

Urban Aesthetics in Adama Inner-city

Alene Melese Getinet



A Thesis Submitted to

The department of Urban Planning and Design

School of Civil Engineering and Architecture

Presented in Partial Fulfilment of the Requirement for the Degree of Master's in
Urban Planning and Design

Office of Graduate Studies

Adama Science and Technology University

Adama, Ethiopia

October, 2020

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By; Alene Melese Getinet

Adviser; Daniel Lirebo (Ph.D.)



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Approval of Board of Examiners

We, the undersigned, members of the Board of Examiners of the final open defense by Alene Melese Getinet have read and evaluated his thesis entitled “**Urban Aesthetics in Adama Inner-city**” and examined the candidate. This is, therefore, to certify that the thesis has been accepted in partial fulfillment of the requirement of the degree of Master in Urban Planning and Design.

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Declaration

I hereby declare that this MSc Thesis is my original work and has not been presented for a degree in any other university, and all sources of material used for this thesis have been duly acknowledged.

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To: Urban Planning and Design Department

Subject: Thesis Submission

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Therefore, I recommend that the student has fulfilled the requirements and hence hereby he can submit the thesis to the department.

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LIST OF ACRONYMS AND ABBREVIATIONS

BOQ:	Bill of quantities
CAD:	Computer Aided Design
CBD:	Central Business District
CLP:	Capital investment plan
CPTED:	The crime prevention through environment design
CUD:	Contemporary urban design
ELPA:	Ethiopian Electric and Power Agency
HDO:	Housing Development Office
LDP:	Local development plan
MSL:	Mean Sea Level
NGO:	Non-Governmental Organization
NHD:	Neighborhood Design
NUPI:	National urban planning implementation
SP:	Structure Plan
SPSS:	Statistical Packages for Social Science

Abstract

This research document is aimed to identify the problems, investigate the existing situations, and evaluate urban aesthetics in Adama town, especially around the inner-city area. Aesthetics is a principle which concerned primarily with nature and focusses on the appreciation of beauty in the urban environment. As the state of urbanization has been increased in different countries, urban spaces have been becoming too sophisticated and challenged by different physical elements, by public, and vehicle movement. Different cities and towns in Ethiopia, including the hub of the country Addis Ababa faced with such problems especially slum characteristics of the CBD areas of cities. These were major initiatives for the focus of the study on the responsive concern to be urban aesthetics. These affect the human's perception regarding the comfort of the place that matters on urban qualification and sustainable life. On the other hand, Adama is one of the developing secondary cities next to Addis Ababa. The growth of the town is challenged with different problems as a characteristic of obsoleted inner-city, which has identified as the main study area including the remaining influential extents in the town. Despite this, the study was employed with different surveying methods such as the interview, questionnaires, and observation. Since, the number of the residents and tourists in the area is unknown, the sample size has determined to be 385 using Cochran's formula. On the other hand, the experts in related profession were also the leading inputs to execute the study effectively. The analysis of the data is concerned with two broad views; subjective analysis and the physical analysis of the existing situation. After executing the analysis; planning, design, construction, implementation, and management problems including different economic, social, environmental, and political challenges have been obtained as findings that affect the aesthetics of the town. To identify these problematic areas, the principles and dimensions of urban design were used as the basic tools in the existing situation analysis of the built-unbuilt urban space. Supporting with explored theories and the findings using the data sated, a framework for achieving urban aesthetics is proposed targeting the cities to be sustainable and aesthetic in the future.

Keywords; Built-environment, Inner-city, Perception, Sustainable development, Urban aesthetics, Urban renewal.

“The Sparkling City of the Rift Valley”

(Culture & Tourism office of Adama town)

... To be inferred for an Aesthetic issue in the future ...



Figure 1. The view of Adama town from Gadaa Monument (Marda tube, 2019).

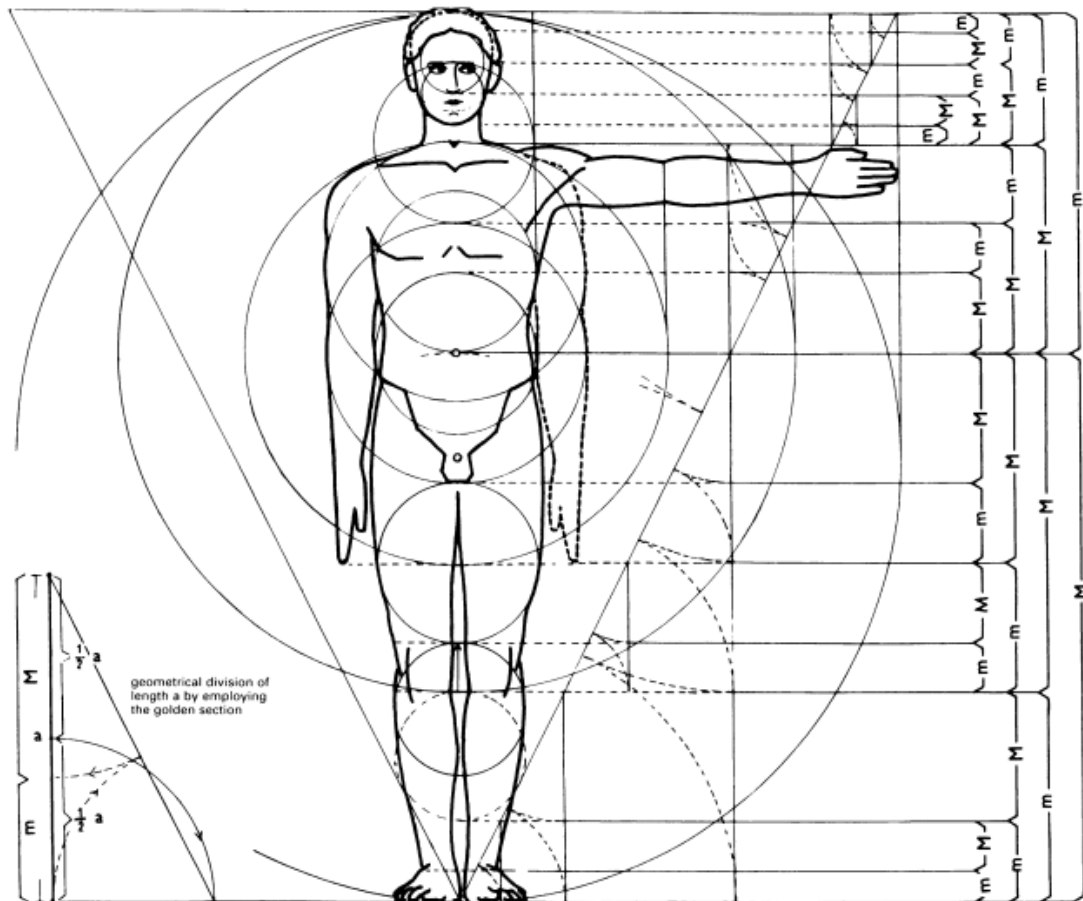
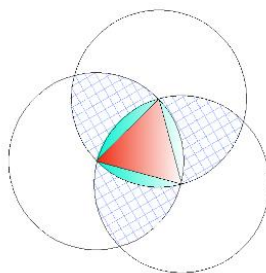


Figure 2. The universal standard of man, the science of proportion, and aesthetics.

(Source; Biache & Walliman).

Biache & Walliman in the book known as 'Architects Data' or 'Neufert', illustrated 'proportion' as the universal standard of man. This concept of proportion defines that the balance of human body from left and right sides is truly symmetrical, and hence, proportional. This is the quality of human's body to be aesthetical by nature. So that, the concept of aesthetics traces from 'nature'.



CHAPTER ONE

1. INTRODUCTION

This research is conducted concerning urban aesthetics in Adama town around the inner-city area. The study intended to assess the aesthetics problems by considering the exploration of related concepts with methodical surveys and analysis of the existing situation. Since, the issue of aesthetics is the emerging concept with human comfort and the public realm in urban development and urbanization process, it is important to determine the challenges and problems that affect the image of the city to provide ways of solutions to ensure urban aesthetics in future cities. Hence, the current existing situation of an obsoleted inner-city of Adama town, and similar problems in different Ethiopian cities has inspired the researcher to focus the study case on the urban aesthetics to be considered as a great concern of cities in the urbanization and redevelopment process.

The survey regarding aesthetics of Adama town has been employed by this study, which is organized with six chapters; the introduction, literature review, the methodology, result & discussion, and conclusion & recommendations, sequentially. But this chapter is the general overview for the study, including; describing the background of the study, the statement of the problem, the objectives of the study, the research questions, the significance of the study, the scope of the study, description of the study area, the limitations of the study & operational definitions.

1.1. Background of the study

The world is full of existing natural elements and artificial physical composition. Human beings perform their daily activities in indoor space as well as in the outside environment, which may be a comfortable working area or not, which was dependent on the care of the people about the surrounding. The urban area is changed through time by the process of urbanization worldwide.

Madanipour (2006) states that “urbanization without growth” is observed in Sub-Saharan Africa in the 1980s and 1990s, which also characterize the urbanization of most Ethiopian cities. Following these, the form of cities is become expanding horizontally, which was not being effective by different reasons like the limited resource of land, being dispersive for the urban communities, challenged service distribution & access, challenging infrastructure

development concerning budget and materials. Due to these reasons, the role of vertical expansion becomes more essential so that modern concepts have emerged as mixed-use, integrated, high rise downtown urban areas.

Vlad (2009) notes that at the beginning of the 3rd millennium when urban settlements become more and more crowded due to the work and life conditions they offer; urban aesthetics is becoming increasingly imperative. Morar (as cited in Vlad, 2009) argues that a major role in urban aesthetics development of the two cultures (Greco-Latin and Christian-Jewish) was played/performed by the theories about beauty that met three distinct notions: beauty with its wide meaning (ethical and aesthetic concomitantly); the beauty with its aesthetic exclusive/strictly signification/meaning that rise and incite/bring about aesthetic emotions against color, sound, and thinking; the beauty in its aesthetic meaning, but limited only to the visual area.

Many scholars describe the concept of city beautification with urban form, functionality, and sustainability concerning human comfort. One of the thoughts to this situation is “Aesthetics starts from nature as American naturalist John Muir saw, all nature and especially wild nature as aesthetically beautiful and found ugliness only where nature was subject to human intrusion” Carlson (2000, p. 21). According to the United Nation urban population projection, the population of cities in developing countries will increase from 2 billion in 2000 to 4 billion in 2030 G.C. This will increase the percentage of the urban population by around 87%, leading to rapid urban transition.

As expressed by Lang (2005, pp. 12), the term ‘urban design’ may have been coined in the mid-1950s, but 20 years later; it was still largely unused outside a small circle of people concerned with the four-dimensional development of precincts of cities. Now, it is used for almost anything concerned with human settlements. The change has occurred for two reasons. The first is the importance of urban design’s spheres of interest in providing opportunities for the development, the quality of life of people, and for the planet. The second is that mainstream architects and city planners have come to understand that it was demanding in the profession of urban design.

In the practice of urban design, different moments were observed by urban designers, planners, & architects to improve the futurity of cities as sustainable. Hence, Berlent (as cited in Bahrainy & Bakhtiar, 2016, pp. 4) argues that the contemporary practice of urban design began in 1960 as a reaction against the failures of modernism to produce a livable environment.

Ethiopian urban settlements have grown in the political, religious, or commercial centers and the settlements have existed at the beginning of the 5th century B.C with ancient towns like Adulis and Aksum. But later, many different settlements have emerged as towns like Harer, Jimma, Bonga, and others including Adama (Bulti & Sori, 2017).

Mulleta, et al., (2016) notes that Adama is one of the regional fast-growing, and rift valley cities & one of the major urban centers in Ethiopia. It is emerged in the first half of the 20th c., at a distance of 99 kilometers to the east of the country's metropolitan city, Addis Ababa. The city was first established with the settlement at Old site as a railway station (along the first railway line in kebele 07, which was built between Addis Ababa and Djibouti). It was located in the west of the present Adama city in 1916 E.C. by the Ethio-Franco Railway Company.

Historians & scholars have hypostasized two originations for its first naming. But, with most of them, Mullugeta & others argue that the name 'Adama' was given after a local tree called 'Hadaamii' or 'Adaamii', meaning 'Cactus Tree', which was believed to have been abundantly growing in the area. This former name Adama was changed to Nazareth in 1945 but later reverted to the original Oromo name Adama in 1999.

The expansion from the first Adama village town to the west and east following the railway line. Continuing this expansion, Gutema, (1996, as cited in Mulleta, et al., 2016) notes that the first road as named 'Andagna Manged', was established that passes through the center of Adama town in front of the present EELPA regional branch office crossing the Finfinnee-Dire-Dawa road near the Post Office and in the direction of Lugo to the main road to Asela. An Italian named Ferrazza prepared the first master plan of the city in 1940, & a new master plan of the town was prepared by the Ministry of Interior, Department of Municipalities in 1971.

The railway station was moved to Lagahar, the present-day Kebele 07, which is locally known as 'Arada' or 'Lomi Tera' began to emerge as the center of every business activity of the town. Later, the constraints of the change causes to expand from rail stations to the main street of Addis Ababa - Dire Dawa highway (including Mebrat Hail to Derartu square) in the process of urbanization in Adama town brings different economic, social, & political activities; early opened services and facilities like water supply stations, trade & market centers, infrastructure and utility like EELPA; cotton-farming, trade, & factories (as economic activity); health services, transportation, landowning and construction including cultural practices (as social activities).

According to Asfaw, *et al.*, (2011, pp. 35), the trade sector is the major employer after agriculture in Adama. The major business centers in Adama are hotels, trade, and industry. According to the city chamber, five to ten thousand people enter and leave the city each day. Hence, both the public and the private sectors concur that business in Adama is growing rapidly. In the urban space, the built space and form of the architecture of old buildings, and unbuilt space like street, other infrastructures and utilities, and others were not standard-based, not futuristic.

1.2. Statement of the problem

Urban aesthetics have been a measure of urban life, as the manifestation of gaps for developed, as well as developing cities. It is characterized by safety, functionality, comfortability, livability, quality, and is an attractive city of built and unbuilt spaces in urban spaces. But this concept is not ensured in urban areas including in Ethiopia, rather the idea of urbanization becomes resulting in psychological stress and physical congestion. The aesthetic issues in most towns and cities including all over the country have been challenged with environmental, economic, social, professional, and administrative problems.

As noted in Asfaw, *et al.*, (2011, pp. 24), researches indicate that the magnitude of slums in Ethiopia is one of the highest in the world. The revised Addis Ababa City Development Plan and the Millennium Development Goals Needs Assessment Study asserted that 80% of the housing in Addis Ababa is slum (ORAAMP, 2001; Solomon, *et al.* 2004). The situation in the other urban centers of the country is not different from the capital (CSA, 2005, 2007). Hence, the current physical situation of Adama town, especially the inner-city area around Mebrat Hail to Derartu Square, the built environment is complicated by the urban elements one over the other. The buildings do not show the value of architecture (form or beauty, function or space, and firmness or strength), the streets are intricate by traffic congestion and people congestion with standard spaces, there are no public spaces (even no standing, sitting, and walking spaces), the part of utilities are appeared as obstacles (like electric poles and open ditches), the green and plant species are monotonous without selection.

While walking through some of the main streets, and the street corridors of secondary streets in the inner-city area, the perception of humans is automatically changed. These include the wastage disposals that are visualized without visual comfort; bad smell with no clean air is noticeable; off-sated street edges are observed, which is questionable for safety & security; and non-audible or noise is perceived. Due to this, there are no psychological impressions,

rather affects human comfort, safety, and security. Such problems face inhabitants of Adama town every day and night.

Besides the professionals in design and supervision works, the problem of work ethics in professionals like the consultants, and the supervisors is a day to day experience. Even though, municipalities and professionals in the cities usually concentrated on the case of architectural designs, planning issues, and urban design reviews. The application of urban design is ignored rather, mostly considered only in large cities. Hence, there is no harmonization of buildings with the surrounding environment; some buildings different height & different function is built out of the land-use zoning. Some of the consulting offices provide copies of a single architectural design for different clients with only the modification of working drawings. Besides these, the role of the professionals is less than the clients in architectural design. There is no effective management and implementation strategies. The management of maintenance, the utilization of infrastructure & utility, the cleaning, and sanitation of the town, there is no conservation of nature especially greeneries, degraded urban areas like gorges around Wonjii Mazoria.

Generally, stating the problematic issues encompasses the manner that the provision of the physical elements of the town has not been targeted at concerning the concepts and principles of urban design to ensure the sustainability of cities for the future. Hence, this study is envisioned to contribute to combating these gaps in the town, and similar problems in other cities.

1.3. The rationale for the research

Like other towns in Ethiopia, Adama is characterized in a state of change and development, which needs to be guided through the planning and design of buildings with the surrounding urban space and to remind ‘the futurity’ with the concern of sustainability in any development envisioned an ‘aesthetic city’ with being initiative for creating qualified, convenience, comfortable, pleasurable, and efficient urban environment.

Adama town is selected to study ‘urban aesthetics’ because of different reasons. These include; the town is the nearest, fast-growing, & rift valley city ever than other regional cities in Ethiopia, but not well recognized as the most aesthetic city in the country; to remind the issue as a crucial factor to attract tourism & investors with great potentials to be a role model in aesthetic development with efficient facilities and infrastructures; to remind the preservation of neglected historical places in the town such as Old rail line area; to enhance

its preference as a temporal host in ceremonial celebrations, tourists, and for those who pass along the town from different places of Ethiopia.

1.4. The objective of the Research

The general objective of the study is to investigate the state of the existing urban aesthetic conditions around the inner-city area of Adama town to convey a general framework required to improve urban aesthetics for future cities.

The specific objectives of the research are:

- To identify the challenges of urban aesthetics in Adama town.
- To examine the planning, design, construction, and implementation experiences in the town.
- To evaluate the aesthetics of the town through the principles & dimensions of urban design.

1.5. Research Questions;

- i. What are the challenges of urban aesthetics in Adama town?
- ii. How did the planning, design, construction, and implementation experiences in the town?
- iii. How does the utilization of the built-unbuilt relationship of the urban space according to the principles & dimensions of urban design in the town?

1.6. Significance of the study

This study will be very important for the improvement of the city image for the future in different aspects. The first one is to contribute its partial role in the improvement of the overall urban aesthetics for the attraction of tourism and investment. Secondly, to improve the psychological as well as the physical comfort of the people by indicating the requirement of spaces for the public realm. Thirdly, to strengthen the essentiality of urban design standards and principles to be adopted by municipalities and construction authority for redevelopment programs. Fourthly, to designate the implication of urban aesthetics with natural conservation for ensuring sustainability for the future. The fifth one is to provide a reference document for readers, professionals, researchers, and other interested individuals on the related field of study and other benefits including as initiative of good insight into urban aesthetics in the town.

1.7. Scope of the study

Thematically, the study covers the investigation of the existing physical situation regarding the conceptual circumstances of urban aesthetics. It focuses on assessing problems, which challenges the aesthetics of the city concerning urban design dimensions. Comparatively, this area is characterized by better infrastructure development, the location of upper story buildings, a variety of street types, with limited urban spaces to talk about the concept of urban design, which is the main concern of aesthetics. Hence, the configuration problems of urban space and elements; the design and implementation problems; the challenging aspects of safety, security, & comfort for the people. Thus, the buildings, roads, open spaces, infrastructures & utilities, landscape & greenery, climate & environment were inspected.

Spatially, the study is restricted to the inner-city area including all parts of Aba Gadaa Sub-city (Gadaa Kebele 12, Odaa Kebele 08, Gurmuu Kebele 06, & Bedhatuu Kebele 07) and some parts of other sub-cities (part of Kebele 09, 10, 11, & 12). It covers approximately 306 hectares of Adama town administration. This covers the Old Rail - Station area, the Mebrat Hail area to the surrounding of Derartu Square.

1.8. Description of the Study area

Adama is one of the recent emergence urban centers in Ethiopia with great opportunities for growing rapidly to be considered first-class municipal status in 1945 together with 27 other urban centers in Ethiopian cities and has become special city administration in 1995, which described in the background above. Today, it becomes the youngest but the hottest urban centers next to Addis Ababa. The city has undergone different socio-economic and administrative aspects such as demographic change, physical expansion, infrastructure development, social facilities, trade and investment, revenue, municipal administration, and some others.

The study area is It includes the state of different types of buildings ranging from the limited number of quality buildings around the Derartu square to the deteriorated buildings around the Old railway station. The study area is not restricted to the buildings only, but there are almost no playing areas & public spaces, no suitability of infrastructures with lack of maintenance and follow-up, no recognized adequate & a variety of plant species and greeneries except the street side. The specified area is the main focus of the survey but not totally restricted here, rather with some important considerations of physical elements in the town like Gelma Aba Gadaa.

1.8.1. Geographical Location

Adama town is the fast-growing city, regional state of Oromia. It is found approximately 99 km south-east of Addis Ababa in the Great East African Rift Valley bordered by chains of hills such as Dibibisa in the east, Kachama in the west, Soloqe in the north, & Bokku in the south. The city is situated between 8°26'15"N to 8°37'00"N latitude, and 39°12'15"E to 39°19'45"E longitude (Bulti & Sori, 2017), with an area coverage of around 13,300 hectares, and an altitude ranging from 1,595 to 1,750 meters, MSL (Geremew, 2016, pp. 40). The total population of the city in 2016 was 356, 304 (Alexander, 2006), with the population growth rate of the city was computed as nearly 9% from 2004 to 2016 (Tessema and Assefa, 2019). The city's topography is characterized by a sloppy nature of concentrated gradient to the inner-city area in the south from north, east, & west directions.

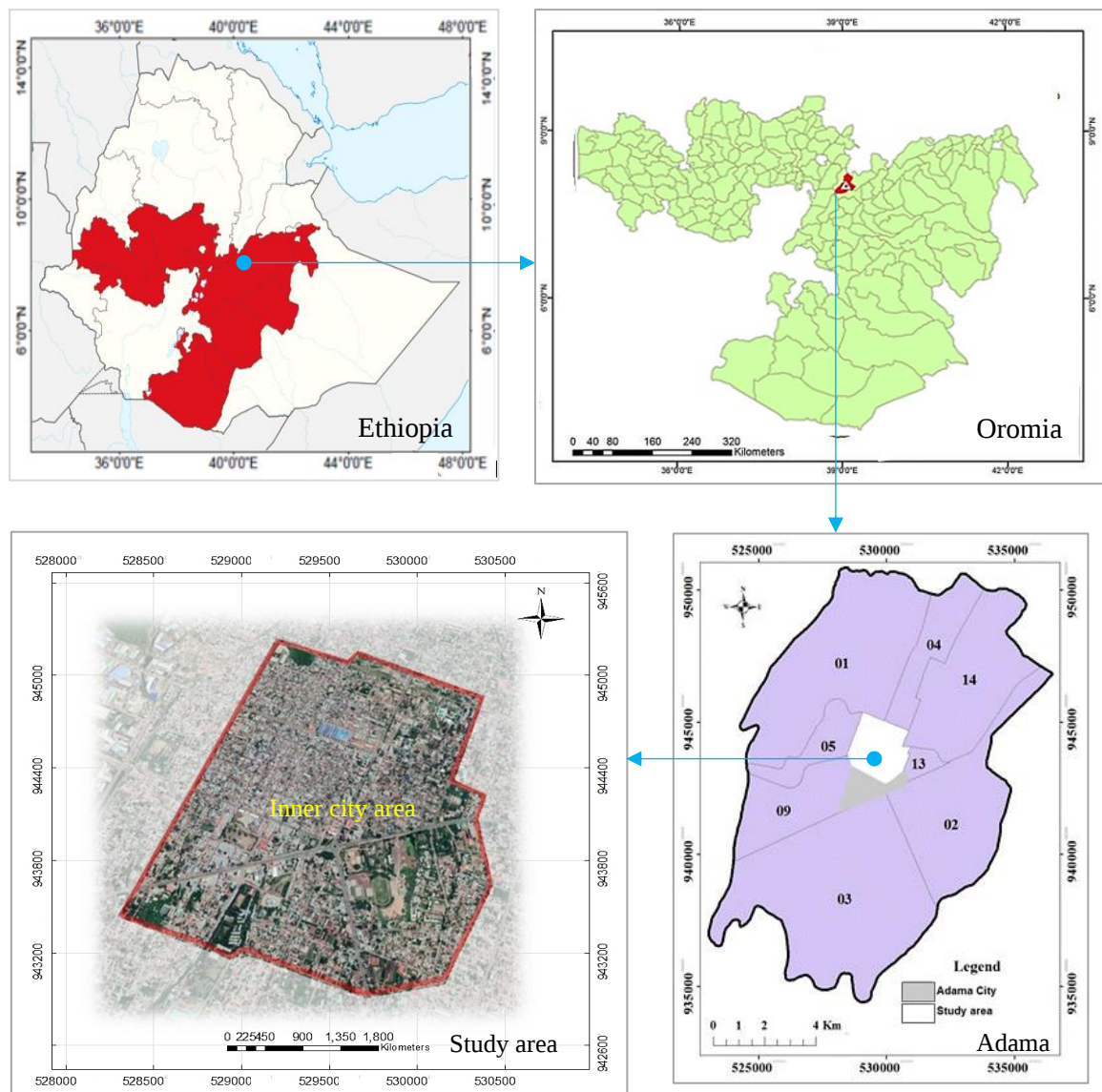


Figure 1.1. The location of the study area.

1.8.2. Climatic Condition of the study area

The climatic condition of Adama town has been experienced as a hot zone with a warm dry season and comfortable wet season. It is the time of tourists and visitors to attract them to spend their vacations in the town. The climate is also characterized by high rainfall in July & August (summer season) with noticeable high flooding that overflows from ditches and reserved existing gorges, challenging many activities immediately after raining especially in the inner-city area (around Franko, old Bus station area, and Derartu square).

According to the Metrology data of Adama in 2003-2018, the average maximum annual temperature record shows that 27.8°C (2008) and 28.4°C (2018). But the average minimum annual temperature is 14.7°C (2008) and 15°C (2018). The average annual precipitation was recognized as max. of 112.75 ML (2008) and a min. of 3.8 ML (2018). And also, the average annual sunshade was recognized as max. of 8.35 (2008) and a min. of 7.85 (2018).

1.9. Limitations

As much as possible, the study has tried to use reliable data. But the study was confronted with a range of challenges such as the scarcity of the relevant data in expected expertise offices, the political situations, the occurrence of the virus, 'COVID - 19' situations followed by the unwillingness of important groups for the sack of the physical contact, and other constraints. However, comprehensive and reliable data were explored for the account of the town 'urban aesthetics' based on available sources.

1.10. Operational definitions in Urban aesthetics

Aesthetics; - is the branch of philosophy that deals with the nature of art, beauty, and taste to establish the meaning and validity of critical judgments concerning works of art (Ching, 1995).

Architecture; - is the art and science of designing and constructing buildings (Thomas, D. 2002, pp. 9).

Art; - is the conscience of skill, craft, and creative imagination in the production of what is beautiful, appealing, and of more than ordinary significance (Ching, 1995).

Beauty; - is a special feature of an object or a place that delivers the experience of joy and meaning (Habibi, 2016).

Environment; - Human ambiance resulted from the continuous and permanent interrelation between elements of the geographical medium (Vlad, 2009).

Inner-city; - the area near the center of a city, especially when associated with social and economic problems (Chetwyn, 2018).

Perception; - concerns usually immediate apprehension of environmental information by our senses to be received, stored, and organized in the brain (Stern & Krakover, 1993, p. 131).

Planning; - is defined as the deployment of policy instruments intended to shape, regulate or stimulate the behavior of market actors or build capacity to do so, encompassing instruments as diverse as strategies, design codes, public-private partnerships, and networking (Adams & Tiesdell, 2010).

Public realm; - areas of space usually in town and city centers where the public can circulate freely, including streets, parks, and public squares (Chetwyn, 2018).

Quality; - is representing a continuum of perfection or dimension of excellence along which different landscapes can be situated (Galindo & Corraliza, 1999).

Regeneration; - upgrading an area through social, physical, and economic improvements (Chetwyn, 2018).

Urban Design; - is the aspect of architecture and city planning that deals with the design of urban structures and spaces (Ching, 1995, pp. 10).

Urban; - is used to define a place including the population size, population density, type of economic activity, physical characteristics, level of infrastructure, or a combination of these or other criteria (World bank, 2015, p. 13).

Urbanization; - is a global historical process that is driven by population dynamics associated with technological and institutional change (Fox, 2012, pp. 2).

CHAPTER TWO

2. LITERATURE REVIEW

2.1. Introduction

This portion of the research discusses reviews and explored ideas on related concepts to subject matter, which helps to react to the specific questions and that leads to ensure the specific objectives of the thesis. Particularly defining; related concepts with the term urban aesthetics, urban design and neighborhood planning concepts and principles, contemporary urban design approaches, urban redevelopment, and sustainability are summarized. Then, local and international case studies are included. Finally, the lessons from literature & the research gaps are discussed as summarized in Fig. 2.1, below.

