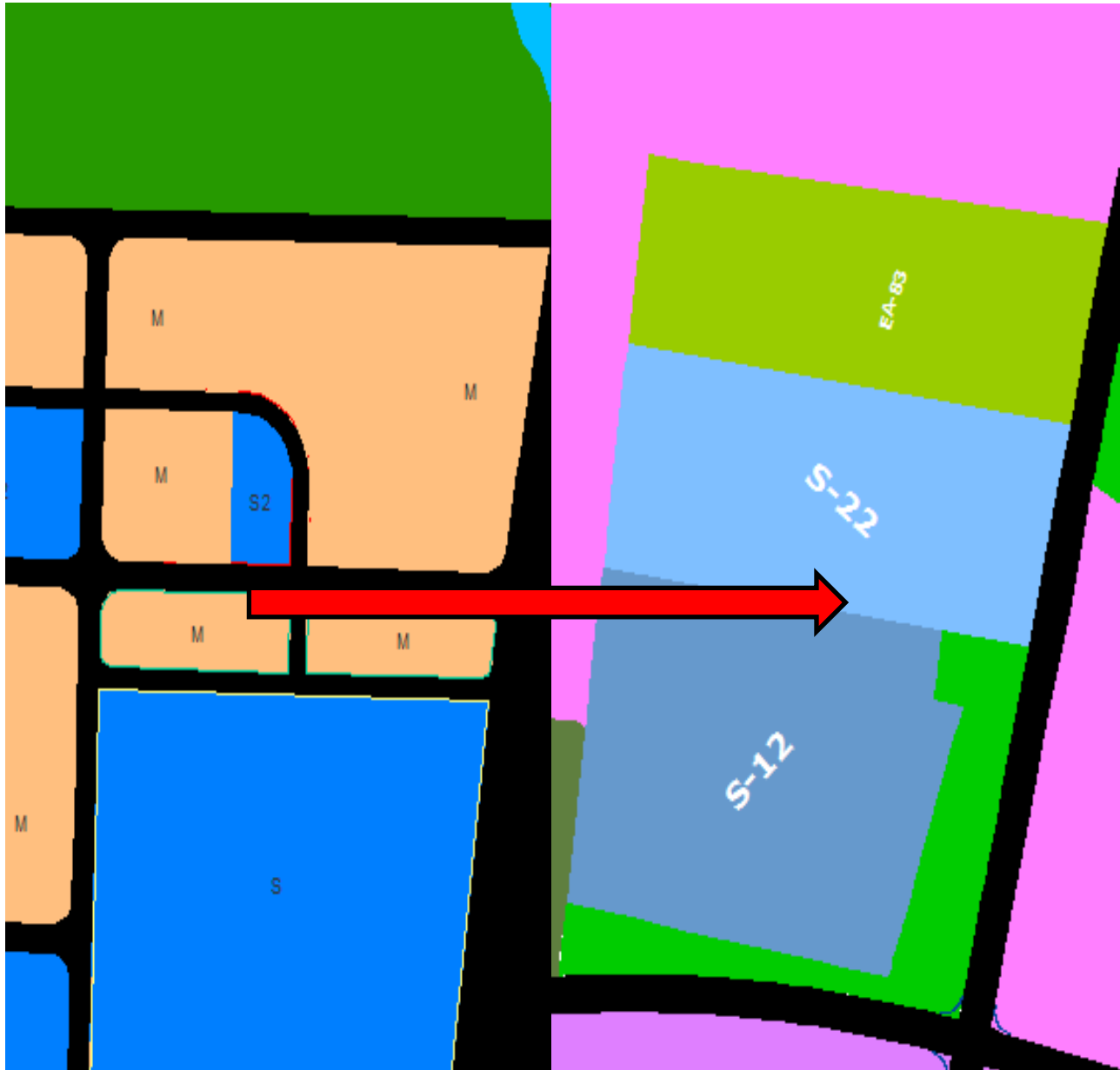


Figure 13: Comparisons between the plan preparation and implementation of the plan

Source: May-duba LDP 2009

Source: Structural plan (SP) 2017

As the data gained from *Ayder* sub city indicated, the structural plan 2017 and the LDP 2009 the plan implementation lacks efficient land utilization and sustainability. For example, the inconsideration of the new structural plan approved in 2017 for the households who were displaced from their former places in 2015, the sub city forced to ask land use change immediately after the plan approved. But it is not possible to ask land use change before six months starting from the time of plan approval. Still 53 households located in this site are in a state of confusion. They have not got a service in the municipality like design modification for their parcel, mortgage, donated selling and related services. The municipality experts responded to them the land use of them was proposed in the new structural plan 2017 for social service, residential buildings could not allow the plan due to this reason the households felt unrest in their destination again.

