

Evaluation of Urban Planning form, Structure and Morphology in Asella Town for the 1998, 2008 and 2018 Master Plans

By: Feyisa Shumi Raya (Weekend Program)



A Thesis submitted to the department of Architecture

School of Civil Engineering and Architecture office of Graduate

Studies

Presented in Partial Fulfilment of the Requirement for the Degree of Master of

Science in Urban Planning and Design

Office of Graduate Studies

Adama Science and Technology University

Adama, Ethiopia
May 2023

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June 2023

Declaration

I hereby declared that this M.Sc. thesis work entitled “Evaluation of ***Urban Planning Form, Structure and Morphology in Asella Town for the 1998, 2008 and 2018 Master Plans***” Presented in Partial Fulfilment of the Requirement for the Degree of Master of Science in Urban Planning and Design is my own work which complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

Name of Student

Signature

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Recommendation of Advisor/Supervisor

I, the advisor of this thesis, hereby certify that I have read the revised version of the thesis entitled **“Evaluation of *Urban Planning Form, Structure and Morphology in Assella Town for the 1998, 2008 and 2018 Master Plans*”** and examined the understanding of the candidate. Prepared under my guidance by Feyisa Shumi submitted in partial fulfillment of the requirements for the degree of Master’s of Science in Urban Planning and Design.

Therefore, I recommend the submission of the revised version of the thesis to the department following the applicable procedures.

Advisor

Signature

Date

Approval Page Thesis

I, the advisor of the thesis entitle “Evaluation of Urban Planning Form, Structure and Morphology in Assella Town for the 1998, 2008 and 2018 Master Plans” and developed by Feyisa Shumi hereby certify that the recommendation and suggestions made by the board of the examiners are appropriately incorporated into the final version of the thesis.

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We, the undersigned, members of the Board of the Examiners of the thesis by Feyisa Shumi have read and evaluated the thesis entitled “Evaluation of Urban Planning Form, Structure and Morphology in Assella Town for the 1998, 2008 and 2018 Master Plans” and examined the candidate during open defense. This is, therefore, to certify that the thesis is accepted for partial fulfillment of the requirement of the degree of Master of Science in Urban Planning and Design.

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Acronyms

UN: United Nations

UNCHS: United Nations Centre for Human Settlements

CSA: Central Statistical Agency

MWUD: Ministry of works and urban development

NDP: Neighborhoods Development Plan

NGO: Non-Governmental Organizations

LDP: Local Development Plan

OUBI: Oromia Urban Planning Institute

EES: Ethiopian Electric Services

NUPI: National Urban Planning Institute

Ha: Hectare

Q. No: Question Number

M: Male

F: Female

BSc/BA: Bachelor of Science/Business of Arts

MSc/MA: Master of Science/Master of Arts

PhD: Doctor of Philosophy

Abstract

A master plan is a tool of urban management and development which could be a basis for other urban development plans. Hence, is an umbrella that serve as a bridge between wide area or regional plan and local development plans. The objective of the study was to evaluate the urban form, structure, and morphology in Assella town for the 1998, 2008 and 2018 master plans. The methods employed for data collection was questionnaires, interviews, group discussions and field visit as well as from different documents and e-sources. The finding of the study showed that the 1998 plan of the town was developed on an area of 2,162.9 ha, the 2008 plan on an area of 4,637.9 ha of land while the 2018/19 (current plan) was established on an area of 5,382.6 ha of land, respectively. This Implied that the urban expansion plan of the town increased by 53.4 % and 13.8% in the 2008 and 2018/19 master plan, respectively. On the other hand, the study found that about 33% of the respondents answered that the urbanization problems of the town were associated with the master plan itself while 67% of them believed that it was correlated with plan implementations. Specifically, a street network and transport, town centers, economic activity corridors, business centers, housing development, drainage system, public spaces and traffic management were not explicitly designed in the town's plan. Furthermore, the main problems associated with master plans implementation was difficulty in executing the master plan due to failed in providing compensation for lands included to the plan, rigidity of the land policy, officials (authorities) not to follow the land policy of the region, officials' interference into the decisions of workers, employees failed to respect and perform their activities according to the plan/land policy, incapability of employees: lack of experiences, irresponsibility of the officials or politicians: no one asked for their failures, Failures of officials evaluating the implementation of the plan, and land utilized for unplanned purpose instead of for planned were pinpointed as a cause. The mentioned problems are directly affected the urban form, structure, and morphology of the town. Therefore, though the urban development and growth of the town showed a certain change through each consecutives master plan, the urbanization status was significantly retarded by the problems aroused from master plan and failure of plan implementations. Consequently, the study was recommended that fixing problems associated with the master plans, master plan implementation and averting favorable conditions that potentially hinders the master plan implementations were crucial for a sustainable urban growth and development of the town.

Keywords: Arsi zone, Assella Town, Master Plan, Urban form, Urban structure, Urban morphology,

1. INTRODUCTION

The study entitled “evaluation of urban form, structure and morphology in Assella town for the 1998, 2008 and 2018 master plans” has five sections. The first section discussed the background, main statements of problems, objectives, research questions and limitation of the study. Thus, the overall intents, the need of the study and gaps to be filled were addressed under this section. The literature section which primarily talked about the so far works that are related with this study especially on master plan and urbanization research works conducted by various researchers has been discussed under section two. Whereas the third section discussed the methodology by which the study carried out. Under here description of the study area, tools of data collections [primary data and secondary data], determining sampling size, sample taking techniques and data presentation and interpretation have dully discussed. The fourth section is entirely presented and discussed the findings of the study. Under this section data was presented in table form, graph, charts, diagram, pictures as well as maps. The final fifth section is provided the conclusions of the study with a profound recommendation that could potentially provide insights and becomes an ice breaker for further study on the urbanization related problems of Assella town.

1.1. Background

One of the most important features of urban life today is complex social relationships. Part of the relationships are in the environment, but much of them take place in the form of social interaction in the urban space. That is urban space plays an important role in the social development of citizens and their interactions are formed within it. These social development and interactions are highly affected by the urban plan of the town (P.Kropt, 2005). Unless otherwise the urban plan could display various degrees of forethought and conscious design in their layout and functioning, it will weaken social development and create social life crisis. In this regard, Assella town of Arsi zone, Oromia with a population of nearly 70, 000 as of (CSA, 2007) census report faces problems associated with plan form, urban structure and urban morphology of the town master plan. Urban Form, urban structure and urban morphology is the skeletal of any master plans. Where each entity has a defined scope in the urbanization growth and development of town/city. By definition urban form is the spatial pattern of human activities at a certain point in time (Anderson C., 2001). It is a term used to describe the physical elements within a city that refers to the arrangement, function and aesthetic qualities of the design of buildings and streets which overlay the land use and

transport system (Mead et al, 2006, p110). Urban form can be classified in different dimensions with emphasize of four key metrics (density, land use matrix, connectivity and accessibility). However, these dimensions classification are not depend to each other rather, they measure different aspects of urban form and structure which impacts urban development differently.

On the other hand, urban structure is primarily associated with the arrangement of streets, paths, blocks and lots, public open spaces, activity centers, public transport nodes and corridors and residential neighborhoods. It comprises the overall topography and land division pattern of an urban area. Whether at the scale of a city, town, neighborhood, precinct or large development site, it is interrelationship between all of the elements of urban structure rather than their individual characteristics that together make a place (Victoria State, 2016). On the other hand, urban structure is also the arrangement of land use in urban areas. Sociologists, economists, and geographers have developed several models, explaining where different types of people and businesses tend to exist within the urban setting. Urban structure can also refer to the urban spatial structure, which concerns the arrangement of public and private space in cities and the degree of connectivity and accessibility (Batty *et al.*, 2004).

Another important plan related term is urban morphology which is associated with urban spatial form that is the assemblage of buildings and public spaces that comprise the city. It also entails analysis of the forces that produce such an assemblage and the spatial practices that are produced therein. Generally, urban morphology can be considered as an approach that provides an understanding of the form, creation and transformation processes, spatial structure and character of human settlements through an analysis of historical development processes and the constituent parts that compose the settlements. Similarly, Bentley and Butina states urban morphology as an approach to studying and designing urban form which considers both the physical and spatial components of the urban structure of plots, blocks, streets, buildings and open spaces, all of which are considered as part of the history/ evolutionary process of development of the particular part of the city under consideration.

According to world urbanization prospects report, the urbanization development status of developed countries like in North America was 81.5%, Europe 73.4%, Asia 47.3% and Africa 40% in 2015 (UN, 2009). The trends of the urbanization worldwide are getting improved from time to time. For instance, urban planning in Africa is increasing due to economic growth and associated demographic changes including rising in urbanization without the requisite infrastructure, spatial and settlement planning. Which implied that urban planning Africa results from indigenous aesthetics and conceptions of form and function as well as the changes brought on by industrialization, modernization and colonialism

(Leonardo, 1967). However, different scholars suggested that the current economic and urbanization in Africa should be guided by appropriate planning and land use management at continental, regional, national, sub-national and local scales. This is to ensure that Africa's new town, cities and rural areas are effective in terms of meeting the basic needs of all their inhabitants and to ensure that economic and social growth are inclusive. The key questions considered by the state of planning in Africa report include: what role is planning playing at this junction? What is the capacity across Africa for forward development, spatial planning and land use management and how effective is planning?

Ethiopia is one of the least urbanized countries in the world today and only 18% of its population lives in urban areas. In common with many other developing countries, however, this pattern is changing. Ethiopia's urban growth rate is more than 4% per year which places it among the highest in Africa and the world (MWUD, 2006). This is associated with population growth that drives planned urban in order to make economic and social development sustainable.

A UN-habitat (UNCHS, 2001) supports town/city, regional and national authorities to improve and adopt policies, plans and designs for more compact, socially inclusive, better integrated and connected cities that foster sustainable urban development and are resilient to climate change.

As Assela town is pushing for a sustainable approach to urbanization, it increasingly needs planning capacity based on its planning internal form, structure, function and appearance of the urban areas. Town planning or popularly known as urban planning is focusing on accomplishing sustainable, user friendly, economic and social organization of all elements of a town, city or any other urban environment. According to the Britannica Encyclopedia (Encyclopedia), urban planning is the design and regulation of the uses of space that focuses on the physical form, economic functions and social impact of the urban environment and on the location of different activities within it. In this regard, one of the problems associated with Assela town is town planning internal form that directly related to physical design and layouts on the grand plan. This physical factor is entirely related with spatial rank engage availability and place counting facilities, lighting, land scape and recreational space and safety (Nathiwutthikun, 2006).

The structure of the town is detrimental to improve or demolishing the life of the society. This is because the city structure designed either in expansion way or newly emerged urban that includes the farmers farming lands which supports its family (L.Ullman, 1945). Above all, the function of the designed/planned city/town is not explicitly stated whether the function of the urban is commercial, political or living purpose. Moreover, the urbanized area should contribute something

about the growth of the city or town in addition to appearance that could give aesthetic values.

Regardless of the above points, many studies on Assella town was focused on land utilization, economic growth, illegal housing settlements(Aman Yusuf, 2017; Weldu and Derribew, 2015). Putting this into consideration this study was aimed to evaluate Asella Town planning internal form, structure, function, morphology and appearance of urban areas which at the end of the work provide a holistic insight regarding the town growing process.

1.2. Statement of the problem

Assella is the capital of Arsi Zone of Oromia National Regional State and Tiyo district. It is also the seat of numerous NGO and faced based many organizations. Assella is a level 3 large town in its stage according to the rank given to urban center of Ethiopia (OUBI, 2018). It is a medium level town in its stage and is surrounded by small towns and serve as market center mainly for agriculture. The town passed through more than three master plans to carry out a planned and proper urbanization program. However, the town urbanization extent is very slow as its urbanization process began during the monarchy period. A few researchers have studied the town's urbanization development from historical development, economic and population growth perspectives. Nevertheless, evaluating the town's urbanization growth problems from urban structure, urban form and urban morphology perspectives is essential as it able to find the root causes and provide crucial insights to come up with genuine solutions.

Like any other urban areas of Oromia, the rate of urbanization is increasing from time to time. However, urbanization in Assella today faces serious challenge of growth in implicit and explicit factors. To mention, several proposed works on the master plan of the town such as one (1) proposed public space (open spaced) areas utilized for mosque building, four (4) parks/zoos areas were propose but two (2) of them changed for residentials and cemetery purpose, about ten (10) areas were proposed for housing development but all are assimilated into the town expansions, ten (10) school areas were proposed but 2 of them changed or missed for other purposes specifically for residential, three (3) areas were planned for bus terminals but all are changed into residential areas and also community areas or areas for playground were not totally included in the town's master plan. On the other hand, people living in the town and scholars in urban development areas claimed that many illegal activities such as land invasions, informal housing development and settlements are alarmingly increased from day today. These stated problems have direct impacts on the structural

plan of the town which then influencing the town urban form, urban structure, and urban morphology that affect the urbanization growth and development of the town.

Therefore, this study was conducted with the objective of evaluating urban form, structure, and morphology in Assella town for the 1998, 2008 and 2018 master plans. All implicit and explicit factors associated with the plans and implementation issues have been thoroughly studied to investigate the real problems that potentially slow the urbanization growth and development of the town.

1.3. Objectives

1.3.1. General objective

The general objective of this research was to evaluate and assess the urban planning form, structure and morphology of Assella town for the 1998, 2008 and 2018 master plans.

1.3.2. Specific objectives

The specific objectives of this thesis study were:

- to analyze the structure and morphology of trends of the three consecutive master plans of Assella town :1998, 2008 and 2018
- to evaluate the current master plan of the town and assess its gaps that could influence the town's urbanization growth
- to examine the role of urban planning on the form and functions of Assella town's urban structure
- to explore the failure of implementing structural plan on form, structure, and morphology of urban environments of Assella town

1.4. Research question

Through the course of this study, the research has provided response for the following research questions:

- 1) Does a significance change made on each consecutive Assella town master?
- 2) Does the urban form influence the appearance of built environment of the town?
- 3) Does urban planning play a role on the form and functions of Assella town urban structure?

- 4) How much the failure of implementing structural plan affects the form, structure, and morphology of urban environment of the town?

1.5. The scope of the study

The scope of this study was bounded with studying the urban planning form, structure and morphology of Assela town. In addition, the research was also studied on evaluating changes made on the current master of the town compared with the last two decades (1998 and 2008). Moreover, the study was further included the evaluation of the extent of the town urban planning/design implementation in align to the urban planning program of Assella town.

1.6. Significance of the study

The overall significance that the study possibly provide could:

- 1) Provide a chance for town's municipality in order to strengthening the implementation of the city plan upon evaluating gaps in the urbanization process
- 2) An icebreaker for anyone who wants to further study the city plan, structural, morphology and functionality category of Assela town
- 3) Serve as a reading reference for people who are living in the town

1.7. Limitation of the study

The study was limited on evaluating the urban form, structure and morphology in Assella town for the three consecutive years: 1998, 2008 and 2018 master plans. The research was not intended to study the structural plans of master plan before 1998, economic related, political, population growth and other historical issues of the town.

2. LITERATURE REVIEW

2.1. Concepts and definition of terms

Prior to discussing concepts related to urban planning form, structure and morphology of a town, defining terms like urban planning, urban form, urban structure, morphology and structural plan is crucial.

Different scholars define urban planning in various way, but with almost similar meaning or concepts. Accordingly, urban planning defined in the following way;

Urban Planning, according to Davidson (1996), urban planning is a tool for urban development that helps to response the question of what? Where? When? By whom? and how? Urban development should be answered those questions. Whereas Joseph (2004) defines urban planning as a spatial component and then clearly it only makes sense if it ends up in a spatial representation. Which means that urban planning is a spatial case of general planning. Practically, urban planning is impossible to think urban development plan without spatial representation or map. Thus, urban planning is still essentially spatial whatever the scale and the sequence is, it is concerned with the spatial impact of many different kinds of problems and with spatial coordination of many different policies or it's the process of preparing proclamations to guide the development of towns and cities. Moreover, urban planning is defined as a technical and political process concerned with the use of land and design of the urban environment, encompassing air, water and infrastructure passing into and out of urban areas such as transportation and distribution networks through the employment of varied fields of studies (Butina, 1990). The pressure to accommodate both the automobile and increased population growth has not only led to the sprawl of cities but has given them unique structure, form and morphology and these elements interact to inform modern day urban planning.

Neighborhoods Development Plan (NDP): it is a planning document that contains planning policies which form part of the local development plan. In Assella town, such plan is developed by the town's plan and urban development office and Municipal office. Producing a neighbourhood development plan will provide an opportunity for the community to be more involved in shaping their environment and the place they live (Herefordshire Council, 2015).

Local Development Plan (LDP): it was also called Detailed Area Plan or Detailed Site Plan and is a mechanism used to coordinate and assist in achieving better built form outcomes, by linking lot design to future development. It can facilitate the design and coordination of development upon small and highly constrained lots and supplement development standards contained in local planning schemes and the

residential design codes (R-codes).

Structure plan contains the general mandatory provisions for the development of a planning area. Structure plan sets out the basic minimum requirements regarding spatial developments whose fulfilment would produce a coherent urban development in social, economic and spatial spheres. The structure plan is a basis for rational decisions regarding an urban area's long-term physical development. It serves as a bridge between community values, visions and objectives on one hand and decisions on physical developments on the other. Normally, structure plans are long-term plans prepared to guide development for 10-20 years. The main characteristics of structure plans are comprehensiveness (geographically), long term perspective (time horizon and time frame), and consistency of provisions (policies, mandatory elements and texts and diagrams).

2.2. Urban Planning Theories

In related to current urban development practices, there are two important theories, namely theory in planning and theory of planning. Below is a brief introduction on these two theories.

2.2.1. Theory in Planning

Theory in planning is substantive theory based on the content of planning (Faludi, 1973). Substantive theory has a firm basis in reality and considered meaningful or important. Contents are made up of scientific methods and concrete tools for designing policies. It is formulated based on systematic observation, experimentation and testing. Its main objective is the improvement of political strategies validity to achieve long term or overall aims. Since it is based on an interdisciplinary approach, a wide range expertise of specialists such as economists, sociologists, architects, planners etc are involved in the formulation process.

2.2.2. Theory of planning

Theory of planning is procedural theory based on the form/style approaches of planning (Faludi, 1973). Procedural theory is the established or official ways of doing something. Form or style is about the role of planners in the process of political decision making. It formulates the functions, jobs and responsibilities of planners. Theory of planning addresses issues regarding to structure, proceedings and institutional embedding. Structure is the relation between various institutions, proceedings is the course of action by the institutions and embedding is the solid roles of the various institutions in the planning process. Examples are key approaches of planning theory such as comprehensive, incremental, mixed and communicative planning.

Regardless of the contents and form approaches, there are four urban development styles or approaches.

The following paragraph discusses these four different approaches of urban development used in the current planning process.

2.2.3. Urban Development Approaches

(A) Comprehensive Planning

Mode of thinking is based on scientific methods which is systematic observation and structured outcomes. It is more of a broad approach often requiring rational thinking processes. Comprehensive planning requires both general and specific modes of thinking. The role of the planner includes preparation of technical studies and recommendations to the planning and zoning commission. In addition, the planner is responsible for recommending the adoption process of the same (Efrussy, 2008). The practical impacts of this type of planning are numerous. It is just one component of the overall planning process and to be effective, comprehensive planning needs to be an on-going process that requires constant evaluation and updating.

(B) Disjointed Incrementalism

Disjointed incrementalism planning requires pragmatic and unsystematic modes of thinking. Practical implications are given emphasis rather than theoretical considerations. The way of planning is by justifying the relevance and reality of incremental changes in the complex society. Goals and policies are considered simultaneously; and alternatives must be marginally different from the status quo (CRPLAN, 2017, p. 12). Potential conflicts among all interested stakeholders are resolved through bargaining and compromises. Roles of the planner include interaction with involved stakeholders and resolving competition of interests. Planners are required to restricting attention to relatively few alternative policies and societal values (CRPLAN, 2017). Type of plans from this planning process are small-scale plans and uncoordinated projects. Small scale plans are restricted to smaller areas or sectors of focus not considering cross-sectoral issues and collaboration. Necessary resources and means are constant communication and interaction to negotiate on the outputs.

(C) Mixed Scanning

Modes of thinking for mixed scanning which is termed as a “third” approach are pragmatic (like incrementalism), visionary (planning for the future) and strategic (with longterm or overall aims). It is neither too rationalistic nor too oriented towards incrementalism. The way of planning is a combination of detailed or rationalistic approach for some sectors and a shortened review of other sectors (Etzioni, 2005). In some cases, more than two levels can be defined. Roles of the planner is to resolve the competition of interests by negotiated compromises and if necessary, make general compromises of

objectives to produce a well-coordinated action plan. Type of plans produced from mixed scanning approach are integrated and strategic development plans. The plans are based on flexible approaches and have convincing objectives or opinions. The flexibility component makes it possible to adapt to specific situations. Key concepts are based on strategic principles (Etzioni, 1967).