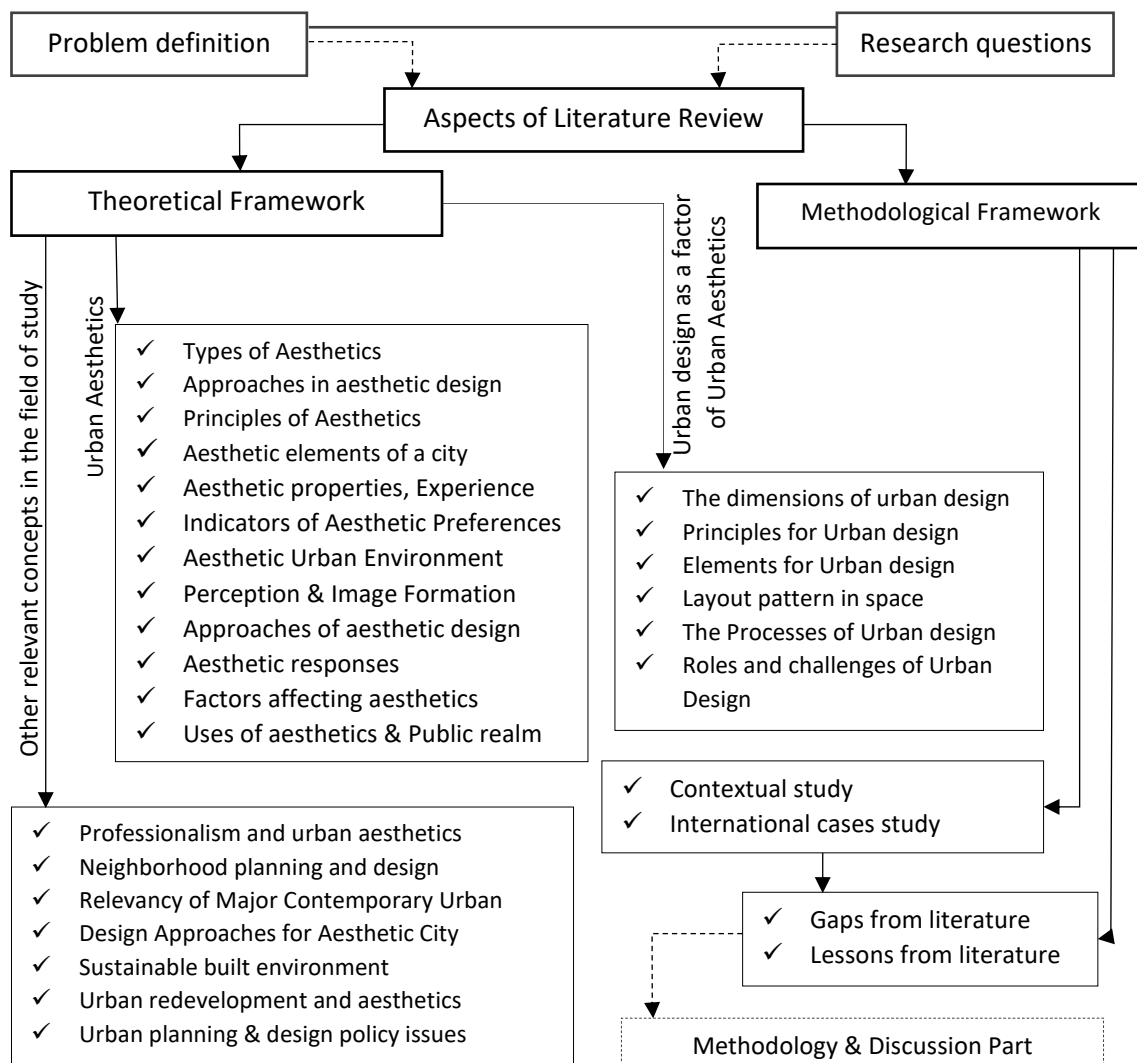


Figure 2.1. Theoretical and methodological framework in the literature review.

2.2. Key Terminologies in Urban Aesthetics

2.2.1. Definition of Aesthetics

The term aesthetics comes from the Greek word "aisthetike" meaning "to perceive" (Semra, 2012, pp.3). Alexander Baumgarten is a philosopher, who has defined it as "the science of how things are known through the senses" in 1735. It was used in German, shortly after Baumgarten, a father of aesthetics introduced its Latin form (Aesthetica) in 1775.

According to Mokhtar (2007, p.16), aesthetics has defined as "As a working definition, aesthetics is intended to mean an arrangement of elements of a phenomenon to produce a pleasantly heightened intellectual and emotional awareness which, is an interaction between the psychology of perception and a language of association". Rezafar & Turk (as cited in Teymur, 1991, p.81) express "aesthetic" functions as an adjective to qualify other qualifying terms such as "quality", "dimension", "value", and so on. It is invariably a "positive" adjective. It implies "good", "beautiful", "nice", and not "bad" or "ugly", so on.

In other perspective, aesthetics was defined in terms of beauty as "Traditional definitions of aesthetics refer to the perception of beauty in the arts and may imply extreme and intense feelings such as the sublime" (Nasar, 1997, p. 152). Accordingly, beauty can be defined as the individual's sensual value to the things, which achieve delight by the interaction of psychological sensory abilities, which gives the psychology of self-value of existence. Lang (2005) stated that the science of aesthetic is concerned with identifying and understanding the factors that contribute to the perception of an object or a process as a beautiful or, at least, a pleasurable experience, and understanding the nature of the human ability to create and to enjoy creating aesthetically pleasing displays.



Figure 2.2. Components of aesthetic and sustainable city (Google image, 2020).

2.2.2. Types of Aesthetics

There are two types of aesthetics as mentioned in different reviews as formal aesthetics and symbolic aesthetics. Nasar (1994, p. 382) stated that attributes of formal aesthetics include shape, proportion, rhythm, scale, complexity, color, illumination, shadowing, hierarchy, spatial relations, incongruity, ambiguity, surprise, and novelty and the other attribute concerning symbolic aesthetics include humans experience on building exteriors through mediating content variables that are not defined solely by physical attributes.

In another way, the types of Aesthetics have been defined in three categories by Lang (2005) as formal, symbolic, & sensory aesthetics. The former described as related to the appreciation of physical elements like shapes, proportions, other geometry qualities, and structures of the environment. The second, symbolic aesthetics is concerned with the people pleasure earned by the associational meanings of patterns for both the natural and artificial environment that include some of the variables like naturalness, preservation, the intensity of use, & style. The last, sensory aesthetic is related to people's response to the environment, especially the design solutions of architects and urban designers.

2.2.3. The Concept of image formation

Perception is a subjective process, which organizes and interprets the patterns of stimuli in the environment. People experience environments through the senses and all data comes to us through our perception (Ahmad, Resmiye & Rahbary, 2017, p. 3). Besides this, sensory organs of humans are likely to take messages from the physical environment to be interpreted by the brain. Nasar (1994, p. 380) has supported this as “the interpretation is processed as an image”. Stern & Krakover (1993) state that image formation depends on the cognitive organization of perceptions, ‘perceived information’ and change in the individual's available cognitive structure may affect the perceptual selectivity, ‘attributes’ like fields of attention. As further stated image formation has a ‘conceptualized’ process by three-stage model; perceptual filtering of information signals, further cognitive representation of filtering concerning the previous cognitive structures stored in the brain, and a mental image of a given objective environment.

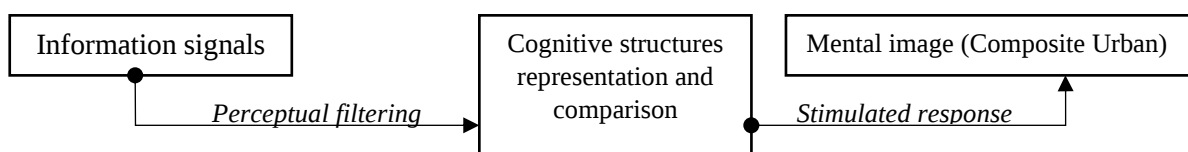


Figure 2.3. Conceptualization process of image formation (Stern & Krakover, 1993, p.132).

2.2.4. Aesthetic Properties and Indicators

In the experience of aesthetics, aesthetic properties determine the quality of aesthetic response that is intuited in different aspects contextually, which facilitates the ultimate image formation of an environment (Baloglu & Cleary, 1999). High quality of these properties has required in urban design and they have their influence on the creation of the mental perception of the final image (Echtner & Ritchie, 1991). On the other hand, Pham (1999) argued that three commonly accepted basic aesthetic properties that could be used for evaluation: expression (arouses some emotion from an observer), representation (actual, idealized or imagined), & form (the structure, organization, & composition of an object).

Montazeri's research (as cited in Ahmad & Alpar (2015, p.201) has classified the indicators of aesthetic property into three categories as psychological, organizational, and meaningful properties. The first, psychological properties are the formal qualities of objects, such as size, color & intensity. The second, organizational properties concerned about our observation preference to see specific patterns over others (unifying elements like harmony, symmetry, order, balance, proportion; complexity, and variety); and the last, meaningful properties are perceived subjective properties like originality, familiarity, prototypically, and novelty.

2.2.5. Aesthetic Experiences and Responses

Ahmad & Alpar (2015, p.201) define the aesthetic experience as it involves the interaction between the environment and the observer. The specific qualities associated with the form of an object are complexity, unity, and intensity, which are linked to pleasure or sensation. Gjered (2010) shows that aesthetic experience, changes according to the intensity, integration, and complexity of the aesthetic elements and it can be divided into perception, recognition, and meaning. The aesthetic judgment is based on immediate sense forms through experiencing and evaluating values and meanings the perception of the environment leads to the aesthetic judgment that is expressed as aesthetic responses. These responses are derived from the cognition of aesthetic properties in urban configurations that are examined based on the different features of an environment, such as building style, color, materials, texture, size, height, and detail, city image, and urban environment (Olascoaga, 2003).

Gjered (2010) demonstrates the cognition of the aesthetic environment starts from the built form characteristics and unbuilt environmental factors to be perceived by human characteristics, which result in the aesthetic experience of sensory, formal, and associational characteristics as shown in Fig. 2.4, below.

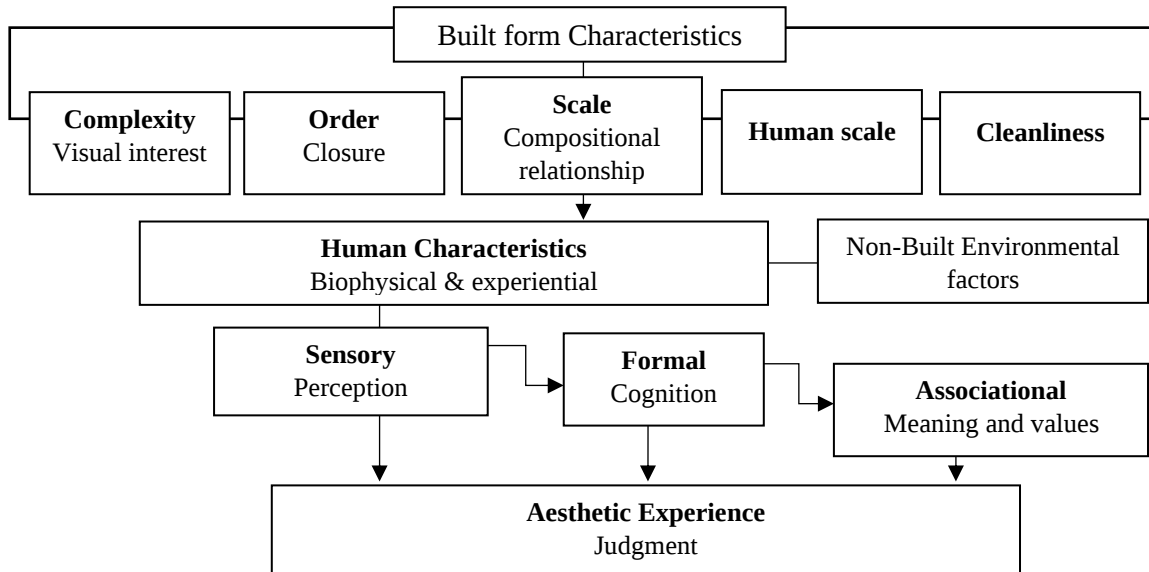


Figure 2.4. Aesthetic experience framework for the cognition of the environment (Gjerred, 2010).

Aesthetic responses to the environment are derived from the recognition of aesthetic features in the urban landscape and are considered based on different features of the environment style of the construction, house style, appearance color, street, and urban landscape (Nasar, 1994; Olascoaga, 2003). Nasar (1994) has presented a conceptual framework about aesthetics responses as the observation of building attributes resulting from the perception and cognition quality. These lead to affective appraisals of emotional reactions, which result in the aesthetic response as shown in Fig. 2.5, below.

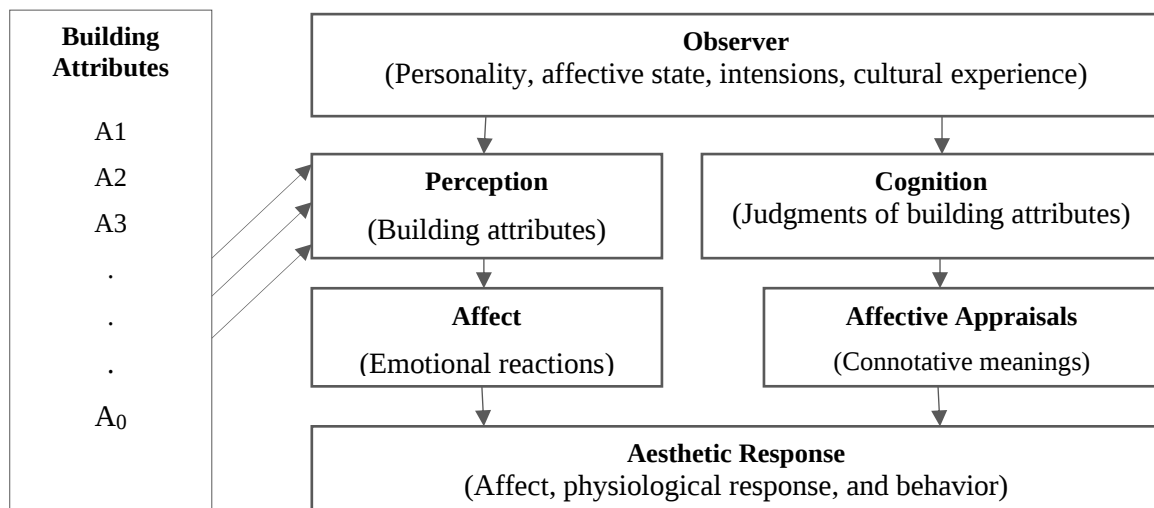


Figure 2.5. A probabilistic model of Aesthetic Response (Nasar, 1994, p. 381).

2.2.6. Aesthetic Variables

“Variables of the built environment that carry meanings are building configuration, spatial configuration, materials, the nature of illumination, the non-visual environment, & the

meaning of non-material attributes of the built environment” (Qaraghuli & Hinkaw, 2016). Other scholars note that the sound or smell, which is associated with an image can be important when responding to visual cues. Similarly, social studies with survey scales of ‘clean-dirty’ verify the perceived hygienic and aesthetic conditions at a destination while scales such as ‘well-maintained-run-down’ emphasize the importance of the upkeep of physical attributes (Marshall, Curnock, Pert, Smith & Visperas, 2019).

2.2.7. Aesthetic elements of a city

Different scholars have assessed the basic components of a city, which are concerned with the buildings as a primary physical element. Atfeh (2008, p. 17) has identified basic aesthetic elements of the city; roads and alleys, landscaping, public lighting elements, furniture of the street and open spaces, and water in the city. Qaraghuli & Hinkaw (2016) state the levels of achieving aesthetic city as elements of the aesthetic city including structural elements (horizontal & vertical surfaces); natural elements (geographical & designed landscape); sensory elements; the element of street furniture (lighting, traffic lights); service elements (transportation, the removal of waste infrastructures); cultural elements (historical & heritage elements); visual scene (sense of place & uniqueness); and the organization of urban space (connectivity, legibility, & others). Encompassing these, Williams (2019, pp.7) states that the classification of significant man-made features of the city as they appear in the city visually, concerning the city as a whole.

2.2.8. Aesthetic principles of a city

Pham (1999) defines nine basic principles of aesthetics; balance (symmetrical & asymmetrical), proportion, dominance, contrast, solidity created by the robust characteristics of different elements, gradation is an orderly change, alteration or uniqueness, simplicity is an over-precisely arrangement of objects, dynamics is the energy of boldness, and rhythm expresses with recognizing the repeated patterns. Besides, different scholars note that a range of urban aesthetic principles. Burton & Mitchell (2006) have determined six key urban aesthetic configuration principles; familiarity, acceptability, legibility, distinctiveness, comfort, & safety, which greatly facilitate the development of viable urban spaces. Habibi (2016) has identified three different approaches in designing for aesthetics; objective aesthetics (physical) versus subjective aesthetics (psychological); expert-based aesthetics versus public preferences; and rational approach versus emotional approach.

2.2.9. Factors affecting Urban Aesthetics

According to a different scholar's views, the major factors of aesthetics can be seen as economic, social, environmental, and political factors. Among this, the social factors concerning the attitude of society greatly matter on aesthetics from caring to the surrounding environment. The design problems such as urban design and others play a great role in making the built environment to be suitable and sustainable. Concerning this, Bentley, Alcock, Murrain, Glynn & Smith (1995) suggested that to have a high quality of aesthetic properties, the amalgamation of all human senses; vision, hearing, touch, taste, smell, and emotions, which are required in urban design. Habibi (2016) shows that lack of aesthetic quality in the shape of urban spaces has caused several problems for users like psychological discomfort and visual pollution, being unreadable, weak ability to conceive, and routing in urban environments. On the other hand, the cooperation of the management of officials and the work of professionals for working together on the issue effectively is also determinant.

2.2.10. The role of Aesthetics and the public realm

The practices in urban aesthetics comprise an efficient implementation of planning & urban design. These have been doing for the activities of human use to maximize public comfort & safety. Different urban infrastructures have been efficiently provided, better principles and strategies have been implemented to provide a resilient future city. As noted by Carmon, Health, Oc, & Tiedell, (2007, p. 109), the public realm is an overlapped concept with public life, which involves relatively open and universal social contexts. It has defined two dimensions; physical (space) & social (activity). Hence, the physical public realm is the spaces and settings that facilitate public life and social interactions can be termed as the sociocultural public realm.

As broadly defined, the public realm comprises all the physical built spaces including external & internal in urban areas. It is vital when to be successful in creating environments that people want to live and work in (Smithers & Voscek, 2017, pp. 11), which is a function of its quality as a supportive and conducive environment (Gehl, 1996). Hence, the final goal of discussing aesthetics is one of the most crucial concepts in human life. Qaraghuli & Hinkaw (2016) note that as the need for aesthetics is one of the basic human needs, where its job is to satisfy the individual psychological requirements to enjoy the presence.

2.3. Urban Design and Aesthetics

Urban design, in common with designing the other arts, is a creative process, and it must be assumed that the application of aesthetic principles to the analysis and design of cities will be carried out by persons qualified for such work (Williams, 2019, pp. 18). “In the typology, the distinction between the four procedural types; total-urban design, all-of-a-piece urban design, piece-by-piece urban design, and plug-in urban design; forms the primary dimension of any categorization”. Other scholars, Tennant (as cited in Lang, 2005, pp. 31) states that today the term ‘urban design’ is used to describe almost any design that takes place in any city setting. Furtherly, “Urban design deals with the creation of the physical public realm of human settlements within the public realm of decision-making”.

Many professionals argue that “urban design exists as a subject and profession in its own right, which is located somewhere between planning, architecture, landscape architecture, and transport planning” (Greed & Roberts, 2014, pp.19). On the other hand, they further stated that urban design is concerned with the physical form of cities, buildings, and the space between them. The study of urban design deals with the relationships between the physical form of the city and the social forces which produce it. It focuses, in particular, on the physical characteristics of the public realm but is also concerned with the interaction between public and private development and the resulting impact on urban form.

2.3.1. The Dimensions of Urban Design

2.3.1.1. The Morphological Dimension

Urban morphology is the study of the form and the shape of the urban settlements, which focuses on several elements like land use, building structures, plot patterns, street pattern to be the most important. The change of these elements shows that the improvement of the urban environment (Carmon, et al, 2007, p.61). The other scholars including Bell et al, (1990) note that narrow streets in northerly or southerly climes will have limited sunlight providing spaces for developments and convenient circulation and social spaces; & smaller sizes are also often advocated to attain urban utility, permeability, visual interest, and legibility, which are also basic principles in urban design.

2.3.1.2. The Perceptual Dimension

It is also an essential dimension of urban design, which focuses on the awareness and the appreciation of environmental perception, in particular, the experience of a ‘place’ or a sense

of a 'place'. There are two most important formal factors affecting judgment; order and visual interest that tends toward ambiguity and complexity; vision, sounds, smell, touch, and others were identified as elements of complexity (Mokhtar, 2007). As cited in Enkossa (2007, p.17), Lynch specifies the five key physical elements (paths, edges, nodes, districts, and landmarks), which have left a strong image in the observers' mind, and none of them is to be thought of in isolation. Ittelson (as cited in Bell et al, 1990, p. 29) has identified four dimensions of perception; cognitive, affective, interpretive, and evaluative. Hence, there is a difference in environmental perception, which depends on factors such as age, gender, ethnicity, lifestyle, length of staying in an area on the physical, social and cultural environment (Enkossa, 2007, pp. 37).

2.3.1.3. The Social Dimension

This dimension focuses on the relationship between space and society, which concerns on five approaches; the relationship between people and space, the interrelated concepts of the 'public realm' & 'public life', the notion of neighborhoods, the issue of safety & security, and the issue of accessibility. According to the arguments of different scholars' urban spaces are not used appropriately so that with the decline in quality, public spaces are less likely to be used by causing the decline of the space (Ellin, 1996, p.149). The public realm has physical and social dimensions, spaces, and settings facilitate or support public life & social interaction, which functions social learning, personal development, and information exchange (Loukaitou, Sideris & Banerjee, 1998, p.175).

2.3.1.4. The Visual Dimension

This dimension is important in the creation of a successful urban built space that focuses on aesthetic preferences, aesthetic qualities of urban spaces, urban architecture and hard & soft landscaping (Enkossa, 2007, pp. 43). It focuses on four key issues; aesthetic preferences, urban space and townscape qualities, urban space-defining elements like architecture, hard and soft landscaping. Nasar (1998, pp. 62) has identified five attributes of liked environments: openness & defined space, naturalness, up-keep (civilities), historic significance (content) and, order (coherence). Trancik (1996, p. 60) defines 'hard space' as principally bounded by architectural walls, and the 'soft space' as parks, gardens, and linear greenways with less enclosure or defined boundaries are dominated by the natural environment.

2.3.1.5. The Functional Dimension

It involves how places work and how urban designers can make 'better' places, which are concerned with four aspects; the use of public spaces, mixed uses and density considerations, environmental design, and the capital web. Carr, et al, (1992) have identified five primary needs that people seek to satisfy in public space: comfort (environmental, physical, psychological comfort), relaxation (body and mind at ease), active engagement with the environment, passive engagement with the environment (people-watching), and discovery (desire for new spectacles and pleasurable experiences). The social, economic, transportation, and environmental benefits are obtained from higher densities of developments (Davies, 2000, p. 64).

2.3.1.6. The Temporal Dimension

It is related to the 'time' dimension of urban design. Hence, as time passes, spaces become lived-in places, made more meaningful by their time-thickened qualities. As time passes, space become lived in places, made more meaningful by their time thickened qualities (Lynch, Smithers & Voscek, 2017). This concept is primarily focused on the relation between time and space including three key aspects of urban design; space and time-based cycles of activities, the change of the environment with stability and continuity, and the change of urban environment by the overtime with the implementation of urban designs and policies. Geddes (as cited in Cowan, 1998, p.1) believes that a city is more than a place in space; it is a drama in time. The activities are time-dependent, which may be very different within some years because of urban development.

Generally, urban design concepts, parameters, elements, and principles are well interpreted and illustrated by the dimensions of urban design into six categories as stated in different scholars. These are morphological, perceptual, visual, social, functional, and temporal dimensions. But this classification is only for clarity in exposition and analysis, as suggested by Carmon, et al., (2007, p. 57) with reasoning as the urban design is a joined-up activity, overlapping and interrelated, these dimensions are the 'everyday matter'.

2.3.2. Urban Design Principles and Approaches

Porteous, et al, (as cited in Rezafar & Turk, 2018, p. 5) noted that the urban design principles used to increase the aesthetic qualities of the built environment have been defined in various ways by different sources. Detr (also as cited in Rezafar & Turk, 2018) stated urban design parameters as; character, continuity and enclosure, quality of the public realm, ease of

movement, legibility, adaptability, and diversity. On the other hand, Carmon, et al., (2007, P.10), have defined seven key issues in making places responsive; permeability, variety, legibility, robustness (resilience), appropriateness, richness, and personalization. Additionally, Yeang (2000) stated that additional principles which ensure the betterment of urban design concept; walkability, movement, mixed development, resource efficiency, energy efficiency in the whole document.

According to UN-Habitat, five principles are recognized in neighborhood planning are adequate space for streets & an efficient street network (should occupy at least 30% of the land and 18 km of street length per km²); high density (at least 15,000 people per km², or 150 people/ha or 61 people/acre); mixed land-use (at least 40% of floor space should be allocated for economic use); social mix (the availability of houses in different price ranges and tenures in any given neighborhood, 20 to 50% of the residential floor area for low-cost housing, and each tenure type no more than 50% of the total); limited land-use specialization (to limit single-function blocks or neighborhoods, single-function blocks should cover less than 10% of any neighborhoods). As stated in City of Red Deer Neighborhood Planning Principles, there are nine neighborhoods planning principles; natural areas, mixed land use, multimodal choice, compact urban form, integrated parks & community spaces, housing opportunity & choice, resilient & low impact neighborhoods, safe, secure, & unique neighborhoods.

2.3.3. Elements of Urban design

The elements of urban design trace the concept of the elements of that city primarily specified by K. Lynch as 'image of the city'. Lynch as cited in Smithers & Voscek, (2017), include path, edge, node, landmark, and district. Then, this idea expands to encompass different categories that situated in urban space. For example, the capital web is made up of the above and below ground elements of the city's infrastructure, with the major considerations in urban design as the provision of public open space, road and footpath design, parking and servicing, and other infrastructures (Carmon, et al, 2007, p.197). Furthermore, in Yeang (2000), the components of an urban area; different infrastructures like buildings and blocks, open spaces, recreational spaces, greeneries, public urban spaces with amenities, pedestrian facilities with amenities, walking, standing, and sitting spaces and other natural resources, facilities, utilities, landmarks, vistas, and focal points, parking, street networks, and connections. In addition to the elements listed above, there are many different secondary elements in a city, which include landmarks, vistas, & city squares, setbacks (Smithers & Voscek, 2017, pp. 11).

2.3.4. Layout Pattern in Urban Space

Saxena & Sharma (2013, pp. 6) also stated five types of organizations; centralized, linear, radial, clustered, and grid. The first, centralized is a central, dominant space about which several secondary spaces are grouped; linear is a linear sequence of repetitive spaces, radial is a central space from which linear organizations of space extend radially; clustered concerned with spaces grouped by proximity or the sharing of a common visual trait or relationship; grid describes for spaces organized within the field of a structural grid or another three-dimensional framework.

2.3.5. Built - Unbuilt relationships

This is the integration between the buildings with the surrounding environment must be correlative. The built, three-dimensional physical elements like buildings and other structures could not be seen separately from the surrounding space like urban space. The built, 'figure' is the image relied on the unbuilt, 'ground', that to be perceived as a figure-ground relationship. The modern essence of the built unbuilt relationship is 30% (streets space), 30% (greenery and open space), and 40% (buildings), which implies 40% built and 60% unbuilt urban space. The final intent of this relationship is to provide proportioning in integrating nature & urban space with the physical elements to create an attractive urban image for an aesthetic city. Design Council & Cabe on behalf of Locality (2016) notes that good designs of buildings and urban spaces can improve the essence of urban design, which need to be functional, support a mix of uses and tenures, be adaptable and resilient, have a distinctive character, be attractive, encourage ease of movement, and others.

2.4. Sustainable Built Environment and Aesthetics

The practical features of sustainable development that can be implemented directly in policies aimed at the built environment include; environmental role, demand management, environmental efficiency, welfare efficiency, and equity. European Union guideline (2005) states that "Sustainable urban design is a process whereby all the actors involved work together through partnerships and effective participatory processes to integrate functional, environmental, and quality considerations to design, plan and manage a built environment". Carlson (2005, pp. 13) has argued that the appreciation of aesthetics is not concerned only with fine arts, but directly the parts of the largest world, 'nature'. These include the appreciation of broad horizons, fiery sunsets, and towering mountains.

The aesthetics and sustainability of cities can't stand independently so that a sustainable city is aesthetical and the reverse is true. Qaraghuli & Hinkaw (2016) argue that the ideal future city is one of the main goals of the planners for so many times. That is, to ensure the wellbeing of the human's in the future cities with different changes and developments through different unexpected challenges like global warming, rapid urban population, and urbanization. Hence, climate responsive architecture with energy-efficient and with the concept of vernacular buildings need to be adopted. Future sustainable cities will be concerned about two models; the first is cities that grow and developed according to the principles of sustainability; the second is the new cities that principles of sustainability adopted in their design (Moughtin, 2006, p. 4).

2.5. Urban plan and design implementation in urban development

Western theories of urban growth seem to have developed from two main bases; economic & social factors, which is followed by population growth, mostly rural-urban migration that is very high in developing countries (Find lay, 1993). As the progression of urban development & urbanization increased through time, the issue of planning and design is becoming essential.

2.5.1. Impact of the planning and design process

Architecture, planning, and urban design play a great role in urban change and the sustainability process. Regarding planning, it is concerned for the utilization of two-dimensional spaces of land effectively that includes; controlling land use, property rights, to support land laws, to ensure & manage fair distribution of land, and to examine other morphological assets of land. Adams & Watkins (2014) have determined six values of planning; exchange value, use value, social value, environmental value, image value, and cultural value. The implementation process of planning and urban design needs to proceed through different stages such as; analysis stage, design stage, and implementation stages, which is essential for land use control, controlling the infrastructure development, & urban sprawl. Berke, et al., (2006) has described land-use planners need accurate information about the supply of buildable or developable land within their jurisdiction to prepare land use plans & policies that effectively match land supply with future demand for developed urban space.

NUPI (2003) has indicated that the review of urban planning practice in the country indicated that less than a quarter of the recognized urban centers have no plans to guide their spatial development. The main factors that have had an impact on the preparation and

implementation of urban plans have been; the lack of qualified personnel to prepare and implement urban plans; lack of standards for planning, and lack of proper legal frameworks for implementation.