4.6.6. Weak Linkages between the city and its surroundings

It is now widely recognized that there exists an economic, social and environmental interdependence between urban and rural areas and a need for balanced and mutually supportive approach to development of the two areas. A new perspective, referred to as the rural-urban linkage development approach, is increasingly becoming the accepted approach. And, it is important to identify successful practices that promote rural and urban development and meanwhile that reduce poverty using rural-urban linkages and build the capacity of local governments to review and adapt such practices is necessary (MUDHCo, 2014). Whereas in the sub city as FGDs and field observation indicated, attention to sectorial and spatial linkages between the sub city and rural areas have been neglected. Apart from this, a large pollutant industry resides with settlements of the urban fringe for example, *Mesebo* Cement Factory and neighboring villages. Furthermore, the transport system in the sub city lacks adequate road network to the surrounding neighboring-hoods; inadequate transport services; narrow and inconvenient location of passenger transport terminals.

In addition to this, Indian cities experienced a variety of new, typically suburban peripheral areas, which arise in an array of configurations and social realities, and which contain a diverse range of economic functions and social activities (Kumar et. al., 2016). This is very important to enhance the linkage between the city and the peripheral area. Whereas, the city of Mekelle the peripheral areas are concentrated only in agricultural activities. Secondary and tertiary economic activities like

hotels, tourisms, recreations and other commercial transactions are very low they are concentrated in the main city center.



Figure 14: Comparisons between the satellite towns Genoa/Chicago/ and Romanat /Mekelle/
Source; Google earth 2017; last accessed March 2019

When compared the two satellite towns, Genoa around Chicago city and Romanat near Mekelle city, a substantial difference is observed. In the first satellite town, the road network, greenery and transport system is well organized while absent in the latter. Furthermore, the above image deafeningly speaks the apparent manifestations of the existing extreme variances in all respects.

CHAPTER FIVE

5. Conclusion, Findings and Recommendations

5.1. Conclusions

As in most developing countries, urban expansion management related experiences of Mekelle, Ayder sub city evidenced that urban and rural areas were treated as separate spatial units, which generally ignore the interaction and interdependence between these units. As a corollary to this, the preparation of urban development plans was undertaken with an urban bias, which undermines the achievement of balanced development between urban and rural settlements. A city or sub city making a decision as to whether it should annex additional areas should rely on factual studies that reflect the concern of both urban and rural area. However, the reality on the ground is far from this ideal. In the context of our country, the process of boundary adjustment implies automatic annexation process, whereby the city shall acquire jurisdiction over the surrounding lands.

Generally, the preliminary findings of the research witnessed that the urban planning practice in the sub city only partially achieved the objectives of planned development, namely sustainable development that incorporates the institutional dimension. Community participation is of crucial importance in facilitating urban expansion management that contributes to sustainable urban development. In developing countries like Ethiopia where the necessary policy and legal frameworks as well as working systems are not put in place, community involvement will be crucial to overcome a number of legal and procedural obstacles in the acquisition and effective management of rural lands to be annexed. The overall conclusion of this study is that ensuring adequate participation is still a challenge that precludes balanced development in the urban-rural interface after annexation. This is largely attributed to limited awareness on the part of relevant stakeholders about the organic links between annexation and definition of urban growth boundaries as part of the sub city or city-wide planning processes.

When stakeholders fail to participate in urban expansion management, little would be achieved in terms of orderly sustainable urban development. For urban expansion management to be successful there is essential to promote participation of the community and the experts of municipality in planning processes that would invariably entail urban expansion management that should be systematically addressed. Moreover, municipality employees and relative sectorial professionals should be given skill enhancement training with the objective of assisting them to be more

responsive to public demands and to capacitate them to implement government policies, strategies, and programs in an efficient, effective, transparent and accountable manner in urban land administration and management.

5.2. Findings

5.2.1. What are the practices and processes used in urban boundary growth redefinition in the context of urban expansion management in the study area?