(D) Communicative/Cooperative Planning

Mode of thinking for this planning is usually compromise oriented. It is inclusive and collective approach to figure out the demands and interests of the participants. Because of the wide spectrum of participants, the process is quite complex as the society in general is not very clear on the type of strategies and its consequences. The way of planning is a communicative act focused on culture building and social leaning skills. It involves identifying priorities, justifying claims and suggest strategies. Role of the planner is to facilitate the processes in order to create a meaningful and shared outcome between planners and the public (Elliott, 2014). This requires the planner to be optimistic, patient and understanding as he is playing the role of a mediator in addition to moderating the communication between involved stakeholders. Type of plans from communicative planning are various such as inclusive development concepts, stakeholder management and participatory budgets/ plans (Healey, 1993). A high level of funding and time are the most necessary resources.

2.3. Factors Affecting Urban Form, Urban Structure and Morphology

All over the world, urban areas are always operating under the pressure of continuous changes. As the economic and social fabrics of urban areas constantly change over time, the importance and spatial organization of urban functions are also undergoing similar changes. Along the course of this constant change, City Governments make various efforts to influence, guide and lead the development of urban centers along a sustainable path. To this end, different urban plans are used widely as tools of urban management and become part and parcel of their day-to-day management routings. Due to the fact that there is not one individual ideal solution for urban planning process, failures such as lacking vision or identity often occur. Moreover, it is important to incorporate the local market and economy in to the process, as one of the long-term targets is the improvement of regional attractiveness to businesses. Other failures root in lacking facility of inspection of the various projects, lacking information and communication, in inconsequent project management and governance or in insufficient controlling by quantifiable and qualitative measures. Absence of orientation towards the achievement of objectives and results is a further reason for a failure.

It is important to state that the process should foresee an evaluation and control to discover the

problems at an early stage to be able to anticipate worth consequences. The ideal case envisions problems to be solved effectively and immediately.

(A) Lack of Civic Participation

Civic participation and motivation are crucial to success, because they can contribute lots of ideas. On the other hand, their support is of significant importance as they are the end users of the results. However, it is difficult to maintain their engagement and interests as the process is developing over several years. Additionally, results are not immediately visible, and can be measured difficulty such as it can take up to five or even more years to see the first changes of initiatives. Although, bottom-up processes require more time and resources, and are complex, civic participation is preferable to up-down processes as they do not use the civic ideas and motivations.

(B) Uncommitted Political Intentions and Support

Urban development is a long-run process which is often associated with municipal political conflicts. Due to the fact that most municipal governments only elected for a certain time period, but the planning process takes a longer time to be implemented, documents or treaties are important factors for success. Although this represents a known fact; most municipalities do not employ it. The political commitment should be guaranteed for the long range, and do not depend on short-term achievements such as positive outputs before election periods. A written commitment can ensure the implementation, and the priorities determined. Urgent versus necessary actions should be distinguished (Morris A.E.J, 1994).

(C) Insufficient Resources, lack of knowledge and understanding

It is beneficial to success if know-how and understanding of project management and other tools are available either within the responsible group or by supporting experts. Next to the knowledge, the implementation and application of these tools holds some risks of failure. Furthermore, mistaken and underestimated resource needs can also impact the implementation process negatively; therefore, it is important to spend the time efficiently for preparing a plan and its process.

2.4. Dimension of Urban Design

The urban design process involves creating buildings, groups of buildings, spaces and landscapes as well as establishing frameworks and procedures that will ensure success for future generations. Town and city planning, street design and public space design are all parts of urban design. In essence, it's about composing the physical setting for life by bringing together multiple disciplines.

Important dimensions of urban designs

Morphological dimension

Morphological dimension of urban design is the layout and configuration of urban form and space. There are two types of urban space systems: Traditional-urban space consists of buildings as constituent parts of urban blocks where the blocks define and enclose external space. While modernist-urban space typically consists of free-standing pavilion buildings in landscape settings. There are four elements of urban morphology

1. Land uses
2. Building structure
3. Plot pattern and
4. Street pattern

Perceptual dimension

Awareness and appreciation of environmental perception and in particular of perception and experience of place is an essential dimension of urban design. There are environmental and place perceptions. For environmental perception, our ability to perceive or to be aroused by the sense of sight, sound, smell or touch that provide cues about the world around us. Such perception involves the gathering, organizing and making sense of information about the environment. While sense of place describes the wide range of connections between people and places that develops based on the place meanings and attachments people develop or experience in particular locations and environments at scales ranging from home to the nation.

Social dimension

Space and society are clearly related. It is difficult to conceive of space without social content and equally to conceive of society are clearly related. There are five key aspects of urban design's social dimension. 1) relationship between people and space (2) the interrelated concepts of the public realm and public life (3) the notion of neighborhoods (4) safety and security (5) accessibility

Visual dimension

It explains the aesthetic appreciation of the environment. Visual appreciation of urban environment is also a product of perception and cognition which is what stimuli we perceive, how we perceive them, how we process, interpret and judge the information gathered and how it appeals to our mind and emotions.

Functional dimension

The functional dimension of urban design which involves how places work and how urban designers can make better places. The social usage and visual traditions of urban design thought each had a functionalist perspective. The five primary needs that people seek to satisfy in public space are comfort, relaxation, passive engagement, active engagement and discovery.

Temporal dimension

Deals with the influence of time on urban environment scope of urban design. There are three temporal dimensions of urban design. 1) Fluid in space and time 2) continuity and stability 3) urban environments change over time and urban design projects, policies, etc. are implemented overtime.

2.5. Urban planning and Form

Urban planning helps city/town leaders to transform a sustainable development vision into reality using space as a key resource for development and engaging a wide variety stakeholder in the process. In order to practically implement the urban plan design, urban forms are a crucial process. Because urban form able the planners to describe the physical elements within a city. It focused to the arrangement, function and aesthetic qualities of the design of buildings and streets, which overlay the land use and transport system. It is in this environment urbanization generally takes place at the scale of the city or metropolitan region whose overall spatial pattern it sets. Good urban planning formulates medium- and long-term objectives that reconcile a collective vision with the rational organization of the resources needed to achieve it. It makes the most of municipal budgets by informing infrastructure and services investments and balancing demands for growth with the need to protect the environment. And it ideally distributes economic development within a given urban area to reach wider social objectives ((Habitat, 1996). Thus, urban planning implementation entirely relies on urban form and its types.

2.6. Urban planning and Structure

The implementation of the designed urban plan is correlated with the urban structure that is with the arrangement of land ready for use of urbanization. While practicing the design/plan on the ground, considering the different types of people and business tend to exist within the built environment or urban setting is the responsibility of the planners and the leaders. Thus, the good urban plan is measured by its effectiveness of the land arranged for such purpose without putting a significance harm on the society/people living within the built environment.

2.7. Urban planning and Morphology

As the urban planning or town planning created as an art of shaping and guiding the physical growth of the town formulating buildings and planned environments to meet the various needs of the urban population in

terms of social, cultural, economic and recreational perspectives and to provide healthy conditions, for both rich and poor to live, to work and to play or relax, thus bringing about the social and economic well-being for the majority of mankind, the morphology of the town which is mainly related to the configuration and orientation of the built environment from regional settlement patterns to buildings should be a prior work before the urban planning commence.

2.8. Urban Form

2.8.1. Types of urban form based on density and physical configuration

A variety of urban forms can be described using a typology based on two continuous dimensions (1) settlement density (high and low) and physical configuration (ranging from contiguous and compact to scattered and discontinuous). The following table summarizes types of urban forms

Table 2. 1 Types of urban form based on density and physical configuration

		URBAN FORM			
		Neotraditional Development	Compact City	Urban Containment	Eco City
Design Concepts (Criteria)	Density	<u>Moderate</u>	<u>High</u>	<u>Moderate</u>	<u>Moderate</u>
	Diversity	<u>High</u>	<u>High</u>	<u>Moderate</u>	<u>Moderate</u>
	Mixed Land Use	<u>High</u>	<u>High</u>	<u>Moderate</u>	<u>Moderate</u>
	Compactness	<u>Moderate</u>	<u>High</u>	<u>Moderate</u>	<u>Low</u>
	Sustainable Transportation	<u>Moderate</u>	<u>High</u>	<u>Moderate</u>	<u>High</u>
	Passive Solar Design	<u>Low</u>	<u>Low</u>	<u>Low</u>	<u>High</u>
	Greening-Ecological Design	<u>Moderate</u>	<u>Low</u>	<u>Low</u>	<u>High</u>
	Total Score	15points	17points	12points	16points

Source: Internet with anonymous

2.9. Description and a partial appearance of Assella Town

Assella is a town in central Ethiopia. It is located in the Arsi zone of the Oromia region 126 km south from Addis Ababa. The town has a latitude and longitude of 7°57'N 39°7'E with an elevation

of 2430 meter. According to the 2007 national census report, the total population of Asella was 67,269 of which 33,826 were men and 33,443 were women. The majority of the habitants said they practiced Ethiopian Orthodox Christianity with 72.43% of the population reporting they observed this belief while 22.59% of the population were Muslim and 9.75% of the population were protestant (P.a.H.C.o, 2007). The town lies west of mount Chilalo on a high plateau overlooking Lake Ziway in the Great Rift Valley. Mount Chilalo is an isolated, extinct silicic volcanic mountain in southeastern Ethiopia. In the Arsi zone of the Oromia region is located in Arsi mountain national park on the border between the Hitosa and Tiyo wored (07°55'N 39°16'E). In addition, Ardu, a suburb of Asella is located on a hillside on the slopes between the Rift Valley and mount Chilalo, about 4km from the hospital and the university. Due to the nature of this mountain and landscape of the town, the town pursues good weather conditions which attract people to live. Figure 1. Shows the map of Assela town.



Figure 2. 1. partial top view of Assela Town [own captured]

2.10. Foundation and growth of Assella Town

The foundation period of Assella town was believed to be 1915/16 (1907 E.C) marked by the formation of Walkessa too post (Kella) and settlement of ex-solidiers from the battle of Sagale in 1916 during Emperor Minilik II. This Kella was established to collect tributes from the economic activities which able the leader by then to consolidate political power. How ever, this tool post was later replaced by few

recognized and centrally controlled customs (Zewde, 1991). Then after important market places were developed in different parts of Arsi such as Gonde, Chabi, Shirka, Boru and many others. Nevertheless, after the Segale battle, many toll posts were transformed into a strong custom post. Similarly, the Walkessa toll post was transformed into Assella custom office (Gumuruk) in 1925/1930s and then after Assella began to take urban form settlement (GebreSellassie, 1995).

In general, Assella began to take a form of urban settlement during early 1930s near the custom office and the market place. However, until the coming of the Italo-Ethiopian war in 1935, Assella remained a small village settlement as per the historian information. According to history, the Italians had contributed to the development of urbanization during the five years stay in Ethiopia. This is true too for Arsi in general and Assella in particular. By then the settlements with high area were changed into an urban form size village settlement during the Italian occupation period. This contributed to open and start various public services such as a drink house.

Assella got its municipality Administration in 1942 due to the regulation passed in 1940s that stated a town under government general level could have the right to establish its own municipal administration. However, an important turning point in Assella 's urban development was the shift of the governor general seat from Ticho to Assell. Then in 1947 the town's boundary was delimited and about 230 hectares was allocated to the town. This paved the way for the further urban development and continued until 1974 that highly impacted Assella's urban development and growth.

Assella witnessed some changes during the Dergue period (1974-1991). This was mostly related to the rural land and the urban land and extra house proclamations. These steps changed the land holding system both in the rural and urban areas including Assella. Land in Assella town which had been in the hands of very few big land lords and churches were came under government control. There were also some constructions such as the construction. The introduction of road side lights, renewal of internal roads etc. were some of the major that Wollo during this period.

2.11. Types and approaches of urban planning considering in this study

i. City planning

City planning is the first approach which also called statutory plan a planning approach duration which gives heavy emphasis on urban land use with accompanying maps for long term time duration and is comprehensive in nature.

ii. Structural planning

It is also known as guide plan system plan frame work plan and growth indicative plan which is defined as a type to plan with broad growth directions for urban centers. Structure plan is a tool for implementing development policies, strategies, programs and laws of federal and regional governments which are mostly reflections of global agendas and development issues at urban level. It is a long-term socio-economic, spatial, legal, and urban development and management tool. Structure plan is also framework for local development planning and short term international development planning (Kaiser, 1995).

iii. Development planning

This is a print of various proposals that are intended to improve the existing condition and to control the future growth in a coordinated manner. It is more detail than the city plan or master plan and more suitable for implementation. But there seems to be a blurred difference between master plan and development plan except their time horizon which is conventionally 10 years at a scale of 1:5000 and 1:2000 or 1:2500 (Yigizaw, 2000).

iv. Action Planning

The action plan is a plan that is mostly prepared for immediate action oriented small-scale intervention to solve very persistent problems requiring fast response of planning. It is referred as short-term implementation oriented participatory planning approach that is made for specific area based on resource and manpower. It can be molded into two, i.e., micro action plan and strategic action plan.

- The micro action plan (detailed local plan) is prepared for a comprehensive treatment of an area selected for intensive change in a short period of time (3 or less years). While, strategic action planning is also known as “integrated action plan” or “investment plan”, is broader in scope than micro action plan and is oriented to the management of the city/town as the whole. It provides framework for realistic investment choices in many substantive areas of sub components of the city housing, land development, environmental protection, infrastructure, financial resource generation, and community developments with attempts of integrated combinations. Hence, it incorporates the key technical resources and institutional implication of the implementation (Jula, 2011).

v. Local planning

This is a general term for any statutory or non-statutory plan adopted by a local government conveying a part of an urban area. It is the main tool for presenting preferred land development options through area specific policies such as upgrading, re-development, new land development, conservation areas and action areas. It also provides a statutory basis for development control and is a tool for bringing detailed planning issues before the public (Jula, 2011).

vi. Local development planning (LDP)

(NUPI, 2006, by Mathewos consult), described LDP as a lower-level urban plan, which is prepared within the framework of a structure plan. It is detailed and focuses on specific locality of an urban center for immediate implementation. It is, therefore, an important tool for implementation of structure plan proposals.

In the Ethiopian Urban Planning System, LDP may be conceived as a detailed urban development plan of a locality or neighborhood or part of an urban center. It is a major tool through which SP is implemented and may have a life span not exceeding that of the SP. LDPs have two major objectives: (1) to guide a long-term development of a locality by providing tools such as building permit procedures; design guidelines and brief (2) to facilitate efficient and effective implementation of projects such as city center business development, UURP, real estate projects, etc by providing detailed land use and urban design proposals.

2.12. Empirical Literature

In Ethiopia, land is the main asset of the people and the government. The way land managed determines proper utilization and its effectiveness whether the land utilize for the planned or not. In this regard, Weldu and co-worker properly assess the land -use or land -cover changes and spatio-temporal expansion process of Assella town in 2013. Like other towns of Ethiopia rapid urban population growth and spatio-temporal expansion conditions over the last three decades have created considerable economic, social and environmental problems in Assella Town. As a result, the municipal authorities and other decision makers faced challenges in course of managing urban expansion of the town with timely update information supported by geographical information system (GIS) and integrated remote sensing (RS) techniques. This showed that how the application of GIS and RS is crucial to study lan-use and land-cover change and spatio-temporal expansion process of Assella town is the right and timely decision to avert the negative impacts of uncontrolled urbanization and associated problems. It is no doubt that urbanization has a pivotal role for lan-use and land-cover changes and ecological degradation in return with some socio-economic benefits. Thus, is very important to have frequent

urban information to secure urban land use sustainability so as to minimize its impacts on urban ecology.

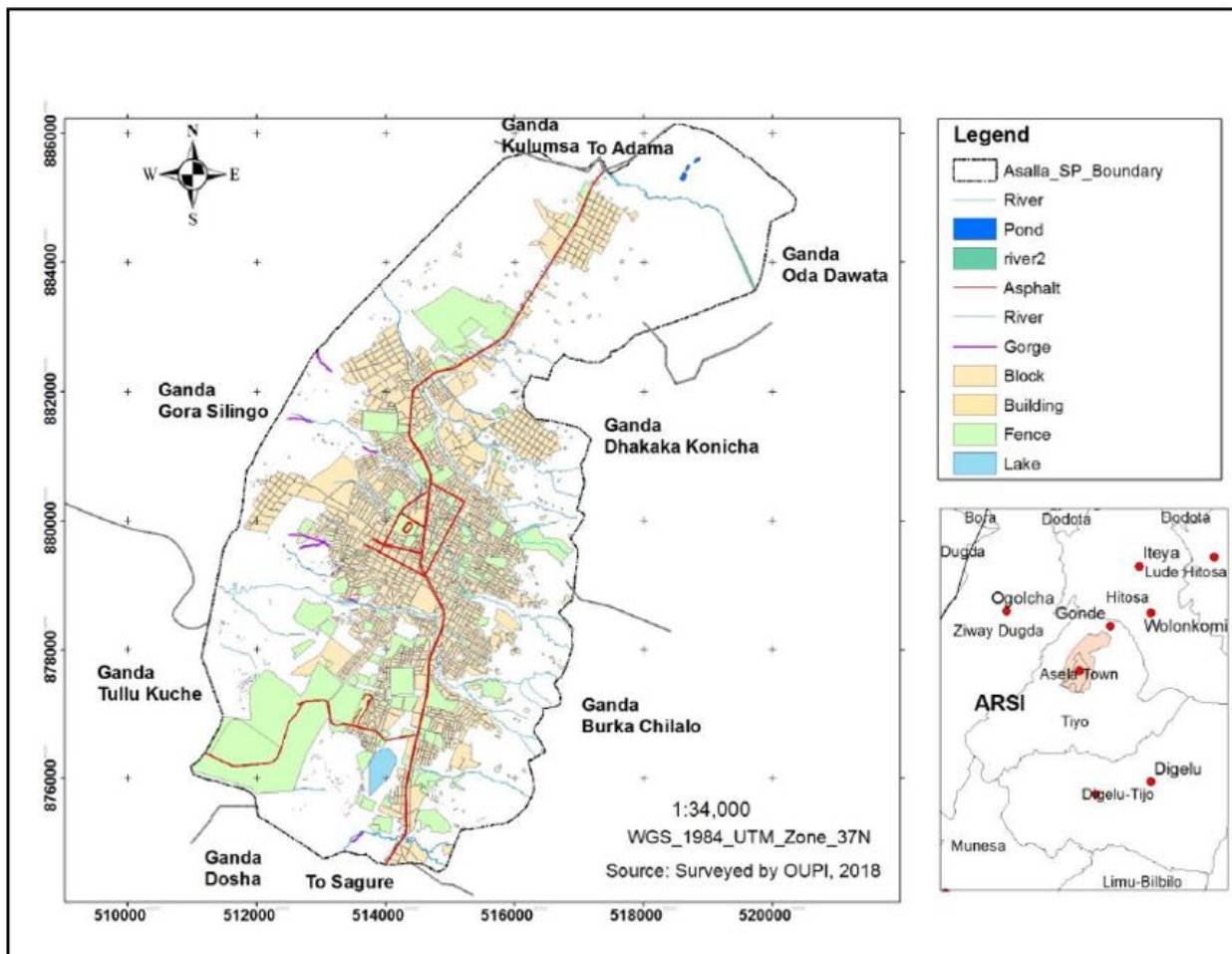
In their study, they mapped and quantified land-use and land-cover change and spatio-temporal expansion process of Assella town between 1985 and 2013, i.e., the 1985, 1993, 2001, and 2013. According to this finding, urbanization of the Assella town between 1985 and 2013 is expanded by 995.31 hectare. (291.64%) from 341.28 hectare to 1336.59 respectively. While farm land, plantation and bare land use was increased by 502.65 hectares, 118.17-hectare, 69.57 hectare respectively. On the other hand, land-use/land coverage change detection of the study periods also indicates that the area of shrub, grazing land and water have been decreased 1537.56 hectares, 148.14 hectares, 0.45 hectare in the study period lasted between 1985 to 2013 respectively.

From this empirical literature, the following lessons have been grasped: (1) Effective land utilization promotes normal or healthy urban growth and development (2) Urbanization process of a town/city is a continues activity where many stake holders took part for its realization (3) Unguided urbanization by a proper master plan may insist people to engage into illegal housing settlement (4) Population growth positively impact or encourage the urbanization process of one town. Since urban town is building for people, it is crucial to create awareness among people to contribute what is expected from them for the development and growth of the town (5) GIS and RS are a good means of tracing land-use and land-cover from un-used and uncovered land which help to grow a town through planning.