On the other way, architecture is vital in urban development and change. According to Roman architect Vitruvius (15 B.C.), aesthetics is considered as one of the main qualities of architecture. Vitruvius' definition of good architecture depends on three criteria; beauty (form), function (utility), and strength or firmness (Cho, 2011). The others, Semra (2012, pp. 2) declare that architects create buildings, then cities.

An intermediate between planning and architecture, urban design is about creating a vision for an area and then deploying the skills and resources to realize that vision in related matters such as planning and transportation policy, architectural design, development economics, landscape, and engineering (Davies, 2000, p.12). The producers of the built environment are concerned with at least five areas in which urban design makes a significant contribution to the urban development process. It includes; to address a new division of labor, shapes the product, coordinates the production process, stabilizes the market conditions, and helps the marketability of the product that posed a host of problems (Madanipour, 2006).

Regarding the urban design context, contemporary urban design has contributed an essential role in urban development and change. Bahraini & Bakhtiar (2016, p. 13-24) states that the 19th c. was witnessed the emergence of a variety of urban design movements with common purposes to save the emergence of cities and its quality against the adverse impacts of industrialization by planning and for the implication of urban design in the future. Some of the approaches of principles are reviewed in Table 2.1, below, to highlight the intent of the movements in the time. It is based on certain rules and principles for improving their hosting of the urban area in different cities.

Table 2.1. Major approaches in Contemporary urban design.

Major CUD types	Approaches	Founder
Park movement	Establishing parks to preserve breathing space for the future of cities, and an effort to connect city - life with life in nature with organic forms.	Olmsted, USA, New York.
City beautiful movement	A unified and centralized structure, the good of the whole, geometrical forms, and order.	D. Bernham, Chicago, 1909.
Garden city	The central garden or green park to draw urban life into the countryside.	Howard, Washington, 1898.
Modernism	Form efficiency with the idea of “form follows function”.	Maynard K., 20 th C.
Smart Growth	Mixed uses, compact buildings, pedestrian-oriented neighborhoods, alternative transport, preservation, and others.	

2.5.2. Urban planning and design policy issues (National level, Oromia)

The policy is described as a concise statement of the principles that a particular kind of development proposal should satisfy to obtain planning permission. National policy is a concise document dealing with a range of planning matters such as the national planning policy framework deals with a range of issues and policy areas. These need to be considered when formulating neighborhood plan policies. Much of the national policy is generated in nature with the sets of principles. But it leaves the detail to local and neighborhood plans. So, a neighborhood plan certainly interprets national policy and apply it to the local context (Chetwyn, 2018).

In Adama city, the planning and design policies are issued as a direct and strong role in the development of the city and urban growth suiting with the concern of sustainability. Even if there are challenges in the implementation stage, the policies have prepared on the focus of minimizing the social, economic, environmental, and national image problems by planning and design. For example, as stated in Bulti & Sori (2017), the current Adama city master plan revision was focused on the framing elements such as; total land development crucially for urban growth and spacial organizations, housing expansion areas for accommodating the fast-growing population, proposing social services for providing balanced and equitable

facilities, manufacturing and storage developments to minimize the need for transportation, infrastructure development for improving the livability and comprehensiveness of the city, and protecting the environment and green spaces to protect the natural setup of the city.

2.6. Urban redevelopment and the improvement of Aesthetics

In an international context, experiences show that the population growth and the expansion of cities bring about changes in the quality of life which in turn leads to demand for more goods and services. To improve the lives of people living in slum areas and to promote local economic development, the local governments have been implementing upgrading initiatives and urban renewal. The term urban renewal emerged in the USA in the late 1940s that attempted to revitalize city centers and remained in practice until the 1960s. Urban renewal is defined as a process of remodeling older parts of urban areas, including their central business areas, by a means of rehabilitation, conservation as well as redevelopment (Asfaw, Zeluel, & Berhe, 2011, p. 6).

The UN conference on the environment and development declared as “Development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs” (Dejaneiro, 1992). While planning for development, it needs to remind the cultural identity elements and cultural heritages, which are the manifestations of cultural, economic, political, and social behaviors.

Asfaw, et al., (2011) state that the general policies & approaches utilized in urban renewal are; slum clearance, redevelopment, rehabilitation, housing improvement, preservation, environmental improvement, and economic renewal. Besides this, Claudio (1999) argues that in planning, the trend is to produce and strengthen a more mixed-use urban environment in the revitalization process. The success of inner-city revitalization requires that significant attention is given to the institutional setting and program management aspects as a way to foster effective integration among sector policies and inter-agency coordination.

2.6.1. Urban redevelopment Experiences (Contextual Study)

Solomon, et al. (as cited in Asfaw, et al., 2011, p.17) argue that many researchers specify that the extent of slums in Ethiopia is one of the highest to be wary in the world. The needs assessment study of the revised Addis Ababa City Development Plan & the Millennium Development Goals proclaimed that 80% of the housing in Addis Ababa is a slum. Most probably, this situation is not different in other urban centers of the country. Asfaw, et al., (2011, p. 17-19) state that the Ethiopian urban renewal process is not a consequence of sub-

urbanization as it was in the United States and Europe. In recent years, the renewal of inner-city areas was for two basic reasons; because of lack of expansion areas that challenge into agricultural land, and the need to renew the slum central areas of the city to enhance the local economy to improve the efficiency of land use.

The legal framework of Ethiopia has been established regarding the issue of displacement and urban renewal such as; the 1948 Ethiopian Constitution, the 1979 E.C. Urban Planning Law, the Proclamation No.7/86, the Proclamation No. 29 & 30/94 Lease and Eviction Appeals, the Proclamation No. 455/97, and Urban planning proclamation No.574/2008. Among these, the last proclamation declares that the urban planning strategy of Ethiopia allocates 30% of the land for roads and infrastructure, 30% for green areas, and 40% for building construction. That means, 30:30:40 or 60:40, unbuilt to build relationships or ground to figure relationships, respectively.

2.6.1.1. Sheger beautification Project, Addis Ababa, Ethiopia, 2020 (Local context)

The Beautifying sheger project is a three-year initiative aimed at elevating the city to a site of urban tourism by rehabilitating different urban areas in Addis Ababa. The primer objectives of the projects in 2019 were focused on riverside development, the Entoto park project, Unity park, and Mesqel square projects. It further extended to the redevelopments entitled as ‘Gebeta for a country’ at three sites (Gorgora, Wonch, & Quesha) in three Ethiopian regions in the country. These experiences are significant for enhancing the concept of redevelopment and related programs for improving the aesthetics of cities.

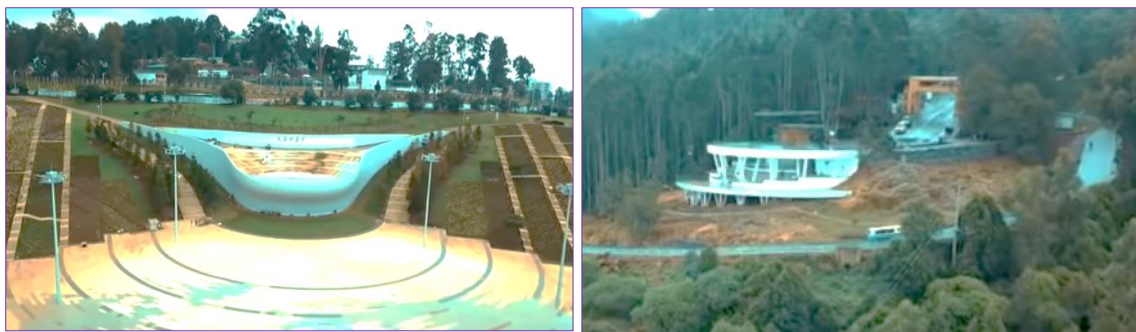


Figure 2.6. Part of Sheger Project (Danny TV, 2020).

2.6.1.2. Urban Redevelopment experiences in Adama, Ethiopia

According to Asfaw, et al., (2011, pp. 35), the city’s oldest central area market was demolished, its redevelopment was lagging and no construction has started until 2011 E.C. According to HDO of Adama, the city government was responsible only for the provision of infrastructures and for the facilitation of other activities. They argue that a development plan

of the site was prepared and given to the private developers, and could not develop the area due to organizational and managerial problems of their own and the city government.

Currently, the Gimb Gebeya is one of the urban renewal projects completed in the inner-city of Adama that characterized by complex and relatively massive structures of three independent blocks. The structures are four-story buildings with a skylight open down at each central area as shown in Pic. 2.4, below.



Figure 2.7. Gimb Gebeya, a trial of redevelopment (Field survey, 2020).

2.6.2. Case Studies (International Context)

2.6.2.1. Le-Corbusier's urban design, Paris, Europe.

In the classic cities of the world, Le-Corbusier has a great role in architectural outputs, on the development of planning and design of cities. Trisno, Kasimun, Hanli, & Lianto (2019) note that Le-Corbusier's fascination with classical architecture works such as Parthenon, a temple dedicated to the Greek goddess, Athena, which was design by other Greek Architects. The author argues that the proportions (column orders) and elements of Villa Savoy's facade compared to Parthenon's, which was Le-Corbusier's design in modern architecture.

According to Vihanninjoki, (2017), urban aesthetics supporting with Le-Corbusier's planning that was provided as a solution of a center of Paris entitled as the city of "universal aesthetics". Le Corbusier's idea, in 'toward an architecture' (1928) was the social contract that evolves through the ages determines standard classes, functions, and needs yielding products for the standard uses like a house. Comparatively, the painting is a product necessary for man to answer to the needs of a spiritual order, determined by standards of emotion. Therefore, the provision of attractive, representative & functional buildings in urban space could be the manner of universal aesthetics. That is high-rise buildings with a certain character in the center of Paris as shown in the Pic. 2.5, below.



Figure 2.8. Le Corbusier's plan Voisin; A solution for the center of Paris (Vihanninjoki, 2017).

2.6.2.2. Ghadeer, Real estate development, Abu Dhabi, Asia, 2008

According to Qaraghuli & Hinkaw (2016), it was 30 hectare of real estate development on the eastern border of Abu Dhabi, on the border between the cities of Dubai & Abu Dhabi, which depends on the concept of creating a self-sufficient sustainable society, confirming on the integration of open spaces with pedestrian axes to support social interaction. It reflects the planning values of the Arab settlements, focusing on historical and heritage aesthetics. After similarly defining aesthetic values, relating to the physical-visual values, dominated in the design, historical & traditional values, the new and future values; it combines the historical and contemporary value with richness in the architectural and planning details down to the landscape by materials and details.



Figure 2.9. Planning & physical environment of Ghadeer (Qaraghuli & Hinkaw, 2016).

2.6.3. Some other methods followed in the study of aesthetics

As discussed in Razfar & Turk (2018, p. 86), perception-based studies concerning the measurement of the aesthetic quality of the built environment are different. These have presented in the table summarized below.

Table 2.2. The methods used in aesthetic assessment (Razfar & Turk, 2018).

Author name	Objective	Analysis method
Ahmad Nia et al. (2017)	Evaluating the aesthetic characteristics of urban spaces from a morphological point of view.	By selecting four neighborhoods from d/t periods of urban growth in a city, by subjective & physical parameters.
(Gjered, 2017)	Evaluating the visual aesthetic perceptions of urban streetscapes.	Using surveys conducted with the public, design & planning professionals.
Gomeshiet al. (2013)	Investigating different aesthetic preferences.	Between architects & non-architects in residential facade designs.
Pehlivanog (2011)	Evaluating perceptions related to the aesthetics of urban public space.	By considering the relationship between the aesthetic subject, object, & value.
Celik & Acıksoz (2017)	Examining how sustainability in urban aesthetics can be ensured.	Using urban design guidelines.
Andrews & Watson (2001)	To promote high-quality urban design.	By performing a critical analysis of successful urban design initiatives.

2.7. Acquired Knowledge from the Literature review

According to different scholars, the concept of urban aesthetics is aimed at the idea of the human need for safety and comfort. Many historians argue that the created man, ‘human being’ starts to find basic needs such as food, then shelter in the earliest era, hunting and gathering activities followed by the need to live protecting themselves being under the caves. Passing through different complications and tremendous Eras, the need for shelter has been ensured with the development of Architecture, then planning of settlements later. Hence, Architecture, planning, urban design, including other disciplines have been playing a vital role in urban change and aesthetics.

Currently, the need for luxurious life creates computations with technological advancement. In this case, developed countries are advanced in practicing the aesthetics of their cities, effectively. But aesthetics cannot be dependent on technology advancement as well as capital only, rather the resources owned at any level need to be utilized wisely for aesthetics to be ensured in a range of values.

On the other hand, Aesthetics can be viewed in the comfort of interior spaces and exterior views in the building scale and the publicity of urban spaces. Hence, urban aesthetics is very essential to keep up the psychological well-being of individuals that are given inherently. But later, it helps for the enhancement of societal sustenance with economic and cultural, and political aspects, as a result, the national value could be improved.

Different types of aesthetics were identified as formal, symbolic, and sensory, or composite aesthetics. The perceptual values of these, are characterized based on the quality of aesthetic variables, aesthetic properties, and aesthetic experiences. Hence, perception is the response of the aesthetic judgment of the environment. The level of aesthetic design based on aesthetic principles can make the perception value positive or negative. Quality working space (internal or external), attractive and preserved natural environment, carefully utilized physical elements are essential to be for a positive response, which is aesthetical. On the contrary, slum environment, horrible work of physical elements, and others result in a negative perceptual response, un-aesthetically.

Urban design has been becoming vital that cities experienced its change and development, globally. It is the action of integrating the buildings with urban spaces, ensuring the built-unbuilt relationship, which appeared as an intermediate scale between Architecture and urban planning. It is a study of the three-dimensional urban space within the physical environment.

According to the views of most urban design scholars, the viability of urban design has been practical when noticed with the so-called ‘the dimensions of urban design’. These dimensions are morphological, perceptual, visual, social, functional, and temporal dimensions. Any aspects of urban design (approaches, principles, and concepts) have been included among these categories. But, most of them argued that their classification is only for having a clear understanding of focus. Hence, the separation is impossible and difficult, while practicing urban design. As a result, urban aesthetics is the final intent of these dimensions in urban design.

Urban development with urbanization needs to be guided by urban design standards and parameters to be the future cities sustainable and resilient. This is because, as the extent of cities expanding, the urban spaces need to be visualized and analyzed partly. Besides this, the emergence of neighborhood design is practiced in urban redevelopment; urban renewal, urban regeneration, and upgrading programs, today.

From the review, it is noticeable that the humans to change the environment to be more comfortable and suitable, aesthetical. Through the change and development, the conservation of the natural environment is mandatory to ensure sustainability. Different movements in the contemporary urban design have contributed to the progress of urban design, especially in the consideration of adopting the essence of nature in urban spaces to contribute to the response of the ecosystem, global warming. The case studies in the international context, in two future cities of Dubai, demonstrates that the adoption of natural elements (like greenery & waterbodies), local culture, symbolism, styles of characters with tradition and historical icons, and others mentioned are the most essential for enhancing the quality of aesthetics.

Contextually, the Sheger project, in Addis Ababa also conveys that the conservation of the natural environment with minimum upgrading and modification with incorporating the designs of architectural works in urban spaces (unbuilt with the physical environment) can improve the quality of the environment. The project traces the natural elements like water bodies, greenery, and topography, to imply that nature can contribute more. Hence, the secondary, and other cities and towns need to take experiences for the betterment of future Ethiopian cities.

2.8. Research Gaps

Some of the documents used in the review, have no clarity about the author/s, date of publishing, the place of the host country for publishing, the type of document, or with other constraints, which makes it difficult for citations and referencing.

Some of the experiences of case studies related to urban aesthetics at the national as well as at the international level are not immensely descriptive, not supported by images. But the essence of aesthetics is recognized on images after perceived by the human sense, ‘visualization’.

Most studies on urban aesthetics don’t show the environmental aspect and sustainability issues. But these approaches are corner stones for a city to be aesthetic.

Most researchers do not follow a holistic approach of considering all urban elements rather too limited scope for urban aesthetics in their findings. On the contrary, studies are required to show the approaches and components of a city to meet fully urban aesthetics.

CHAPTER THREE

3. MATERIALS AND METHODS

3.1. Introduction

This chapter discusses the methodology engaged in the study. It covers the strategies followed in data collection and data analysis. Hence, the questionnaire design, the target respondents, and the determination of the sample size are briefly discussed.

3.2. Research Design

The research was conducted in accordance of the framework as shown in Fig.3.1, below.

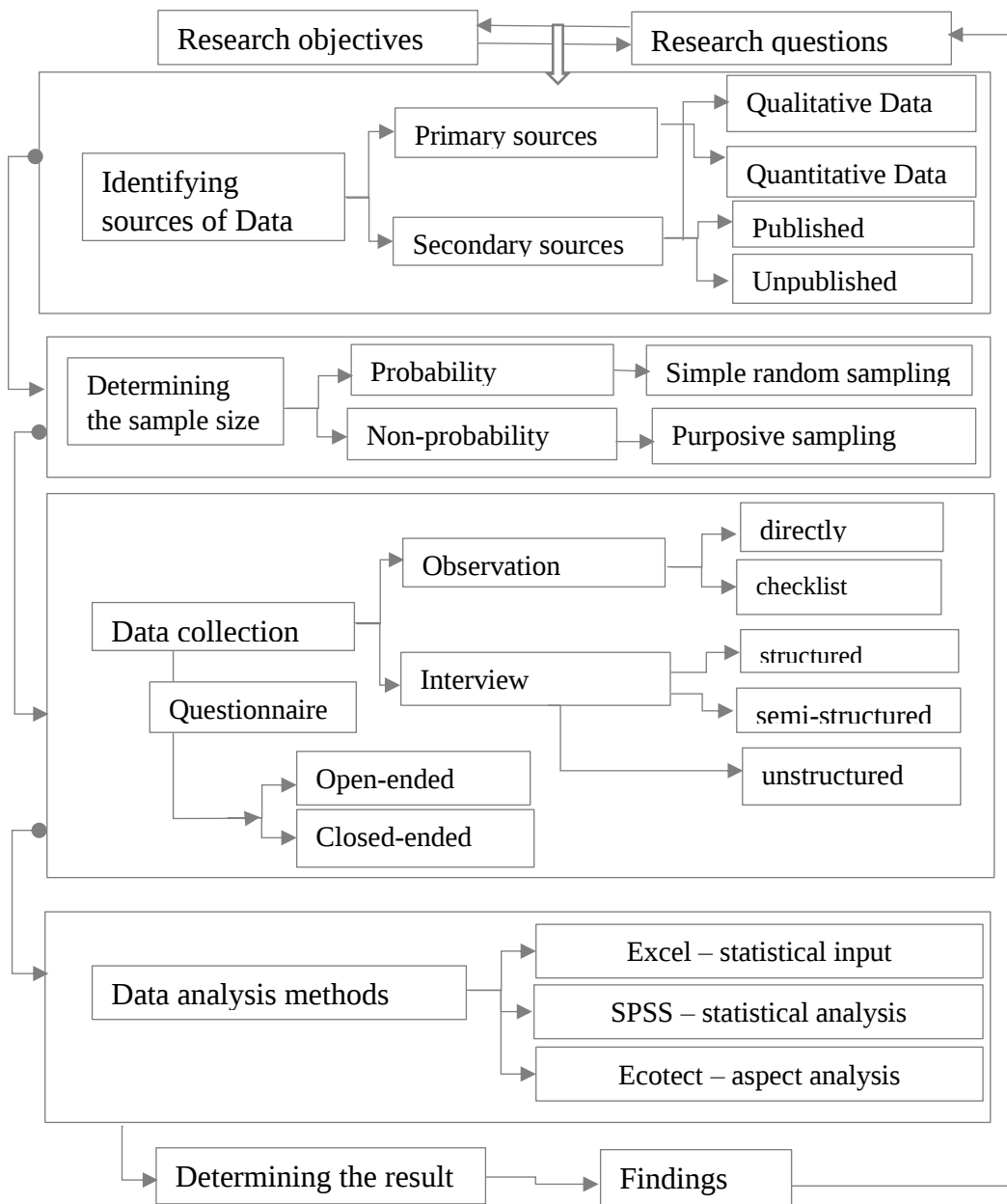


Figure 3.1. The conceptual framework for research design.

3.3. Sources of Data

Both types of qualitative and quantitative data were used. Hence, the land use and structure plans of Adama town were among the qualitative types, whereas the weather data of Adama was among the quantitative data types. Regarding this, the study has used both primary and secondary data sources.

3.3.1. Primary data

These sources include the actual measurements traced from the google earth, expressive photos from site observation, numerical data obtained from the interview and questionnaires,

3.3.2. Secondary data

These data were collected from different published and unpublished archival documents and the internet sources such as; books, journals, articles, research papers. Thus, the standards, specifications, approaches, principles, guidelines, strategies, and any other relevant information were gathered from the secondary materials. The sources of all these materials comprise both governmental and private offices, construction sites, and the internet. These materials were obtained from the Municipal office, from consulting offices, from construction sites, library documents, and from the internet as shown in Table 3.1, below.

Table 3.1. Secondary data sources

No	Data	Data sources
1.	Land use & Structure plan	Municipal, Land management office
2.	Adama weather data	Adama metrology agency
3.	Principles & guidelines of the design implementation process and Adama history document	Municipal, Construction authority of Adama town
4.	Other relevant documents	Internet

3.4. Sampling Technique

The study adopted two specific types selected among each of both probability and non-probability sampling techniques. One of the probability samplings, simple random sampling was used because the study case was concerned with the perception and visualization of the inhabitants and daily users of the inner-city area. These were direct participants in the study

expected for reflecting their insight on the aesthetics of the town from their experience while going through the urban environment.

On the other hand, the case under study is concerned with the outputs of professionals and officials in urban space. In other words, the case is more subjective and perceptual as defined by Taye (as cited in Alex, 2016) as “a purposive sample as one that comprises of subjects who are selected based on certain specific characteristics needed for a study”. For this reason, purposive sampling is used among the non-probability sampling methods to take the observation of different experts on the case. Since it is judgmental, the samples were selected according to their experience and the current practical knowledge of urban design and their perception of the quality of the urban environment. Hence, the selection criteria were professionalism and officials related to design, construction, supervision, and management bodies that play a part in the urban development process.

3.4.1. Target population

The target population of the study includes the inhabitants and daily users of the inner-city area and the expertise such as the professionals and the officials at different management levels. It includes administrators and professionals of construction sites, consulting offices, and municipality offices, kebele administrators, & market management office.

3.4.2. Sample size

Regarding the sample size, Tsion and Degualen (2016) note that the first thing the sample plan must include is a definition of the population to be investigated, which is the theoretically specified aggregation of survey elements from which the survey sample is selected. Hence, the sample size has been determined in two ways; the inhabitants and the expertise (according to the target population).

The sample size from inhabitants and daily users was determined using the following Cochran’s formula, which can be used when the population size is larger (usually more than 10,000). The population size of the study inner-city area is more than this number which includes four Kebele in Abba Gadaa sub-city and parts of some other Kebele (according to the data from Abba Gadaa Sub-city (2019), the total population is around 67,276). Hence, according to Cochran (1997), a standard statistical approach equation is used to determine the desired sample size for an unknown target population (including guests) as;

$$n = \frac{Z^2 p q}{e^2} \dots\dots\dots (\text{Eq. 1})$$

Where; n = the desired sample size when the population is more than ten thousand, Z = the standard number variable at a required level of confidence within 95% confidence level (Z=1.96), P - the proportion in the target population estimated to be measured as 0.5, q - the p-value subtracted from one to be 0.5, and e – the level of statistical significance test to be 0.05 (Kumar, 1999).

$$n = \frac{(1.96)^2 (0.5) (0.5)}{(0.05)^2}$$

$$n \approx 385.$$

Hence, the random sample size of the population was determined as 385 to be enough for confidence levels among the inhabitants and tourists in inner-city area.

3.5. Data Collection

It is the process of gathering and measuring information on variables of interest in an established systematic fashion that enables the researcher to answer stated research questions, test hypotheses, & evaluate outcomes (Kothari, 008). Hence, the investigation pursues to evaluate the aesthetics of the town in an urban design context by gathering any relevant information from the experts, residents, and daily users. This activity was conducted following different strategical stages. Before going to the study area, the first task was to set every important data collection technique like determining the sample size, preparing the questionnaires, checklists, maps, & other necessary site surveying instruments & materials.

3.5.1. Data Collection Methods

As defined in Kothari (2004, pp. 95); the task of data collection begins after a research problem has been defined and the research design/ plan checked out. While deciding about the method of data collection to be used for the study, the researcher should keep in mind two types of data; primary and secondary. Continuing the definition, it defined that the primary data are to be the original character which is collected for the first time. On the contrary, the secondary data are those which have already been collected by someone else. Hence, the most approach followed for collecting the required data was field survey including the questionnaires, site observation, and interviews as presented in the appendices. These methods are primary data collection methods, which were used to collect more of the qualitative data.

Observation; - is a process by which one physically identifies and observes the relevant process of items to get first-hand knowledge (Gray, 2004). In the term of study, the site

observation is employed to get all important information about the CBD area of the town. This site reconnaissance was engaged with well-prepared checklists to evaluate the urban design elements, principles, design & construction standards, and approaches. In addition to this, the observation was also supported by study maps and plans of the study area to mark any relevant data regarding the infrastructures and utilities, facilities, service areas, to identify buildings, public areas, greeneries, environmental conditions, socio-economic activities, and others. The observations were also substantiated with actual measurements and pictures of currently existing buildings including the surrounding area in the urban environment.

Questionnaire; - This method of data collection is quite popular, particularly in case of big inquiries, which is being adopted by private individuals, research workers, etc., and consists of several questions printed or typed in a definite set of forms. Hence, after the observation of the area under study, it was mandatory to take an idea regarding the perception of the people in the urban area about its quality. Having this in mind, the questionnaires were prepared in different languages to be inclusive and understandable as shown in appendix I.

Most of the prepared questionnaires were open-ended type. But considering the current situation, the closed-ended type was also included to obtain general ideas of respondents walking along the street for a short duration of personal contact. The questionnaire was engaged in two ways; part of the questionnaires was filled by data collectors by asking the questions for the respondents to take their ideas and the other questionnaires were completed by the respondents themselves. Diverse open-ended questionnaires were prepared for different departments of administrative bodies, officials, and professionals. These were distributed for design and construction consulting offices, for construction sites, for municipal offices, for construction authority, for land administration, management, and development office, for sub-city and Kebele officials, for market management office, and informal market owners.

Interview; - were used to collect information about the study case to support the observation, which was useful to acquire the story behind the participant's experience. The inhabitants, the professionals, the officials, and other administrative bodies were also important groups to give more intensive ideas concerning urban development practice. The process of the interview was employed by structured, semi-structured, and unstructured interview types supporting the prepared open-ended & closed-ended questionnaires as follows;

The first, structured interviews were the first type of interviews that employed as similar questions have asked exclusively for the participants in different professions (like architects, urban designers, and planners, Engineers), design and construction supervisors, green development and sanitation management offices on what have been their experiences about the practice of the town aesthetics. The second, semi-structured interviews were employed by asking similar questions via telephone and other media text type of conversations for unable to have direct contact with the respondents. Hence, the interviewer had conducted such interviews with some professionals, supervisors, and officials. And the last, unstructured interview was followed by an in-depth interview for the respondents beginning from a single question and elaborated on the subsequent direction of the interview inclusive to the others.

Generally, for different offices and different respondents, the questionnaires were prepared as per the requirement of data types that have specified for respective respondents concerning the study case.

3.6. Data analysis techniques

After assessing different data from different sources, then it was organized and compiled, followed by coding and numbering of the questionnaires for suitability for analysis. The tools used for data analysis include; SPSS, Ecotect, and ArcGIS soft wares. Hence, the input data from closed-ended questionnaires in excel were analyzed using the primer software to determine the maximum and minimum percentages that each question is answered by the participants. But the open-ended questionnaires were summarized for descriptive analysis and interpretation by organizing conceptually related responses into different categories. On the other hand, the other climatic and environmental conditions and aspects of the study area were analyzed by the Ecotect.

Then, the research questions, the theoretical and standard formulations would be taken as an analytical framework for analyzing the data. Descriptive statistics such as frequencies and percentages have been used for describing the data results. Hence, different charts, graphs, tables are used to present the outputs including descriptive pictures & maps.

CHAPTER FOUR

4. RESULT AND DISCUSSION

4.1. Introduction

This chapter discusses the analysis of the data and presents the analyzed data, which is collected during the study to ensure the objectives of the research. These analyzed data in this chapter are the outputs of collected data by observation, questionnaires, and interviews including the secondary data sources. It presents two major analysis approaches with supportive graphical presentations based on the perception of the respondents and the observation on the site.

4.2. Subjective analysis for Urban Aesthetics in Adama town

4.2.1. Identifying Urban Aesthetics Challenges (Inhabitant's observation)

To meet this primer objective, the questionnaire was prepared to gather information regarding to the urban aesthetics challenges from the residents and tourists in the inner-city of Adama town. Hence, analysis results are presented with illustrative pictures based on the attached questionnaire in the appendix I.

4.2.1.1. Major factors touching the beauty of the town

Respondents were asked to suggest their observation on determining the main factors that affect urban quality & reveal their observation as the main causes could be categorized as economic, social, environmental, & political aspects.

Primarily, the respondents suggested that there are many economic factors like financial problems that can be underlined at the local level, and the national level. The suggestion was viewed to the government had no economic capability, no sufficient & inefficient utilization of budget, management and follow-up problems in the construction industry, less care for people to change for the workforce, informal market activities, and others.

Secondly, social factors mostly include human attitude problems to care for resources. Regarding this, the respondents have suggested that society needs to be responsible for governmental as well as private properties to handle without affecting. And the society needs to have attitude change to keep their working environment and living area. On contrary, there is no hard work habit & strong relationship; focus on individuality rather than common

interest; a huge gap between rich and poor; less awareness for the benefits of quality places, and others.