- ✓ The boundary re-definition process is handled following a technocratic approach and the level of community's participation in the boundary re-definition process is very limited
- ✓ The working procedures that are used to define urban administrative boundaries are of ad-hoc nature and they are not backed by systematic legal frameworks
- ✓ No formal strategies, policies and guidelines exist for the participation of the community and other stakeholders in the annexation process.
- ✓ Participation in the context of the city or the sub city is only limited to the first stage. If at all annexation issues are raised in such meetings, it is generally for information purposes as such meetings are organized merely to fulfill formalities.

5.2.2. What are the driving factors that are shaping urban expansion in the study area?

The analysis confirmed that urban land expansion in Ayder sub city driven by different mixes of factors. According to the analysis the fundamental forces underlying urban expansion include:

❖ Population Growth and Ceaseless Housing Demand

- ✓ Housing demand
- ✓ Informal settlements
- ✓ Speculative-nature
- ✓ Competition for land

❖ Reclassification of Urban Boundaries (Annexation)

- ✓ The incorporating of rural *kebelles* to Urban

❖ Infrastructure development and housing

- ✓ Expansion of roads

❖ The Increasing of Land Development for Investment Zones and Industrial Parks

- ✓ Small scale industries
- ✓ Large scale industries

5.2.3. What are the main urban expansion challenges and problems in the study area?

- ✓ The lack of access to affordable land for housing or housing choices;
- ✓ Problem in transfer of land from rural to urban land use;
- ✓ Housing development system susceptible for speculators interest;
- ✓ Lack of land information and registration.
- ✓ Problem of sustainability in urban expansion in the city
- ✓ The land resources within urban growth boundaries are not well-managed
- ✓ Urban planning processes that are currently in place have not kept up with the actual development that is occurring as evidenced by the mismatch between the proposals in plans and the actual spatial development in implementation.

5.2.4. What urban expansion management approaches adopt to achieve sustainable urban expansion management?

- ✓ Promoting participation in urban expansion,
- ✓ Enhancing partnership among stakeholders,
- ✓ Land registry/cadaster should be maintained digitally and should be based on security,
- ✓ Improving governance,
- ✓ Integrated legal framework,
- ✓ Integrating the delivery of urban services to the urban fringe,
- ✓ Improving linkages between the city administration and the surroundings
- ✓ Giving advanced commensurate compensation,
- ✓ Plans for expansion with a densification strategy, and
- ✓ Training and capacity building.

5.3.Recommendations

Overall, it can be ultimately summarized that policy-makers have insufficient understanding about the concept of urban expansion management and have a problematic management of urban boundary redefinition in practice. In order to improve the effectiveness of sustainable urban management and the existing practice of urban expansion management, solutions should be targeted at the following aspects.

♥ **Promoting Participation in Urban Expansion**

Public participation is the best way to increase effectiveness, responsibility, and to enhance responsive administration in the field of urban land administration and management. Participation should have the necessary power to contribute effectively in urban expansion process and successful urban growth management. Public participation have had double-sided instrument which helps to ensure that planning will work towards reflecting the priorities and interests of all major groups and that they will be committed to playing their role in translating planning into action.

♥ **Enhancing Partnership Among Stakeholders**

In urban expansion management, partnership between government agencies, private sector, and community can lead to win-win situations. National and local policies must be linked, coordinated and complementary. This governmental collaboration should contain a clear definition of roles to avoid conflict of interests.

♥ **Efficient Land Register and Cadaster**

Land registry/cadaster should be maintained digitally and should be based on secured, uniform spatial reference and also used for all spatial planning purposes. All relevant public actors operating in the land should be able to access it electronically, authorized through digital signature. For this purpose, regularly updated public registers and cadastral systems are needed to minimize risk of fraud in transactions and at the same time provide legitimacy to the lawful possession of an asset. Secure private land ownership and security of tenure are also an integral part of good governance. The information recorded in land cadaster/land registry should be open for public access at reasonable cost in order to ensure accountability. However, personal data protection must be guaranteed according to existing national legislation.

♥ **Improving Governance**

A huge weakness to effectively address the urban expansion management issue refers to the constraints presented by local and regional governance and decision making structures. For administrative power structures to effectively govern urbanized and urbanizing populations, they must be inclusive, particularly of those in fringe areas. Overcoming this challenge will require shared commitment and creativity by all involved parties. And also it is necessary to develop policies for short-term actions to boost urban expansion management, which may stimulate more structural institutional reforms in the long term. An inter-secterial approach to land policy and

reforms should be supported and actively encouraged at the highest governmental levels. Property rights should be protected and fair compensation should be paid to affected asset owners in the case of expropriation for public reason.