3. RESEARCH METHODOLOGY

3.1. Description of the study area

This research has been conducted in Assella town Arsi zone, Oromia, Ethiopia. The town is under intensive urbanization process especially since 1998 after the transitional government took the country's power. As a result of this new transitional era, the town has been passed through three consecutive master plans for urbanization program. Figure 3.2. describes the relative and absolute locations of Assella town.



Source: Survey result of OUPI, 2018

Figure 3. 1 depicts map of location of Assella Town

(A) Relative location:

This describes a place where it is located in reference to other places or water bodies. It can be expressed in terms of distance, travel time or cost.

Hence, Assella town is relatively located in Oromia National Regional State and is an administrative

center of Arsi Zone Tiyo district at 165 km South East of the regional and National Capital Finfinne/Addis Ababa.

(B) Absolute location:

The absolute location of a place is its exact set of coordinates on the planet, frequently expressed in degrees of longitude and latitude coordinates. Astronomically, Assella town extends from 7° 54' 42.47" to 8° 00' 59.94" North latitude and 39° 05' 58.39" to 39° 11' 5.07" East longitude. In projected or local coordinates, it is located at 510976.09 to 520357.68 meters Easting [X] and 874551.55 to 886139.93 meters [Y] Northing (OUBI, 2018).

(C) Areas and Centers

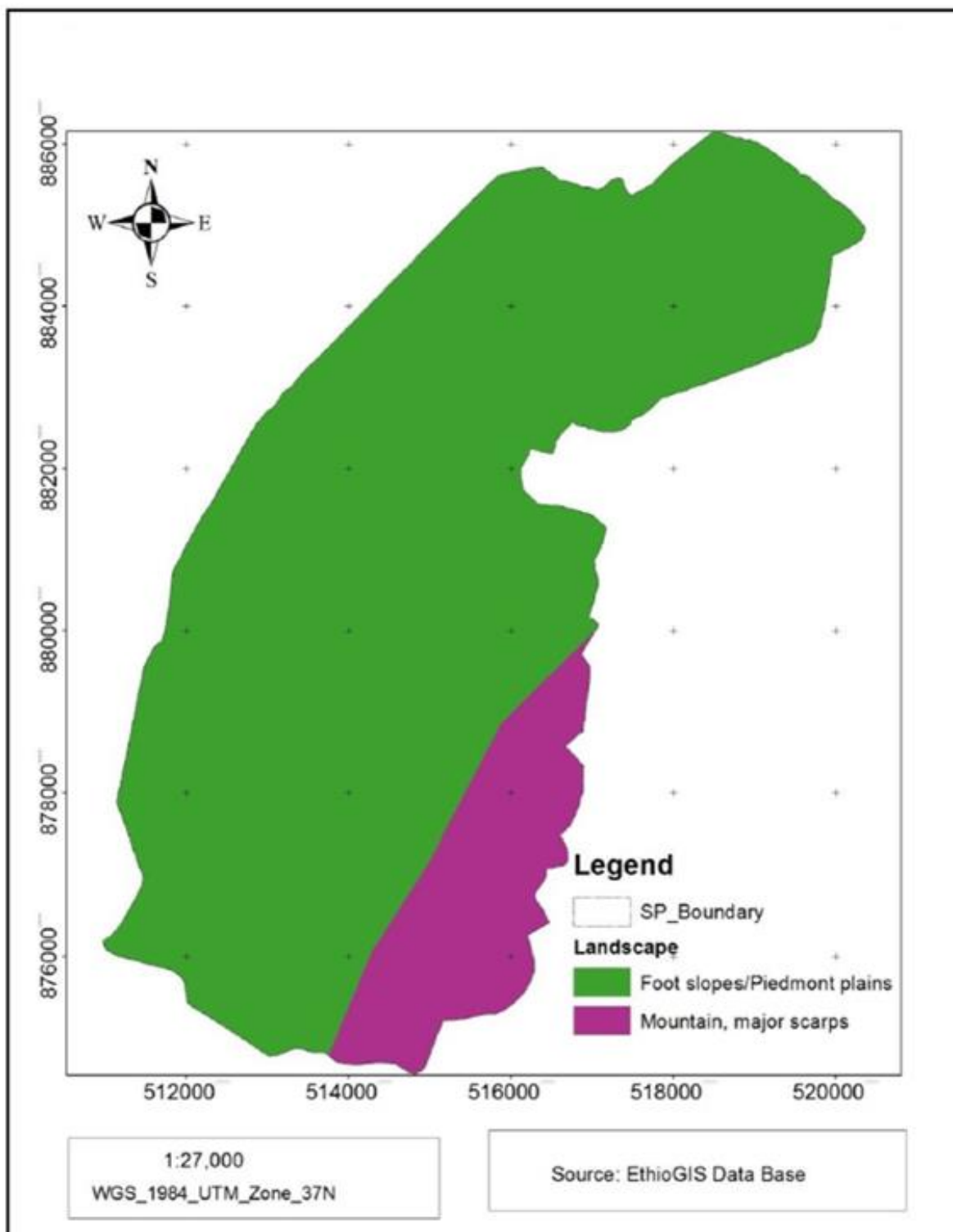
The current Assella town's structural plan is covered about 5,395.6 hectares. Its city structure is characterized by centralization or monocentric and horizontal expansion.

(D) Topography

Assella town is a part of the South East Highlands of Ethiopia particularly at the foot slopes of Chilalo mountain.

It lies in foot slopes or piedmont plains landscape within these landscapes there are also smaller and wider and shallower and deeper gullies. The elevation ranges from 2,162 to 2,709 meters above sea level (m.a.s.l). the latitude range in the town is only 5547 meters which implies the land form comprises abundant vertical zonation which contributes for the presence of various micro-climatic localities, plants and animals. Figure 3.3. shows the topographic features of Assella town.

Thus, this thesis work was focused on the master plans [three consecutive master plans] to study the town's urban planning form, urban structure and urban morphology as well evaluating their contribution toward function and beauty of the built environment.



Source: EthioGIS Data Base

Figure 3. 2 depicts Assella Town Landscape

3.2. Research Design and Sampling

This study has been planned to carry out the research through comprehensive approaches. Accordingly, an explanatory method was the primary approach of the study to identify the root cause and reasons problems associated with the urban form, structure and morphology in Assela Town. The activities of identifying causes and reasons of urbanization barriers through critical evaluation and analysis of information and data related to facts on the ground. Next, descriptive method has been employed to describe and provide the magnitude of the problems associated to urban plan form, the structure and morphology as well as other interrelated problems. This would give insights into the extent of the real problems on the ground. It also provided detail understanding of the situations through field observational studies and survey as well as its effect on overall development of the town. The mentioned research approaches were strengthened to count the observed issues and present numerically. Furthermore, explanatory method was also employed in a few cases to acquire information on the background of the situation. These were intentionally designed approach to apply wherever no or few data and information found which would be considered as compulsory to conduct the research work.

3.3.1. Population

In this study three main office services, namely Municipality office, construction [Plan and urban development] office and land management office were chosen. According to the report from these offices, there are a total of **236** employees. The study was carried out on all 8 Kebeles of the town.

3.3.2. Sampling size and Technique

Here since the study focused on assessing the urbanization of Assella town through evaluating the urban form, urban structure and urban morphology across the three consecutive master plans of the town, the researcher was only interested to the individual who have academic and work experience related to the study instead of the whole population of the offices. Hence, first the number of populations that would participate in the research questionnaires and interview was as set between **40 to 60** persons to reduce difficulty for the research. Then selecting this set number was carried out by “***Stratified Sampling***” Technique. This is because stratified technique sampling technique uses to divide the populations based on similar characteristics and ensures representing from all subgroups of the group. For this study the 40 to 50 persons were selected from the three offices of the town was based on;

- Academic background (academic portfolio)
- Work experience specifically related with urbanization concept

- Durations living in the Assella town

With the above selecting criteria, the researcher embraced both sex (Men and Women) proportionally. Unfortunately, the number of women employees working in the office is quite small. Thus, those who have chosen were included in the study. Otherwise, equal proportion of the population was taken from the three offices. On the other hand, for interview and group discussions about 9 persons have been selected on their basis of academic and knowledge.

3.3. Types, Sources and Techniques of data collections

In this study, the primary and secondary sources were used to collect data. Field observation has been considered as a vital means to investigate the pattern and the overall conditions of the study. Overall, the following means of data collections have been employed for the intended study:

(A) Questionnaires

One way of collecting primary data is through conducting questionnaires. In this study several questions have been prepared thoroughly for the intended respondents. The questions and respondents were embraced the following groups:

- 1) Assella town's Municipal office (Basic service provider wing): officials and employees;
- 2) Plan and Urban development office of the town (Construction wing): officials and employees;
- 3) Land management office of the town (Administration wing): top officials and employees;
- 4) Senior lecturers and researchers of Arsi University: experienced on urban planning and development

The details of the questions prepared for questionnaire purpose with respect to the responsibility of the respondents were found on Appendix (A).

(B) Interviews

Another means of primary data collection is interview. Hence, interviews were held with few and prominent officials (3 persons) and elderly people (3 persons) who were a pioneer for the town. Besides, high schools and preparatory teachers (3 teachers) who were taught and currently teaching Ethiopian history were also included in this interview. Therefore, a total of nine (9) persons were participated in the interview process.

The key activities performed as survey works were;

- Collecting and assessing the structural plan documents related with the three consecutive plans
- Collecting key information regarding the interviewers (who should be asked? Why?)
- Visiting all sites proposed on the current master plan of the town (housing, schools, recreational

areas, industry zones, etc.) NOT by kebeles.

Whereas the key questions prepared for the interview was presented on APPENDIX (B).

(C) Group discussions found

A group discussion is one means of primary data collection that often time researchers utilized it. In this study, group discussions were held among young people who are born and living in the town and young engineers (junior engineers) who graduated recently in the field of construction and architecture and urban design.

(D) Field visits in the town

Field visits was also employed to collect primary data utilized for the intended study. Field visit at the entry or get towards the town, at the center of the town, at the periphery of the town as well as at the exit of the town (to Bokoji direction) were visited and important pictures were captured.

(E) Published/unpublished papers (e-sources) and different documents

Various documents were referred and utilized as secondary data sources. These documents included the physical plan and design documents such as master plan, development plans, land use plans, road network plan, local development plans, and urban designs. Besides, text documents related to plan and design preparation, implementation, policies, laws, standards, regulations, codes as well as official performance reports associated with plans, land administration, finance etc. were assessed accordingly.

3.4. Data Analysis and Presentation

The collected data was analyzed and presented mainly in descriptive and quantitative approaches. Qualitative approach was also employed in extent. Data was presented and analyzed using;

- MS. Words
- Origin Pro. Version 8.5

Hence, Tables, maps, charts, and figures were used for the presentation of data. Furthermore, photographs would also incorporate to the research work to support and ascertain the actual situation on the real ground. Relevant computer software, like photo shop,illustrator, excels, etc. with sufficient verbal description have been the part of presentation techniques of obtained data.

3.5. Ethical Considerations

In order to enhance the effectiveness and acceptability of the research work, all other scholar works that utilized in this research study have been duly acknowledged. Besides, the researcher would also comply with all necessary ethical and legal requirements regarding participants in the research.

Meaning that the officials, employees, individuals or groups observed should give their informed consent to the participation in the study and are normally provided with anonymity and confidentiality.

3.6. Frame work of the research

The overall frame work of the research has been described in Figure 3.1 below.

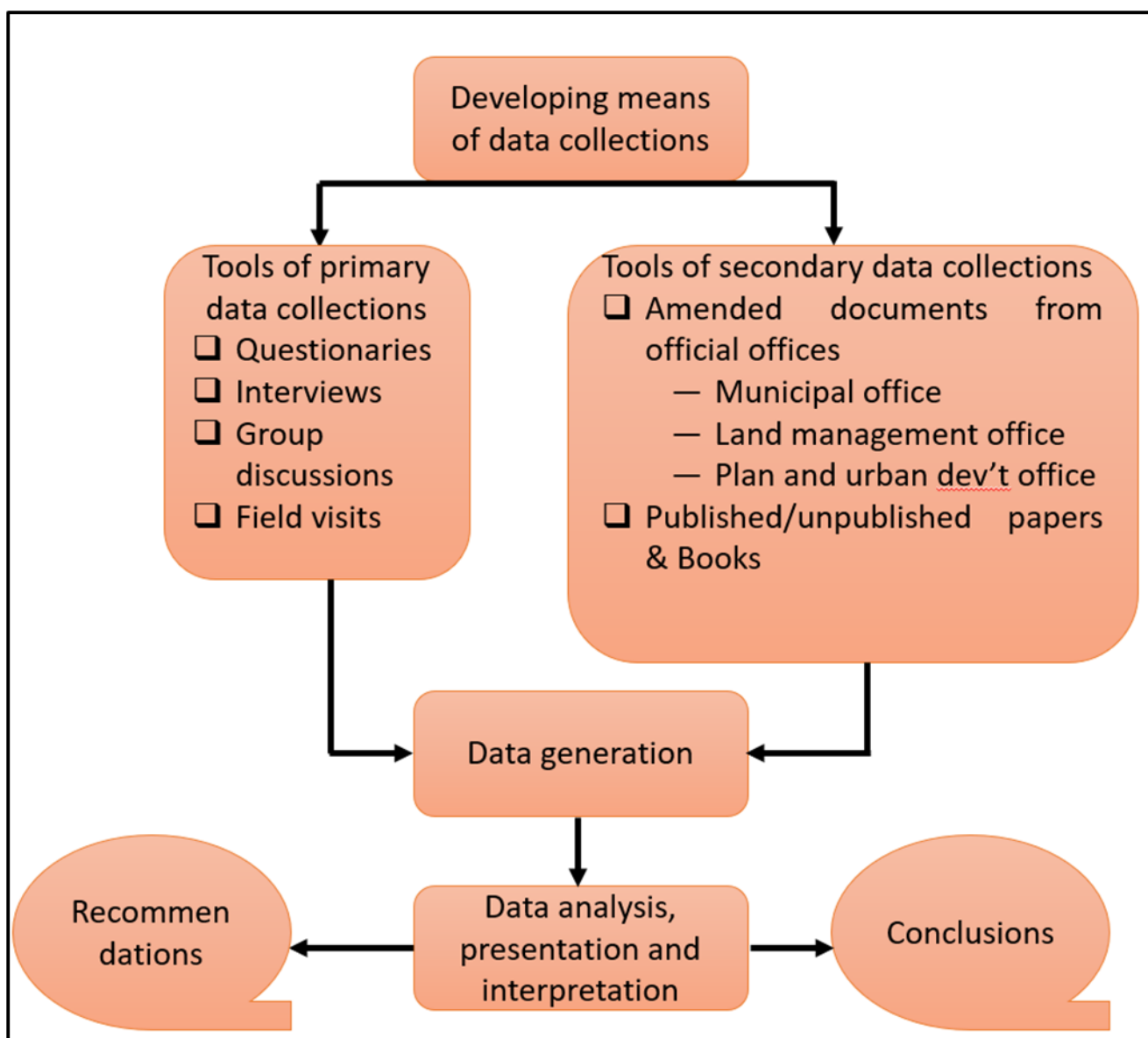


Figure 3. 3 depicts the general frame work of the research

4. RESULTS AND DISCUSSION

4.1. General information

To conduct fruitful research on the title “Urban planning form, Structure and Morphology in Assella Town”, questionnaires and interviews [Appendix A and B] were prepared and distributed to three responsible administration offices of the town, viz: *land management office, plan and urban development office (construction wing), and municipality office*. In this study a total of 50 persons from the aforementioned offices and a few lecturers from Arsi University who are expert in the area were participated in filling the questionnaires.

Besides, documents related to physical plan and design such as master plan, development plans, land use plans, road network plan, local development plans, and urban designs as well as proclamations related to land policies and other relevant documents which serve as secondary data were collected from the above offices and other like e-sources. Field observations were thoroughly conducted throughout the town.

4.2. Descriptions of respondents

In this subsection, the background of the respondents was presented properly to acquire necessary information and get acceptable data.

4.2.1. Demographic characterization

Figure 4.1. and Figure 4.2. show the respondents sex and age composition, respectively.

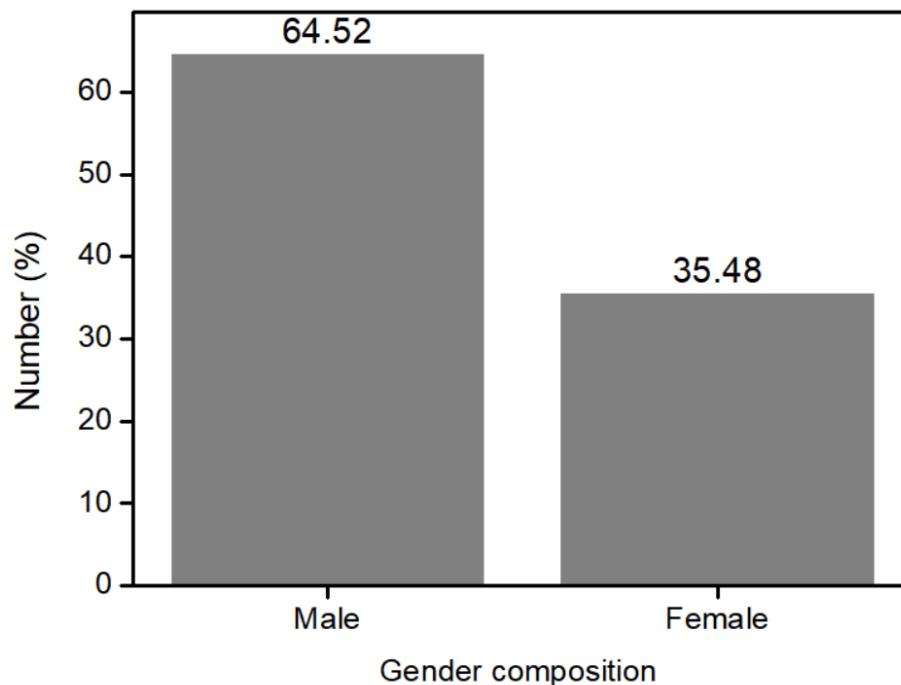


Figure 4. 1 depicts gender composition of the respondents

As observed from Figure. 4.1. the male numbers (64.52 %) participated in the questionnaire are higher than the female (35.48 %) while age wise most of them lies under the age of 31 to 35 years (21 %) which followed by 36 to 40 (10 %) old, Figure 4.2. This explicitly shows that the majority of the employees in the town's office are male.

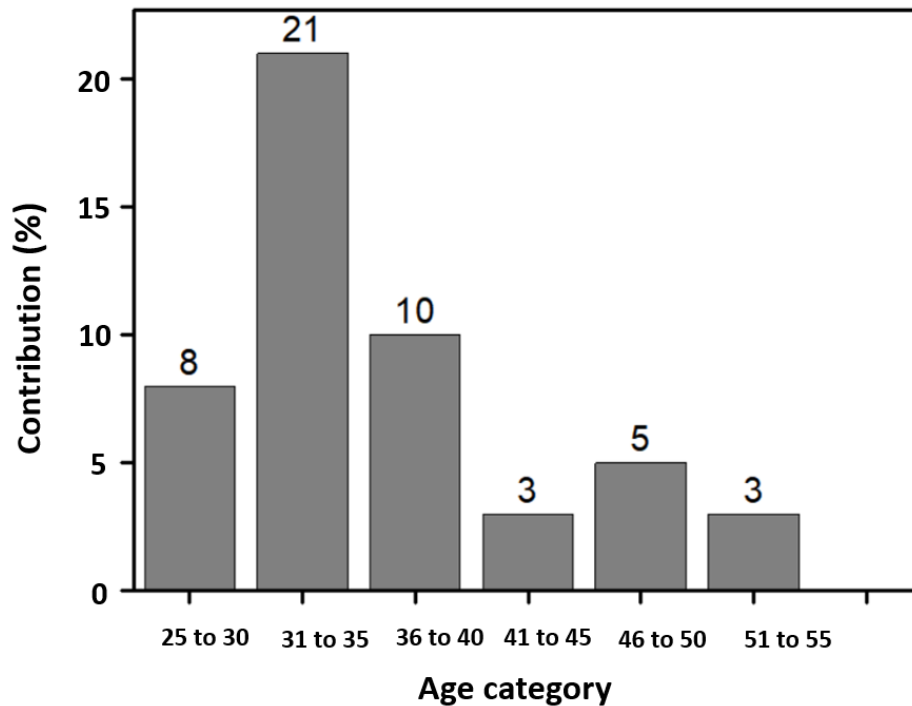


Figure 4. 2 depicts age category of the respondents

4.2.2. Educational status

About 60 % of the respondents' educational level was bachelor degree (BSc/BA) and 24 % of them hold master degree (MSc/MA) as clearly shown in Figure 4.3. No respondents found with PhD. and certificate in the office. This shows that majority of the employees of the town's office educationally good and able to understand the questionnaire and interview in a proper way. The lowest educational status of the respondents was diploma as seen in the figure.