The third determining factor suggested by the respondents were political challenges, which is an obstacle that regrets urban change and development, indirectly. Politicians and government officials play a great role to organize society and to facilitate change and development by taking leading action. On the contrary, there may be a cause of social violence and discrimination. Hence, work ethic is ignored in government as well as private officials that political dependency becomes prominent in the illegality of land property, corruption in the construction industry, no effective decision-makers, and others.

The last challenging factor for the aesthetics of the town replied were environmental problems. The reveal of the respondents begins from caring for the intent of keeping their surrounding nature like plants, water, air, land, & others followed by adding suitable and integrated elements to it. The arbitrary collecting of wastage disposals like no segregated disposal system for solid and liquid wastage, no care for gorges and ditches, specks of dust from the unfinished road surface, and others were indicted.

4.2.1.2. The Inhabitants perception on the quality of the urban environment

The respondents were asked their perceptual feeling about the environment in the town. As identified in Fig. 4.1 below, most of them 56.88% have replied as less excited, 25.97% of the respondents replied as excited, 15.58% of them as not excited, and the remaining 1.56% of them have replied as highly excited on the quality of the urban environment.

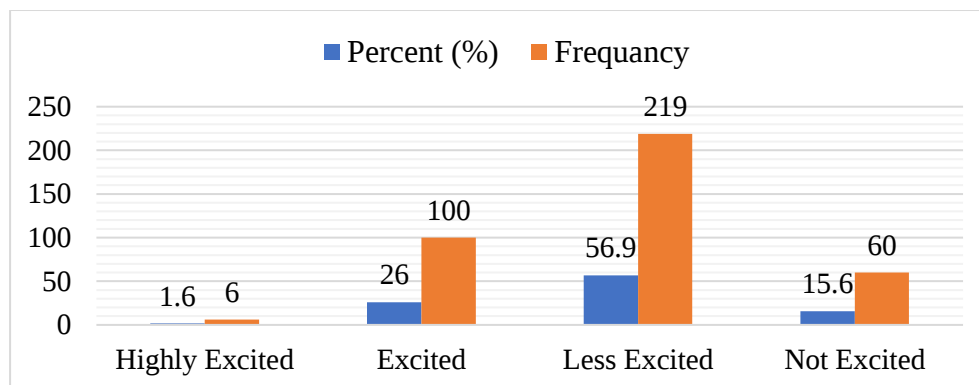


Figure 4.1. Inhabitants' on the quality of Urban Environment (Field survey, 2020).

This implies that the respondents perceive that the existing built environment of urban space did not effectively utilize in the town. Hence, the crowded event of streets, ineffective drainage system, improper placement of accessories and facilities, & others affect the beauty of the town.

4.2.1.3. The level of public participation in Green infrastructure development

The inhabitants were asked their participation in plantation and cleaning programs. As indicated in Fig. 4.2 below, 45.45% of the respondents replied as never participate in the programs, 31.43% of them react as participate sometimes, 19.48% as no such programs yet, and 3.64% as has participation usually in the programs.

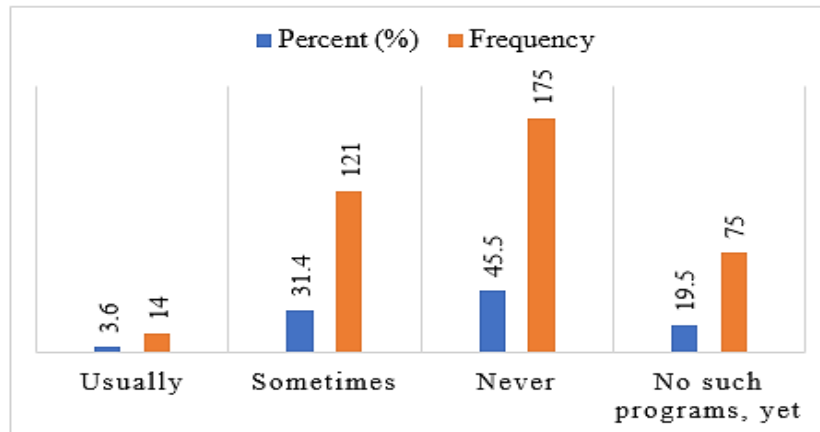


Figure 4.2. Public participation in cleaning and planting programs (Field survey, 2020).

These imply that most of the people have not actively participated in the plantation and urban cleaning programs. This may be because of a lack of awareness creation for the society done by the officials, no attention for the environment or lack of training was mentioned. This may cause difficulties for the employers for cleaning the town and to manage it. In other cases, this results to miss the potential to have a tide urban environment and green sense of the environment.

4.2.1.4. Maintenance duration of utilities and infrastructures

The inhabitants were asked to understand their observation regarding the duration of maintenance for the facilities, utilities, and infrastructures by the government. Hence, the respondents have replied explicitly as indicated in Figure 4.3, bellow as follows;

Regarding electric lines, 58.7% have replied that the maintenance of electric lines may take until two weeks, 28.1% of them as until one month, 9.4% before one week, 3.9% as after a month/s/. This implies that most of them have argued that the maintenance of the electric line may be kept failed until two weeks without taking any actions by anybody. This causes safety and visual disruptions in the physical environment for society (Fig. 4.4 A).

About water lines, 45.5% of the respondents have replied that the maintenance of water lines made before a week, 29.4% of them as until two weeks, 20.8% as until one month, and the

remaining 4.7% as after a month/s/. This implies that since the sensitivity, less cost, and easy to the maintenance water lines, most of them reply as within a week (Fig 4.4 C).

Regarding the drainage lines, 47.3% of the respondents have replied that the maintenance of drainage lines would take more than a month/s/, 12.5% of them as until two weeks, 6.4% as until one month, and the remaining 3.9% as before one week. This implies that most of the respondents have argued on the maintenance of the drainage system could take more than a month even years. From this, many social and environmental problems like affecting human comfort and lowers the quality of urban spaces can be inferred (Fig. 4.4. B & D).

Likewise, 43.6% of the respondents were replied that the maintenance of telecommunication lines may take until two weeks create physical barriers & obstacles, too as shown in Fig. 4.3.

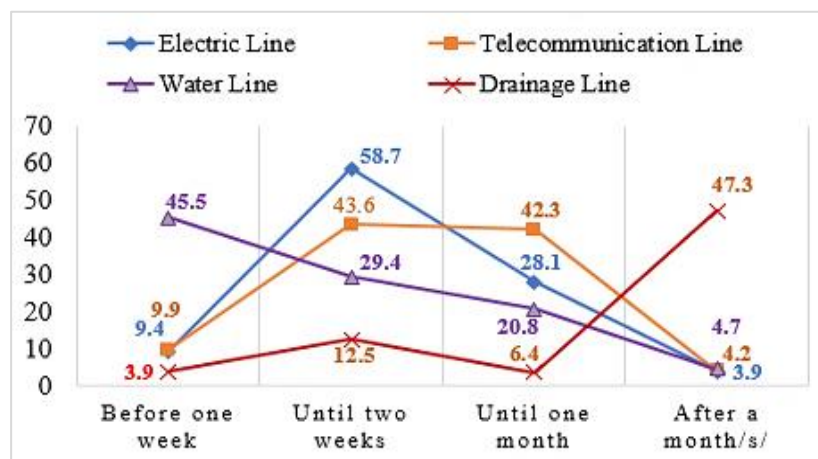


Figure 4.3. Inhabitant's observation for the maintenance of utility lines (Field survey, 2020).

This signifies that among those four utility lines, the maintenance of drainage lines is identified as very crucial and likely to affect society including as the cause for environmental problems. Even if the other utilities like water lines and drainage lines are usually installed in the underground system, mostly drainage lines and manholes are uncovered, which is exposed to different problems like wastage disposals that need a continuous follow-up.



Figure 4.4. Problems in utility lines (Field survey, 2020).

On the other hand, the provision and maintenance of the following infrastructures were also replied by the respondents as indicated in Fig. 4.5, below. Regarding the maintenance of the road, 74.1% of the respondents have replied that the duration of its maintenance usually takes more than one month/s/, 19.5% of them as until one month, 4.4% as until two weeks, & the remaining 2.1% as before a week. This implies that most of the respondents argued as many problems of the road due to lack of road safety, visual discomfort & physical damages.

Likewise, 47.5% of the respondents have in sighted that cleaning of amenities or collected wastage from dustbins takes until one month, 35.1% of them as after a month, 13.2% as until two weeks, and the remaining 4.2% as before one week as shown Fig. 4.6C, below.

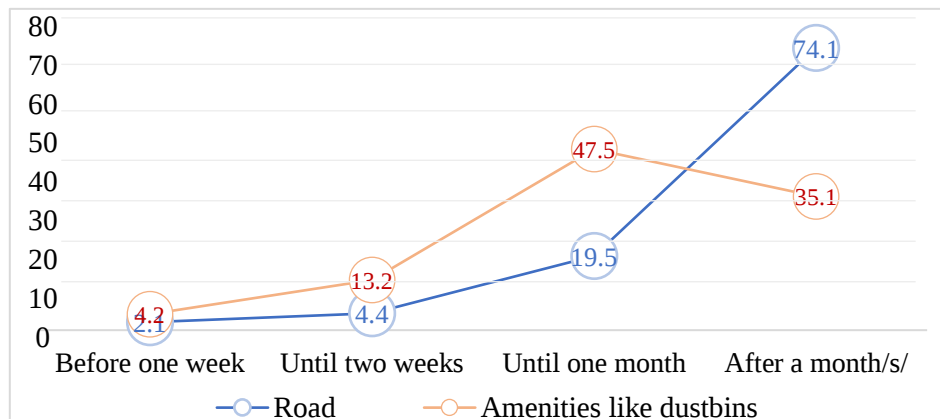


Figure 4.5. Inhabitants' observation of the maintenance of infrastructures (Field survey, 2020).

Generally, this denotes that there may be different problems in road infrastructure with the amenities placed on the street sides. So that to talk about aesthetics a broken part of the road for more than one month is very dangerous like an obstacle for vehicular circulation (see illustrative pictures in Fig. 4.6, below). To these regards, the maintenance system of infrastructures needs to be technical and immediate. This comprises the effective

management and follow-up by organizing different departments in different district in the town. It needs the cooperation of the municipal body with the kebele officials and other administrative bodies.



Figure 4.6. Problems in Infrastructure lines (Field survey, 2020).

4.2.1.5. Inhabitants' observation regarding different elements in the town

There are different elements in a city including buildings, infrastructures like roads & utility, landscaping, open spaces, & water with accessories. Summarizing these, the survey has identified these six encompassing elements supported by inhabitant's observation as follows;

Buildings; The respondents were asked their overall perception of the buildings' appearance in the town to know the inhabitant's perception of different buildings in the town. The inhabitants reveal that 70.65% of them as progressive, 23.64% as not good, & 5.71% of them as the better appearance of buildings as indicated in Fig. 4.7, below.

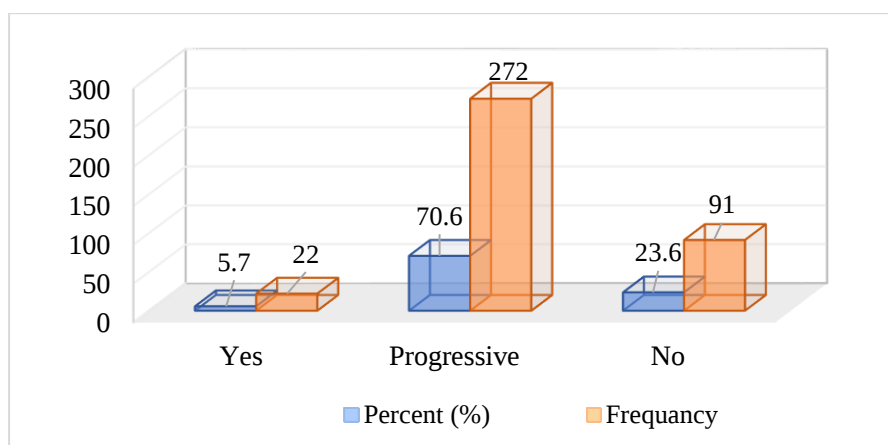


Figure 4.7. Inhabitant's observation on the building appearance (Field survey, 2020).

This implies that there is less percentage of better buildings in the town considering both interior and exterior quality with some improvements in architecture & structural appearance from time to time. The insight that the lack of quality finishing materials, building

composition, integration with the surrounding, space provision, too simple in form, low-rise, with no parking to be mentioned, and other problems. Thus, the appearance of buildings determines the image of the city (see Fig. 4.8, below).



Figure 4.8. Descriptive pictures for the buildings in the town (Field survey, 2020).

Streets; The respondents were asked their observation about the suitability of the streets in the town. As indicated in Fig. 4.9, the respondents have replied, 62.34% of them as only some streets are suitable for any access, 23.12% as no streets are suitable, 9.61% as most of the streets are suitable, and the remaining 4.94% as any type of streets are suitable.

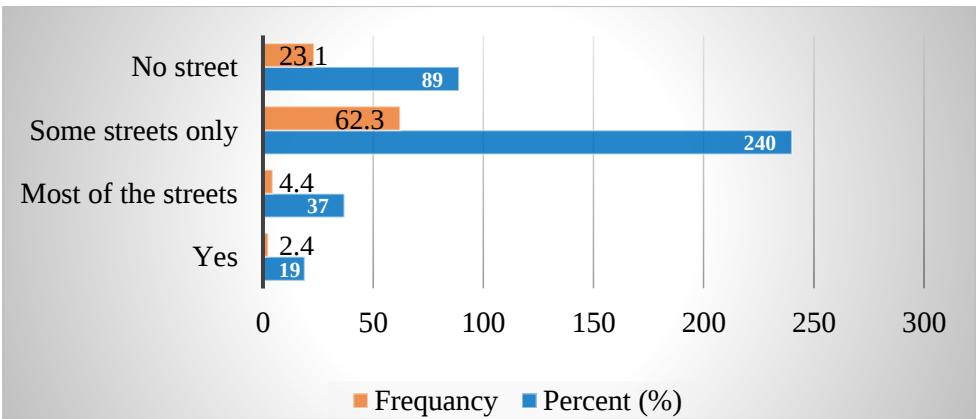


Figure 4.9. Inhabitant's observation on the suitability of streets (Field survey, 2020).

This implies that most streets need special treatment to ensure its suitability because of only some streets are likely to be suitable. The respondents support this as there are many problems for the street's lack of material quality, full of obstacles, traffic load, etc. Hence, the suitability of street types matters for its comfort for the society as shown in Fig. 4.9, above.

Open spaces; The inhabitants and daily users were asked about the adequacy and the attractiveness of open spaces in the town. Most of the respondents, 62.08% of them have replied as no adequate and attractive open spaces were observed, 34.55% of them as the

presence of some spaces that haven't been used properly. But, the remaining 3.38% of them have replied as the presence of attractive open spaces as indicated in Fig. 4.10, below.

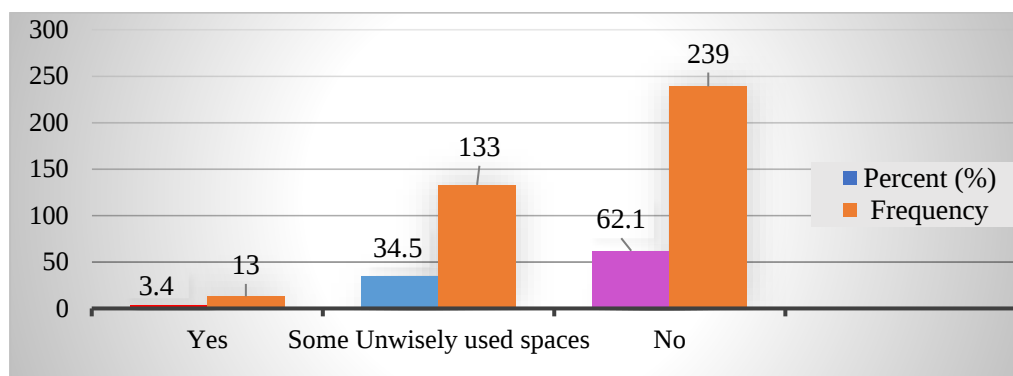


Figure 4.10. Inhabitant's observation of the condition of open spaces (Field survey, 2020).

This implies that no such described sufficient and attractive open spaces even can be interpreted as the neglect of open spaces in the town. The people have been used some hotels, bars & restaurants, and the sides of street shades to enjoy and entertain themselves mostly & limited playing areas for children without accessories (see Fig. 4.11, below).



Figure 4.11. Descriptive pictures of open spaces (Field survey, 2020).

Greeneries; - The inhabitants and daily users were asked about the level of greeneries in the town. As indicated in Fig. 4.12, below; 57.92% of the respondents have replied as partial or average, 24.16% as very limited greeneries, 11.17% as no adequate greeneries, and the remaining 6.75% of them as the presence or adequacy of greeneries and variety of plant species in the town.

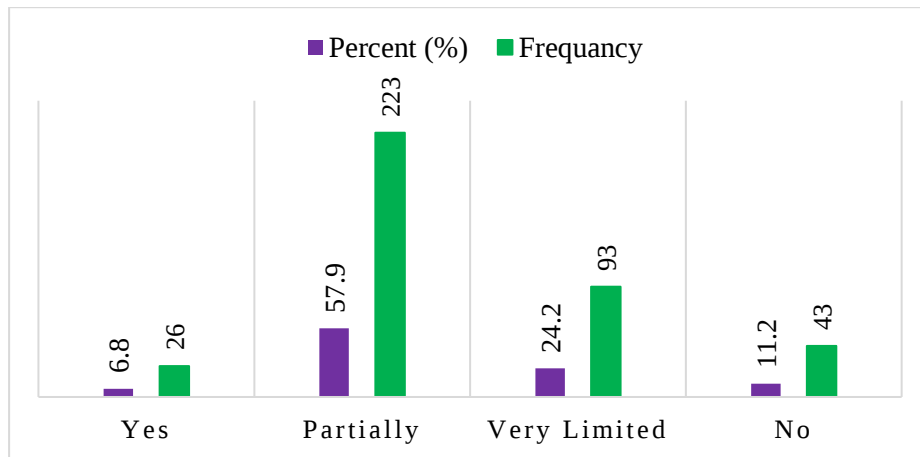


Figure 4.12. Inhabitant's observation of plant species in the town (Field survey, 2020).

These imply that there are limited greeneries and common types of plant species with some improvement in limited areas & are not selected plant species. Thus, these limitations cause the inhabitants not to be safe regarding the climate of Adama (see Fig. 4.13, below).



Figure 4.13. Descriptive pictures of greeneries in the town (Field survey, 2020).

Utilities and Infrastructures; - The respondents were asked about the safety of infrastructures and utilities installed in the town. They have revealed that 45.19% of them as the partially safe, 35.32% as needs follow up, 17.40% as have not safety, and the remaining 2.08% as the installation is safe in the town as indicated in Fig 4.14, below.

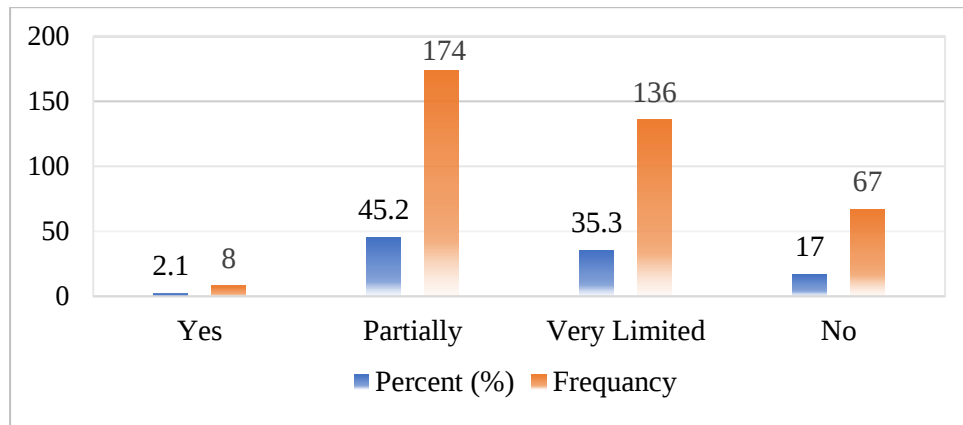


Figure 4.14. Inhabitant's observation on the safety of utilities (Field survey, 2020).

These indicate that the installation of the utilities and the provision of other infrastructures not suitable including the collapsing of electric lines, the inappropriate position of poles, damaged ditches, etc., which cause discomfort for the pedestrians.

4.2.2. Planning, Design, Construction, & Implementation experience in the town

(Target respondent's observation)

To employ this objective effectively, questionnaires were prepared for having an organized interview with different experts. Thus, the following views and interpretations have discussed based on the survey as presented in appendix II.

4.2.2.1. Planning trends in the town

According to the interview with one of the professionals in construction authority, the sketches and maps were used as a plan for representing their idea graphically for a long time as 'data recording'. For most recent years, planning has been used as the communication tool for land ownership and the plot of the house. Structural plans, NHDs, LDPs, land use, & others have been used in a range of advantages with the advancement of architecture, urban planning, & the idea of urban design to be instigated letter. Then, the respondents suggest that to observe the previous early prepared maps of Adama town that shown in Fig. 4.15 below. This shows that the town has been becoming intensively expanding between the Old Railway line and the main street of Addis Ababa to Dre-Dawa in 1957 that was within 40 years. This implies that the beginning of the change of the town was concentrated on the inner-city area, then the essence of extending to the huge coverage of land up to 1986.

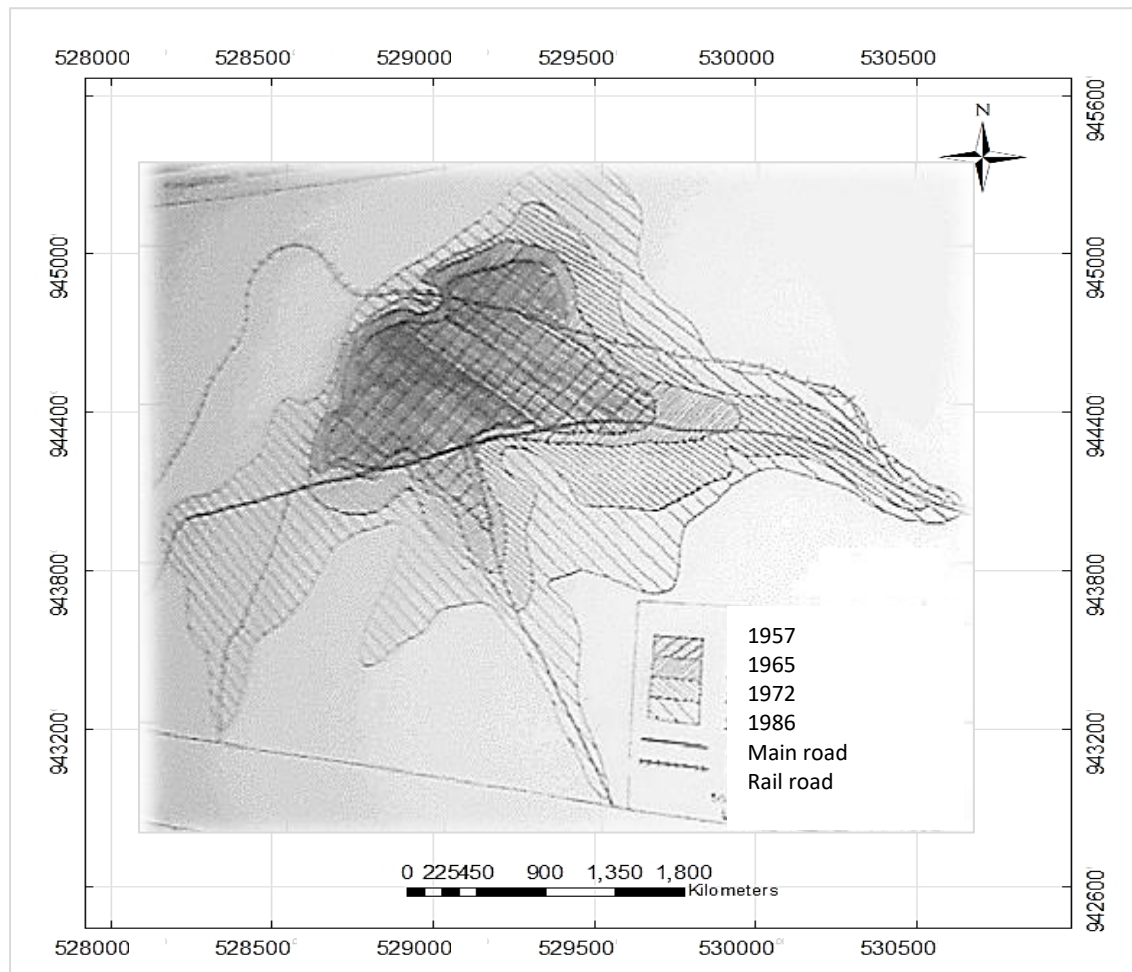


Figure 4.15. Expansion of Adama Town from 1957 to 1986 (Mullugeta, et al., 2016).

4.2.2.2. Architectural & other related building design experiences

The respondents from consulting offices were asked their observation in problems of the design process until its execution in the construction process. The interview from MEGAK Architects and engineers consulting Plc., Guben Consulting Partnership, and other offices revealed sharing the problems as the owners need a design for the permission of construction only, especially below three-story buildings, low level of client's understanding for the design process. The complexity of the design approval process in government offices, official's interference including at the Kebele level, no cooperation between the offices, corruption between the professionals, the clients, and the officials, no standardized scale of design payment, no one works for the truth, lack of government support, weak commitment of the design professionals to work following standards and codes, no creativity in designs rather copies of the same design mostly used for different cities.

These imply that many problems make the design and construction process difficult and retarding back for the development of urban change, which results in no much of quality

buildings including the resulted in un-effective urban spaces. Hence, effective and integrated design matters for the quality of the construction industry in a town as ‘good design’ is one of the requirements for the betterment of the urban elements. And also, an attractive city is the output of talented and creative professionals. On contrary, the complex and tedious urban environment may also be created by the weakness and selfishness of the professionals, which were manifested in the town.

4.2.2.3. The practice of urban design

The respondents from the construction authority of Adama town were asked to express if they have a design expert team to prepare the design of any urban renewal, upgrading, and other related projects in the town. They revealed that no such organization expert groups, but the professionals were working together for such projects. Hence, the LDP, Structural plans, and Master plans were prepared by the office. But no such huge urban design projects were executed till today, except mini projects, because of the long trend of using planning and Architecture independently, the requirement of attitude change, finance, & experts in urban design for a long time. Likewise, to implement new design and construction policies and strategies, they revealed that the process is very challenging, which needs a great commitment and work to be understood by other professionals and to the society.

The above discussions imply that the expectancy of urban design has not been strong, that is why it is a dream to see the integrated built space in the town. Those professionals extend their discussion skilled professionals need to have incorporated in the execution of urban design, the green area must be respected.

4.2.2.4. Construction and supervision trends

As an effective design, the construction and supervision process also determine the quality of the construction industry in the town. The physical elements in the urban environment are the output of design and construction. Hence, the professionals from Afro-Tsion construction Plc. were asked their observation for the problems in the construction process. They replied that there are many direct or indirect causes such as; no work order, limited working space, no training for safety, no strong implementation policy for illegal acts, long term of under construction process and its inappropriate functioning, no effective technologies used, limited budget, material cost variation, limited time of delays, late approval of redesigns, corruption between the contractors and the professionals can be indicated. These show that there are many problems with the construction process which includes illegal acts and

construction procedures as shown in Fig. 4.16, below. As a result, the buildings and its surrounding can't be attractive that has its impact on urban beauty.

Regarding to the supervision cycles, the interview from construction authority, from municipalities, and consulting offices indicates that responsible professionals supervise their respective construction sites not in a regular manner, rather at different times. This includes the construction of buildings, streets, ditches, and other infrastructures. This implies that no immediate control for the quality of the materials, facilitating to care for the time delay, the work procedure, and other criteria may not have executed effectively. As a result, the process may be challenged with demolition and exposing other surrounding impacts, the output may not keep the structural as well as building requirement.



Figure 4.16. Accessibility problems around under-construction buildings (Field survey, 2020).

Those professionals were also asked to improve the beauty of the town for the future. From the survey, the design and construction professionals suggest that completions must be held in the town; the codes and standards must be set and implemented, construction must be run followed by consulting, government involvement for corruption is critical.

4.2.2.5. Urban land management practices

The respondents from the land management office, Adama municipality were asked their practice of the land value with low rise buildings around the inner-city area to inspect concerning modern neighborhood design principles. They replied that the land value of the inner-city area is very high, because of the human needs are not proportionate with the land supply in urban areas and these are very active areas for commercial activities, hotels including to provide other immediate services.

The discussion includes that according to Adama town, the land value depends on the catchment distance from the center of the town. Hence, there are three grades of land values. These are first grade, second grade, and third grade of land values. But the land value is not

respected especially the inner-city area of Adama town. Except for the street sides, the building's height is below two stories; and a single building built near the street without considering the nearest buildings. This implies that the grade of the land value is not appropriately implemented which resulted the ineffectively utilized built space in the town.

According to the professionals, the building designs and the land use plan was challenged in its implementation process, because of different personal and societal challenges were complicated to implement the proposals even within the indicated duration.

The Fig. 4.17, below shows that no mixed use, rather separate land uses of pure commerce & more of residential. This total segregation and the implementation of the previous built space with upper stories have been challenging to revitalize and improve the inner-city area.