♥ **Integrated Legal Framework**

An integrated national legal system should be established and harmonized with the existing regional and international norms for the urban expansion management approach. Technical reference frameworks should be set for the application of regulations in order to promote the proper functioning of urban expansion management. In addition, while the urban expanded their size to their boundary, negotiation and agreement between the concerned urban and adjoining rural administrations should be made. When the agreement fail the decision shall be made by the relevant regional authorities or if necessarily the federal authorities may be included as may be appropriate. Without an integrated national legal system, all activities that involve investment in urban expansion area which in turn contribute to increase employment opportunities and overall economic development of a nation are considerably endangered.

♥ **Integrating the Delivery of Urban Services to the Urban fringe**

The challenges of equitable development among urban and rural residents in fringe areas point out to the need for major improvements in the provision of public services such as health, decent shelter, education, water and sanitation. Local planning processes should also guarantee the provision of basic services to the residents of the adjoining areas in the intervening period in a manner that will make the process of land use conversion beneficial and less painful.

♥ **Improving Linkages between the city administration and the surroundings**

Maximum efforts should be exerted by the sub city, city administration and the regional government to provide adequate infrastructure services for the neighboring-hood urban fringes as well as for the satellite town around the city. This could be facilitated to assist in spreading opportunities for lively-hood and well-being distributed more evenly over space. To create a high level of spatial scanning to mitigate unintended impacts on environment and longer term sustainability of development in between them and at broader to create more resilient regional and stable national economy.

♥ **Giving advanced commensurate compensation**

Municipalities should share the profit from land lease to former holders. This can be done for example by following the market value valuation method or other methods. Municipalities must update the current price of building materials for the minimum standard house. Rural farmers should be compensated for the loss of their land on other scientific formula rather than ten times the average annual income secured during the past 5 years; we must strive towards creating professional valuers or property appraisers.

♥ **Plans for Expansion with a Densification Strategy**

At the sub city level, plans for expansion and densification are needed to accommodate the expected growth in a sustainable manner. Planning considerations have to provide for a rational urban structure to minimize transport and service delivery costs, to optimize the use of land, and to support the protection and organization of urban open spaces.

♥ **Training and Capacity Building**

To guarantee an efficient urban expansion management with high quality professional services, updated knowledge and technological resources that contribute to the continuous annexation of rural areas, planning, realization and management of building projects and services requires specific skills. This includes not only basic training at the managerial level, but also continuous professional development and refresher courses for all actors in urban land and related professional service. Training at every level in the urban land development sector should be considered as a strategic factor, and therefore as a key element for the development and implementation of adequate economic policies and a range of professional services in line with the ever growing expectations of the public.

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Annexes

A. Questionnaires to be filled by sample household heads

Dear Respondent, your response will provide valuable information on the issue of urban expansion management and challenges in your sub city. The information you provide is completely confidential.

To be filled by household head. Fill the answer in the blank space or mark in the box.

Part one background of the respondent

1. Sub city _____ 2. *Kebelle* _____ 3. Name of the respondent (if willing) _____
4. Age: _____ 5. Sex: a. Male b. Female 6. Total number of the household _____
7. Marital Status: a. Single b. Married c. Divorced d. Widowed e. Separated
8. Religion: a. Orthodox b. Muslim c. protestant d. Others Specify _____
9. Level of education A. Illiterate B. Read and write C. Primary D. Secondary E. Technical and vocational / Graduated F. Degree and above

Part two: Participation in the displacement plan and other city development initiatives

1. Are you aware of the urban expansion program in your vicinity? a. Yes b. No
2. If yes, how? A. Through mass orientation B. Through formal training or seminar C. Both
3. Did you participate in decision making process in the implementation of displacement program? A. Yes B. No
4. Who is the main decision makers in determining the amount of compensation paid to the community? A. Government body B. Local community committee C. Both
5. What was your reaction when you were asked to move from your previous possession?
A. Agreed without objection why?
B. Objected and forced to leave why?
C. First objected but finally convinced to accept why?
6. Did you have representative in decision making on benefit packages allotment? Yes B. No
7. If yes, how was it represented?
A. Through local community institutions C. Through individual interested group
B. Through elected committee. D. Through *kebelle* administration
8. Did you get enough time to prepare yourself in case of dislocation? A. Yes B. No
9. When you were asked to leave your place, what was the benefit packages promised to be allotted to you in displacement (multiple answers possible)?