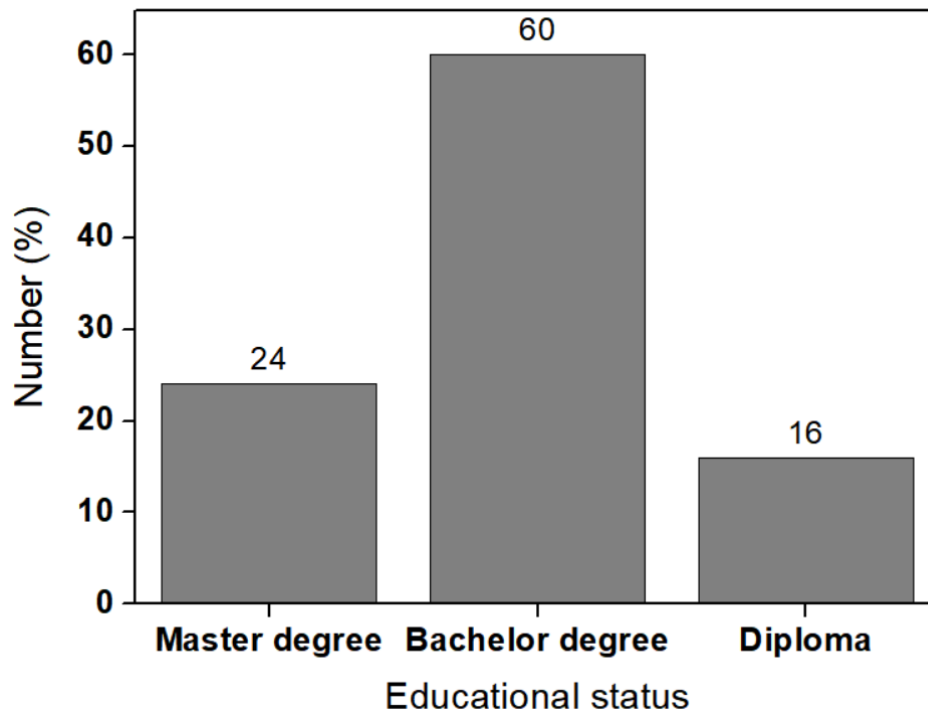


Figure 4. 3 depicts educational level of the respondents

4.2.3. Work experience

As shown in the Figure 4.4., about 38 % of the respondents have more than 13 years' work experience in the office. Whereas 22 % and 16% of them have 7 to 9 and 10 to 12 years of work experience, respectively. In this study, the lowest work experience (10%) of the respondents lies between 1 to 3 years.

Consequently, the majority of the respondents have a well experience regarding the urbanization going in the town and some of them are directly engaged in the urbanization process of the town. Whereas others are working in the area of land management and in the municipality office. In the meantime, the study was assessed each employees work experience extent and obtained that most of the employees considered their work experience as expert and senior level.

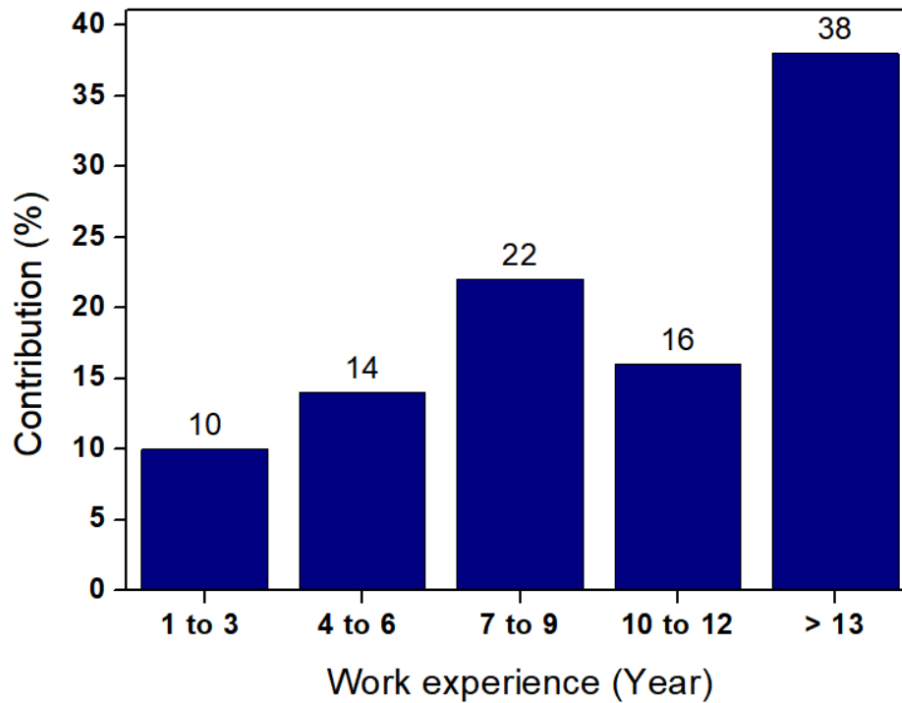


Figure 4. 4 depicts work experience of the respondents

4.2.4. Responsibility in the office

The responsibility of the respondents was categorized under different positions mainly plan and developmental expert, land administration, planning and budget controlling expert, survey engineer, process owner expert, team leader of field work, group coordinator, reform team leader, and Human resource expert.

4.3. The consecutive plans and Assella Town Urbanization

In this subsection, the three consecutive master plans of Assella town have been discussed briefly. Each master plan has compared and assess their implementation and contribution to the urbanization development of the town. Finally, critiques on each master plan have been provided.

4.3.1. The 1998s master plan

The first master plan of the town got in 1960 G.C. Then the Assella Municipal administration was induced various services and infrastructure based on this plan and other consecutive urban plans on the town. During the dergue regime, the town got a new master plan in 1980 and after its fall, the first and second master plan of the town was made in 2008 and 2018 when the EPRDF took the power of the country.

The development of infrastructure such as road construction has enhanced the development of Assella town. Accordingly, a number of internal roads were constructed in the middle of 1950s and 1960s has

resulted in the improvement of communication within the town and the surrounding rural areas. Furthermore, during 1970s and 1980s, in addition to works done to connect urban road to rural areas, internal roads in the town also became asphalt (Abas, 1982).

As the Assella town municipal officials stated that the 1998s master plan of the town was nearly covered an area of 2,162.9 hectares and lots of change has been made on the 1980's master plan of the town. The establishment of different hotels and restaurants, shops and various business houses (banks, micro-finance) were constructed primarily along the main roads side. Moreover, the opening of Arsi university, Athletics village and other private based services were boosted the development and expansion of Assella town.

In general, according to the information provided by Weldu and coworker, from 1985 to 2001 that is until the 2008 new master plan made about 1,536.66 hectares of land were utilized for various built-up from the total land of 2,161.9 hectares where the 1998 plan established on. Indicated that only 29% of the master plan's covered land utilized for building construction purpose.

4.3.2. The 2008s master plan

The 2008s master of Assella town was prepared on an area of 4637.91 hectares where its administrative boundary covered about 2,161.9 hectares.

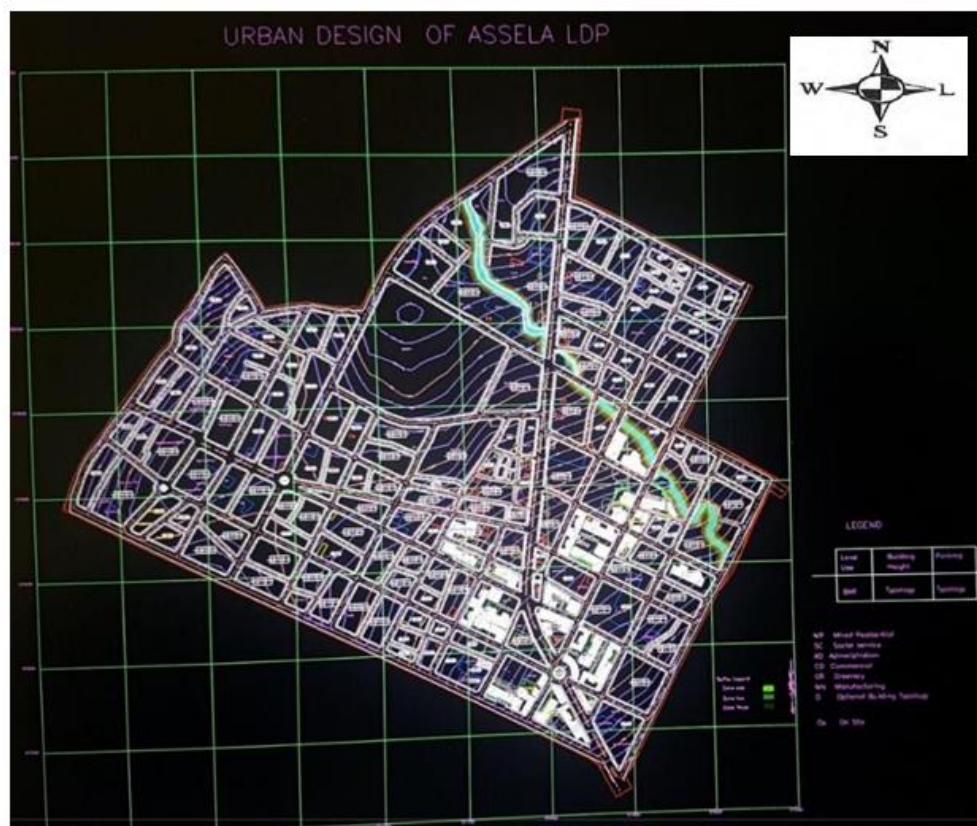


Figure 4. 5 shows a 2008 master plan of Assella Town

Compared to the 1998 master plan of the town, its land coverage areas increased by 53.4%. Figure 4.5 shows an AUTOCAD based output for the urban planning of Assella town. To be make clear, the map of Assella town in the 2008 with location has been shown in the figure 4.6.

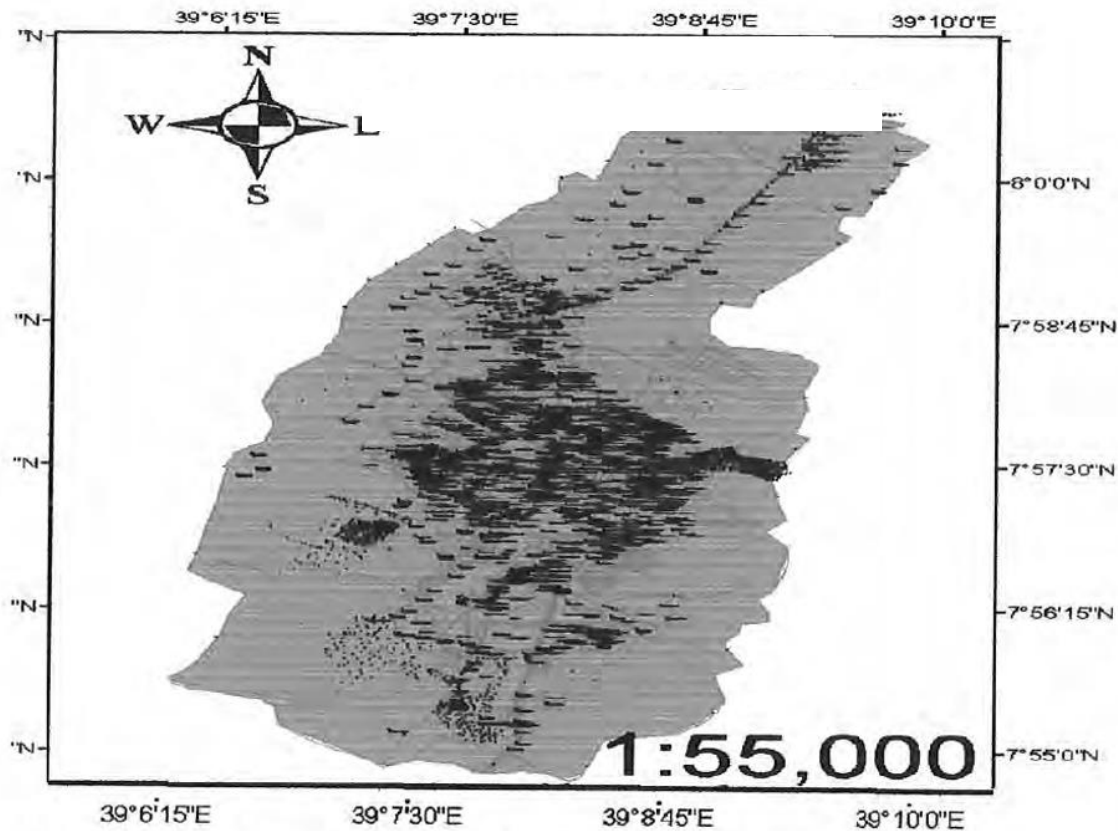


Figure 4. 6 depicts scaled map of Assella town in the 2008 master plan of the town

It was clear that as the expansion areas of the town increased and many things have been changed interms of erecting building, commercial centers, business centers, shops, schools (public or private), utility services are expanded very well in the town. According to the findings of (Weldu and Derribew, 2015) regarding land utilized for built-up from 2008 until 2018 was about 2,947.18 hectares. This showed that until the 2019 new master plan of the town made about 2,947.18 hectares land were utilized for different building purpose from the total land of 4637.91 hectares that the master plan established on. The rest 1,690.73 hectares were covered by water body and utilized for various purpose such as for farmland, plantation as well as for pasture and grass.

4.3.3. The 2018s master plan

The 2018 (2011 E.C) is the current master plan of Assella town which developed on an area of 5382.6 hectares. This plan embraced several improvements regarding the land utilization, providing utility services and urbanizing the town. The existing land use and town structure are divided into:

- Street network and transport;
- Town centers;
- Social and municipal services;
- Housing,
- Environment;
- Manufacturing and storage

Hence, evaluating the pattern of street network from the point view of hierarchy, width, junction and missing links and surfacing material whereas the transport situation from the bus terminal status, freight terminal behavior and routs/line of transportation condition view are important.

Assella has different topographic nature that influence the pattern of street networks. A radial pattern of street network is observed on the major arterial streets of the town. The rivers and the mountains played significant role in shaping these streets. As a result, most development activities have been carried out on the radial streets. Nevertheless, irregular patterns of street are observed in old and informal settlements (confirmed by officials through questionnaire).

On the other hand, the hierarchy of street arrangement in Assella town is not well structured as observed during field visit of the town. Of course, other than the arterial streets, the lower-level plans are randomly arranged. Many local streets join major trunk line below the required standards. The existing streets of Assella have variable width and from the traffic flow point of view, this width of street is quite narrow. Unless otherwise an appropriate measure is taken to standardize the width of street and day today increasing of traffic volumes, it would result in low economic activities and traffic accident. Although, having a standard street width and well-structured patterns of street is important for movement and economic activities, but is not enough for efficient services. On the other, a street junction design of the town must be properly constructed to avoid traffic problems. In this regard, the junction of Assella town lacks traffic management (observed on Figure 4.7.) and suggested that this junction of the road need to be restructured and re-design. Interestingly, the town has only one busy traffic line with poor managing system, especially with regard to how and where to park heavy traffics.

The major arterial streets and some collector streets are surfaced with asphalt; in this regard, the municipality is doing a huge project to improve local streets in the older parts of Assella town where

most streets are surfaced with coble stone. Overall, after making a serious field visit on the town's street network, the following things need to be improved:

- Standardizing the street hierarchy, width and junctions;
- Surfacing the street with all-weather materials; and
- Installing appropriate traffic management systems



Figure 4. 7 shows Assella town's junctions of the streets that lack traffic management

Regarding the transportation system, the mass transport route is restricted only on the main transport line or asphalt of the town. The bus terminal is located in the center of the town. However, this terminal is not well accessible for different parts of the town except for the center ones. Its size is also not a reasonable and in order to serve a lot for future, the terminal should be either re-design and re-construct or located to suitable areas. Moreover, since Assella town is located on a major hot business line, several trucks pass through the town to and from center of the country and Bale zone. As a result, many truck drivers prefer to rest in the town while parking the trucks on the main arterial street which possibly cause traffic accident. This is because of no freight terminal in the town where these trucks stay for while period of time.

Urban areas where town center is available could be an engine of economic development of any town. Hence, many different urban lands use land which are attractive for many activities and make the land of this area expensive. In this regard, such lands could be grouped as administration, commerce and

business, apartment, market area, and cultural center. Nevertheless, depending on the size of the urban center, the number of market area/place could exceed the number of centers and hence disturbed the demand and supply of the town's economic activities. With this point, Assella has only one town center where it starts from the general market stretch like the tentacle to the direction of Adama and Bokoji. This center serves for the whole town and hence is not enough for a normal economic activity.

On the other side, social and municipal services of the town also have its own problem. While education services in the town is evenly distributed, but research-oriented institutions are mainly concentrated along the main arterial streets to Adama and East part of the town. Such research institution of course occupied a significant proportion of land from the town. The Arsi university's dormitories are mingled with the town's residence and hence, improvement needs for future. Regarding health services, there are some health institutions in the town regardless of its belongingness. However, comparing these health institutions with the existing population size, a clear gap is observed. Thus, this gap should be filled in the coming plan of the town. The accommodation ability of religious institutions with respect to the current populations size also needs a revision. This is because some religious institutions occupied too much spaces while others have small. In terms of managing and removing solid and liquid wastes, there is a huge problem in the town. Because the dumping sites of both liquid and solid wastes are located in the middle of the residence and near to preparatory school. Hence, needs to be re-located to the appropriate areas.

In general, the existing land use of the town is categorized and depicted on Table 4.1. below

Table 4. 1 shows existing land use category of Assella town

No	Land use	Area (hec.)	Area (%)
1	Residence and Mixed use	743.4	34.39
2	Commerce and business	353.29	16.3
3	Social services	135.7	6.28
4	Administration	17.70	0.82
5	Manufacturing and storage	88.04	4.1
6	Environmental farm, environment and river	248.7	11.5
7	Transportation and road network	575.1	26.61
	Total built-up area	2,161.9	100

Source: Assella town Municipality office

4.4. Summary on comparison of the previous structural plan and plan evaluation of Assella town

- ❖ Mosques and residences are not well separated by road or buffered zone;
- ❖ Existing residences are mingling with proposed Chilalo high school;
- ❖ Waste dumping is locating in the middle of residences and nearby preparatory school;
- ❖ The location the abattoir is incompatible in related to wind direction and also is near to residence. Moreover, it does not have a proper waste management system, the wastes are discharged into the river;
- ❖ Some schools are mixed with sounding residence; example, Assella Andenet Elementary school;
- ❖ Proposed green area (park) is used for other purposes, like for Association of housing project in the way to Bokoji;
- ❖ Existing residential land areas are mixed with green or park areas; hence, dwellers do not exercise their right;
- ❖ Some institutions hold large valuable land, but not developed yet. Example, Police station.

4.5. Assella Town urbanization development patterns

Urbanization has been the dominant demographic trend. It plays a vital and dynamic role in the transforming, civilizing, and modernizing the human city. Cities and towns as regional or spatial concept serv as significant agents in patterning and organizing social process unfolding in space. It is obvious that urban areas facilitate social and economic interactions. These exchanges lead to increased efficiency in flows of goods and services, more efficient matching of workers to jobs, and enhanced information and knowledge spillovers. Many scholars agreed that no country has developed without city/town growth. Strengthening this idea, UN-Habitat stated that “as countries become richer, economic activities become more densely packed into towns” (UN-Habitat, 2012).

Assella’s urbanization development and growth is indispensable from the agriculture and economic activities embarked in the town since its establishment. A strong economic activity carried out in the town have the capacity to drastically change the development of the town. After the fall of dergue regime in 1990, the agriculture and economic activities of the town were more mobilized. About three times where the master plan of the town was updated in a way to accommodate the current conditions of the town. However, the urbanization development and growth of the town was not as such expected. Hence, the author would like to assess and pin point these reasons in the following subsection paragraph.