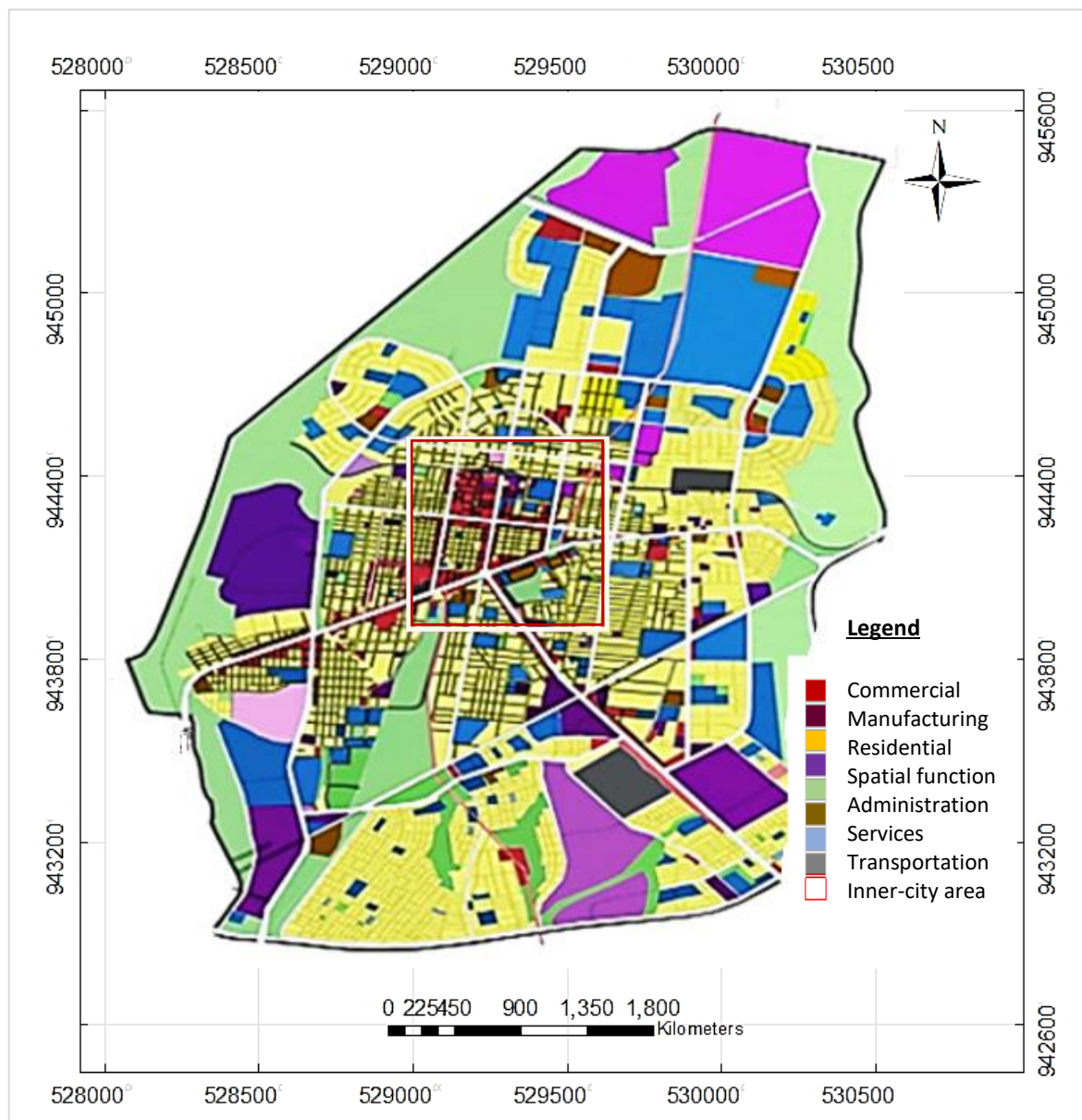


Figure 4.17. Adama town land-use proposal in 1995 (Mullugeta, et al., 2016, pp.87).

On the other map prepared by the Municipal of Adama town in 2010 E.C., has provided the following land use proposal. The previous proposal is changed in most of its appearance and layout. Besides, when comparing the inner-city areas of the 1995 with that of the 2010 land-use proposal, the residential use is developed into the domination of the commercial district as shown in the details below in Fig. 4.18, below. The former, 1995 land-use proposal was characterized by a commercial district in between Mebrat Hail and the Old trail station, and around limited areas around Franko. But later, in 2010, more than 70% of the area is commercial use, with the remaining residence and services.

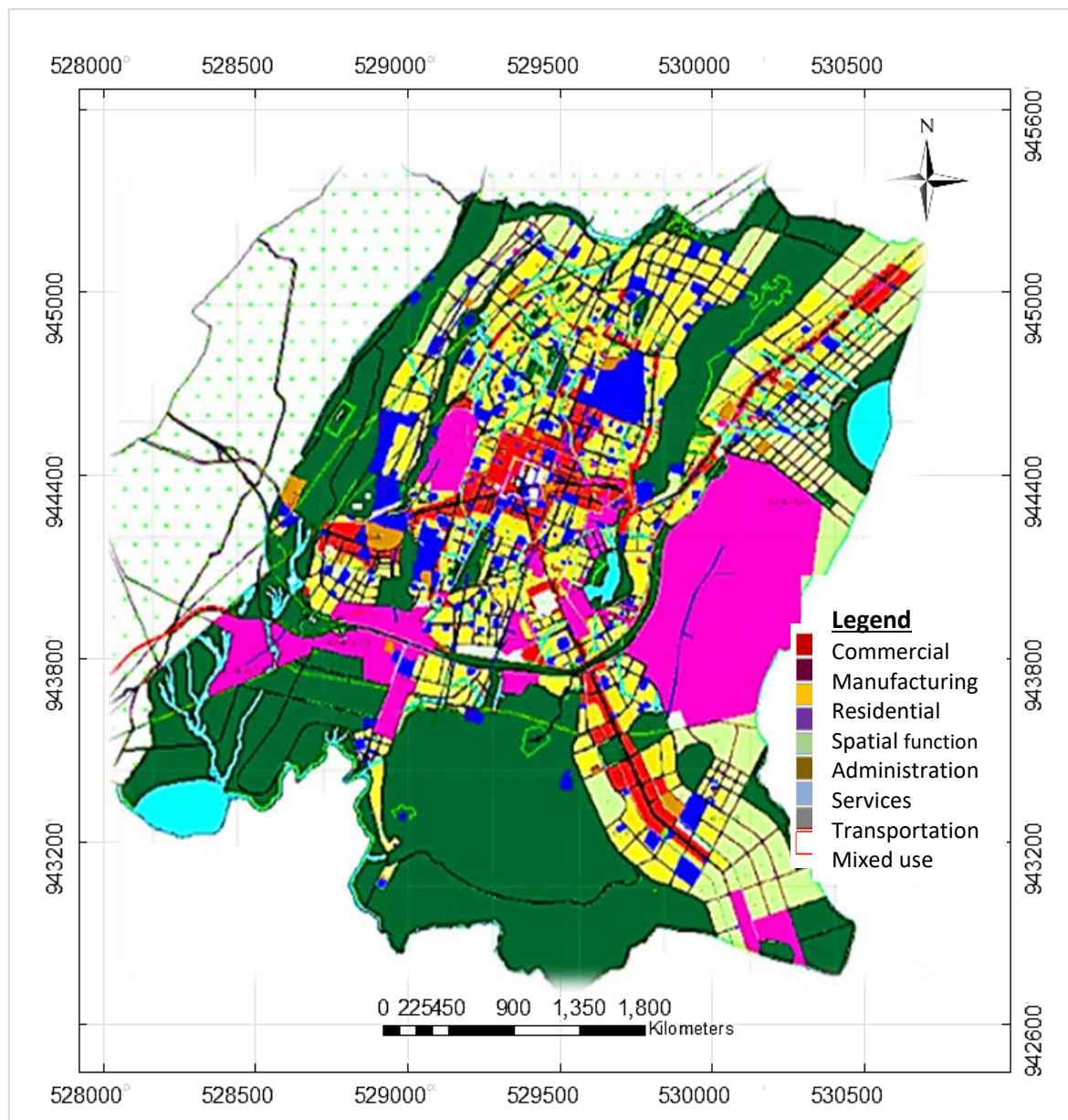


Figure 4.18. Adama structure plan, 2010 E.C. (Adama Municipality, 2020).

On the other hand, as shown in the structure plan, the proposal does not meet the standards of urban design in the modern context. The mixed-use is almost zero percent in the site, no mixed-use buildings except, the apartments around the Derartu square. The open spaces and greeneries are also around 16%, which majorly includes the street spaces. But, most of these areas are out of the inner-city. Rather, around 65% of the area is covered with commerce as presented in Table 4.1 & as shown in Fig. 4.19 B, below. But these are not consistent with the concept of mixed and compact city centers. And also, for the case of accessibility in the inner-city area, there needs to provide open spaces merging with the medium-sized green park without affecting the CBD and other facilities of the area. Hence, the proposal needs to consider modern principles and approaches including other facilities.

Table 4.1. Land use coverage for the study area

Land use	Area (ha.)	Perc. (%)
Commerce	199	65%
Mixed	0.04	0.25%
Service	30	10%
Administration	25	8.75%
Open spaces + streets	48.5	16%
Others, manufacturing	2.5	1%
Total	306	100

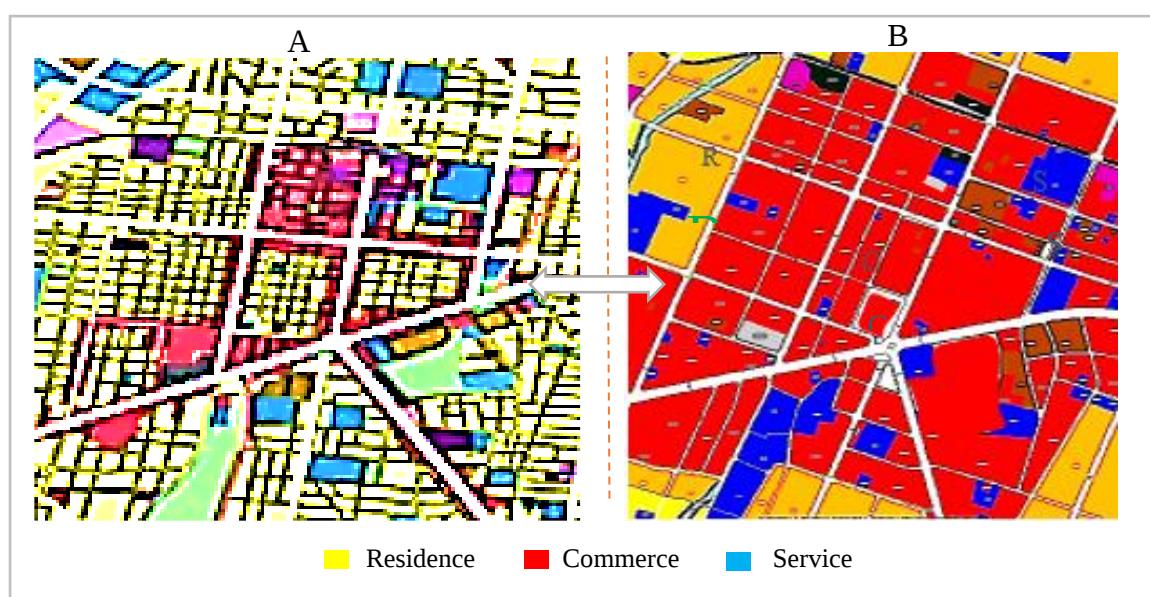


Figure 4.19. The land-use comparison for the inner-city area (details from SP, 1995, 2010).

These imply that still, the mixed land use is not given a value of consideration in the current proposal of structure plan, which are considered only the condominium buildings to be situated out of the inner-city area. These occasioned the working and living environment of the society to be far apart, which in turn resulted the problems in transportation, social disperse, infrastructure and utility efficiency.

4.2.2.6. Green, Infrastructure development and Sanitation management practices

The respondents among the municipalities were asked, if new approach was followed to improve the beauty of the town. The team leader in green development and sanitation management office revealed that as they work concentrating to make Adama a clean and green city by doing different greenery activities along the street sides, the medians, on the frontages, the roundabout, and by providing green parks. He further explained the public participation as convening the community and responsible stakeholders participate and perform for city cleaning program once per month but not regularly. And also, the tree plantation is performed by convening the community participation especially winter season to replace degraded areas with its surrounding, as shown in Fig. 4.20, below.



Figure 4.20. Greenery work experience (Green development office, Adama municipality, 2020).

This indicates that there is some start performing different activities regarding green development. Those officials were asked to improve the beauty of the town for the future, and replied with his suggestion as in addition to planting activity of greeneries, the focus to manage the solid waste treatment system including providing different sized dustbins allocating in appropriate areas. And also, threatening and cleaning the ditches for liquid waste along the street sides and other urban environments. The revealed from supervision process, some illegal acts were observed from the construction of ditches and streets, which include the problem of material quality and not executing as per the quantity in the contract. This results in the quality problem and immediate failure of the infrastructures.

4.2.2.7. The effect of informal market activities on aesthetics

Informal market activities are visualized in most Ethiopian cities along the street sides or on the pedestrian walkways, especially along the main streets as shown in Fig. 4.21, below. These activities also characterized different areas of Adama town including the inner city. One of the officials from the Adama market management and industry office was asked different questions regarding these informal market activities. The interviewee responds as it's obvious that such activities are habituated in the town especially along the main streets because there is a strong flow of people which makes them think to become more profitable in such an area.

Regarding the question asked about their management practice, they replied that there is a policy in proclamation 980/2008 E.C to control such activities. Due to this, actions were taken cooperating with security bodies, but most of them have no fixed working places and living place, which makes difficult to take action and have tried to create awareness and to give training for job ethics and market legality before they took measurements.



Figure 4.21. Informal market activities in local market & along street sides (Field survey, 2020).

Currently, cooperating with the Kebele officials and municipalities, they tried to organize those interested individuals with no job to enterprises and they have given selected working places. These have applied around the university gate as an open market with small shades. The respondent further discusses the informal market practice of chat along the secondary streets and street corridors. These activities have tried to be solved by providing a chat market center at the Gadaa sub-city. This implies that the problem is well known by the government and it has been a challenging practice that affects pedestrian safety. As a result, it creates congestion and visual interruption along the pedestrian walkway.

4.2.2.8. The effect of Governmental houses and old warehouses on aesthetics

As the interview with Kebele officials, the manager of Gadaa Kebele revealed that Governmental houses in Adama were built since around 1967 by the Derig Government. These houses have been governed under Kebele administration. These houses have owners

until the death of the owners. After their death, if they have no other families, it will be taken by the government. Unless the houses are owned by the family members of those which are more than 18 years old. The houses with the land may be substituted by another place for owners if the areas were required for investment, which is processed by the Investment Bureau. If the owners were elders, the government will support by providing the house at a different place. And also, for questions asked regarding the measurements taken for the improvement of those houses, the houses were provided more than 50 years. But, except for elders, the other owners could be changing and improving their houses as their capability for a better appearance.

Most of these houses remained as of old houses in the inner blockings around the inner-city areas are occupied by governmental houses except for buildings along the street sides. Some houses are accessed as cul-de-sac road, while the others have no such an integrated urban area. Even some of the areas can be considered as slum environment as shown in Fig. 4.22, below.



Figure 4.22. Governmental, residence houses, and warehouses (Field survey, 2020).

These imply that the long existence of governmental houses has their influence on urban aesthetics unless improved by some strategies and policies. Hence, the mixed uses shall be provided with a strategy of programs like urban regeneration, rehabilitation, upgrading for such degraded areas in the town.

4.3. Existing situation analysis for urban aesthetics in Adama town

4.3.1. Assessing the level of urban design elements and principles

The following tables are the summaries for the field survey checklists on the state of major urban elements and principles that presented in the appendix III. According to the survey checklist, the following evaluation was performed based on the existing situations for examining the elements in the town. The rating was given concerning different sub-criteria to be resulted as awful (1), many problems (2), some problems (3), good (4), very good (5), or excellent (6) to increase the level of determining the problems.

4.3.1.1. The state of major urban design elements in the Inner-city area.

As stated in the literature review, scholars have defined different elements of urban design and elements of urban aesthetics. For example, Lynchian elements as a characteristic image of a city (Lynch, 1960); buildings, infrastructures, greeneries, servicing, facilities, amenities, parking, open spaces, vistas, landmarks, public squares, fountains, plazas, lighting, and water features are indicated (Carmon, *et al.*, 2007; Yeang, 2000; Smithers & Voscek, 2017; etc.). Hence, according to Table 4.2 below, the result ‘1’ shows awful problems because of no natural water bodies and no off-street parking in the inner-city area. Many problems are resulted as ‘2’ that indicates the pedestrian walkways, sitting spaces, standing spaces, ditches & manholes, artificial water features have different problems depending on different criteria as presented in appendix III.

Table 4.2. Site observation for evaluating the elements of urban design.

No.	Elements to Check	Rating	Remarks
1.	Buildings		
	Structure	3	Some problems
	Form	3	Some problems
	Finishing materials	3	Some problems
	Building height	3	Some problems
2.	Street Networks		
	Junctions	3	Some problems
	Cycle lanes	3	Many problems
	Pedestrian walkways	2	Many problems
	Transport modes	3	Some problems
3.	Open Spaces		
	Walking Spaces	3	Some problems
	Sitting Spaces	2	Many problems
	Standing Spaces	2	Many problems
4.	Greeneries		
	Types	3	Some problems
	Adequacy	3	Some problems
5.	Utilities & infrastructures		
	Electric & Telecommunication lines	3	Some problems
	Ditches & Manholes	2	Many problems

	Water lines	4	Good
	Amenities	3	Some problems
	Street lights	3	Some problems
6.	Parking		
	On-Street parking	3	Some problems
	Off-Street parking	1	Awful or absent
7.	Water Bodies		
	Natural Water Features	1	Awful or absent
	Artificial water bodies	2	Many problems

And also, the structure, form, and height of buildings; junctions and transport modes in streets; walking open spaces; types & adequacy of greeneries; electric & telecommunication lines in utilities; and on-street parking resulted in an average of ‘3’ as some problems. These imply that there are observed problems with some progress of improvements. Likewise, the finishing materials and water lines have resulted in ‘4’ as good that needs follow-ups.

4.3.1.2. The state of major urban design principles in the Inner-city area.

As stated in the literature review, different scholars have noted that different principles of urban design and approaches of aesthetic principles, such as; legible elements, permeability, character, continuity, enclosure, quality for public realm, movement, adaptability, diversity, robustness, richness, mixed use, walkability, efficiency, and others (Pham, 1999; Burthor & Mitchell, 2006; Habibi, 2016; Razfar & Turk, 2018; Carmon, 2007; Yeang, 2000). Hence, inferring from the survey checklist, the following evaluation was performed based on the existing situations for examining the principles and modern approaches. According to Table 4.3 below, there are many problems to be carefully managed in the inner-city regarding the problems of the stated principles and approaches.

Table 4.3. The assessment of major urban design principles.

No.	Principles to Check	Rating	Remarks
1.	Legibility		
	Edges	3	Some problems
	Nodes	3	Some problems
	Paths	3	Some problems
	District image	2	Many problems

	Land-marks	4	Good
2.	Permeability	3	Some problems
3.	Accessibility	3	Some problems
4.	Variety & Contrast	3	Some problems
5.	Harmonization	2	Many problems
6.	Adaptability (materials context0	3	Some problems
7.	Robustness	2	Many problems
8.	Safety & Security	2	Many problems

This implies that Most legibility concepts, permeability, accessibility, variety, and adaptability resulted in some problems as ‘3’, which need also special attention.

And also, according to Table 4.4 below, many problems were identified that resulted in ‘2’, many problems in the concept of compactness or density of the urban form, and transportation depending on different criteria. But, the mixed-use concept and the practice of using energy efficiency like renewable energies as ‘3’ as some problems.

Table 4.4. The assessment of approaches to the neighborhood design principles.

No.	Principles to Check	Rating	Remarks
1.	Lighting effect		
	Daylighting of urban spaces	3	Some problems
	Lighting at night	2	Many problems
2.	Setbacks	3	Some problems
3.	Orientation	3	Some problems
4.	The comfort of houses (see the checklist for Governmental houses)	3	Some problems
5.	Construction processes	3	Some problems
6.	Climate		
	Temperature effect	4	Good
	Wind effect	4	Good
	Rainfall effect	2	Many problems
7.	Topography (Study area context)		

	Slope	4	Good
	Gorges	3	Some problems
8.	Mixed-Use (land use context)	3	Some problems
9.	Compactness (urban form context)	2	Many problems
10.	Transportation	2	Many problems
11.	Sustainability		
	Low carbon context (e.g. Vehicles)	2	Many problems
	Energy efficiency context (renewable sources)	3	Some problems

These imply that the principles in neighborhood design in the modern urban design context need to be given special attention to be implemented for enhancing the level of redevelopment for its sustainability.

4.3.2. Evaluating the Aesthetics of Adama Inner-city using Urban Design Dimensions

Primarily, urban design is a tool for ensuring urban aesthetics. Especially, urban design principles are essential in the process of urban development or urban change. The principles are basic to be included under each dimension of urban design in different aspects. One is the classification criteria based on the scholar's view in Carmon, et al. (2007).

Table 4.5. Classification of Urban Design Principles under Urban Design Dimensions.

Principles ~~~	Dimensions >>>	Morphological	Perceptual	Visual	Functional	Social	Temporal	Major approaches/ Criteria
Integrity		1			0.5			Built-unbuilt r/n ship
Legibility		0.5	1	0.5			0.5	Image in mind
Permeability			0.5	1				Visual emphasis
Accessibility					1	0.5		Space safety
Robustness					1	0.5		Space value
Variety / Contrast			0.5	1				Visual range
Harmonization / Unity			0.5	1				Visual approach

Enclosure & Continuity		0.5	1				Visual proximity
Orientation		0.5	1				Visual alignment
Expression & Character		0.5	1		0.5		Visual style
Efficiency				0.5		1	Un affective
Safety & Security			0.5		1		Social Comfort
Public realm			0.5	0.5	1		Social Exciting
Livability			0.5	1	0.5		Ease of Place
Nobility		0.5		1	0.5		Goodness in use
Durability				0.5		1	Life span
Proportion & Scale		0.5	1				Visual comparison
Material quality		1	0.5			0.5	Surface quality
Capital Web			0.5	1			Infrastructure safety
Cleanliness		1	0.5				Hygiene & tidy

From this table, the value ‘1’ for each principle is the highest percentage of approach to be classified under each dimension, but the value ‘0.5’ is secondary closeness to each of the dimensions. Thus, most of urban design principles are categorized under each dimensions as summarized as; integrity, mixed use, & density are categorized under morphological dimension; legibility, material quality, cleanliness, and nobility are under perceptual; permeability, variety, harmonization, contrast, enclosure, orientation, and character are grouped under visual; accessibility, robustness, livability, efficiency, and durability are under functional; safety & security, comfort, & public realm are under social; and finally, vibrant spaces is categorized under temporal dimension.

4.3.2.1. Morphological Dimension

Morphological Integration; - was the primer concern of the study and one of dimensions in the existing situation analysis. It aimed at examining the situation of the built space around the inner-city area of Adama town. It was seen in two ways; as the main images in the inner-city area and as an influential facilities, infrastructures and other structures in the town. Hence, different infrastructures have been provided in the urban development & change in the town as shown in Fig. 4.23 below.

The elements of the town that described below are the figurative elements in the town to express the quality of the town. But these cannot exclude the value of nature to provide an impressive background for created built urban form. Thus, the environmental aspect is another issue that need to give a care for the built – unbuilt relationship. Hence, the mountainous hills for relocating the wind farm and Gedda monument to give a special figure ground composition. These have their own value on the aesthetics of the city that requires the conservation of the surrounding natural elements.

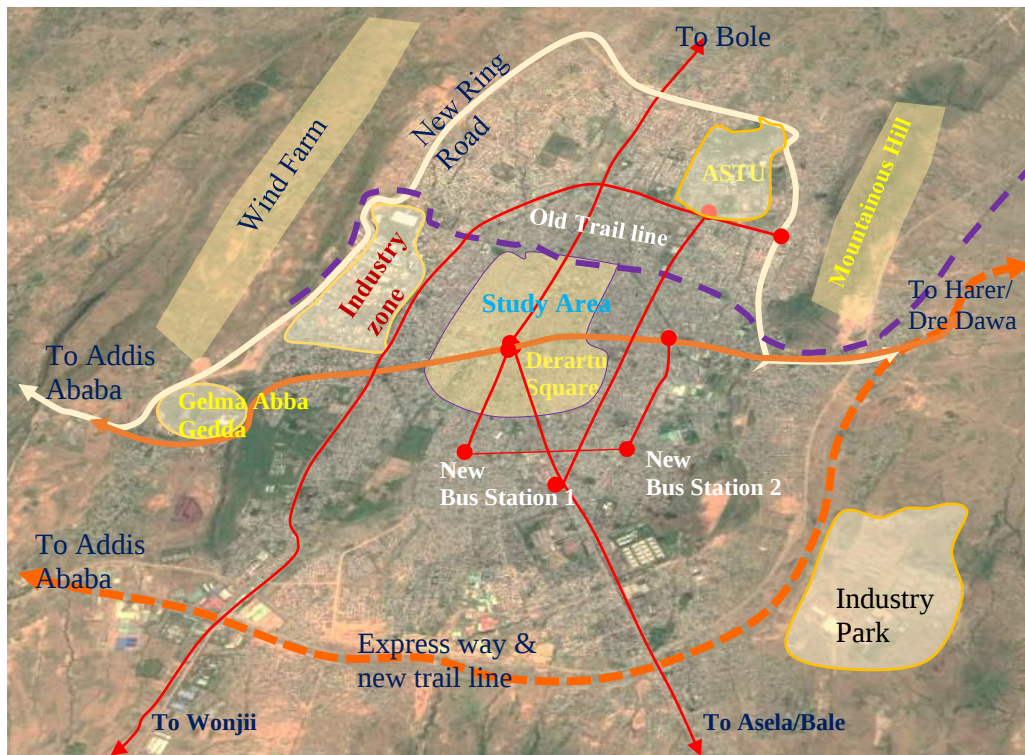


Figure 4.23. Integration of the study area with the city (Google Earth image, 2020).

These include; the Expressway (C), Industry park (D), Gelma Abba Gadaa memorial monument (A), conference halls (F), Boku Shenen Natural steam, the wind farm, Bus stations, ASTU (E), Soudere resorts (B), hotels, & other buildings also can be mentioned as shown in Fig.4.24, below.

On the other hand, different infrastructures and facilities are also existed in the inner-city area that can be descriptive and remained as part of these area as shown in the Fig.4.25, below. These include the main streets passing through the CBD area, Derartu square, stadium, Mesqel square, St. Gabriel church, Bus station, better functioning buildings and facilities, & others.



Figure 4.24. Significant infrastructures in Adama town (Field survey, 2020).



Figure 4.25. Neighboring integration of Inner-city area.

Environmental condition analysis; - to the environmental context, the existing situation of the inner-city area can be examined with respect to the climatic conditions and nature adaptations. Hence, the thermal comfort, the light and ventilation, the acoustics audibility, shade, and shadows etc. These aspects mainly dependent on the orientation of urban elements as well as building elements with respect to the nature.

As observed from the survey, most of the buildings were built not considering the climatic analysis, rather tracing the alignment of streets in the town. Hence, the buildings along Derartu street (Derartu square to Mebrat Hail), the buildings are aligned perpendicular to the street (east to west orientation); buildings along with Addis Ababa–Dire Dewa street arranged also perpendicular to the street (north to south orientation), the other buildings also follow the same fashion. As a result, its openings and entrance follow only the adjacent street, not considering the harsh sun, wind orientation, and other considerations. On the other way, most of the building materials are not carefully concerned in their design and construction, rather simply used only for a physical barrier between external and internal building space.

The shade and shadows and exposed facades in the Fig. 4.26, illustrate this with an angel of $>30^\circ$ around 9:00 pm (based on weather data of Adama in April). But there are no used shading devices in the building facades.

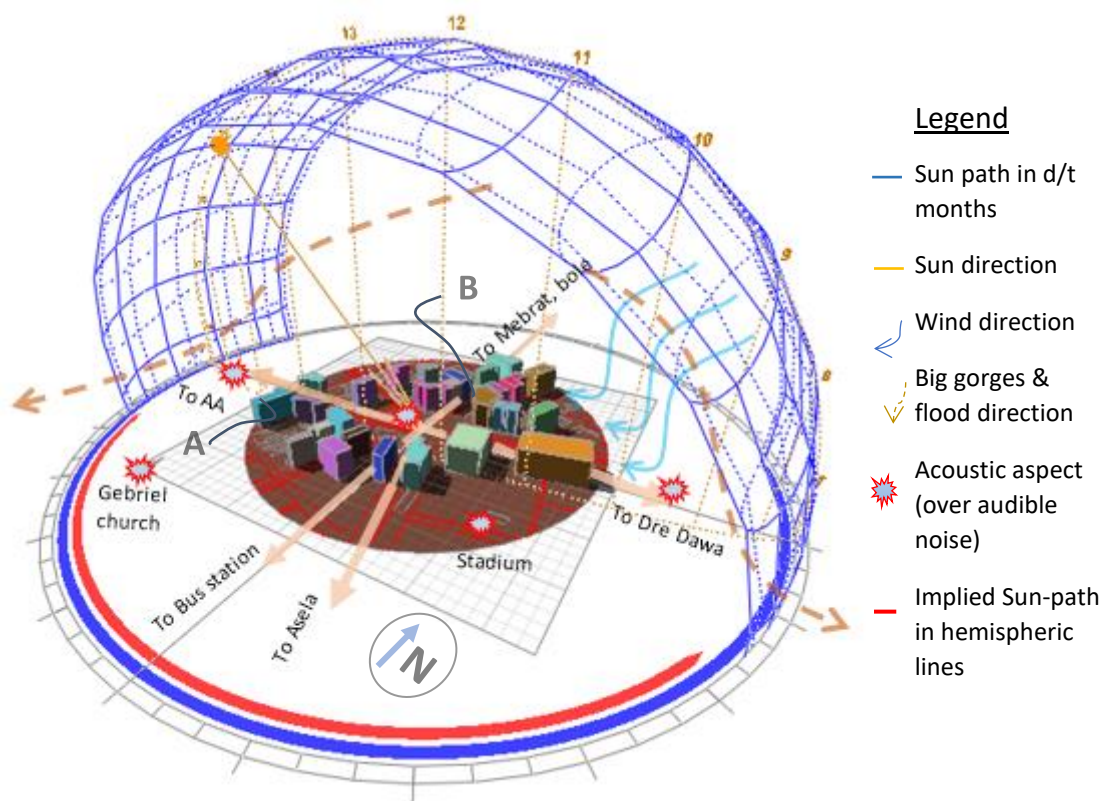


Figure 4.26. Environmental condition analysis in the part of inner-city.