A. Compensation (money) B. Housing plots C. Access to services D. Opportunity to job

10. Which of the benefit packages did you get at last (multiple answers possible)?

A. Compensation (money) B. Housing plots C. Access to services D. Opportunity to job

11. In which of the packages are you happy about?

A. Compensation (money) C. Access to services E. Training to develop skill

B. Housing plots D. Opportunity to job F. Others, specify _____

12. What was your reaction towards the amount of the benefit packages allotted to you?

A. Satisfied with it B. Indifferent C. Dissatisfied D. highly discouraged and dissatisfied

13. What is your recommendation with regard to compensation for next?

Part three impact of displacement on the farming community

1. What was the effect of the expansion program did you face before its actual implementation?

(Multiple answers are possible).

A. Frustration due to lack of orientation on where and how to live in urban settlement

B. Inadequate attention from the Administration in community development activity

C. Inadequate provision of extension services in agricultural production

D. Others, specify _____

2. Do you get job easily now than before displacement? A. Yes B. No

3. If no, what is the reason _____

4. For how long have you stayed jobless in the last three years?

A. < 6 months B. 6 months to one year C. More than one year

5. Do you have work now? A. Yes B. No

6. If yes, what type of work is it?

A. Self-employment B. Employee of private firm

C. Employee of government organization C. Employee of non-government

D. Daily labor

7. Do you have other incomes other than your work now?

A. Farm income somewhere else with relative's B. Rental income

C. Other remittances D. No income

8. Is your annual income better now than before displacement? A. Yes B. No

9. What are the major problems you faced while coping up to the urban life?

A. Lack of knowledge in finance utilization

B. Lack of due follows up from the concerned institutions

C. Lack of skill / knowledge for job opportunity D. Others specify _____

B. An Interview guideline to Municipal leaders:

Dear Respondent, your response will provide valuable information on the issue of urban expansion management and challenges in your sub city. The information you provide is completely confidential.

Part one background of respondent

1. Address _____ Sub city _____ *Kebelle*
2. Lever of education _____ Position if any _____

Part two questionnaire about city/sub city expansion

1. What do planning deals with urban expansion?

2. Is the city expansion rate going with planning?
3. What do you think the reason if your response is” no” for the above question number two?

4. As a government institution, what is your organization’s role to internalize negative externalities of urbanization on that peri-urban community livelihood?

5. How many rural *Kebelle* are included to your administration boundary till now within the previous ten years?
6. What are your criteria to delineate urban boundary?

7. Do you participate to the residents in the urban boundary during delineation?
8. Are there conflicts associated with the conversion of agricultural land to urban use?
A. Yes B. No
9. . Is there a mechanism to rehabilitate evicted farmers? A. Yes B. No
If yes, explain _____
10. How do you explain the investment rate of the sub city and the land taken by investors?
11. Do you have data base for the evicted farmers their living status or livelihood?
12. Is there any measure taken by the Sub city (Municipality) to reduce horizontal expansion of
If yes, explain _____
13. Is there any speculation in your urban center?

C. Questioner or Guideline for Focus Group Discussion

Warm-up:- For some people living in urban area 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 urban expansion in this locality?
2. Had you been made participate for planning in urban expansion program and their implementation?
3. What advantages and disadvantages you believe are the result of urban expansion towards your localities specially interims of social, environmental and economic aspects?
4. Discuss the mechanisms of livelihood strategy of the community at house hold levels and victims of social groups i.e. newly means or sources of income, job opportunity, social and cultural influences (neighborhood reaction)?
5. 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?
6. Who is, to you, the responsive body to day to reduce the negative impacts of expansion on your livelihood and to take first action of rehabilitation of your livelihood strategies and means?
7. Is there any speculation in your sub city?
8. What is your opinion on informality and its contribution for urban expansion?
9. What is the filling of the rural community whom incorporated to the sub city in relation to security of tenure?
10. What would you recommend in similar activities elsewhere for planners and policy makers in improving the livelihood of the local people affected by urban expansion?