4.5.1. Does the urbanization problem of the town correlate with the master plan itself or

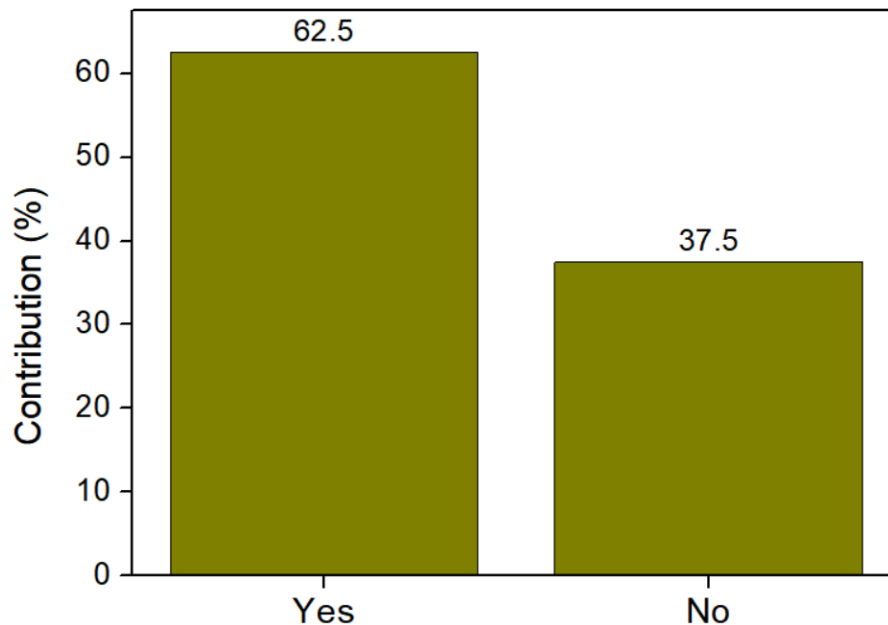
with the failure of plan implementation?

Many experts in the urban and development sectors agreed that the urbanization development and growth of the town is not as expected and the researcher of this study also shared this claim too. In order to confirm this claim, the author prepared the following questions and distributed to different respondents working and living in the town.

Table 4. 2 Critical questions raised to assess the urbanization development and growth of Assella town

Q.No.	Questions
1	Do you think that the urban development and growth of Assella town are guided by the master plan? (a) Yes (b) No.
2	Does Assella town urbanized as expected? Yes or No
3	Does the urbanization problem of the town correlate with the master plan itself or with the failure of plan implementation? Master plan itself or plan implementation or both?

For the question “***Do you think that the urban development and growth of Assella town are guided by the master plan?***”, about 62.5 % of the respondents were answered “Yes” whereas the rest 37.5 % of them responded “No.” as observed on Figure 4.8. This was really beyond the expectation of the author thought regarding the response for the raised question.



Response

Figure 4. 8 depicts response of the respondents towards question raised on whether the urbanization of the town follows the master plan or not

Similarly, for the question “*Does Assella town urbanized as expected?*”, in contrast the first question majority of the respondents (75%) were not agreed that the town was urbanizing and growing as expected whereas the rest 25 % of the respondents were agreed that the Assella town was urbanizing and growing as expected as clearly observed on Figure 4.9.

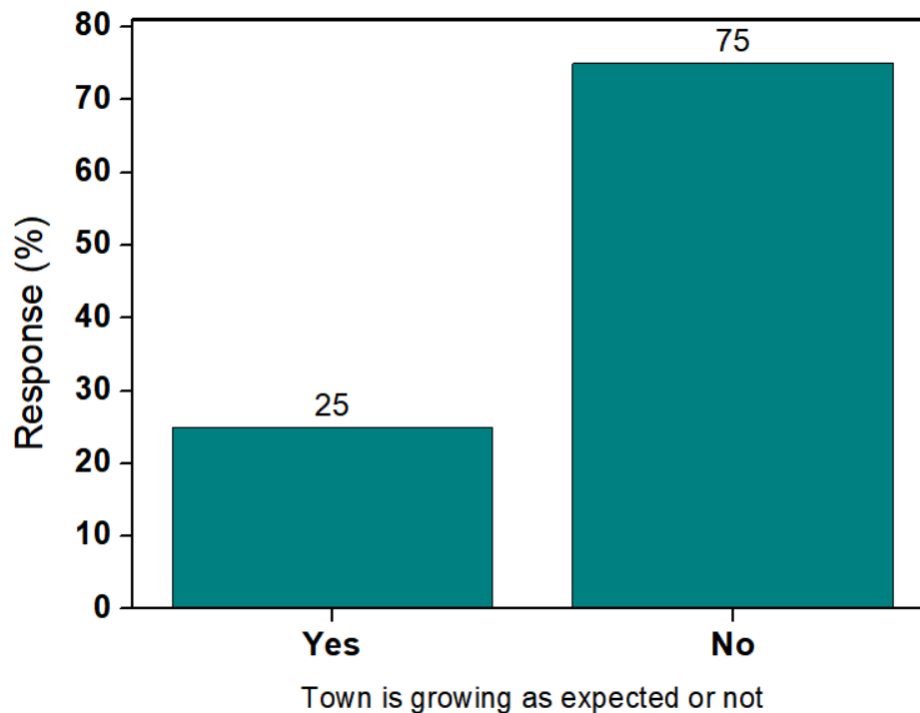


Figure 4. 9 depicts the response of the respondents regarding the growing status of Assella town: as expected or not

Moreover, the response for the question “ *Does the urbanization problem of the town correlate with the master plan itself or with the failure of plan implementation? Master plan itself or plan implementation or both?*” was collected and found that about 66.7% of the respondents answered that Assella’s urbanization development and growth problem is correlated with master plan implementation. Whereas a significant number of the respondents (25%) agreed that the urbanization problem of the town is associated with both master plan itself and implementation problems. However, some of the respondents have correlated the town’s urbanization problem with only the master plan itself, Figure 4.10.

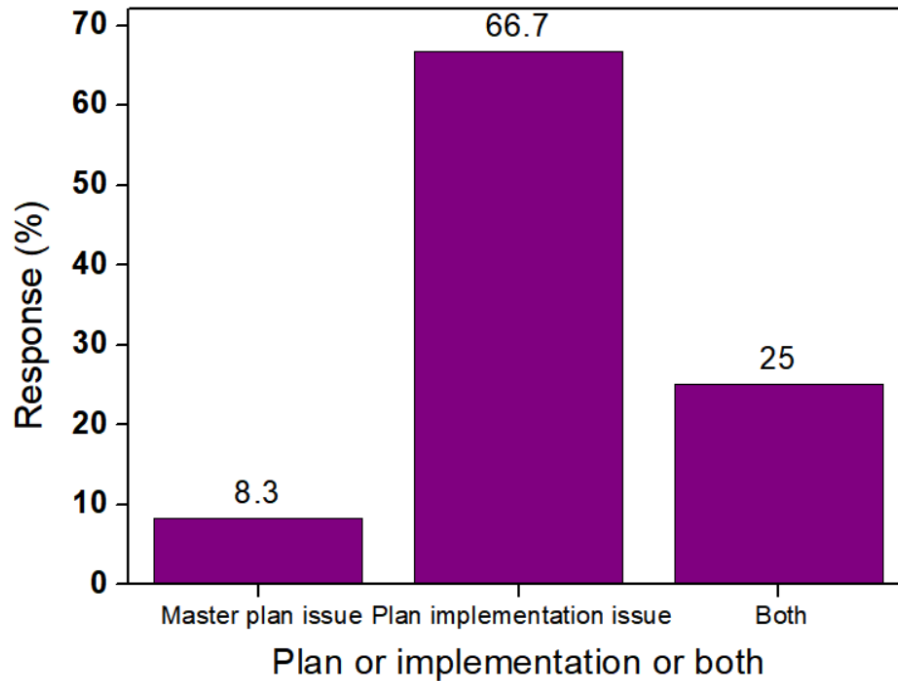


Figure 4. 10 depicts the respondents’ response regarding the problem of the Assella town urbanization

In general, although the town urbanization development and growth were guided by the master plan no one denied that there was a significant failure in implementing the master plan developed for the urbanization process. Besides, as observed from the respondents’ response, it shouldn’t be ignored that the master plan of the town itself has gap and problem. As noticed from the other question of the questionnaire and its response, the problem associated with the master plan of the town is lack of engaging the public, lack of awareness creation and developing the master plan with people having less experience in the creation of a plan were some of them.

4.5.2. Hinders for the successful implementation of Assella master plan

As ones observed from sub-section 4.5.1., the majority of the employees working in the urban and development office agreed that there is a significance gap on the implementation of the town’s master plan. Following this response, the researcher was further investigated the factors that lead for the failure of town’s plan implementation through questioning these employees of the office.

The researcher was started its investigation by raising the question “***does the plan and urban development office have a clear roadmap that show how to grow and develop the tow?***” and found that about 88% of the respondents answered that “YES” the town has such a roadmap. Though about 12% of them didn’t agree with the majority response. Followed this response, the author asked the question

“have you ever discussed the master plan of the town and its urbanization status as a team of plan and urban development office?” and the response was different among the respondents of the office. As observed from Figure 4.11, about 57% of the respondents of the office were answered that the team of plana and urban development office have ever discussed the master plan as well as evaluated the urbanization development status of the town. Whereas 43% of the respondents were against the response of the rest employees or they answered that the office was not ever discussed the master of the town and evaluated urbanization status of the town. What is true is that the response of such significant number could not be ignored!

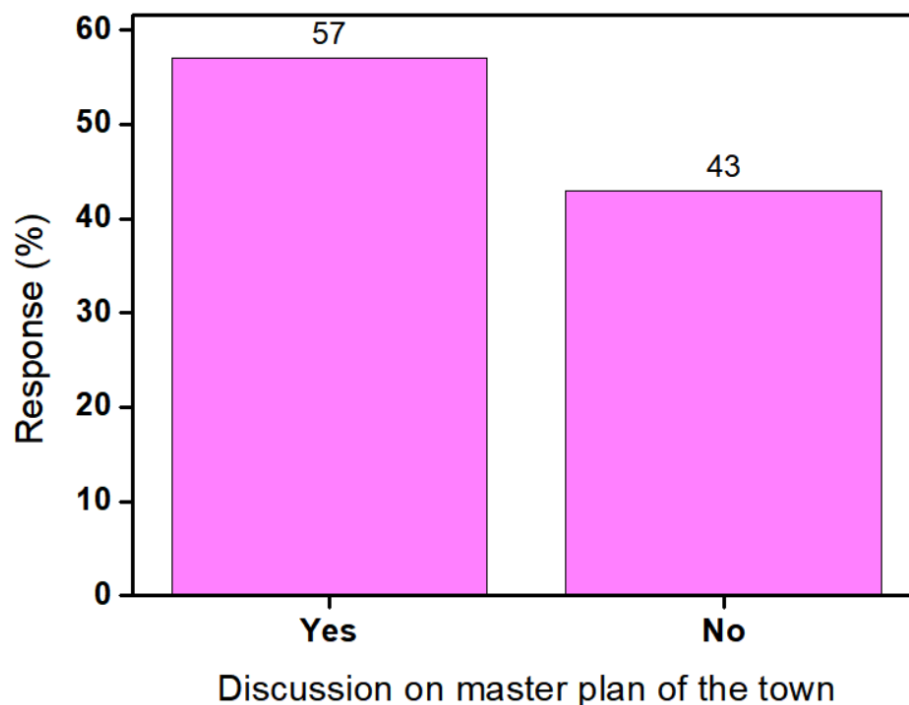


Figure 4. 11 depicts the response of the respondents on whether the urban and development office ever discussed the master plan and evaluate the growth of the town

From the discussions given on the above paragraph, the following points could be considered as hinders for the implementation of the town’s master plan:

- 1) The town has a clear roadmap that used to follow-up the implementation of the master plan but the executive body couldn’t use it;
- 2) The town has no a clear roadmap so that no discussion ever held; consequently, follow-up of the implementation of the master plan failed;
- 3) The roadmap may be tedious and not invite the employee for discussion on the implementation of the town’s master plan

This is explicitly an hinders or factors and consequently affects the implementation of Assella master plan.

4.6. Form, structure, morphology and Assella Town's plan

Any cities or towns plans and functions designed in the plan as well as the shape and appearance of the town potentially affected by its form, structure and morphology designated in the grand master plan. In the following paragraphs, the form, structure and morphology of Assella town and their positive or negative impacts on the urbanization development and growth of the town have been briefly discussed.

4.6.1. The town's plan and form

Here, the Assella town's plan form was discussed from the spatial patten of human activities and the physical elements (arrangement, function and aesthetic value of buildings) found within the town point of view. To make the discussion easy, the four key metrics namely density, land use, connectivity and accessibility which used to measure the urban plan form could be evaluated.

Information on the size of the population and distribution within the town is very important tool to evaluate the urban density of Assella. This is because of the fact that population has a direct relationship with the urban development and growth of the town. With this point, the research studied the population size in each kebele, number of households and estimated size of each house of the kebele of the town. Table 4.3. describes the population distribution of Assella Town for the last census program conducted in Ethiopia (CSA, 2007).

Table 4. 3 Population distribution of Assella town by Kebele for the census 2007

Kebele	Population size	No. of households	No. of housing units	Mean household size
Buusata	6,293	2,068	1986	3.04
Walkessa	11,668	3,848	3691	3.03
Hanku	10,539	3,272	3189	3.22
Arada	11,217	3,364	3256	3.33
Kombolcha	6,059	1,663	1620	3.64
Chilalo	6,617	2,104	1975	3.14
Burkitu	8,998	2,837	2649	3.17
Halila	5,878	1,823	1704	3.22
Total	67,269	20,979	20,070	3.2

Source: CSA, Based on census 2007

Table 4.3.the data on the household size and distribution of persons per house could be used as a proxy

measure of crowdedness of a population and has a great implication to housing problem in the town. The case presented here on the 2007 census of Assella town shows that there were 20,979 conventional households and 20,070 housing units accommodating 67,269 persons. Implied that the average households in the town were found to be 3.2 persons per household which relatively smaller than the average number of household size for urban areas of Oromia, i.e., 3.8 (Ministgry of works and urban development, 2006). This explicitly showed that the population per unit area, built-up area density and employment density of the town is small.

To assess the diversity and land utilization of Assella town, the researcher was raised the following question for the land administration office of the town: “***Does your office have a clear land utilization category?***” and Table 4.4. embraces lists of land category utilization that used to know the town’s land utilization system.

Table 4. 4 Investigation for Assella town land utilization category

No.	Land category utilization options
1	Industrial purpose land
2	Commercial building purpose land
3	Condo building purpose land
4	Community/public purpose land
5	Individual house building purpose
6	All types of land category exist

For the question raised above about land utilization category of the town, the respondents/employee working in the land administration office of the town were answered that majority of them (30.8%) stated that the town has “all types of land category utilization” options are presented on the table of the admins, Figure 4.12. whereas a significant number of the respondents (23%) response that the town has only “community/public purpose land” utilization category. On the other hand, about 15.4% of the respondents were answered that “commercial building purpose land and condo building purpose land “are availed as land utilization category and nearly 8% of them believed that the town has “industrial purpose land and individual house building purpose land” are optionally presented on the admins table.

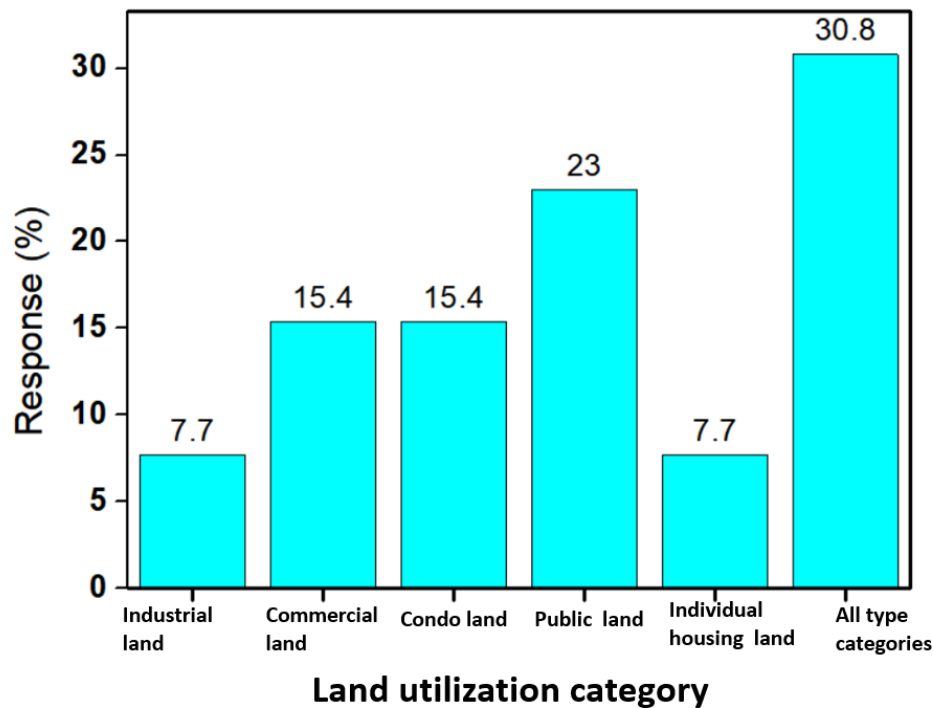


Figure 4. 12 depicts the response of the respondents on land utilization category of the Assella town

It was clearly seen that the employees working in the land admin office provided different response regarding land utilization category of the town, yet they are working in same office. This implies that

- 1) the town may have no a clear land utilization category system, instead uses the land randomly for any purpose as per request presented for the land admin office;
- 2) the town may have the land utilization category system but, the employees might be not aware or understood it well;
- 3) land utilization issues may determine conditionally by top authorities and politicians whenever need arise;

This is clearly a gap and consequently affects the urban plan and urban form of the town.

Another measurement of the town's plan and form is the connectivity which refers to street density and design. As we observed on Table 4.2. population census of 2007 of Assella town and practical observation of the town, formal houses are built in a spars manner, i.e., the built houses and block size are fairly far apart. However, many houses build nearby the main road are quite crowded and connectivity among the blocks are impossible. Such houses potentially affect the appearance of the town which compromise the aesthetic characteristics of big buildings in the town.

The other important key parameter that measures the town's plan and urban form is accessibility;

meaning that access to job, housing, services, and shopping in the town. In this regard, job accessibility in the town is not that much due to job availability depends on the industry expansion that play a crucial role for urban development and growth of any town. Whereas owning house in Assella town is difficult for any ordinary citizens since lands are provided based on lease and bid. Hence is only people affording such sell could buy and build its own house, however, accessibility for renting house is quite cheap and available compare to towns such as Adama. On the other hand, if we evaluate the utility services such as electricity, water, telephone, and postal I the town, it is difficult to get such services in adequate way due to shortage of resources, not only to build and operate them but also to plan. As example, Table 4.4. explains electricity services provided in the town. As reported by (Ethiopian Electric Service 2017) the condition of the electricity services rendering in the town indicate that still there are localities, neighborhoods and sectors that not connected to the services, i.e., there is a large amount of waiting list in different sectors as observed on Table 4.5.

Table 4. 5 Situations of Electric Services in Assella Town

Types of services	Waiting for service
Residential	1,500
Commercial	55
Government institutions	20
Public institutions	10
Industrial	20
Total	1,605

Source: Ethiopian Electric Services (Ethiopian Electric Service), South Eastern Service Center (2017/8)

Therefore, the overall utility services provided in the town is not accessible to the people living in the town. If the commercial and industrial sectors couldn't get electric service, it could be a hurdle for the town to urbanize and grow as per the master plan.

4.6.2. The town's plan and structure

Evaluating the Assella town's master plan from urban structure point of view is one of a key parameter that able to assess the genuineness of urban plan. Urban structure evaluates the arrangement of land use in urban areas, especially public and private space in cities/towns.

In order to evaluate the master plan of Assella town from utilizing the land for a public and private space point of view, the researcher was asked the employees of plan and urban development office the following question: ***"Does the town master plan embrace a clear public space or open space?"*** and

found that about 66.7% of the respondents were agreed that the master plan of the town has a clear public space. Whereas 33.3% of them disagreed with the response of the majority and stated that the master plan of the has no a clear open/public space as shown on Figure 4.13.

In summary, what the respondents' interaction towards the stated question is:

- 1) The recent master plan of the town has a clear public space. However,
 - The reserved public space shown in the master plan utilized for other purpose
 - Intentionally provided to other VIP person for a special building
 - Implementation problem
- 2) The recent master plan of the town has no a clear public space which was included before 2018 plan.

In general, the town lacks a clear public and private space which shows that there is no a proper arrangement of land use system. This definitely affects the urban structure of the town and negatively impacts the aesthetic characteristics of the town.