As shown in the Fig. 4.27 below, the orientation of buildings along the Derartu street and along Asela street, along the corridor to Gebriel church, and to other similarly oriented streets, which faced their openings to the north-east direction are likely to have better air ventilation. In this case different devices like louvers, sun breakers, overhangs, and other methods can be used. On the other hand, regarding to the acoustics, around Derartu square following through the Franco street, Derartu street, and Dre Dawa street are characterized with high traffic noise from trucks and vehicles movement.

Some buildings are exposed their long façade orientation to them and to the public buildings like churches & stadium, which is not true. But those buildings along the Franko street have narrow surface area to façade ratio and need design solutions to acquire sufficient ventilation. Regarding to the thermal comfort, those buildings and streets oriented to the north west – south east direction the maximum surface area ratio is exposed to the harsh sun direction (to south west, especially between 1:00 pm to 3:00 pm in most months).

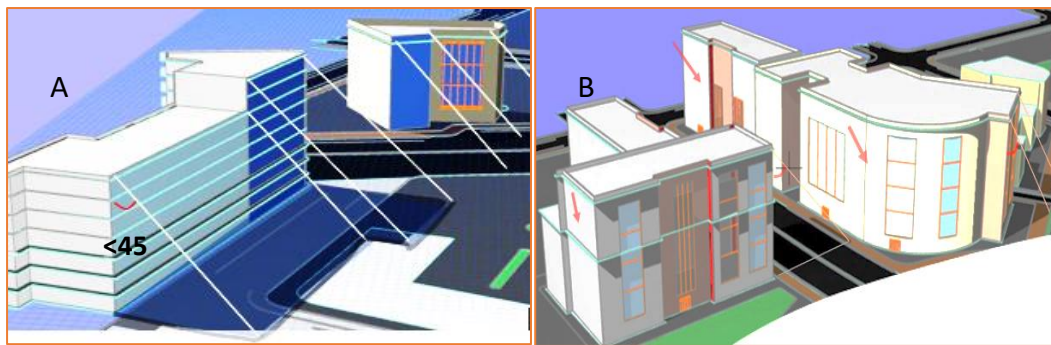


Figure 4.27. Building shade and shadow analysis detail.

Slope Analysis; - was one of the morphological components with slope results identified from GIS analysis as a range of 0-2%, 2-5%, and 5-10% as shown in the Fig. 4.28, below. These slope ranges imply that most of the inner-city area is dominated with 2-5% slope. According to the standards of slope suitability that shown in the appendix VI, topographic slopes existed in this range is suitable for large scale developments. But the remaining topographic area ranging from 0-2% are suitable for agriculture & small-scale development. Likewise, 5-10% for high density residential development. Hence, the inner-city area can be could be redeveloped with large scale and densified buildings.

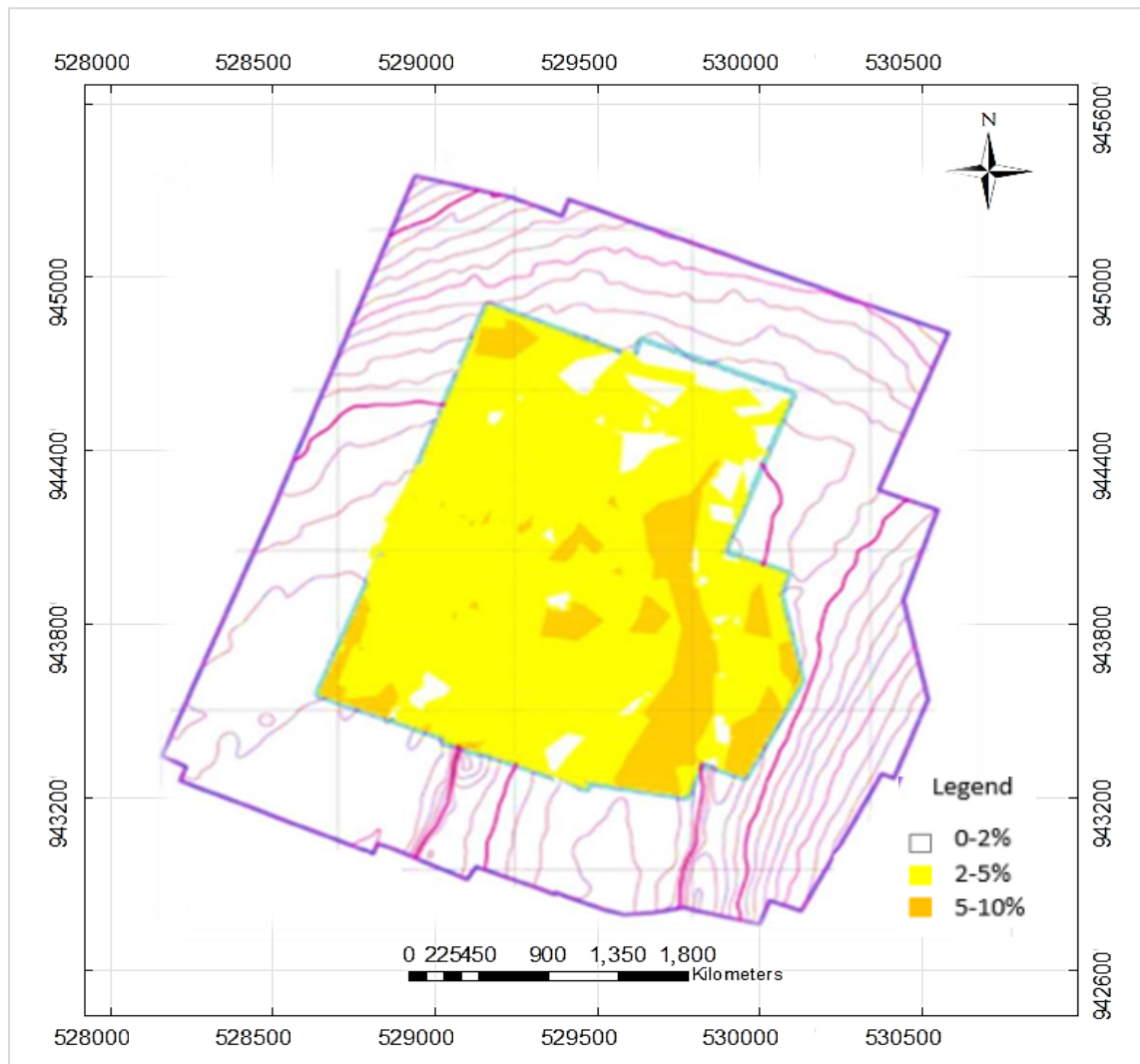


Figure 4.28. Slope analysis of the inner-city area.

Land use analysis; - It is one of the basic concerns of urban design to define the functionality of urban spaces as commercial, residential, mixed-use, services, and others. As shown in Table 4.6 below, the existing situation of the land use in the study area is 30% residence, 25% commerce, 22% mixed, 13% services, and others like street space, 10%. Hence, most of the inner-city area was characterized by isolated residential use that restricted to the central part of each major block. On the other hand, the second most inner-city area especially following the major street sides was characterized by commercial activities. Likewise, the services are distributed arbitrarily in different places. But the mixed-use concerning the modern urban concept essentially for minimizing segregation of land uses was not executed as shown in Fig. 4.29, below.

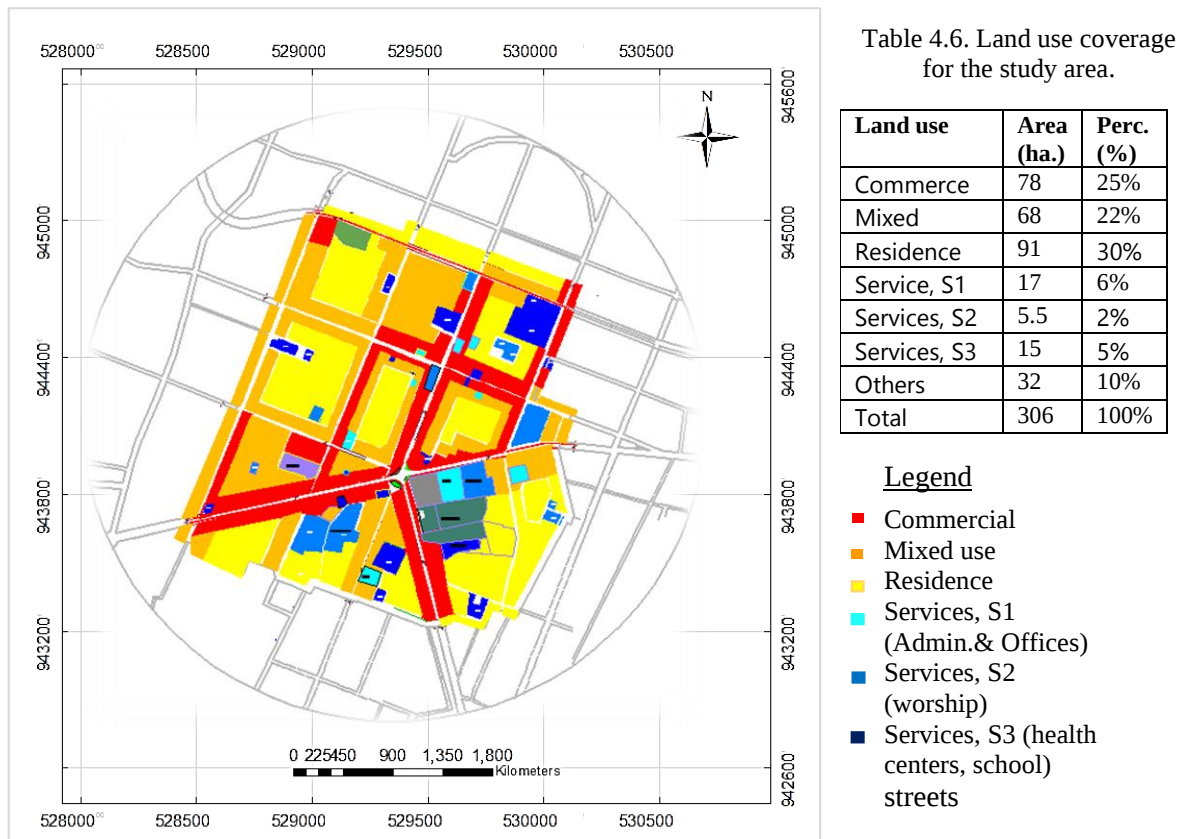


Figure 4.29. Existing Land use distribution.

Some of the built spaces in the inner-city area of the existing land use are illustrated with the supportive pictures of commercial district areas around Gimb Gebeya, only one apartment block around Derartu square in the study area, and St. Gabriel church form services as shown below in Fig. 4.30 A, B, & C, respectively. In addition to these buildings like Eagle Hotel, Awash Bank, Dashen bank, German hotel, Teta's hotel, Bars and restaurants, beauty salons, boutiques, building accessory shopping, and other commercial activities can be mentioned. Religious service buildings like St. Gabriel Church, St. Mariam church, Eyesus church, St. Emanuel church, Mosques, and other worship buildings including the schools, hospitals, post office, etc. can be mentioned.



Figure 4.30. Commercial district areas (Field survey, 2020).

Morphology with block pattern analysis; - The morphology of the inner-city area is primarily defined by the major street pattern and with the implied urban districts. Then, major blocks are sub-divided into sub-blocks, then to parcels, and finally to building plots as shown in the Fig. 4.31, below. According to this survey, the following four major block patterns are identified as semi-square (A), rectangular (B), semi-triangular (C), and semi-rectangular long blocks (D) as detailed in Fig. 4.36 below. These blocks were measured as to be (45 * 70) m, (58 * 150) m, (116*165*132) m, and (49*207) m, respectively. As observed from the images of the figure-ground relationship, these blocks are not utilized efficiently. Hence, the pattern of the built – unbuilt relationship implies negative spaces in the area.

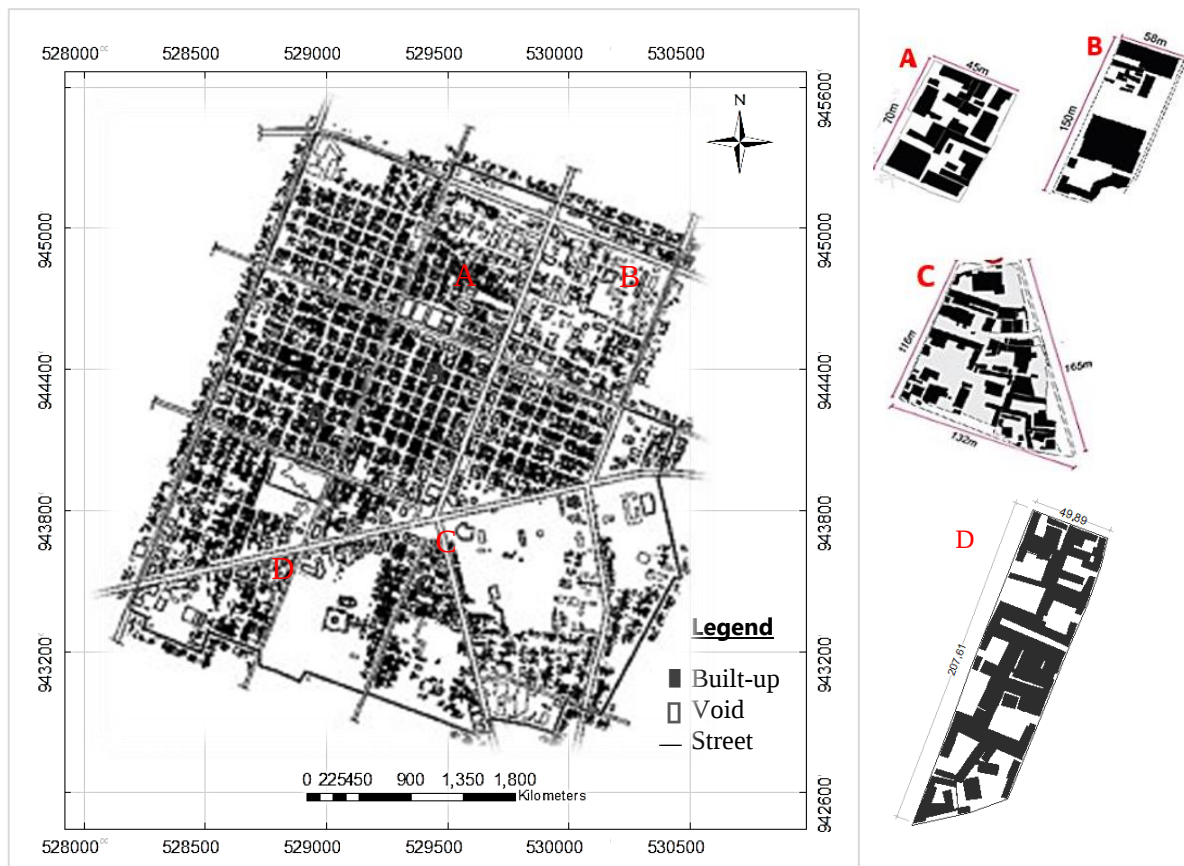


Figure 4.31. Morphology map with blocking details (Field survey, 2020).

Street Analysis; - The street pattern shows the layout of the street with its network connections from the main streets to local streets mainly. As described in the map with different layers, the street layout is characterized by four major street hierarchies; PAS, SAS, CS, and LS. The implied layout patterns are the composite type of different layout patterns including grid, radial, and clustered as shown in the details A, B, & C of Fig. 4.32 below. In this analysis, most of the street types have the following characters of informality. That is many junctions rising to the center of Derartu square that causes to increase the traffic

congestion as shown in detail 1, below. As described in the details of Fig. 4.33, details 2, 3, & 4 are characterized as an undefined informal junction, PAS to collector street, and sharp junctions, respectively.

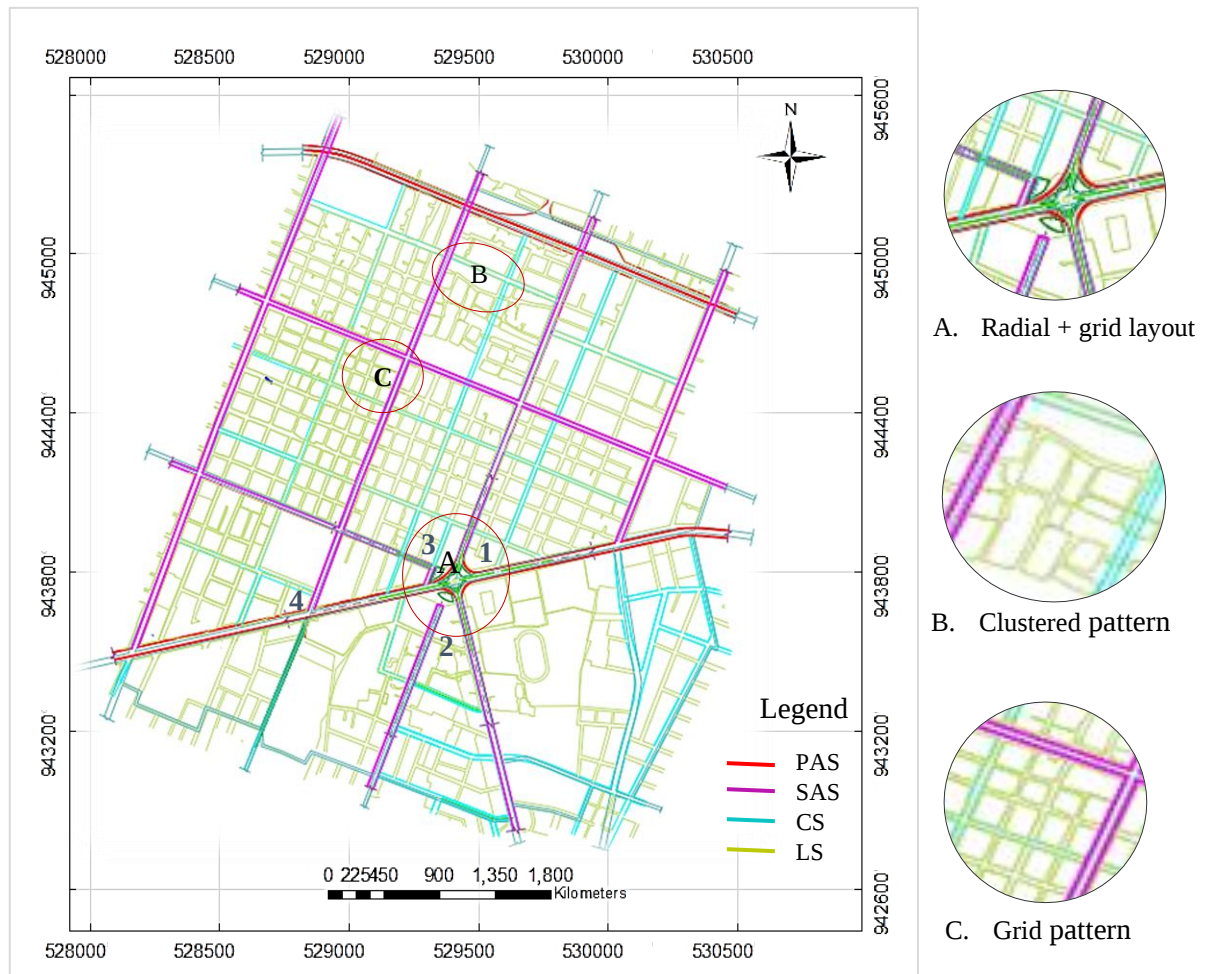


Figure 4.32. Street hierarchy & pattern (Field survey, 2020).

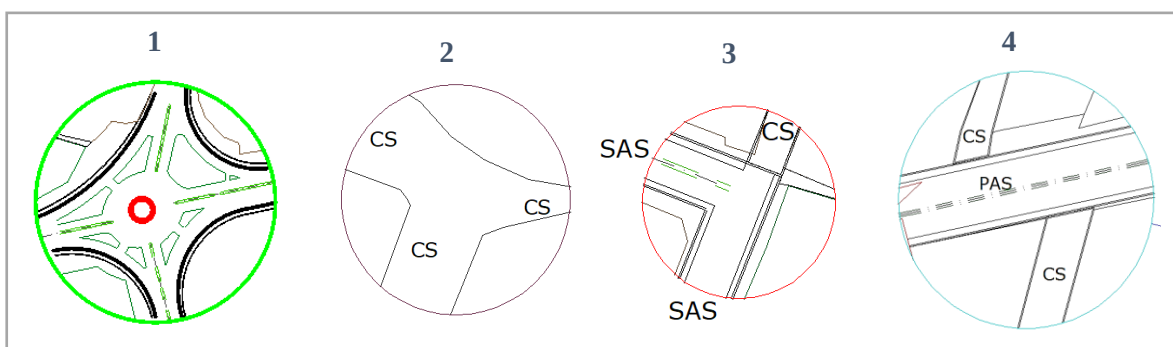


Figure 4.33. Street junction details (Field survey, 2020).

The surface materials of the street types are Asphalt finishes, Cobblestone, gravel, and earth as shown below in Fig. 4.34 A, B, C, & D, respectively. But the finishes are not restricted as respective to the street hierarchies. There are many street types with gravel and earth, which can affect the aesthetics of the street spaces so that their finishes should have cared.



Figure 4.34. Problems of street finishing materials (Field survey, 2020).

As shown in Fig. 4.35 below, the field survey indicates that the span between the side buildings from streets has been very challenging to improve the streets as modern standards of streets. Which is too narrow in the urban core including additional green buffer spaces and adequate pedestrian's width. Hence, the actual measurement between the span of buildings is 36m of PAS, 25m of SAS, 12m of CS, & 6m of LS. Likewise, according to the site observation presented in the appendix IV & V, below; the width of street types from actual measurements showed that 26m of PAS, variable widths between 14 to 20m of SAS, & others (from structure plan and google earth).

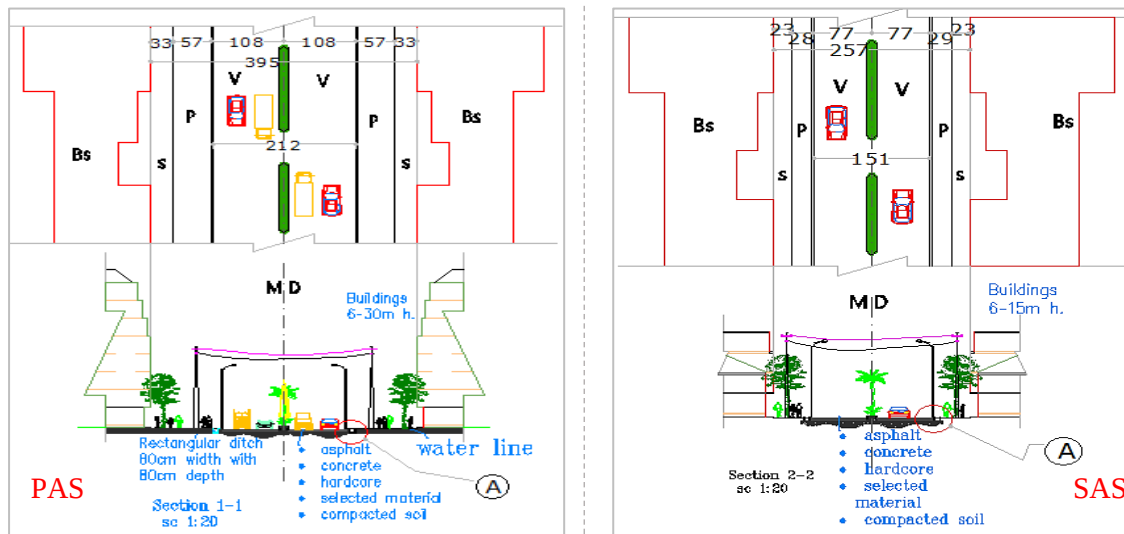


Figure 4.35. Street sections for different street types (Field survey, 2020).

Building height analysis; - The survey also indicates that higher story buildings are scattered in the CBD areas stretching from the Derartu square to all directions of the exit streets from the town, especially, along the Derartu street (Derartu square to Mebrat Hail area), along Addis Ababa street (Derartu square to Gadaa monument), and until coverage of 600m along Dire-Dawa exit as shown in Fig. 4.36, below. Generally, the type of buildings in the site can be classified as religious, health service, educational, commercial, residential, and other service buildings. The majority of the buildings are characterized by detached and

semidetached buildings and houses but there are no condominium blocks in the site, which implies that there is high segregation of functions.

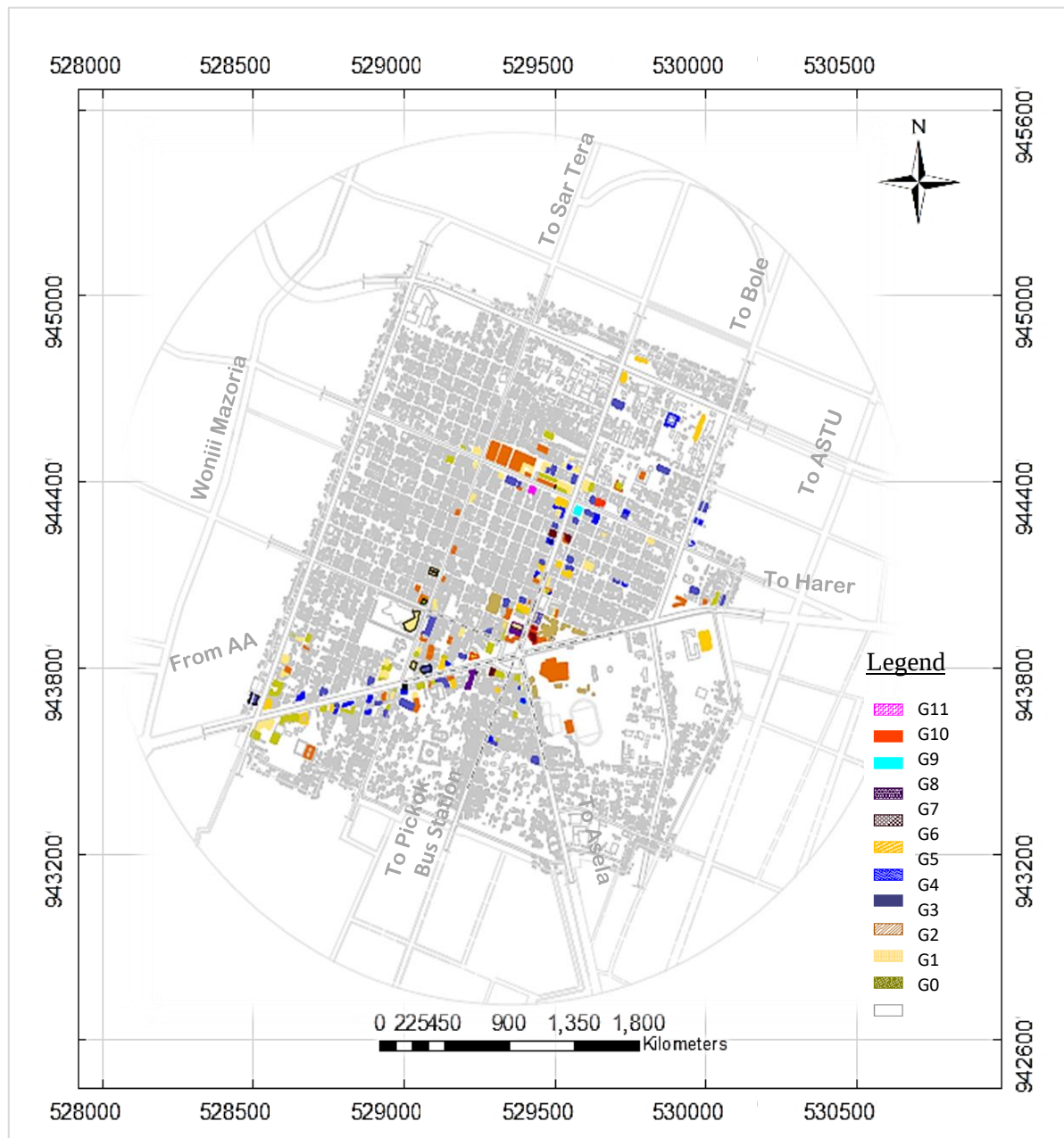


Figure 4.36. Building height distribution (Field survey, 2020).

According to the survey, most of the buildings are single-story buildings or ground that characterized residential houses. The characteristics of most of the residential houses were evaluated as shade and some gable roof system with CIS roofing, mud, and cement-screed flooring, Mud, and HCB walls with painted interior finishing, wooden and some glazed openings. As shown in Fig. 4.37, the plot areas of most residential houses are ranging from (28 to 80) m² and the large plot size among the buildings in the site is 350 m² from Gimbe Gebeya blocks. And also, the houses are characterized as old houses in Fig. 4.37C, below.