D. Questioners for Key informants

1. የከተማውን የአስተዳደር ወሰን ማካለል ሂደት የነዋሪዎችን፣ የፖለቲከኞችን እና የባለሙያዎችን አስተዋጽኦ እና ሚና እንዴት ይገልጹታል ? ሂደቱ ምን ያህል አሳታፊ እንደሆነና ውጤታማነቱን በተመለከተ ያለዎትን አስተያየት ቢገልጹልኝ?
2. በከተማው አስተዳደርና በአካባቢው የገጠር ወረዳ አስተዳደሮች መካከል ለከተማ ዳርቻ ነዋሪዎች የህዝብ አገልግሎቶችን በተሟላ መልኩ ማቅረብ ያለውን ትብብር እንዴት ይገልጹታል ?
3. የከተማዋን የአስተዳደር ወሰን እንደገና ለማካለል በስራ ላይ የዋሉት / እንዲውሉ የተደረጉት/ ዋና ዋና መስፈርቶች ምንድን ናቸው? በቅርብ ጊዜ በተደረገው የከተማዋን ወሰን የማካለል ሂደት ከከተማ ፕላን ዝግጅትና አፈጻጸም ሂደት ጋር ምን ያህል የተቆራኘ ነው? የከተማዋን ወሰን እንደገና በማካለል ሂደት ለከተማው ከተዘጋጀው ፕላን በተጨማሪ የታዩ ሌሎች ጉዳዮች ከነበሩ ምን እንደሆኑ ቢያስረዱኝ ?
4. በከተማው ዙሪያ ያሉ ነዋሪዎች በራሳቸው ፍላጎት በከተማው እንጠቃለል ብለው ማመልከቻ ያቀረቡበት አጋጣሚ ከነበር ስለጥያቄው አቀራረብና በወቅቱ ከአካባቢው አስተዳደር ስለተሰጠው ምላሽ የሚወቁት ነገር ካለ ቢያስረዱኝ?
5. የከተማው የአስተዳደር ወሰን በየጊዜው እንዲሰፋ ከመደረጉ አንጻር የከተማው የአስተዳደር ወሰን ይህን ያህል መስፋት ነበረበት ብለው ያምናሉ?
6. የከተማዋን የቅርብ ጊዜ ፕላኖች በሚያዘጋጁት አካላት በኩል የከተማዋና የወደፊት የመሬት ፍላጎት ትንበያ ሳይንሳዊ የኢኮኖሚና የህዝብ ትንበያ መንገዶችን ተከትሎ ስለመከናወኑ አስተያየትዎን ቢሰጡኝ ?
7. በቅርቡ ወደከተማው የአስተዳደር ወሰን እንዲካለሉ በተደረጉ አካባቢዎች በአሁኑ ወቅት በከተማው አስተዳደር በኩል ስለሚቀርቡት አገልግሎቶች ሽፋንና ጥራት ምን ያላሉ?
8. የከተማው የአስተዳደር ወሰን እንደገና በመካለሉ ምክንያት ወደከተማው የተጠቃለሉት የቀድሞ የገጠር ነዋሪዎች ያገኙት ጥቅምስ ምንድነው?
9. የከተማው የአስተዳደር ወሰን እንደገና በመካለሉ ምክንያት ወደከተማው የተጠቃለሉት ነዋሪዎች በመሬት ይዘታቸው ላይ ስላላቸው መተማመን (ቴኑር ሴኩሪቲ) እና ይህን ተከትሎ በአካባቢው የሚታዩ አዳዲስ አዝማሚያዎች ካሉ ቢገልጹልኝ?
10. የከተማው የአስተዳደር ወሰን ከተወሰነ በሁዋላ ርክክብ የሚደረግበት እንዲሁም ህዝቡ እንዲያውቀው የሚደረግበት አግባብ ምን ይመስላል ?
11. በክፍለ ከተማቹ በመሬት የሚነግዱና መሬትን በመያዝ ያለ አግባብ መበልፀግ የሚፈልጉ ግለሰቦች ካሉ መፍትሄውስ ምንድነው ይላሉ?
12. ወደፊት ባሉት ጊዜያት የከተማውን የአስተዳደር ወሰን እንደገና ማካለል ቢያስፈልግ በመንግስት በኩል መደረግ ስላለባቸው ጥንቃቄዎች ቢገልጹልን ?

E. Observation Checklist

1. Observing and taking notes about the existing connectivity to the urban fringe.
2. Environmental condition of the site.
3. The Average Unit price of land market /m² formal and informal market.
4. Is there heavy industry that emits pollutants in the expansion area?
5. If the answer in Q4 is yes please list the type of pollutants found _____
6. Observing the activities of informal/illegal settlements.
7. The Filing system of the sub city.

Thank you