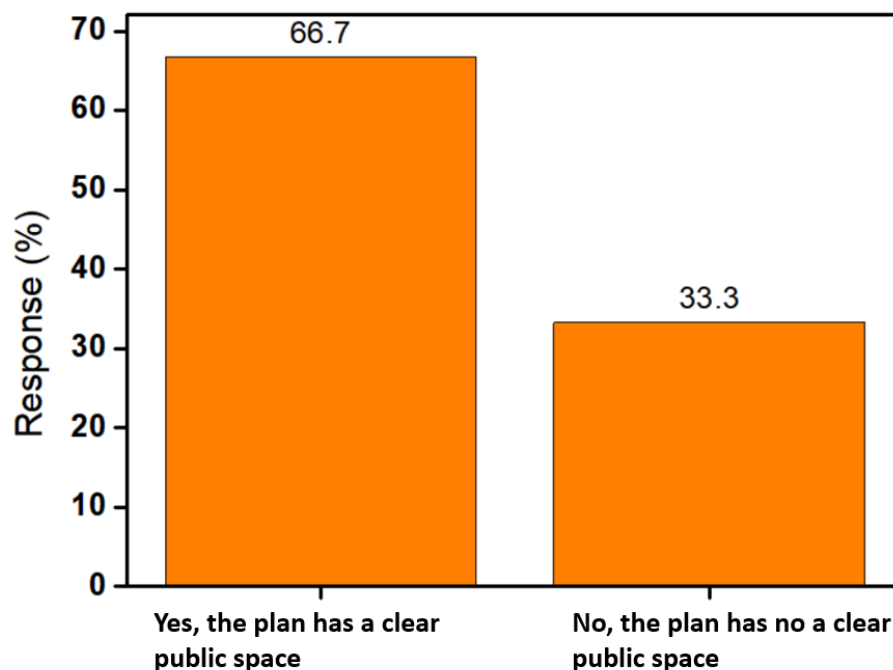


Figure 4. 13 shows the respondents response regarding a clear presence of “public space” on the master plan of the town

4.6.3. The town's plan and morphology

The other point that we are discussed here is that evaluating the Assella town's plan and urban morphology. Under here we evaluate the town's plan from spatial structure and human settlements

through an analysis of historical development process.

Urbanization has been the dominant demographic trend that plays a vital and dynamic role in transforming, civilizing, and modernizing the human society. As we have discussed in the section 2 under the “foundation and growth of Assella town”. Historically, its growth and development as urban town became as a result of economic activities carried out around walkessa. Especially, the Assella town became urbanize after it designated as a state of governor for the government leading the area. In general, Assella began to take a form of urban settlement during early 1930s near the custom office and the market place. Thus, the whole housing settlement was rural style where people build house randomly without any plan.

However, after 1990, a proper plan had been developed and the urbanization of the town was guided by this plan. Even though, there has been enormous change made on the utilization of land for human settlement, still improper housing development is practicing in the town. Regarding this settlement, the following questions were addressed to the respondents working in the land admin office.

Table 4. 6 questions raised regarding illegal land owning and human settlement

Q.No.	Questions
1	Are there illegal land-owning means and human settlement in the town? Yes or No
2	What could the land admin office reaction for lands owned illegally?
3	How effective is the office in controlling illegal land-owning practices?
4	How bad is illegal land invasion affecting the appearance of the town?
5	Does the office strictly follow the master plan of the town while providing land to users for a different purpose?

All respondents (100%) were shared that lands are owning illegally and illegal human settlements expanded in the town.

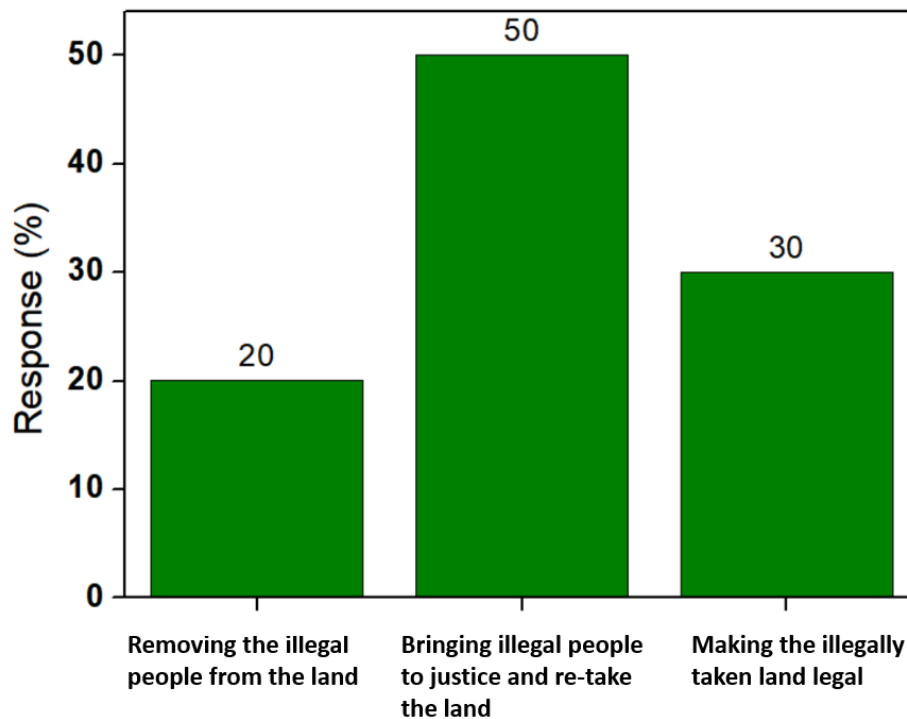


Figure 4. 14 depicts the response of the respondents about the action of land admin office towards illegally taken land

Regarding illegal land owning and housing, Figure 4.14 shows that the reaction or action of land admin office of the town towards such activities. As shown from this figure, the office could take the following possible actions: removing the illegal people from the land they settle, bringing the illegal people engage in such activities to justice and re-taken the land, or making the illegally taken land legal as confirmed by the respondents. But majority of the respondents (50%) of them replied that the land admin office brings people who engaged in such land invasion activities and brought to justice and re-took the land. In some cases, the admin also made the illegally taken land legal through negotiations according to the respondents. However, such action possibly invites many people to engage into land invasion and took land illegal so that they could negotiates with person who is in charge of responding for such activities. This definitely affects the urban morphology of the town and impacts its development and growth. Besides, it will potentially affect the beauty of the town and create difficulty for expanding basic utility services to the society.

On the other hand, when we evaluate the town's land administration office effectiveness in controlling illegal land invasion, its control was below average (45.5%) as shown in the figure 4.15. This a bad signal for the town to urbanize and develop according to the plan. Whatever the town's plan is, without effective

land utilization via controlling illegal land invasion, it would be difficult to elevate urbanization process of the town.

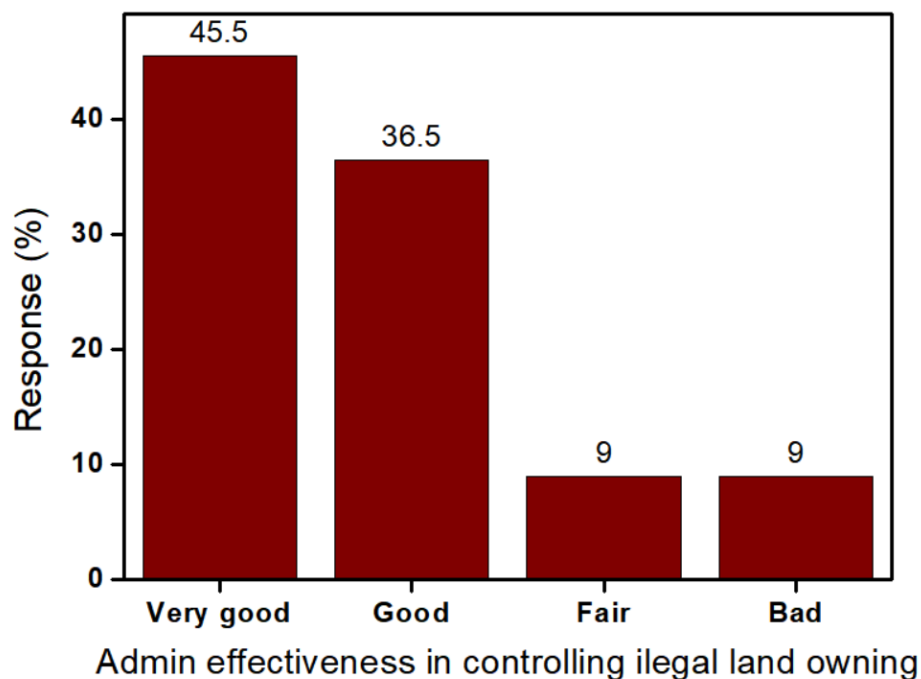


Figure 4. 15 depicts the response of respondents regarding land admin office effectiveness in controlling illegal land-owning practices

The response of the respondents on Figure 4.16 revealed that illegal land invasion that leads illegal housing settlement enormously affected the appearance and beauty of the town. Miraclesly, what makes difficult to think and worry is that the land administration office could not yet assess the effect of illegal land invasion on the appearance of the town according to the respondents' answer (60%) displayed on Figure 4.16. This is really sad! Because it is this office that responsible to manage land and land related issue for the successful implementation of the town's master plan. Overall, such recklessness of the land admin office encourages people to invade land illegally which directly affects the urban morphology of the town.

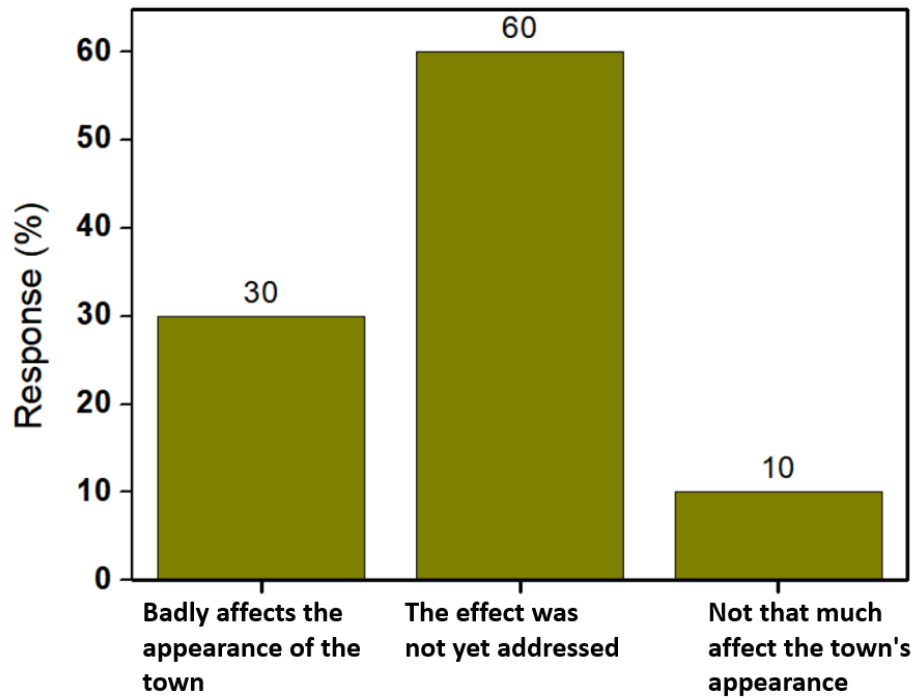


Figure 4. 16 depicts the response of the respondents on the effect of illegal land invasion on the appearance of the town

Keeping the above point in mind, all the respondents also answered that the land admin office strictly follows while providing land to users for a different purpose, regardless of the way it provided. However, the respondents' response contrasts with the effectiveness of illegal land control and plan implementation failures.

All in all, the urban form, urban structure, and urban morphology of Assella town are highly affected by land utilization system, illegal land-owning practices, illegal human settlements, and failure in implementation of the town's master plan. Furthermore, the consequence of such activities resulted in affecting the appearance and beauty of the town.

4.6.4. Compliance of the town's structure and morphology

As discussed above, the urban structure and urban morphology of the town are well evaluated. Here we want to assess whether the town's urban structure and morphology compliance in a way promote the urbanization growth and development of the town or not.

According to this study both urban morphology and urban structure of the town are highly influenced/affected by both developed master plan and implementation problems of the proposed plan. In principle, the town's land management office categorized the land use in different category such as for industry, public use, housing, and so on. However, as we have narrated under section 4.7.2, the land

category and its utilization were not properly implemented. Meaning that the town has no a proper regulatory body that evaluate whether things are going according to plan or not. On the other hand, the morphology of the town which correlated with spatial structure and human settlements was also under problem as discussed under section 4.7.3. Since land category and utilization is inefficient, there was huge illegal human settlements in the town. It was explicitly pinpointed that how this illegal housing development and human settlement affect the morphology of the town and lowers the beauty of the town. In general, theoretically, the urban structure and urban morphology of the town agreed, nevertheless, practically what is observing on land did not compliance as these two entities were impacted by illegal practices. Hence, the morphology of the town is deformed instead of tied with the town's structure.

4.7. Hurdles for the town's urbanization development

In this sub-section, the hurdles or obstacles for the urbanization development and growth of Assella town have been discussed thoroughly. Hence, poor land management and utilization system, illegal housing development and human settlements, lack of a proper follow up and implementation of plan, lack of genuine experienced employees and interference of politicians in land and land related issues have been considered as factors that affect the town's urbanization process and discussed accordingly as below.

4.7.1. Poor land management and utilization

According to Oromia resource management office, land is the primary resource of the region and oromo people. Of course, nationwide, similarly land is the main resources of the people and its income source. As a result, government often time provides training for farmers and for other body to keep land properly and utilize wisely.

Poor land management and utilization system highly affects productivity in the agriculture and in city or town urbanization. In this regard, if we see the land management and utilization system of Assella town, it could possible to say a poor utilization system. To show this fact, it is only enough to refer from Figure 4.14 to Figure 4.16 that discussed the land utilization system of the town. In order to further explain this issue, the researcher was asked the land administration office “***what is the big challenge of the land admin office of the town?***” and found that 60% of the respondents answered that “higher authorities decided what should be done instead of following the land policy of the region.” As observed on Table 4.7.

Table 4. 7 respondents' response on the types of challenges in the land admin office of the town

Response Options	Respondents' response (%)
(a) the land officers do not govern by the land policy	20

(b) higher authorities decided what should be done instead of following the land policy of the region	60
(c) difficulty in implementing the land policy itself	20
(d) the town does not follow a clear land policy	0

Even though, the interference of the higher authorities of the town on different decisions regarding land based on the land policy its contribution was a lot and resulted a poor land management and land utilization system. Nevertheless, failure of the land officers/employees properly implementing the land policy and the difficulty of land policy implementation were also contributed huge on the poor land management and utilization.

If a town or city couldn't be guided by the land policy, lands possibly utilized for non-planned purpose and became obstacles for town urban development and growth.

4.7.2. Informal housing development and human settlements

According to (UN-Habitat, 2003), informal or illegal settlements are identified as (1) residential areas where a group of housing units has been built on land on which the occupants have no legal claim or which illegally occupy; (2) unplanned settlements and areas where housing does not meet current planning and construction standards. Many other terms and definitions have also been devised, such as informal human settlements, slums, illegal settlements, unconventional housing, non-permanent settlements, etc.

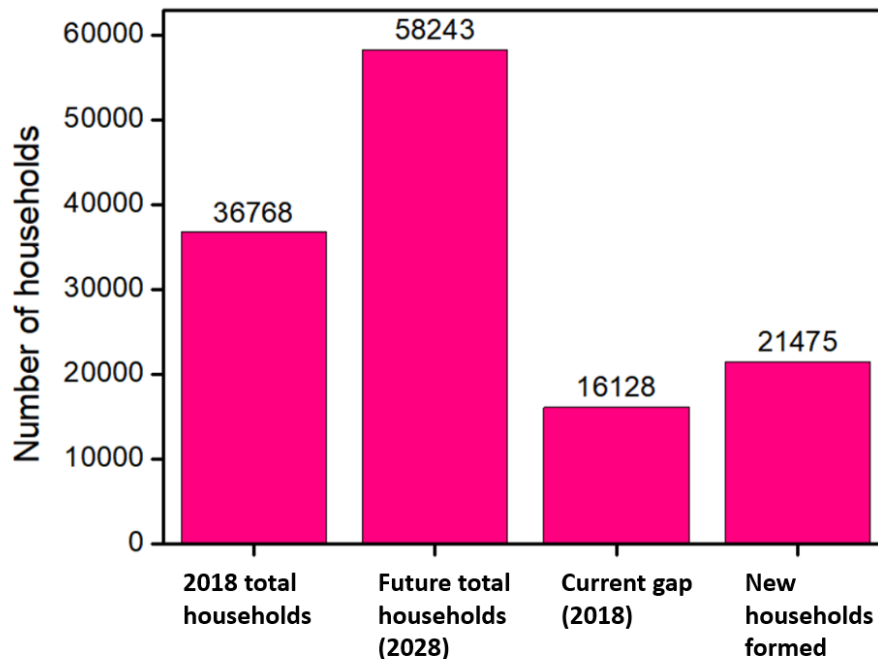


Figure 4. 17 depicts demands for households in Assella Town [data based on CSA and Assella Municipality]

According to (Samson, 2010) statement, the term informal settlement is widely used by Ethiopian planners to indicate the settlements that are not in conformity with the planning laws and standards of the town/city. Here, the study would like to ask “what is the cause of informal illegal housing settlements?” if we look into this cause from Assella town perspective, the primary cause of illegal/informal settlements are:

- 1) unavailability of living house supplied by government
- 2) unaffordability of renting living house
- 3) expensiveness of land to buy for house building
- 4) insufficient land supply by government for citizens and
- 5) weak land management and control: opens door for illegal settlements

Due to the above critical reasons, informal or illegal land-owning and informal settlements are expanded in town.

To support this criticism, referring Figure 4.17. could give an additional information. As observed from this figure, on 2018 about 36,768 households were built and the gap between demand and supply of house units were about 16,128 households. Showing that huge gap was existed! To narrow this gap the housing development office proposed that about 58,243 households will be needed for 2028, future needs. However, the newly built houses were only about 21,475 that added to the existing houses.

Surprisingly, the population number in the town recorded by CSA in 2007 were about **67,269**, Table 4.3. Indicated that there is a huge difference between the supply household and the number of populations in the town. This shortage of house supply potentially leads the people to engage into illegal or informal housing settlements. Interestingly, the municipality office workers proved this informal or illegal housing settlements with its degree of illegality settlements as observed on Figure 4.18 below.

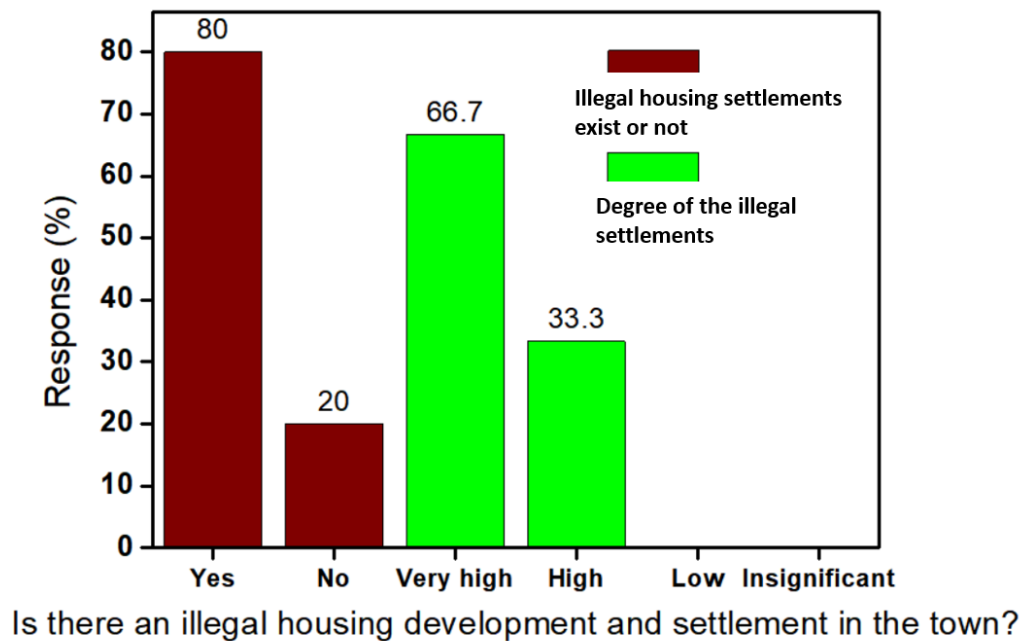


Figure 4. 18 depicts the respondents ‘of the response on the illegal housing settlements in Assella town

4.7.3. Lack of a proper follow up and implementation of plan

Any plan success is evaluated by its implementation status from the grand plan of the subject. With this point, when we evaluated the implementation status of the town’s master plan, it is really weak implementation as we proved it from the employee’s response. To clarify this point, the researcher was asked the following questions to the employees of the municipal office, Table 4.8.