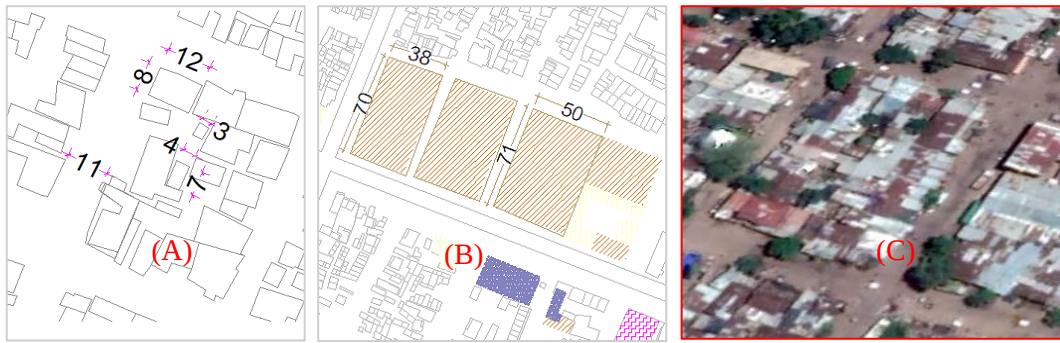


Figure 4.37. Details of building plots and characteristics of houses (Field survey, 2020).

As presented in the site section in Fig. 4.38 below, the overall characteristics of the buildings and houses in the inner-city area is ranging from ground houses to G+8 buildings including a start of higher story buildings G+10 & G+11 in under construction phase around Mebrat Hail, which is restricted to the street sides only. This implies that great work is expected to be done in urban design.

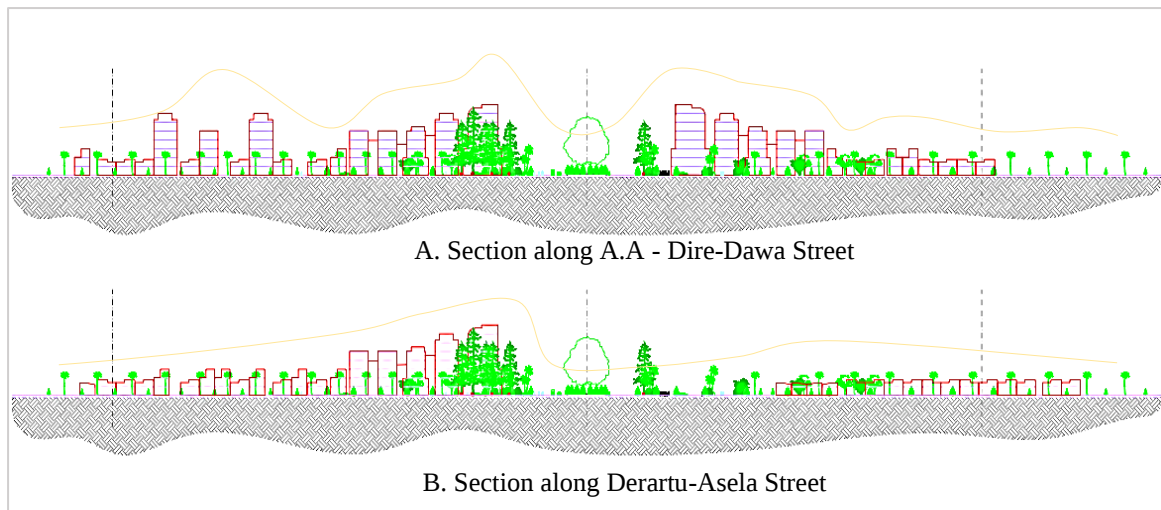


Figure 4.38. Longitudinal sections showing building height (Field survey, 2020).

Infrastructure and Utility; - In the study area, the type of utilities include water supply lines, electric lines, telecommunication lines, drainage lines, street light, and others as described in Fig. 4.39, below. According to the site survey, the drainage system has awful problems among those utilities. In the winter season, the flooding flows out of the ditches and is collected along the street and along with the pedestrians. This is because the core area of the town is located in the lower geographical area with a minimum slope in the town (see the topography map). Hence, climatic conditions and environmental pollutions caused by less human care are indicated as factors that challenging urban quality.

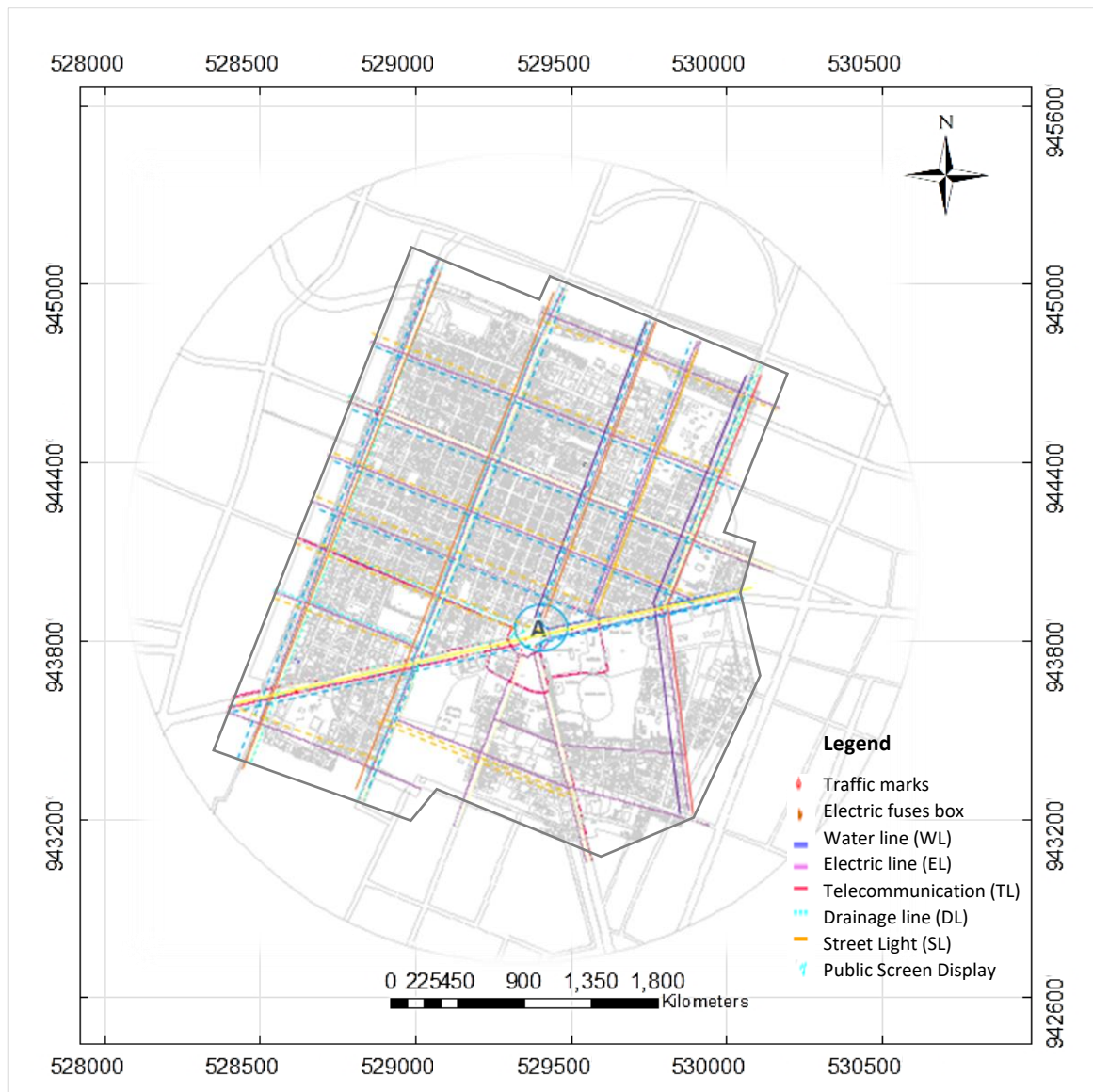


Figure 4.39. Utility & Infrastructure distribution map.

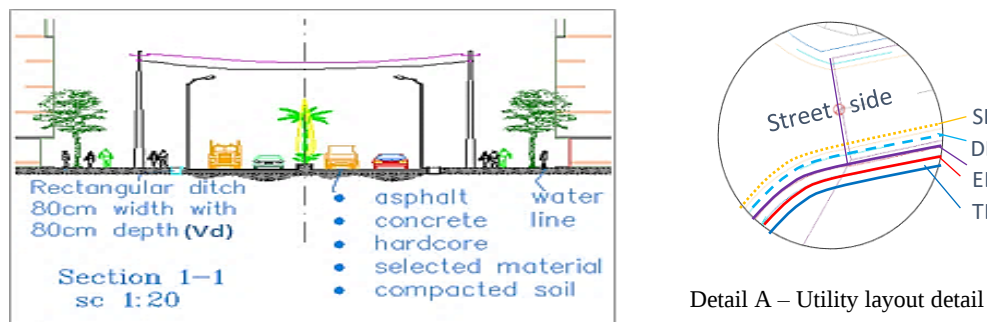


Figure 4.40. Typical street section to show infrastructure & utility arrangement.

The arrangement of the utilities is described in detail A above, but it is not typical throughout different areas in the town. That is street light, drainage line, electric and telecommunication lines, and water lines from the street side to the building side. Regarding the drainage system, the flooding is very dangerous in the rainy season as shown in Fig. 4.41, below.



Figure 4.41. Utility and Infrastructures problems (Field survey, 2020).

Open spaces analysis; - The field survey shows that there is no such mentioned public open space in the town. Instead, the inhabitants and daily users spent their time sitting under the trees, in front of their living houses, along the street sides and the like. Hotels and restaurants which have frontal outdoor sitting areas with light shade are preferred. These imply the feelings of the people lead their perception to find out free and relaxed areas. hence, the plantation is very important to enhance the perception of the people to feel like quality and interesting view. As a result, these have a direct role in the aesthetics of the town.

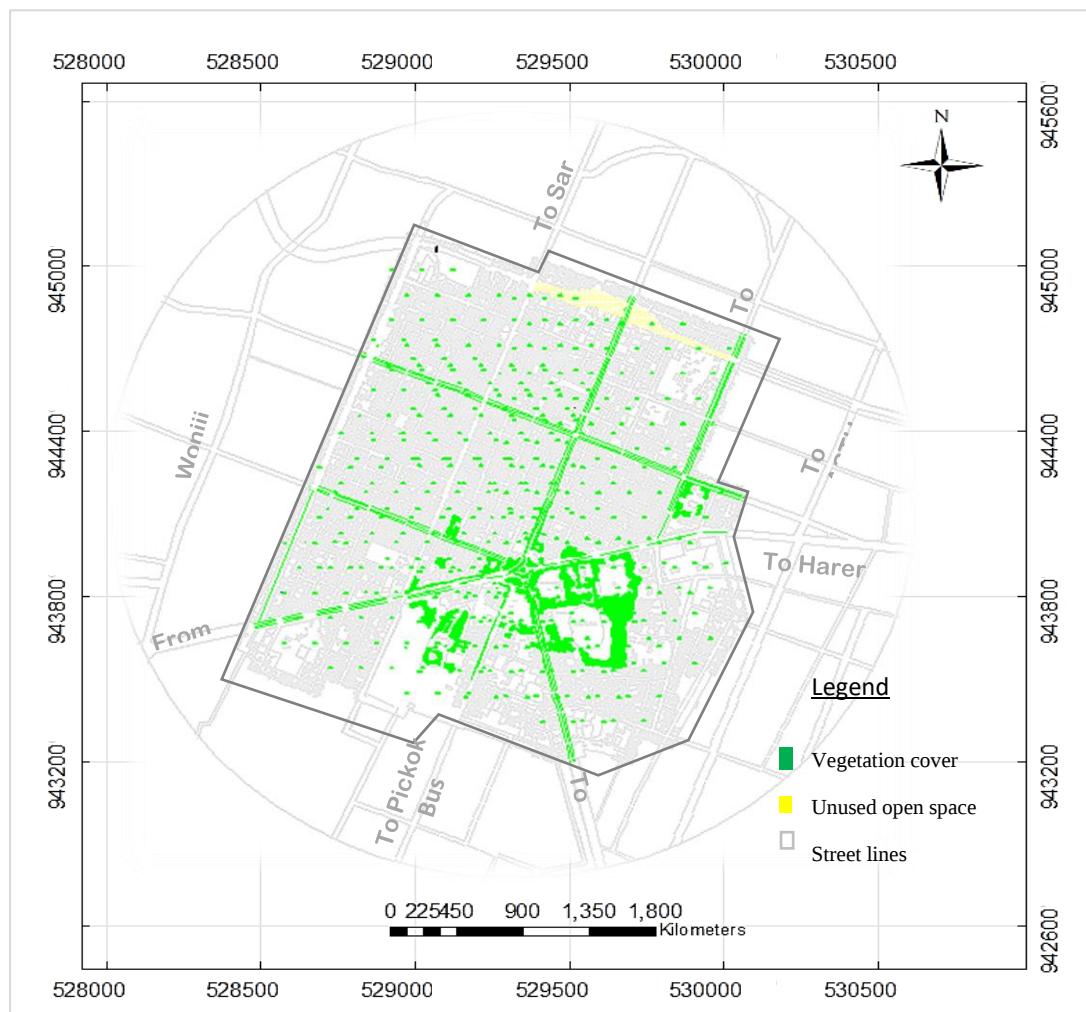


Figure 4.42. Open space and vegetation analysis (Field survey, 2020).

As shown in Fig. 4.43 below, there are limited open spaces that have been used for different purposes mainly for local informal markets (with plastic shades of Pic. A; unused space, B; and open local market and as parking, B). This informality results in a look of a slum environment, especially in Pic. A.



Figure 4.43. Limited open spaces with different problems (Field survey, 2020).

Generally, the analysis of morphological dimensions in the inner-city area is characterized by many problems that can be categorized as the difficulties to the aesthetic views of the area and can conclude as the area is not experienced with the practice of urban design.

4.3.2.2. Perceptual Dimension

According to different scholars, human sense organs are vital for perceptual interpretations of the environment. Together with sensation, perception is a process used to distinguish the information about the environment and its interpretation, cognitive process. Hence, the following principles concerned with perceptual elements.

Legibility; - Is tends the perceptual dimensions of urban design. This is because, the legible elements in a city have the power to be reminded as in ‘a mental image’, as described as the ‘image of the city’ by K. Lynch, which includes; edge, node, path, district, and landmark. These can be correlated with respective elements in the town, Adama, as described below.

Edge is space-defining physical elements guiding for visual as well as a physical barrier that can be perceived in the town as the arrangement and alignment of buildings and fences of parcels off-sated from the streets. The survey indicates that there are no such effective elements to be perceived as an edge with inefficient & variable setback for buildings, and the buildings built along the sides of the street have extreme height difference except some reserved fences in the town as described in Fig. 4.44A, below.

Lynchian ‘Node’ is the center for a city, where Derartu square is the only active and central area that could be described as a node in Adama, surrounding the roundabout. This area is identified as a focus because more than five main streets are crossed there from different cities of the country (from Addis Ababa, Dire Dawa, Asela, and from new Bus Stations

‘Pickok’). There is a trial of providing public spaces and urban spaces. But this area is not safe familiarized with high traffic congestion and public movement every day, as shown in Fig. 4.44B, below.

The last one among the key elements is a landmark, which are point references viewed from external to the observer. In the context of Adama Town, no effective landmarks (too long element and skyscrapers in different cities in the world) in the town to be observed from any point of reference. But, the nature of the hills makes the places in the city somehow used for personal control. Besides these, the Gadaa monument, the windfarms, St. Gabriel church, and some Mosques are better places to be used as a landmark (See Fig. 4.44C, below).



Figure 4.44. Legible elements in the town (Field survey, 2020).

The concept of the Lynchian path is correlated to the streets and road types in the survey. Most of the main streets in the Inner-city area are old streets, which are not comfortable and standardized considering the current and future traffic load. These elements are vital to access any location, but not qualified and suitable as illustrated in the street pattern and the Fig. 4.55A, below.

Likewise, the concept of the district is also developed into neighborhoods and block patterns. But there is no identified such redevelopment works in the town rather than the construction of single buildings in a neighborhood scale. As shown in Fig. 4.55B, below, behind some better buildings in the inner-city area, ground houses are major characters of the most part of the town. Hence, no harmonization of the district.



Figure 4.45. Legibility elements in the town (Field survey, 2020).

Cleanliness or hygiene; - This principle is related to the sanitation of an area that mostly reminds when saying ‘hygiene urban environment’. The survey has identified as one of the determining factors of urban quality with the sanitation of places in the town mainly around the inner city. As indicated below in Fig. 4.46 the sides of streets (mainly secondary roads) are occupied by collected solid waste disposals in different places. The open ditches along the sides of the streets are filled and blocked by the collected wastage disposals of both solid and liquid wastes.



Figure 4.46. Solid waste disposal along the street sides (Field survey, 2020).

Character; - It is related to identity, the state of the uniqueness of the building's appearance, and other iconic elements in an urban area. These can be expressed by the details of buildings, material locality, color, texture, facade treatment, roofing (Adama roofing style for villa houses). But the survey indicates most of the buildings built in the town are too simple in structure and not well-detailed facades; most of the building materials concrete blocks and quartz finishing only, the color psychology of the interior, or the exterior finishing colors, are not carefully considered. Most building structures have no unique architectural styles to be remembered and kept in mind, but only trials as indicated in Fig. 4.47, below.



Figure 4.47. Some building facade treatments & Abba Gadaa statue. (Field survey, 2020).

4.3.2.3. Visual Dimension

As discussed in the literature, aesthetic preferences, urban space and townscape qualities, urban space-defining elements like architecture, hard and soft landscaping considered

regarding visual perception. These urban space elements are examined in the survey considering the principles of urban design as shown in Figures 4.48, below.



Figure 4.48. Some of physical elements in the town (Field survey, 2020).

The other term urban space (positive and negative space in the definition) is public open space in the town, which is concerned for connecting the social space and movement systems. Such spaces are not effectively utilized in the town as shown in Fig. 4.66 below, around Derartu square, which is the expected area for attractive public spaces as the central area. But there are very limited and narrow spaces, like Gadaa public space and the green space in front of Derartu Square. These spaces are not furnished for sitting, have no attractive and effective artificial lighting system in the evening (not functional in the evening), not selected trees planted, no walkways, no attractive flowers, etc.

As shown in Fig. 4.49B, below, the limited hardscape (floors cape-like pavements) and soft landscape (space with plant species) areas are wisely not used. Hence, no selected plant species for contrast, have not continuity for an enclosure, not considering the wind and sun orientation. And also, the pavements are not selected to maximize surface contrast and its durability. Instead of checkered finishes, the cobblestone finishes are mostly used in pedestrian walkways in the town, which hinders the visual preferences.



Figure 4.49. Lack of amenities and facilities in public spaces (Field survey, 2020).

Permeability; - It is the ease to get clear connections to existing roads and facilities. These may be physical and visual permeability. As indicated in Fig. 4.50A, the survey indicates

that most of the streets are not visually or physically permeable. For example, the opposite streets from Derartu square are not aligned; the street from the new bus station 'Pickok' to Derartu square is blocked by closed green space adjacent to this square. The selection of the tree species around the square was not considered for the issue. The access to the entrance of some public buildings has no visual permeable like the Post office, which is hidden by green space.

Continuity and enclosure; - Continuity is the state of extended rhythmic elements, whereas enclosure is the ease of the appearance of perimeter blocks, which result in a confined space. These can be seen in every building independently (it's elements), or together as a whole (maybe in urban design scale). The survey indicates that around some specific areas in the town, the buildings were built having related height along the street sides (around Mebrat hail to Gimb Gebeya street). These buildings create a confined sense of street space. On the contrary, the two sides of buildings along with Addis Ababa to Dire Dewa street, have not a sense of defined space; because of the existing high story buildings are limited and scattered. For example, Tetas Hotel and Dashen Bank are around G+8 and G+7, respectively. But the adjacent building, Commercial Bank is G+1 as shown in Fig. 4.51 below.

Harmonization; - It is not to mean monotonous (tedious repetition), rather creates the essence unity for diversifying elements in urban areas. Harmonized urban area is likely to make the perceivers be stabilized and psychological calmness. Because of no disruptive bold element to be observed in harmonization. But the survey indicates that no trials of harmony in the town. Because, the built buildings in the urban environment are mostly visualized as different by height, color, finishing material, roofing, openings, and other elements. Most of the building's color and finishing is arbitrary (as the client's interest only), the height with G+2 and G+3 in the inner-city areas. But the neighboring buildings may be G+7 or G+8, and also some of the G+1 building are adjacent with G+6 and G+7 buildings around Derartu square and along the sides of Derartu street as shown in Fig. 4.51 below.

Diversity; - It is related to a place with variety and choice, which can be ensured by other terms including vitality, emphasis, proximity, and contrast. Vitality means vibrant, active, comfortable, and safe places; proximity means the grouping of related elements by size, shape, color, and texture; and Emphasis means the focus of an element among the other elements dominantly. Besides these, the Contrast of colors can enhance diversity with its proper functioning. But, the survey (as shown in Fig. 4.50 and Fig. 4.51, below) indicates that most of the places in the town are not active, safe, and comfortable. Hence, no many

mixed-use buildings and public spaces in the inner-city area. Most of the architectural outputs show no such effort of the professionals to create such a vibrant area.



Figure 4.50. Urban built space and accessibility problems (Field survey, 2020).

Proportion and scale; - proportion implies the difference or imbalance of the parts of a single element, but the scale is the size or height of an element (maybe story height) according to the standards and human scale, as illustrated in Fig. 4.51, below. As a result, this principle is perceived by the balance of elements (symmetrical and asymmetrical balance). Especially in the building scale, the surface treatment of walls and the size, shape, color, texture need to be balanced as per the design preference of the building types. Hence, some higher and huge buildings have small and short sized windows, narrow entrance, and vice versa. These proportion problems result in missing the expected function of buildings and space, because the light and the ventilation of rooms may not be optimized.



Figure 4.51. Urban enclosure regarding to building height, scale, & proportion (Marda Tube, 2019).

4.3.2.4. Functional Dimension

In this dimension, the following aspects were assessed in the survey; the use of public spaces, the utilization of the infrastructures (capital web), and the efficiency and adaptability of materials. According to the site observation, the need for public spaces for the people to pursue their satisfaction of being together for relaxation and enjoyment is very challenged because of no sufficient spaces.

Capital Web; - According to the scholars, (as stated in the literature), the capital web is made up of the above and below ground elements of the city's infrastructure, with the major considerations in urban design as the provision of public open space, road and footpath design, parking and servicing, and other infrastructures. As shown in Fig. 4.52A, below, the pedestrians are not car-free; the streets are mostly congested (cars and especially taxis are dominating the main streets). Around Derartu square there are no traffic lights, no on-street or off-street parking areas, no public space and landscaping designed for public movement, no accessible service distribution like shopping malls. And also, most of the infrastructures like water supply networks, sewage disposal systems, electric grids, gas supply networks, telephone networks, cable networks, combined heat and light systems, and underground transit systems are not incorporated as below the ground. These imply that the unmanaged capital web creates many visual and functional destructions especially for the future, which results in challenging to improvement and affecting the aesthetics of the town.

Robustness; - It is a quality of place to be used for many different purposes in different situations at a time to be flexible for use. Such places may include urban spaces, building fronts, courtyards of buildings, plaza areas, etc. The site survey indicates that the residents use the pedestrians for sales of items as shown in Fig. 4.52C, below. Because no such places are visualized in the town. But, no comfort for the aspect of environmental safety like the wind; no physical comfort like no seats, sufficient standing, and walking spaces; no safety & psychological comfort by traffic noise. The green spaces were provided, but not ready for passive engagement (only ideal, not functioning for attracting the people for watching), not safe for active engagement (no furnishing for sitting, no paved walkways, no attractive elements like fountains, sculptures, coffee carts to enhance social interaction, etc.), no place for public discoveries (may include lunch-time concerts, art exhibitions, street theatre, festivals, parades, markets, society events and trade promotions, etc.).

Accessibility; - This principle is related to the concept of Ease of movement, which concerns getting suitable access and to maximize the comfort of circulation in the urban areas including in buildings. The field survey also indicates that the distribution of electric poles and lines is arbitrary, passing over some structures, the poles are positioned in the center of the pedestrians and at the middle of some of the collector streets, open ditches along the main streets near the Derartu square are packed with solid waste disposals. As shown in Fig. 4.52B, below, in the winter season, most of the street sides are filled with the flooding, collected from the asphalt surface and buildings. The reason is, the surface of a different part of the pedestrians are zero percent of slopes around the inner-city area. And also, along Derartu street located from Mebrat Hail to Derartu square and around the post office, have no side surface drainage lines. This is an obstacle for pedestrians immediately after rain.

Resource efficiency and Adaptability; - These principles are concerned for the essence of sustainability concerning the variable climatic conditions, the materials used for the construction, and other uses including the polluting vehicles and industries. Regarding this concept, the environmental analysis and design is a very crucial consideration in urban design that depends on the analysis of environmental conditions like microclimate, sun and shade design, wind environment, and lighting. These aspects also include the advancement of technologies for using renewable energies like wind energy, solar energy, and others in the Adama context (see these trials, Wind Farm in Fig. 4.52D, below).



Figure 4.52. Problems of capital web & lack of efficiency & adaptability (Field survey, 2020).

Generally, these complicated issues of accessibility can be ensured by following the standards of circulation elements like streets, pedestrian walkways, buildings entrance, lobby areas, corridors, and vertical circulations (like stairs, ramps, and escalators) both outside and

inside the buildings. Even, it includes the circulation spaces that have provided between the furnishings or/and equipment in a single room including the quality of finishing materials.

4.3.2.5. Social Dimension

As stated in the literature, the following aspects of the social dimension are observed in the survey. These include people and space relationships, public realm and public interaction relation, the notion of neighborhoods, safety and security, and the issue of accessibility.

Mixed-use; - is the fundamental concepts of neighborhood urban design for no segregation for functions and to emerge more compact urban centers, today. Some buildings built in the town have mixed functions but upper floors are not such functional. Most of the adjacent buildings in the town are not harmonious by height. The densities and mixed-use buildings together with the other elements determine the urban form.

Vicinity; - The survey specifies that there are limited buildings to provide integrated functions. For example, the Post office, Banks (Dashen bank, Awash Bank, etc.), Hotels (Germen Hotel, Eagle Hotel, etc.) were built in the area for providing different social services. But they are not to give expected social services that exist with insufficient waiting and reception areas as shown in Fig. 4.53A, below.

Quality of the public realm; - is defined by the sense of place for public spaces, which may be performed in internal and external public spaces. As indicated in Fig. 4.53B, below, there is the essence of social activities in public squares, street, and pedestrian safety, parking spaces (external); and in libraries, museums, town halls, etc., but observed only limited meeting halls like Gadaa meeting hall and others (internal). The public urban spaces around the roundabout not improved to enhance the essence of public excitement.



Figure 4.53. Problems in social spaces (Field survey, 2020).

Safety and Security; - The survey indicates that some areas in the inner city are habituated by robbers around as the places of high people movement and around void spaces along the street side including lack of artificial light in the evening. The pedestrian walkways and the

crossings of the streets are not as safe, because there is a lack of traffic signs and social awareness as shown in the Fig. 4.54, below.

Livability; - It is concerned with a city to be a place where everyone can live in relative comfort that encompasses the suitability of streets, shades and the appearance of greeneries, adequacy of urban spaces, safety of infrastructures, etc. The survey indicates that the corridor streets are used and blocked by the local and informal market activities, wastage disposals, by small shade houses for coffee bars and mini-cafes, etc. Additionally, some of the interior spaces of buildings are under the standards & not functional, the greeneries are not selected as the preference of different urban spaces, as shown in all figures in Fig. 4.54, below.



Figure 4.54. Lack of safety & comfort for pedestrians. (Field survey, 2020).

4.3.2.6. Temporal Dimension

As described in the literature, this dimension is primarily focused on the relation between time and space, with three key aspects; space and time-based cycles of activities, the change of the environment with stability and continuity, and the change of urban environment by the overtime with the implementation of urban designs and policies.

The flexibility of Spaces; - The survey indicates that one of the urban spaces, Mesqel square is used for seasonal activities basically for religious activities, bazaars, and the like, as shown in the Fig. 4.55B, below. But these spaces can be redeveloped to be used as public space including creating reading spaces, outdoor meeting areas, museum houses, and other facilities without altering the function. Likewise, Abebe Bikila Stadium is very active only in the time of sport computations and training. But the grass and other accessories are not kept safe except the time of computations including the surrounding area as shown in the Fig. 4.55A, below. On the other hand, and the local markets around Kebele 08 are very active in the daytime, but too dead at night as shown in Fig. 4.54B, above.



Figure 4.55. Program-based social spaces (Feld survey, 2020).

Generally, it is possibly could be inferred that the inner-city area has as a characteristic of slum and obsoleted area concerning the analysis. This is because the affected image of the inner-city area have existed with different aspects of each urban elements, such as; lack of standards, principles, form composition, material quality, color preferences of finishing, elegance, and harmonization with the neighbors (building types); lack of standards, streetscapes, parking spaces, street furniture, shading trees for pedestrians, lighting, safety, quality surface finishing, & amenities (street types); lack of urban spaces, insufficient public space, lack of furniture, siting, standing, walking spaces, lack of dustbins, and other facilities & amenities (open spaces); improper waste management system, inappropriate location of utility lines, dust bins, open exposed drainage system, over ground and obtrusive infrastructure lines, etc. (infrastructures & utilities); absence of green park, lack of urban green space, inappropriate plantation of trees, lack plant selection for contrast, and lack of shading trees can be mentioned (trees); and also the absence of water features in the town are the major findings that can be mentioned.

4.4. Drawn framework for approaches in the practice of urban aesthetics

Concering the findings in this study, the aesthetics of the town need to be comprehended with effective urban design process. Especially other types of building designs, such as; architectural, structral, sanitary, electrical designs needs a special follow up and technical implementation in the contract and design process. On the other hand, the supervision of the construction process needs the follow up in its work order and and work procedures. Hence, the government, the proffesionals, and officials need to work together with great concern of urban design dimensions and principles following with urban redevelopment and renewal aproaches by fighting the social, economic, environmental, and political drawbacks in the town. The approaches to be experianced as a great concern in design and construction process have summerized as shown in Fig. 4.56 below.