Table 4. 8 Critical questions raised for employees of municipal office

Q.No.	Raised questions	Response (%)
1	Does your office evaluate the urbanization and development degree of the town in a fixed periodic time? (a) Yes (b) No (c) I didn’t remember (d) there is a fixed evaluation time but didn’t do it accordingly	46% responded that no fixed periodic time for evaluation whereas about 27% of them didn’t remember whether evaluation held on a fixed

		period or not.
2	Master plan is like a mirror to guide the urbanization process of a town. Have ever been your office held an evaluation session on the implementation of Assella town master plan? (a) Yes (b) Not yet. If your answer is “Yes”, rate the implementation success of the town’s master plan out of 10. (a) 5 (b) 7 (c) 9 (d) 10	60 % of them replied that plan implementation evaluation was held and 75% of them rated its implementation success 7 out of 10.

It was clearly observed from Table 4.8 that the municipal office did not have a fixed periodic table to evaluate the urbanization development degree as responded by the employees/respondents. In addition to this, the town urbanization success via the master plan implementation poor though couldn’t be said no implementation at all.

Hence, there was a clear failed up in follow up and master plan implementation evaluation in a fixed periodic time. This caused the town not to urbanize and develop as expected. Thus, lack of a proper follow up and implementation problem of the master could be considered as hurdle for the urbanization process of the town.

4.7.4. Lack of a genuine experienced workers

Another important factor that considered as hurdle for urban development and growth of Assella town was that lack of a genuine experienced worker in land administration, urban and plan development, and municipal offices. A good example to show such claim is observed the above successive Figures and Tables explanation regarding land administration and plan implementation of these offices. Even during this questionnaire what the researcher observed that significant number of the employee of those offices did not know their responsibility in the office of the town. Besides, what they responded for the raised questions clashed each other from the understanding perspective yet the question is crystal clear. This shows an explicit lack of work experience and incapable logically thinking. Therefore, with such kinds of employees, the office couldn’t achieve what was planned and resulted a total failed in urbanizing the town.

4.7.5. Politicians’ interference: politician leads the master plan instead of master plan leads it

It is the usual trend and behavior of politicians to interfere into works and decision making of civil activities whenever they have interests into the case to be ceased. In similar manner, authorities assigned

through politics could highly affects the civil work and decided what to do instead of following policies, rule and procedures and standards approved by people representative office as this case clearly observed in the land admin office of Assella town as literally seen on Table 4.7. So, when land utilization systems are randomly utilized instead of following the town's master plan, it will definitely retard the urban development and growth of the town. In fact, such interference is known in every office of Oromia, at large in Ethiopian federal offices. This is quite dangerous and cancer for urbanization development of town/city which intern affects the urbanization activity of the country.

4.8. Consequences of failure in implementing the town's master plan

According to the findings of this study, it was confirmed that a clear failure of master plan implementation of Assella town was revealed. Therefore, the consequences of the failure of this master plan resulted in:

- distortion of the sub-roads from the main roads
- poor utilization of land system
- expansion of illegal settlements and housing development
- loss of public/community gathering space "Urban Square"
- loss of green areas
- loss of recreational areas
- loss of open space and sport field

The above consequences were shared and 100% strongly agreed by the workers and officials of municipal office, land admin office and plan and urban development office of the town as explicitly observed on Table 4.9.

Table 4. 9 questions raised for officials and workers of land admin, plan and urban development, and municipal offices

Question	Response (%)
Q: Engineers in the area of urban development claim that Assella town has the following major problems associated with the implementation of the town's master plan: — Distortion of the sub-roads from the main roads — Poor management and utilization of land — Illegal settlements and housing development	100 % of the official and employees of the offices were entirely strongly agreed with the engineers claim which also shared by the author of this study

— Lack of public gathering space “Urban Square” Do you agree the claim of these engineers? (A) Strongly agree (B) Agree (C) disagree (D) Strongly disagree	
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4.9. Drainage system of Assella Town

The town’s drainage system is mainly a river system. Its patterns are formed by the streams, rivers, and lakes in a particular drainage basin. The town is located in the internal drainage basin of Danbal or Abijata. There several rivers that commenced from the foot off Chilalo mountain like Walkessa, Hanqu, Kombolcha and Dosha. The land use that is proposed on the upper stream, banks of these rivers should not be a spoiled. Figure 4.19. shows the drainage basin around Assella town.

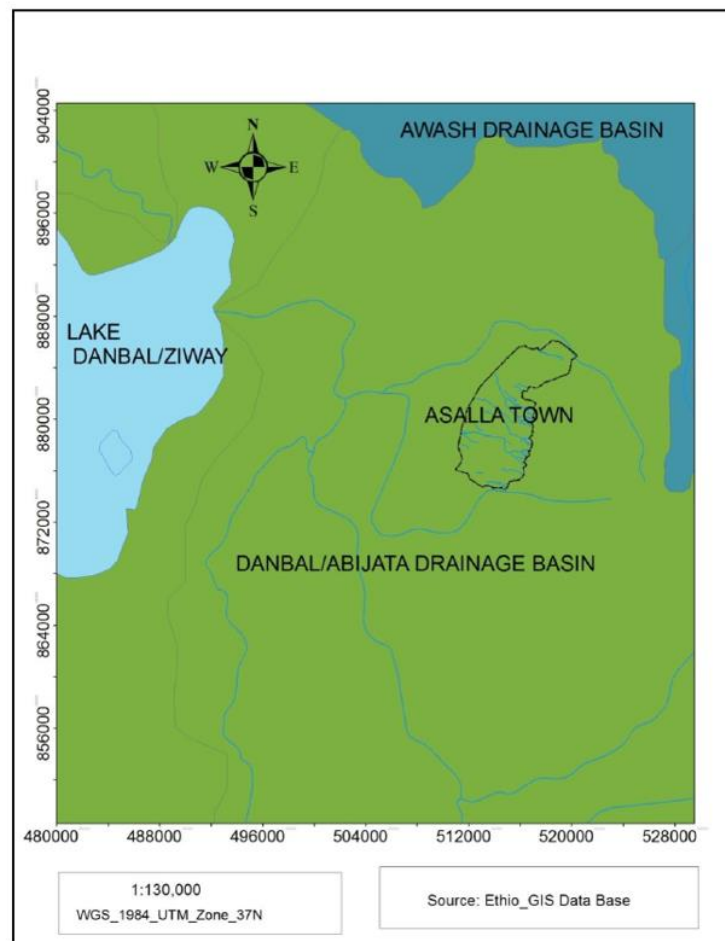


Figure 4. 19 depicts the drainage basin around Assella Town [EthioGIS Data Base]

It is from the above standpoint that the drainage system of the town should be developed. What is truly

observed on the ground that huge occurrence of soil erosion and floods that totally spoiled the social activities, economic activities, movements, problems on traffic management, encroachment of human settlements, caused damage on properties and loss of life, in the worst case. This explicitly showed that the problem of drainage system of the town that either not included in the master plan, not properly designed or not properly implemented. Figure 4.20. strengthened more about the drainage problems of Assella town.



Figure 4. 20 shows Hazardous Floods in Assella Town [own captured]

However, currently new drainage systems of the town are under constructing by the Chinees company. This construction plan has included building big bridge and other constructing small cannels. Figure

4.21 depicts this construction processes.

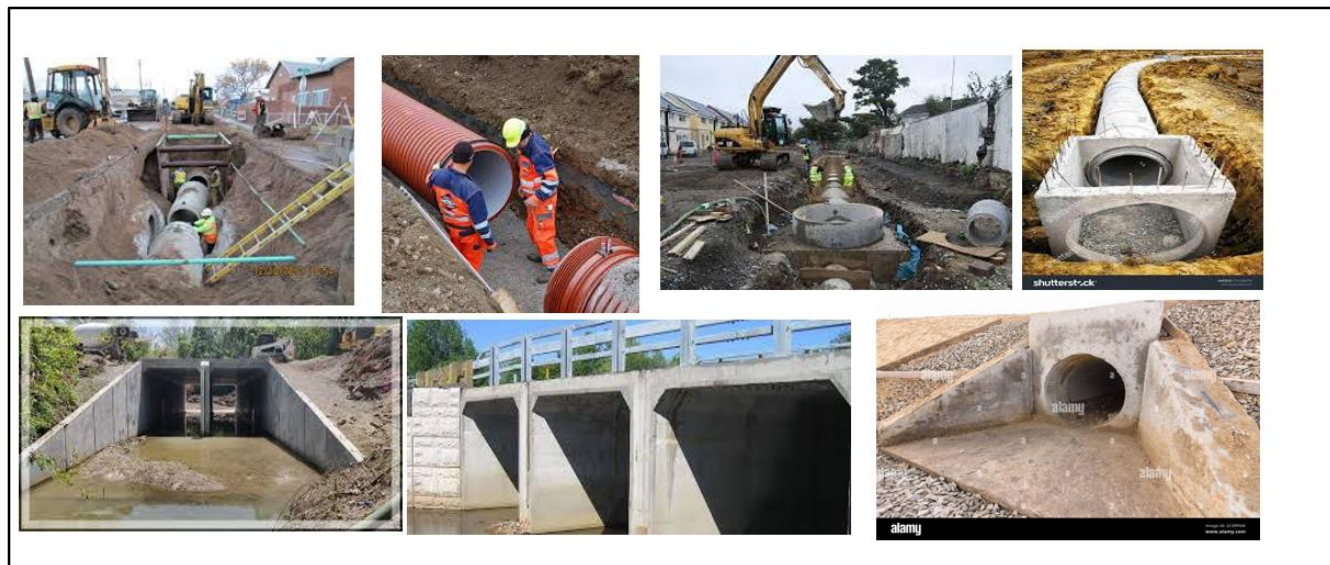


Figure 4. 21 depicts Assella town’s drainage system construction [own captured photo]

4.10. Land use and land cover of Assella Town from 1985 to 2013

According to (Weldu and Derribew, 2015), the absolute land use-land cover pattern of Assella town between 1985 to 2013 categorized into water, farmland, built-up, plantation, pasture and grass, bare land and open shrub land. Table 4.10. below shows that this land use and coverage of the town.

Table 4. 10 shows land use-land cover pattern of Assella town (1985 to 2013)

Land use class	1985		1993		2001		2013	
	Area (ha)	Coverage (%)	Area (ha)	Coverage (%)	Area (ha)	Coverage (%)	Area (ha)	Coverage (%)
Water	5.49	0.1	5.94	0.1	6.3	0.1	5.49	0.12
Farmland	1151.0	4.7	1613.9	36.0	1260.2	28.0	1653.6	36.9
Built-up	341.28	7.6	399.24	8.9	796.14	17.0	1336.5	29.8
Plantation	352.8	7.8	332.64	7.4	424.26	9.4	470.97	10.5
Pasture & grass	654.57	14.0	539.19	12.0	1569.0	35.0	506.43	11.3
Bare land	213.48	25.0	630.18	14.0	92.61	2.0	283.05	6.33
Shrub	1754.7	39.0	952.2	21.0	324.72	7.2	217.17	4.85

From the total land coverage of 1985, the majority of land use and cover were categorized under shrub

land and accounts about 1757 hectare (39.0%) while built up was contributed 341 hectares (7.6%). Meanwhile, the land use-coverage in 1993, the large share of the town was covered by farmland which contributed 1613.9 hectares (36%). Nevertheless, a rapid decline in open shrub class was observed in this period and became 952 hectares (21.3%). Whereas, water, plantation, grass and pasture, and bare land accounts for 5.94 hectares (0.13%), 332.6 hectares (7.4%), 539.2 hectares (12%) and 630.2 hectares (14%) out of the total land use-coverage class, respectively. Interestingly, the built up of the town in this period was resulted an increase in area and constitute 399.2 hectares (8.9%).

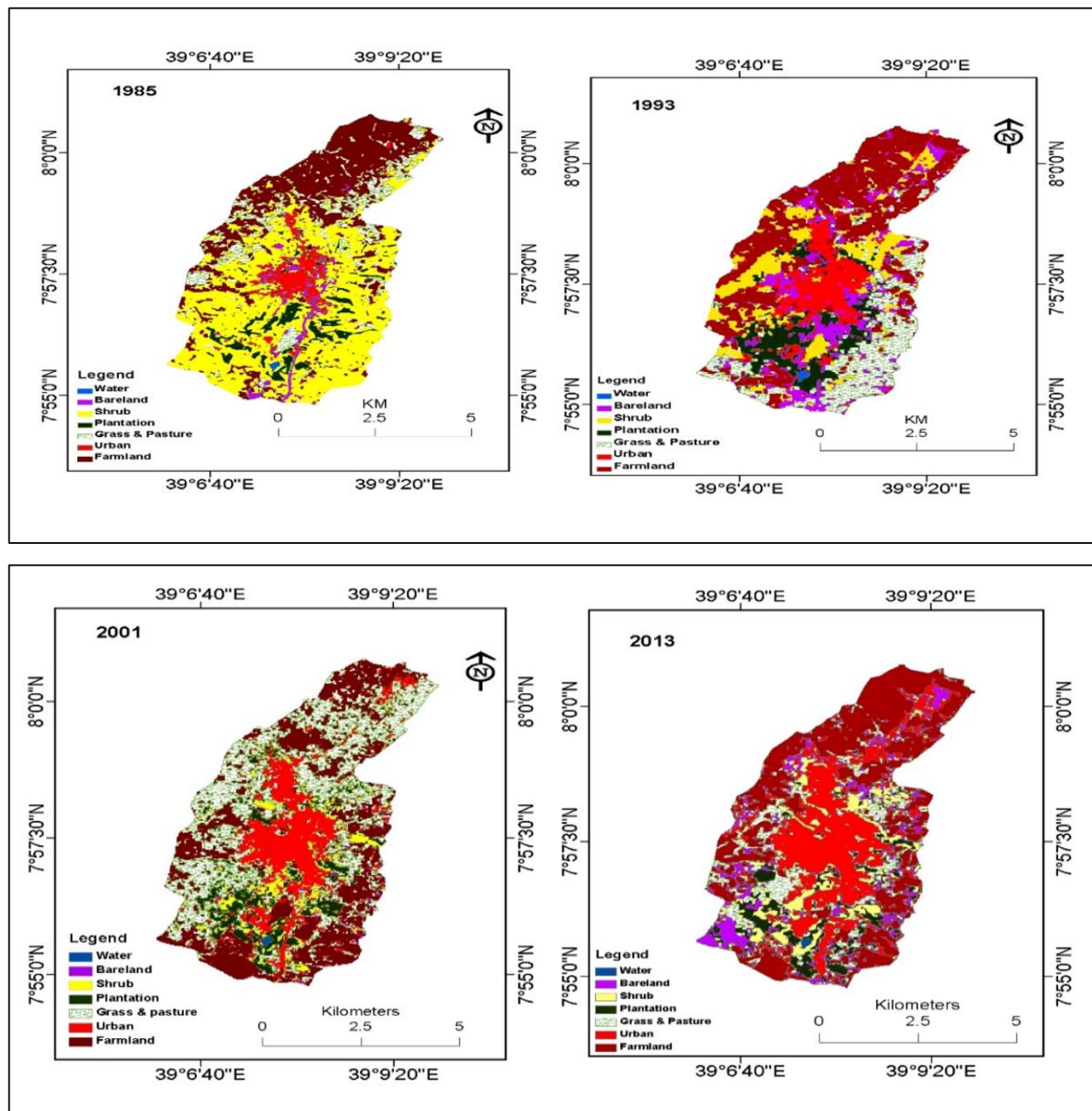


Figure 4. 22 depicts land use-cover map of 1985 (Top left side), 1993 (Top right side), 2001

(Bottom left side) and 2013 (Bottom left side), [Adopted from Weldu and Derribew work]

Figure 4.22 shows the land use and land coverage in Assella town from the year 1985 to 2013. The land usage coverage significantly increased from year to year as shown on Table 4.10 and Figure 4.22.

4.11. Spatial Expansion of Assella Town Through Time

Through time, any town's plan could possibly expand to accommodate more land use and expand urbanization areas. Accordingly, the spatial expansion of Assella town from 1985 to 2013 (CSA, 2007; Weldu and Derribew, 2015) was assessed with respect to its population size.

Table 4. 11 shows Built up expansion and population growth of Assella Town

Years	Built-up	ΔHectare	Population	ΔPopulation	Annual growth rate (%)		
1985	341.28	—	35,365	—	Intervals	Built-up	Population
1993	399.24	57.96	45,875	10,510	1985-1993	2.1	3.7
2001	796.14	396.9	59,081	13,206	1993-2001	12.4	3.6
2013	1,336.59	540.45	86,220	27,139	2001-2013	5.7	3.8
2018	1,610.59	274	103,895	17,675	2013-2018	4.1	4.1
2023*	1,968.97	358.38	127,013	23,118	2018-2023	4.5	4.5

*: projections via calculations (Weldu and Derribew)

As observed from Table 4.11. between the year 1985 to 1993, the town has shown the built-up expansion of about 58 hectares with a 2.1% annual growth rate. While between 1993 to 2001 the town has begun to take a large-scale urban expansion process and nearly adds 397 hectares expansion with a rate of 12.4% annual growth rate whereas population size of the town was increased by 59,081 with a 3.6% annual growth rate. Furthermore, 540 hectares built-up expansion at a 5.7% annual growth rate and the town population growth showed about 27,139 with an annual growth rate of 3.8% between 2001 and 2013.

With this trend and urban expansion history of Assella town in the past three (3) decades, the town was significantly experienced the spatial expansion to different parts of the town. Considering this trend, further expansion in the coming future will be thought to be inevitable. Hence, Weldu and Derribewu were calculated expansion rate from 2018 to 2023 (the current fiscal year) area that thought to be urbanized including the population size. Consequently, 274 hectares increase of built-up area with a 4% annual growth rate was observed between 2013 to 2018 while urban population was increased by 17,765 at 4.1% annual growth rate.

In general, the built-up area in town drastically increased through the consecutives years as observed in

Table 4.10 and 11, which directly showed the urbanization expansion of the town was alarmingly increasing. In similar manner, the population size became enormously increased which hinted that the town's master plan must be prepared in a way accommodating such facts. Figure 4.23 exactly shows this patterns or linkage of population growth and urban expansion of the town. However, how much strong and committed the land admin, plan and urban development and municipal offices' officials working on the town's urbanization in way to fit with the alarmingly increase population is under question.

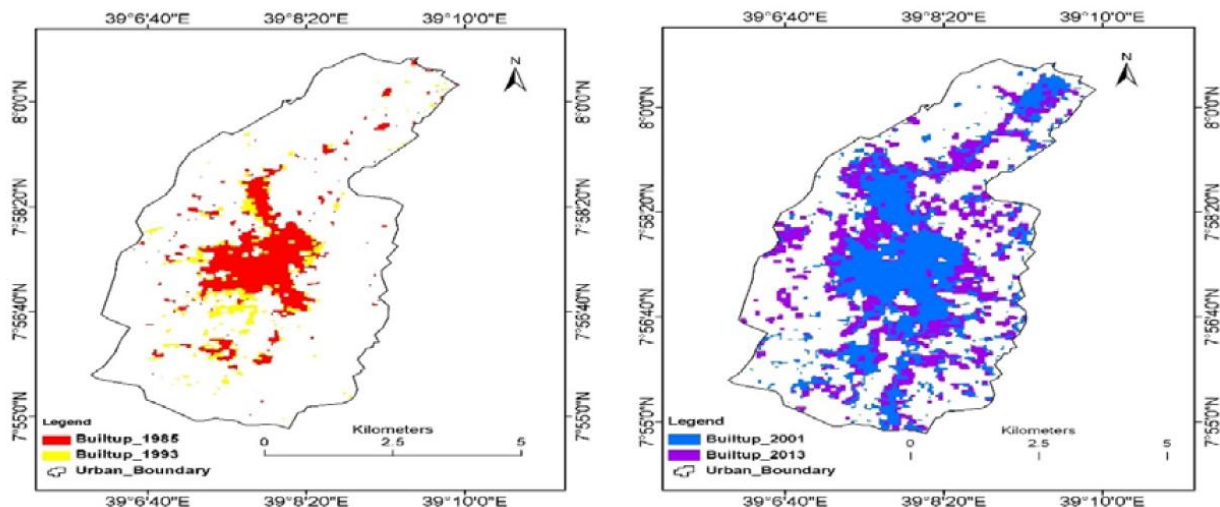


Figure 4. 23 shows the linkage between population growth and urban expansion [Adopted from Weldu and Derribew work]

4.12. Factors for Urban expansion of Assella Town

Assella town's urban expansion process has been influenced by multitude of driving forces such as:

- Geographical location
- Urban population growth
- Accessibility to public infrastructures and
- Several economic opportunities

As we have observed from sub-section 4.10 and 4.11, the land use-coverage indicated that the town was marked spatial expansion triggered by varieties factors. Officials from the municipality of Assella town witnessed that the second launched master plan of 1980/81 has played a great role for one step expansion of the town following the land lease system. In this plan, new organizations, additional manufacturing industries, hotels, infrastructures such as roads and other public facilities have been significantly contributed for urban expansion to all directions of the town.

Another, factors for the urban expansions of Assella town was the reform held by government during 2007 that caused for large scale built-up expansion of the town. According to this reform, new structural

plan which allowed the incorporation of additional lands in all direction of the town that able to boost the municipality finance. Consequently, the reform opened the door for the growing demand of land for investment, commercial, housing and other activities through time which further increased urban expansion of the town. Of course, urban expansion is largely correlated with demand insisted by physical, environmental and socio-economic activities inside urban areas (Amini, et al., 2022; He, et al., 2006).

4.13. A 3D design of the town developed by the researcher

If the master plan of Assella town from the earlier period to the late 2018 master plan, the urbanization and growth status of the town will be quite impressive. Considering these assumptions, the researcher designed and developed a 3D picture and video showing the expected urban feature of the town. Figure 4.24 clearly depicts this designed of the town. The video of this design will be presented to the examiners during the defense session.





Figure 4. 24 shows the expected and future urbanization of Assella Town [Designed by the researcher]

5. CONCLUSIONS AND RECOMMENDATION

In this research work, evaluating urban planning form, Structure and morphology of Asella Town was studied. Data through questionnaire, interview and field visits [as primary data source] and documents on physical plan and design documents such as master plan, development plans, land use plans, road network plan, local development plans, and urban designs as well as from e-sources [as secondary data sources] were properly collected. Analyzing these obtained data and arrived on pertinent conclusions regarding the urban planning form, structure and morphology of Assella town. Overall, conclusions and recommendation have been provided through the following successive paragraphs of this section.

5.1. Conclusions

As a road is important means to reach to a specific place of destiny, similarly, urban planning is a tool for urban development of town/city of one's country. With this standpoint, the researcher has tried to

evaluate the three consecutive master plans of the town from urban form, urban structure, and urban morphology perspectives. Besides, the researcher has assessed the status of the town's urbanization growth and development from the point view of master plan itself and master plan implementations.

According to the findings, the primary urbanization problems of the town was correlated with the developed master plan itself (33%) and plan implementation problems (67%). The 1998 master plan, the first master plan after the fall of dergue regime and it embraced many developmental issues compared to the 1960s master plan of the town. The master plan by then was designed on an area of 2,161.9 hectares land. Whereas the 2008 master plan which was designed by Oromia Urban Planning Institute covered an area of 4,637.9 hectares land. In this master plan, several developmental issues and services have expanded with the expansion of the town. Accordingly, the expansion areas of the town increased and many things have been changed interms of erecting building, commercial centers, business centers, shops, schools (public or private), utility services are expanded very well in the town. According to the findings, the utilized land for built-up from 2008 until 2018 was about 2,947.18 hectares. This showed that until the 2019 new master plan of the town made about 2,947.18 hectares land were utilized for different building purpose from the total land of 4637.91 hectares that the master plan established on. The rest 1,690.73 hectares were covered by water body and utilized for various purpose such as for farmland, plantation as well as for pasture and grass. Nevertheless, this master plan by itself was lacked clarity on some issues such as on the road lines or straight road (lacks walk way, pedis trial road, utility road, PAS, SAS and etc.), land utilization system, supplying of basic utilities like housing development, open spaces and other many developments.

In order to improve the town's urbanization behavior and to avert problems observed on the 2008 plan of the town, the town's structural plan was revised and area wise increased to 5,395.6 hectares [by Oromia Urban Planning Institute] and developed the 2018/19 plan. Implied that the current structural plan of the town increased the area of the town physically by 756.6 hectares. In all aspects, this master plan of the town was developed very well and embraced many development programs. It relatively has a clear land utilization category such as street network and transport, town centers, social and municipal services, housing, environment, and manufacturing and storage. However, this master missed crucial development services such as public spaces, lacks hierarchy of street arrangement, streets have inconsistent width, can't accommodate high traffic volumes, lack proper traffic management (increased traffic accidents), lacks active commercial corridors, no proper business areas, no integrated drainage

systems (created damage on property and life), poor solid and liquid waste management system, and so on.

With all due weaknesses, these master plans of the town, brought its own contribution to the development and growth of the town's urbanization. The question that the author of this research would try to attempt questions "does the town urbanized as expected through these consecutive plans of the town?" according to this findings, majority of the respondents (75%) participated in this research were believed that the town was not growth as expected as per the plan. According to the respondents, the reason for this under urbanize status of the town was failure in implementation of master plan of the town. The failure of implementing this master plan was brought numerous consequences. Of which consequences were

- Retarded the urbanization magnitude of the town;
- Promoted illegal or informal housing development and human settlements;
- Invasion of land;
- Poor land management system due to poor land utilization systems;
- Land utilized for unplanned purpose instead of for planned one;
- Low legal based investment: decreased the income of the town;
- Poor waste management systems;
- Poor community services: basic services such as water, electricity, post office, roads, telephone (network services), etc.;
- Insufficient house supply: demand and supply incomparable;
- Poor drainage systems: resulted in damaging property and lost of life (human and animals);

The study was further investigated the causes of failure in" implementing the master plan" of the town. According to the respondents' response and the overall findings pin pointed the main causes or reason of failure implementing the town's plan. These causes were:

- Difficulty of executing the master plan itself due to failed in providing compensation for lands included to the plan;
- Rigidity of the land policy;
- Officials (authorities) not to follow the land policy of the region;
- Officials' interference into the decisions of workers;
- Employees failed to respect and perform their activities according to the plan/land policy;
- Incapability of employees: lack of experiences;
- Irresponsibility of the officials or politicians: no one asked for their failures;

- Failures of officials evaluating the implementation of the plan;
- Land utilized for unplanned purpose instead of for planned one and so on.

These problems directly affect urban form, urban structure, and urban morphology of the town. This is because form, structure and morphology are the components of the built the master plan of the town. The master plan and plan implementation issues are not only affected the form, structure, and morphology, but also affected the appearance and beauty of the town. These interns influenced the urbanization development, growth, and status of the town.

In general, the urban form, urban structure, and urban morphology in Assella town have significantly influenced by the town's master plan itself (design problem and difficulty to implement) and plan implementation problems. The plan implementation problems associated with poor land system management, unclear land using system, plan understanding and execution capacity problem, employees work experience problem, land invasions, illegal housing development and informal settlements, rigidity of land policy and influence of authorities in the plan execution are the primary reasons for plan implementation problem of the town. Therefore, the researcher believed that the output of this study could shade light in sharing critical information regarding the urbanization process and status of Assella town through evaluating the last three consecutive master plans and related urban form, structure, and morphology of the town.

5.2. Recommendation

In Ethiopia Urban Planning System, Structural Plan [SP] may be conceived as a long-term (10 years) urban plan that frames the major development issues of an urban center. It is guided by an integrating urban development plan (IUDP) which provides an overall long term policy direction, strategies, vision and goals. Implies that urban structural plan serves as a city/townwide frame work for local plans. With this regard, Assella town got its master plan since 1960s to 2018/19 with the aim of urbanizing the towns and created sustainable development of the town through integrated development of economic, social, and environment issues. However, in one way or many ways, the objective of the town's master plan were compromised due to problems associated with the master plan its self and plan implementation problems.

Overall, the researcher would like to provide the following important recommendation from these two

problems standpoints.

- 1) Fixing problems associated with the master plan its self
 - Serious evaluations and assessments should be taken on the current master plan of the town. This will help to find the gaps on the current plan as well as on the so far ones;
 - Step by step identifying of the real problems associated with current master plan;
 - Make a critical discussion on the results found from the survey;
 - Propose a competent and experienced engineers who have enough track record on town/city plan preparation → exclude OUPI, if possible or make part and not totally grant such work to this group;
 - Refrain from expansion rather focus on how to effectively implement the plan;
 - Plan must be implementable!
- 2) Fixing problems associated with master plan implementation
 - Make the land policy flexible or insist for improvement;
 - Provide a true training for employees on implementing plans of the town;
 - Form a group to implement the master of the town accordingly [plan execution group];
 - Form experts who evaluate the implementation of the plan [plan implementation evaluation group];
 - Hold town's urban development and growth status evaluation session periodically;
 - Hold responsible body/authority accountable whenever they break land and other related policy/rules and regulations that directly effects plan implementation;
 - Develop a clear land utilization system and execute accordingly;
- 3) Averting favorable conditions that able to hinder master plan implementation
 - Prepare lands for housing development in affordable manner: helps to prevent land invasion and illegal settlements;
 - Build and supply condo house to the people: reduce house demands;
 - Prepare open spaces or public space;
 - Prepare ease means of compensation for lands taken from people who removed their lands for development purpose;
 - Public awareness creations on the development carrying out in the town, and so on.

Hence, in order to urbanize and accelerate the growth and development of Assella town, it is highly recommended to guide the urbanization process of the town through correlating of structural plan (SP),

local development plan (LDP) and Integrated development plan (IDP). Here IDP is about a municipality identifying its priority issues or problems, determining its vision, objectives, and strategies followed by identification of projects to address the issues. A very critical stage of IDP is linking these planning to municipal budget which has been out of picture except for the Addis Ababa and Adama revised master plans where there were attempts to link the plans with budgets. In an IDP, the local government prioritizes planned activities and programs to be executed by allocating fund, the required work force, establishing a system and mechanism for plan implementation. IDP also consists integration of sectoral plan with structural plan, LDP and other development plans.

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APPENDIX

Appendix A: Questionnaires

General information: Dear respected respondents, this questionnaire is conducted merely for the purpose of academic research in order to fulfill the requirement for the degree of Master of Science in Urban Planning and Design from Adama Science and Technology University.

The overall intent of the research is to study the urban planning form, structure, and morphology of Assella town. It's obvious that such kinds of research will not produce concrete results without getting valuable information from genuine people working in the different administration offices of the town. Hence, the author kindly requests the respondents to freely and honestly interact with the given questions and provide an acceptable answer for each question which is able to finish the study successfully. The researcher strongly believes that the findings of this study will shed light on knowing the status of the urbanization and development of Assella town and will be an ice breaker/reference for any interested researchers to further conduct a study on the town. The author thanks you in advance for your kind cooperation!

Section I: For the land management office

1. Basic personal information of the respondents
 - A) Gender/Sex: M____ F____
 - B) Age: 25 to 30, 31 to 35, 36 to 40, 41 to 45, 46 to 50, 51 to 55, 56 to 60 (Please underline your choice)
 - C) Educational status: Certificate ____ Diploma ____ BSc/BA ____ MSc/MA ____ Ph.D. ____
 - D) Your current position in the office (Please state it) _____
 - E) Work experience: 1 to 3 years, 4 to 6 years, 7 to 9 years, 10 to 12 years, more than 13 years (Please underline your choice)
2. How could you define your work experience status in the land admin office? As (a) Junior worker (b) Senior worker (c) Expertise level worker
3. Does your office have a clear land utilization category? [Yes, No]. If your answer is yes, what category utilization follows (a) industrial purpose land (b) commercial purpose land (c) condo purpose land (d) community/public purpose land (e) individual housing land (f) other category purpose land (please mention it) _____

4. In what way the office provides land to the users? (a) through land lease selling (b) selling through negotiating to anyone in need (c) through gift (d) please kindly state any means that did not state here_____

5. Are there illegal land-owning means in the town? Yes, or No?

6. If your response for Q#5 is “Yes”, how could the office entertain such kinds of the illegal act? By (a) removing the illegal people from the land (b) bringing the illegal people to justice and re-take the land to the office’s land bank (c) making the illegally taken land legal (d) please state if any measurements the office could take _____

7. How effective is the office in controlling illegal land-owning exercises? (a) excellent (b) V. good (c) good (d) fair (f) bad

8. How bad is illegal land invasion affecting the appearance of the town? (a) badly affects the appearance of the town (b) the effect is not yet addressed (c) not that much affect

9. Does the office strictly follow the master plan of the town while providing land to users for a different purpose? [Yes or Not]?

10. If your response for Q#9 is “Yes”, please rate it as (a) very strong (b) strong (c) weak

11. What is the big challenge for the land admin of the town? (a) the land officers do not govern by the land policy (b) higher authorities decided what should be done instead of following the land policy (c) difficulty in implementing the land policy itself (d) the town does not follow a clear land policy (e) please kindly state if any _____

12. As an employee of the land admin office of the town, do you have any opinions regarding the land or land-related issues that the author didn’t address in this questionnaire?

Thank you for your kind cooperation! March 2023

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The overall intent of the research is to study the urban planning form, structure, and morphology of Assella town. It's obvious that such kinds of research will not produce concrete results without getting valuable information from genuine people working in the different administration offices of the town. Hence, the author kindly requests the respondents to freely and honestly interact with the given questions and provide an acceptable answer for each question which is able to finish the study successfully. The researcher strongly believes that the findings of this study will shed light on knowing the status of the urbanization and development of Assella town and will be an ice breaker for any interested researchers to further conduct a study on the town. The author thanks you in advance for your kind cooperation!

Section II: For plan and urban development office

1. Basic personal information of the respondents
 - A) Gender/Sex: M____ F____
 - B) Age: 25 to 30, 31 to 35, 36 to 40, 41 to 45, 46 to 50, 51 to 55, 56 to 60 (Please underline your choice)
 - C) Educational status: Certificate ____ Diploma ____ BSc/BA ____ MSc/MA____ Ph.D.____
 - D) Your current position in the office (Please state it) _____
 - E) Work experience: 1 to 3 years, 4 to 6 years, 7 to 9 years, 10 to 12 years, more than 13 years (Please underline your choice)
2. How could you define your work experience status in the plan & urban development office? As
(a) Junior worker (b) Senior worker (c) Expertise level worker
3. Does the plan and urban development office have a clear roadmap that show how to grow and develop the town? (a) Yes (b) No (c) I'm not sure about it

4. If your response for Q#3 is “Yes”, who develop the roadmap/plan? (a) Federal government (b) Oromia regional government (c) Assella town municipality admin office (d) I’m not aware who develop it (e) please kindly state if any
5. It is obvious that the master plan of a town/city is pivotal to shape structure, morphology and appearance of the town. How many times Assella town’s master plan changed or modified? (a) 4 times (b) 3 times (c) 2 times (d) I don’t have information
6. After EPRDF lead government, the master plan of Assella town at least changed twice. What is the reason for changing the master plan? Due to (a) the country’s policy stating that a master plan of town/city should be changed every 10 years (b) the master plan possesses gaps to be filled (c) the difficulty of the master plan to implement (d) the master plan does not fit with the growth of the population (e) please kindly state any reasons _____

7. Did you have a chance to participate in changing the town’s master plan? (a) Yes, I did (b) No, I didn’t (c) I didn’t remember
8. If your response for Q#7 is “Yes”, could you kindly state the major gaps considered as a reason for changing the town’s master plan? _____

9. Do you think that the urban development and growth of Assella town are guided by the master plan? (a) Yes (b) No.

9.1. If your response is ‘Yes’, does the town urbanized as expected? _____

9.2.If your response is “No”, what do you think of the reason? Please kindly state

10. As an employee of the town, have you ever discussed the master plan of the town and its urbanization status as a team of “plan and urban development office? (a) Yes, we have discussed

and pinpointed some problems associated with the plan and propose a new plan accordingly (b) Yes, however, we only evaluated its implementation (c) No, we never discussed both the master plan and urbanization status of the town (d) I didn't remember (e) please kindly state if any_____

11. Engineers in the area of urban development claim that Assella town has the following major problems associated with the implementation of the town's master plan:

- Distortion of the sub-roads from the main roads
- Poor management and utilization of land
- Illegal settlements and housing development
- Lack of public gathering space "Urban Square"

Do you share the claim of these engineers? (A) Strongly agree (B) Agree (C) disagree (D) Strongly disagree

Open-ended questions

12. What problems have you observed regarding the urban plan form, structure and morphology of Assella town? Please kindly state your response as many as you can:

13. Assella town has no a clear "public spaces or open spaces." Where people gather for different ceremonial activities. Is it because of such spaces are not included in the master plan of the town or the implementation problem of the plan? Please kindly state your views.

14. Do you think that there is a failure of implementing the master plan of the town? If your response is yes, what do you think of the impacts of failure in implementing this plan on the overall urbanization of the town?

Thank you for your kind cooperation!

March 2023

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The overall intent of the research is to study the urban planning form, structure, and morphology of Assella town. It's obvious that such kinds of research will not produce concrete results without getting valuable information from genuine people working in the different administration offices of the town. Hence, the author kindly requests the respondents to freely and honestly interact with the given questions and provide an acceptable answer for each question which is able to finish the study successfully. The researcher strongly believes that the findings of this study will shed light on knowing the status of the urbanization and development of Assella town and will be an ice breaker for any interested researchers to further conduct a study on the town. The author thanks you in advance for your kind cooperation!

Section III: For Municipality Office

1. Basic personal information of the respondents

- A) Gender/Sex: M____ F____
- B) Age: 25 to 30, 31 to 35, 36 to 40, 41 to 45, 46 to 50, 51 to 55, 56 to 60 (Please underline your choice)
- C) Educational status: Certificate ____ Diploma ____ BSc/BA ____ MSc/MA ____ Ph.D. ____
- D) Your current position in the office (Please state it) _____
- E) Work experience: 1 to 3 years, 4 to 6 years, 7 to 9 years, 10 to 12 years, more than 13 years
(Please underline your choice)
2. How could you define your work experience status in the plan & urban development office? As
(a) Junior worker (b) Senior worker (c) Expertise level worker
 3. As a municipality admin, how do you rate the urbanization status of Assella town?
(a) highly grow (b) grows as expected (c) shows growth but not significant (d) less growth (e)
no growth observed at all
 4. Does your office evaluate the urbanization and development degree of the town in a fixed periodic
time? (a) Yes (b) No (c) I didn't remember (d) there is a fixed evaluation time but didn't do it
accordingly.
 5. Master plan is like a mirror to guide the urbanization process of a town. Have ever been your
office held an evaluation session on the implementation of Assella town master plan? (a) Yes (b)
Not yet. If your answer is "Yes", rate the implementation success of the town's master plan out
of 10. (a) 5 (b) 7 (c) 9 (d) 10
 6. As a municipal office worker, is there an illegal settlement and housing development in the town?
(a) Yes. If your answer is "Yes", how do you magnify this illegal act?
(a) very high (b) high (c) low (d) insignificant
 7. As a higher and responsible organ, could you mention the major problems considered as hurdles
or obstacles for the urbanization and development of Assella town? Please kindly state:

Thank you for your kind cooperation!

March 2023

Appendix B: Interview questions

The following questions were presented for the interview section via which primary data collected.

- 1) For how long you have lived in Assella town?
- 2) When did Assella town urbanization thought to be started? In which specific area this urbanization began?
- 3) When did the modern urbanization of Assella town began following the master plan?
- 4) Do you know when the first master of the town developed?
- 5) As a person living in the town, how did you judge the urbanization growth of Assella town?
- 6) What is more developed in the town compared to ten years back?
- 7) What lacks the urbanization process of Assella town?
- 8) Do you think that schools, TVT institutes and universities built in a proper location/area? are their number fair compared to the populations of the town?
- 9) How do you see the waste management system of the town?
- 10) Is there a proper and fair number of public toilets in the town?
- 11) Is there a proper and enough slaughterhouses in the town?
- 12) How do see the land utilization culture of the municipal?
- 13) Do you think that religious institute granted enough amount of land for building churches or mosques? What about the coverage of cemetery areas?
- 14) Do you think that the municipal following a proper plan for the town's development?
- 15) Finally, do you have any ideas you want to add that this interview is not addressed?

Appendix C: Field Visit Pictures

(A) The proposed street road, Junctions and Bridge design in the 2018/19 plan of Assella Town



(B) The current Assella Street Road where automobiles, a three wheels car and heavy vehicles moving crowdedly



(C) Internal mini road that connects village to village and informal street market



(D) Heavy Floods in the Assella Town Due to Poor Drainage System