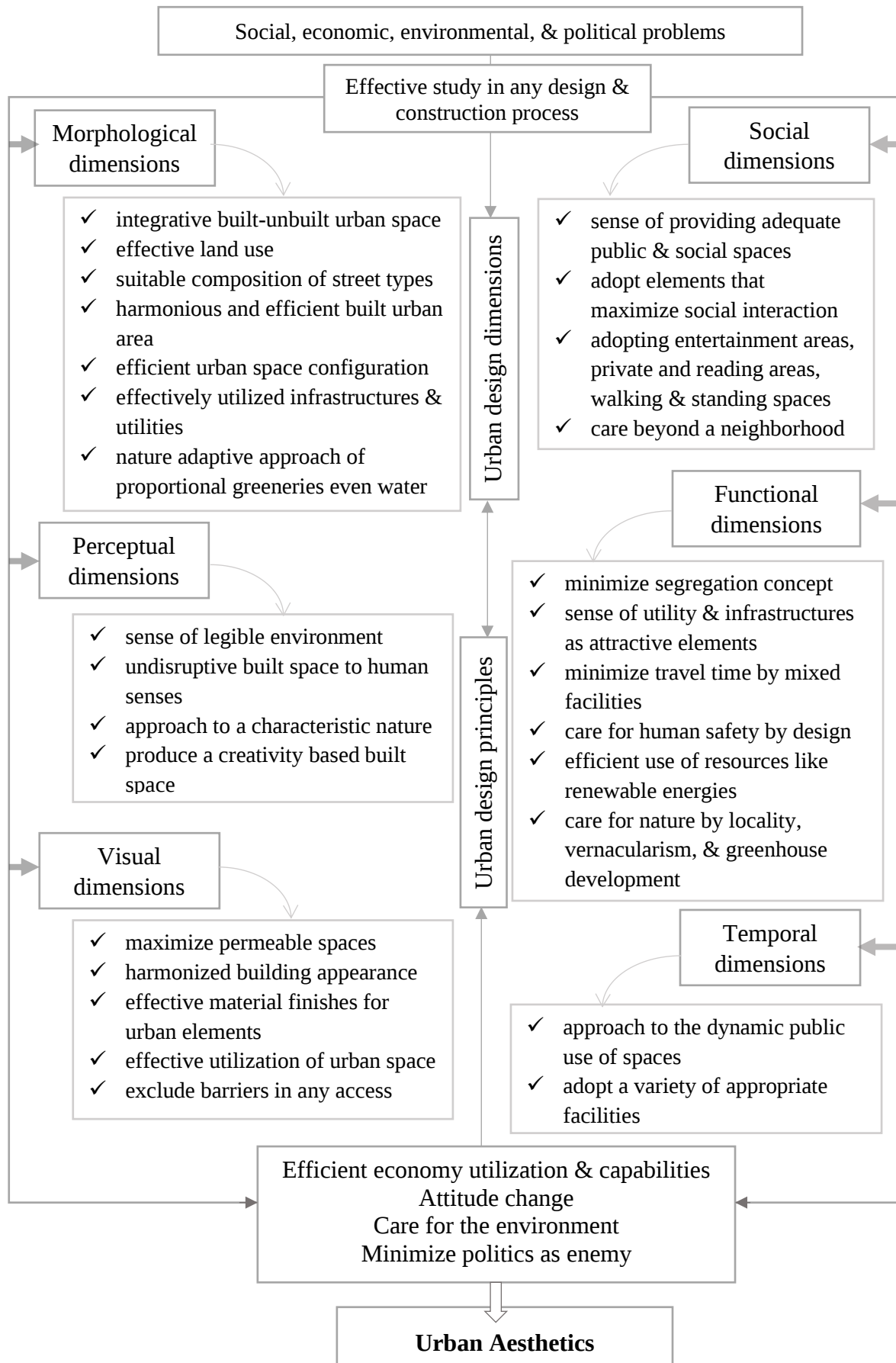


Figure 4.56. The conceptual framework implied from the findings.

CHAPTER FIVE

5. CONCLUSION AND RECOMMENDATION

5.1. Conclusion

From the field survey conducted in the inner-city area of Adama town, different results have drawn into the conclusion with a variety of implications. Among these, the following points could be stated;

Adama is challenged with the major problems that can be categorized as economic, social, political, and environmental problems. But the holistic approach shall be operated inter-dependently.

The care to be given for the design, construction, implementation, and supervision problems matters on the other factors to contribute for the improvement of the beauty of the town. Besides these, the limited experience and low consideration of urban design also matter for hindering the rapid physical change of the urban environment.

Any aesthetic problems of built-unbuilt urban space can be overwhelmed with concerning the best practices of the collaboration approaches of urban design dimensions and principles.

Generally, the idea of aesthetics traces from the efficient utilization of nature. Then, careful use of the surrounding environment including not to add unintegrated elements on it. Following these, start from determining the problems wisely before proceeding to different redevelopment and improvements in urban design process. Hence, effective practices of urban design can improve beginning from the minimum scale, ‘specific space quality’ to the large scale, ‘city-level’. Besides these, urban design principles merging with urban design dimensions are vital for the essence of sustainable future cities and aesthetic cities.

5.2. Recommendation

5.2.1. Recommendation for further studies

As part of recommendation, further studies on different urban design elements and urban design principles could be suggested to improve the aesthetics of cities. These shall follow an approach to be employed separately. For example, the role of finishing materials of buildings in urban aesthetics, effective infrastructure utilization for urban aesthetics, the role of architectural design on urban aesthetics, and others can be driven as an input for further researches.

5.2.2. Recommendation by proposing a case design

Concerning the analysis findings, the inner-city area could be redeveloped as per the standards, guidelines including the suggestions of the respondents during the study. Hence, the street pattern and street hierarchy are proposed for the inner-city area so as to be organized and well patterned in an orderly manner integrating with the immediate surrounding as shown in Fig. 4.65 below. These could be provided by considering the problems of street layout, traffic congestion, street standards, and other related criteria.

Beside this, the land use is proposed to the pursuit of mixed neighborhood including the provision of the accessible facilities, infrastructures, and services. Hence, the segregation of land uses in the inner-city area shall be too minimized to minimize the working distance between living homes and working area as shown in Fig. 4.57 below. Hence, the provision of different public spaces, parks and entertainment facilities shall be provided in the manner of enhancing the social interaction. The existing medium story buildings and worship places including some other public facilities shall be preserved. The historical areas could also be redeveloped keeping its context for better use like Mesqel square, old rail way line, manufacturing and warehouse area. Hence, the temporal consideration of these areas could be vibrant. The other local market areas shall be developed in to open market by organizing in to upper stories.

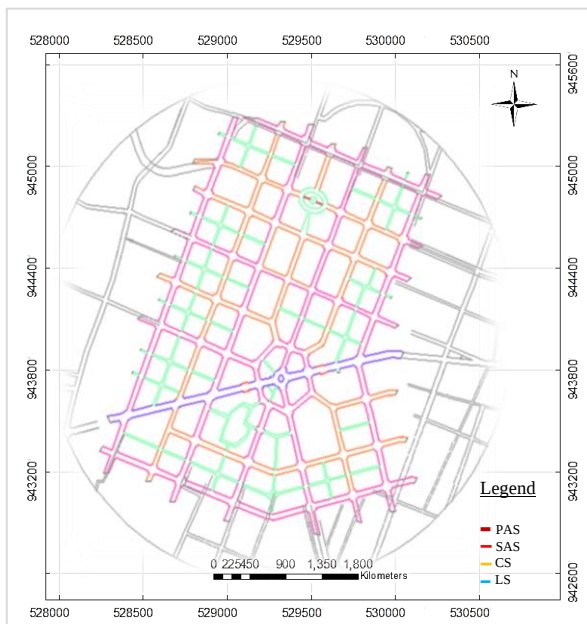


Figure 4.57. Proposed street layout

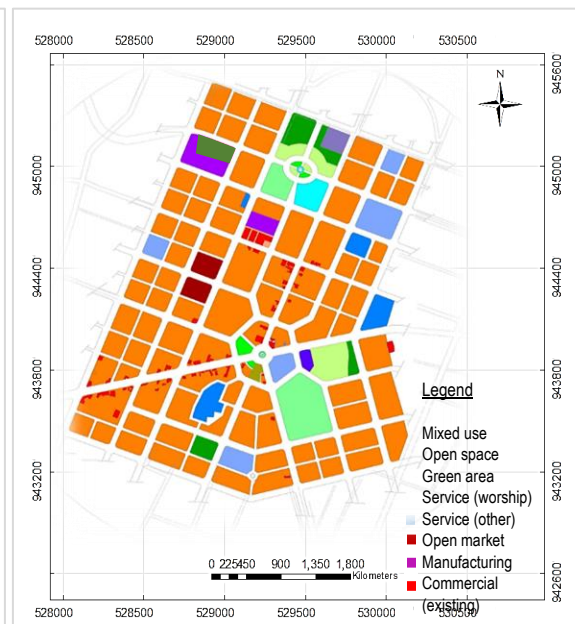


Figure 4.58. Proposed land use

Developing this in to the site layout including the building typologies and organizations, the inner-city area could be improved with its components as shown Fig.4.59 below.



Figure 4.59. The proposed site layout for the inner-city area.

1. Redeveloped area of Derartu square

2. Redeveloped area of Old rail line with land mark

3. Mixed use blocks with sufficient open spaces & car



Figure 4.60. Some of the proposed urban block layout details.



Figure 4.61. The proposed site 3D Model for the inner-city area.

As displayed in the 3D views, the form of the inner-city area, the building's façade treatment consideration of the climatic aspect,



Figure 4.62. Part of the proposed building appearance.

Regarding to the streets, the standard widths of street types, the variety of finishing materials with their accessories like traffic signs, street crossing & speed breaks, bus stops with shade providing trees for pedestrians.



Figure 4.63. Part of the proposed street.

On the other hand, the open spaces are proposed to enhance the social interaction and to spent personal rest time. Hence, these spaces are developed with entertainment facilities, sitting, walking, and standing spaces with amenities and facilities including selected plant species according to their purposes as shown in the Fig. 4.64, below.



Figure 4.64. Part of the proposed public spaces and greeneries.

Generally, the respondents suggest that the inner-city area shall adopting redeveloped and other regeneration programs without affecting and keeping the environment safe from wastage disposals that affect the people including nature. Retelling to the theories and the modern approaches, any design shall be provided to maximize the comfort of the society and the intent of sustainability. Finally, the principles, standards, approaches of urban design including the redevelopment and other programs shall be given an attention to ensure the sustainable aesthetic city for the future.

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Appendices

ADAMA SCIENCE AND TECHNOLOGY UNIVERSITY

SCHOOL OF CIVIL ENGINEERING AND ARCHITECTURE

DEPARTMENT OF URBAN PLANNING AND DESIGN

Thesis in partial fulfilment of the degree of MSc program

Appendix I. Questionnaires prepared for residents

Part I. For the Inhabitants and daily users

Personal information;

Name;/optional/_____

Occupation;_____

Sex; M ☐ F ☐ (✓) Age; 10-20 20-30 30-40 40-50 50-60 60-70 >70 (✓)

As part of my **MSc thesis** at Adama Science and technology university, I am conducting a survey that investigates the **perception of the inhabitants and daily users** about **Urban aesthetics in Adama town**. Please read carefully, then respond to the following questions that provide an **input** for the research. Incircle the letters for your answers, first; & then, write your feelings on the space provided.

(በአ/ሳ/ቴ/ዩ ዩኒቨርሲቲ ላይ በምሳሪ ትምህርቴን ለማጠናቀቅ በምሰራው የመመረቄያ ጽሁፌን የከተማ ውብነት በአዳማ ከተማ በሚል ርዕስ ለማካሄድ ጥናት የነዋሪዎችና በቀን ተቀን ውሏቸው በመሄል ከተማው አካባቢ የሚዘዋወሩትን ሰዎች በርዕሱ ዙሪያ ያላቸውን ሃሳብ ወይም ስሜት በመጠየቅ፣ ለጥናቴ እንደግባት ለመውሰድ የተዘጋጀ ፎርም ነው። ስለሆነም አባከዎትን የተጠየቁ ጥያቄዎችን በእንክር በማገባባት፣ ለምርጫ ጥያቄዎች መልስ የምትሏቸው ፊደላትን በመከበብና ዝርዝር ሃሳባችሁን ለሚፈልጉ ጥያቄዎች ደግሞ በተቀመጠው ክፍት ቦታ ገንቢ የሆነ ሃሳባችሁን እንድትሞሉልን በትህትና እናሳስባለን።)

I. Closed-Ended questionnaires!

- 1) Do you feel excited about what you are looking for in the Urban Environment? (በከተማው ውስጥ በምታዩላቸው ነገሮች ደስ ትሰኛላችሁ?)

A. highly excited /በጣም ተደስቻለሁ/ B. excited /ተደስቻለሁ/ C. less excited /በመጠኑ ተደስቻለሁ/ D. not excited /አልተደስትሁም/

- 2) Have you ever heard the calls of any governmental/ non-governmental bodies to participate in the programs or public meetings about urban development programs and strategies? (በከተማ ልማት ዕቅድና ስልት ዙሪያ የመንግስት ወይም የግል አካላት በሚያደርጓቸው ፕሮግራሞች ወይም ስብሰባዎች እንድትሳተፉ ተጋብዛችሁ ታውቃላችሁ?)

A. Usually /አብዛኛውን ጊዜ/ B. Sometimes /አልፎ አልፎ/ C. Never /ተሳትፌ አላውቅም/ D. No such programs, yet /ተደርገው አያውቁም/

- 3) Did you participate in voluntary services/public programs of cleaning the town? (ከተማውን ለማጽዳት በሚደረጉ የሰዓት አድራጎት አገልግሎቶች ወይም የጋራ የጽዳት ፕሮግራሞች ተሳትፋችሁ ታውቃላችሁ?)

A. Usually /አብዛኛውን ጊዜ/ B. Sometimes /አልፎ አልፎ/ C. Never /ተሳትፌ አላውቅም/ D. No such programs, yet /ተደርገው አያውቁም/

- 4) Do you feel comfortable about the over-ground installation system of utilities like electric and telecommunication lines in the town? (በከተማው ውስጥ ከመሬት በላይ በተዘረጉ የኤሌክትሪክና የስልክ መስመሮች ምቹነት ይሰማችኋል?)

A. highly Comfortable /በጣም ምቹ/ B. comfortable /ምቹ/ C. less Comfortable /በመጠኑ ምቹ/ D. not comfortable /አይመችም/

- 5) How long did you observe for the maintenance of utilities and infrastructures by the Government? (በመንግስት የሚደረጉ መስረተ ልማቶች ጥጋና ምን ያህል ጊዜ እንደሚወስድበት አስተዋላችሁ?) (put /on ___ under each choice).

A. immediately/ወዲያውኑ/ B. until 2 weeks/እስከ 2 ሳምንት/ C. until 1 month/እስከ 1 ወር/ D. after a Month/s/ከወራት በኋላ/

-	Tele & Elec. Lines	___	___	___	___
-	Water lines	___	___	___	___
-	Ditches	___	___	___	___
-	Roads	___	___	___	___
-	Schools & hospitals	___	___	___	___

II. Open-ended Questionnaires!

1. Do you perceive the buildings built in the town as beautiful? (በከተማው የተገነቡ ሕንጻዎች ከስነ-ህንጻ ውበት አንጻር ውብ ናቸው ትላላችሁ?) A. Yes/አዎ/ B. Progressive/በሂደት ላይ/ C. No/አይደለም/
Please describe/ቢያብራሩልን!/- _____
2. Are the streets suitable for any access? (መንገዶች ለማንኛውም እንቅስቃሴ ምቹ ናቸው?) A. Yes/አዎ/ B. Some streets only/የተወሰኑ መንገዶች ብቻ/ C. No/አይደለም/
Please describe/ቢያብራሩልን!/- _____
3. Are there attractive public open spaces in the Town? (ቀልብን የሚስቡ የህዝብ መናፈሻ ቦታዎች በከተማው አሉ?) A. Yes/አዎ/ B. Some unwisely used places/በጥንቃቄ ያልተያዙ የተወሰኑ ቦታዎች/ C. No/የለም/
Please describe/ቢያብራሩልን!/- _____
4. Do you observe adequate greeneries and variety of plant species in the town? (በከተማው ውስጥ በቂ አረንጓዴዎች እና የተለያዩ የተክል አይነቶችን አስተውላችኋል?) A. Yes/አዎ/ B. Partialy/በመጠኑ/ C. Very limited/በጣም የተረቆተ/ D. No/የለም/
Please describe/ቢያብራሩልን!/- _____
5. Do the infrastructures and utilities safely installed in the town? (በከተማው ያሉ መስረተ ልማቶች በጥንቃቄ የተዘረጉ ናቸው?) A. Yes/አዎ/ B. Partialy/በመጠኑ/ C. Need follow up /በዙሉም ጊዜ ከትትል ይፈልጋሉ/ D. No/አይደለም/
Please describe/ቢያብራሩልን!/- _____
6. Do there any iconic buildings & other impressive strctures in the Town? (የከተማው መላያ የሆኑ ልዩ ሕንጻዎችና ሌሎች አስደናቂ ውቅሮች አሉ?) A. Yes/አዎ/ B. Progressive/በሂደት ላይ/ C. Very limited/ በጣም ጥቂት/ D. No/የለም/
If so, Please mention it/ቢጠቅሱልን!/- _____
7. Is there challenging places that affect your safety to perform your daily activities, especially at night? (የእለት ከዕለት ተግባራችሁን ለማከናዎን እንቅፋት የሆኑባችሁ የደህንነት ስጋቶች አሉ?) A. Yes/አዎ/ B. No/የለም/
if so, describe/ ካለ ቢጠቀስ/; _____
8. What do you criticize about the visual qualities of the town? (በከተማው ጥራት ዙሪያ ምን ትተቻላችሁ?) _____
9. What do you recommend to improve the aesthetics of the town to see a beautiful city for the future? (ለወደፊት የከተማውን ውበት ለማሻሻልና ውብ ከተማ እንድናይ ምን ትመክራላችሁ?) _____

Appendix II. Questionnaires prepared for experts in different level

MSc Thesis; Questionnaire Paper on Urban Aesthetics in Adama Town

21/02/2020

For Design and Construction Consulting Offices

Office Name; Sebon Consulting PARTNERSHIP

About your office is organization

- > Professionals; (a) architect/s/ ___ (#) (b) civil engineer/s/ ___ (#) (c) electrician/s/ ___ (#)
 d. sanitary engineers/s/ ___ (#) e. surveyor/s/ ___ (#) f. cad technician/s/ ___ (#) g. others if any ___ (#)
 ▪ Condition of Job description; Status; a. private (b) Small enterprise c. others (if any); _____
 Position/rank; Special level Other qualifications; _____

As part of my MSc thesis at Adama Science and technology university, I am conducting a survey that investigates the perception of the Professionals about Urban aesthetics in Adama town around Geda sub-city. Please respond to the following questions that provide input for the research. Hence, Incircle the letters for your answer, and give your idea on the space provided.

- What problems do you observe in design process, until the execution of Construction Process? interference
- 7 Govt. Employees at Kebele level
- plot is 4p. Difficulties for flexible design (Ratio) X: Y = 1
- How do you express the interference of your clients on their own design and construction terms?
client is mostly wants to see what he have seen in previous time. Challenge to Accept new idea
- Do you supervise the construction process for your designs on the site? A. Yes, if so, how often?
(B) No, if No; why? the client don't see it necessary they don't wait
 What construction procedures do they follow? (A) Legal B. Illegal, if illegal; what do you suggest for them?

- Have you relations with the other consulting offices to work for the common interests? /hence, for improving the image of the town for the future./ (A) Yes B. No, add any suggestions; The Urban code needed more to prevent randomness
- Do you perceive the buildings built in the town as beautiful? /which are the outputs of design & construction consulting offices/ A. Yes B. Partially (C) No, if not yes; (Why?)
most of them are designed by contractor
those designed well even changed on site to other one
- What new/odd/ approaches do your office follows to improve the beauty of the town?
we are trying to continue client

What shall be done for the future? /Add your recommendation/;

- Corruption must be held in our city
- codes & standards must be set & implement
- construction must be followed by consulting

For Building Construction Sites

Contractor Name; Atre-tion Construction PLC

About your site organization

- Professionals; a. architect/s/ 1 (#) b. civil engineer/s/ 2 (#) c. electrician/s/ 1 (#) d. sanitary eng. 1 (#)
e. surveyor/s/ 1 (#) f. cad technician/s/ 1 (#) g. others, if any 1 (#), managers, foremen = 1
- Condition of Job description; Position/rank; I level, other Qualifications; 1

As part of my MSc thesis at Adama Science and technology university, I am conducting a survey that investigates the perception of the *Construction Players* about *Urban aesthetics in Adama town* around Geda sub-city. Please respond to the following questions that provide input for the research. Hence, Incircle the letters for your answer, first; then, give your idea on the space provided.

1. What problems do you observe in the execution of plans to the ground in the Construction Process?

Some unmatched soil type with respect to the design
unrelated construction of structural elements are not

2. How do you express the interference of clients on the construction process? no work order and trainings
enforces the construction process

3. How do you manage the impacts of your equipments and materials around the site?

working area of the design are not considered in designs, but sometimes it may be considered b/c of development process for the town

4. Have you ever complete the construction process according to the delay time of your contract?

A. Yes ☒ B. No, if No; (What are the challenges); this is the problem of most Contractors at least 1 year because the design revisions, late technology, knowledge --

5. Do you proud of the construction outputs of in the town? A. Yes ☒ B. Partially C. No; if not yes;

(Why?) there is a start but most buildings are boring; construction team, the sanitation & other Orgs are not coordinated.

6. What new/odd/ approaches do your site follows to improve the beauty of the town?

Detail study for design matters, but we ask modifications of design for revision; No committed professionals and other managerial involvement of the labour

What shall be done for the future? /Add your recommendation/;

Organized team need to work together; minimize for bill
No further policy problems; but, the individuals ideology must be changed/awareness; most constructions designs are copied;
trainings before starting the construction process.

Part II. For the Professionals

A. For the Construction Authority of Adama town

Personal information;

Name: Lammessa -A., Occupation: Architect, Other qualification: _____
 Sex: M ☒ F ☐ (✓) Age: 10-20 20-30 30-40 40-50 50-60 60-70 >70 (Underline)

As part of my MSc thesis at Adama Science and technology university, I am conducting a survey that investigates the perception of Architects, Urban planners, Designers and other officials about Urban aesthetics in Adama town. Please read carefully, then respond to the following questions that provide an input for the research. Incircle the letters for your preferences; then, write your feelings on the space provided.

1. Do you feel happy with the construction industry in the town? (A) Yes B. No

Please, write your observation: The construction industry in our city was interesting but It need a high capacity,

2. How do you express the extent of the implementation of new design & construction policies and strategies in the town? (A) Very challenging B. Some Challenges C. Very easy

Please, Describe:- Very challenging on implementation society do not respect policies & strategies.

3. Have you a design expert team that works in preparing the design of any urban renewal, upgrading, and other related programs? A. Yes (B) No, If yes; please list them (by their field); _____

If No; (Why?); less attention of the government (ask)

4. Do you supervise construction sites and design consulting offices? (A) Yes B. No
 (if yes, how often?) (if no, Why?) two times in week (mostly)

- What construction procedures do you observe onsite? (A) Legal B. Illegal

If not legal; What measurements did you take? trying to tell them to take some corrections except that follows legal procedures (ask)

5. Do most of the construction of buildings have completed according to the delay time? A. Yes (B) No.

If No; why? Capacity of contractor & client was small/min.

6. What new/odd approaches do you follow to improve the beauty of the town for the future?

implementing (approving design at early stage) before construction
supervising the approved plan

(Add your recommendations here);

- Question was interesting
- good luck.

* ask = by interview to complete the questions idea from the respondents

A. For Urban Land Management and Development of Adama town

Personal information;

Name: _____ Occupation: Planning Kebele No.: _____
 Sex: M ☒ F ☐ (✓) Age: 10-20 20-30 30-40 40-50 50-60 60-70 >70 (U)

As part of my MSc thesis at Adama Science and technology university, I am conducting a survey that investigates the perception of the officials about Urban aesthetics in Adama town around Geda sub-city. Please respond to the following questions that provide input for the research. Hence, Incircle the letters for your answer, first; then, give your idea on the space provided.

1. Do you feel happy with the construction industry in the town? A. Yes B. No, if No; (Why?)

The plan on the paper is not properly fit with the plan on the ground. The lack of greenery also one part of its failure.

2. How do you express the implementation of new policies and strategies in the town?

A. Very challenging

B. Some Challenges

C. Very easy

Please, Describe:-

Due to the lack of budget And due to lack of awareness happen.

3. Do you follow some measurements for the improvement of urban beauty as the management department?

A. Yes

B. No

Please, describe:

By improving the plan on the paper to the ground as it is implemented.

4. How do you describe the land value in the town according to the existing one story buildings and houses?

The land value is high, because of human needs is not properly much with land supply.

What do you suggest? The Government must assure or must take measurements to fulfil human needs.

5. What do you recommend to improve the aesthetics in the town to see a beautiful city for the future?

The road must be kept or consider its future traffic load.
The building must be planned by skilled man power.
Greenery must be respected.

3/2/2020
 10:30 AM
 10:30 AM

For Municipalities

A. Form Infrastructure preparation and Financial management office

Personal information;

Name; _____, Occupation; _____, Other qualification; - _____.

Sex; M ☒ F ☐ (✓) Age; 10-20 20-30 30-40 40-50 50-60 60-70 >70 (Underline)

As part of my MSc thesis at Adama Science and technology university, I am conducting a survey that investigates the perception of Urban planners and Designers about Urban aesthetics in Adama town. Please read carefully, then respond to the following questions that provide an input for the research. Incircle the letters for your answers, first; & then, write your feelings on the space provided.

- What are your duties in part of your departmental office works?
 - Site supervisor, Design and Preparation of BOQ
 - Preparing of CIP (Capital Investment Plan)
- How often do you supervise the infrastructure sites like construction of ditches, streets & other facilities?
 - Streets.
- What construction procedures do you observe onsite, which sub-/contractors followed? ☒ A Legal B. Illegal
 If not legal; What measurements did you take? _____
- Do most of the construction of ditches and streets have completed according to the delay time?
 A. Yes B. No, If No; why? Sometimes due to rainfall condition, due to the shortage of internal revenues.
- What problems are observed in the development of infrastructure facility in the Town?
 - The peoples are not fully awarded.
- What new/odd/ approaches would you follow to improve the beauty of the town?
 ⇒ The approach through City Beautification and greenery. The city is on beautiful process.
 What shall be done for the future? /Add your recommendation/
 ⇒ The City Plan must be respected.

Appendix III. Checklists for field survey

Table 1. Site observation for evaluating the state of urban design elements (Field Survey, 2020).

Elements to Check	Features to Check	Yes	No	Average	Rating	Remarks
1. Buildings						
❖ Structure	<i>Are there complex building structures?</i>		*		3	Some problems
	<i>Do there observed structural failure in the town?</i>		#*			
	<i>Are there long-term structural elements observed in under-construction buildings?</i>	#*				
❖ Form;	<i>Are there any special building forms?</i>			*	3	Some problems
	<i>Do the buildings have considerable façade treatment in different aspects?</i>			*		
❖ Finishing Materials	<i>Do the finishing materials of the buildings have visual quality?</i>			*	4	Good
	<i>Are the building's finishing materials durable?</i>			*		
	<i>Do there observed visually disruptive glassing facades?</i>	#*				
❖ Building Height	<i>Are there buildings more than 9 stories?</i>		*		3	Some problems
	<i>Are there buildings between three to eight stories?</i>	*				
	<i>Are there buildings between one to three stories?</i>	*				
	<i>Are there buildings with one story?</i>	*				
2. Street Network	<i>Does the distribution of street types follow with a better hierarchy?</i>			*	3	Some problems
	<i>Are the street types provided standard-based?</i>		*			

	Do the medians have different plant species for shading and visual quality?			*		
	Are there obstacles along the streets?	#*				
	Do the surface materials have visual quality?			*		
	Are there traffic signs?			*		
	Are there speed breakers?		*			
	Are there marks for setback and vehicle Lanes?			*		
	Are there separated cycle lanes?		*			
❖ Junctions	Do the most junctions have a proper connection?			*	3	Some problems
	Do most junctions have a standardized radius of curvatures?		*			
	Do the junctions used as a node?			*		
3. Pedestrian walkways	Do the Pedestrian walkways include sufficient Facilities and Amenities?		*		2	Many problems
	Do there, different plant species along the pedestrian walkways?			*		
	Is there street furniture?		*			
	Are there sufficient buffer spaces between edges to vehicle lanes?		*			
4. Transport Modes	Are there alternative transportation modes?			*	3	Some problems
	Is there a well-managed traffic flow?		*			
5. Open-Spaces	Are there exemplary Public Urban Spaces with Amenities?		*		2	Many problems
	Do the children have sufficient playground?		*			
	Are there sitting areas around the playgrounds have /if any/?		*			
	Are there different plant species for shading and visual quality?			*		
	Are there outdoor reading spaces?		*			

	<i>Are there any existing open spaces tidy and free from dust materials?</i>			*		
❖ <i>Walking Spaces</i>	<i>Are there separately provided spaces for the public walking?</i>		*		3	Some problems
	<i>Do there enough lighting?</i>			*		
	<i>Do there enough shading trees?</i>			*		
❖ <i>Sitting Spaces</i>	<i>Are there sitting spaces for waiting areas and as an enjoyment space?</i>		*		2	Many problems
	<i>Is there furniture under the trees?</i>		*			
❖ <i>Standing spaces</i>	<i>Do there enough standing spaces to talk together with green shades?</i>			*	2	Many problems
6. Greeneries	<i>Are there adequate greeneries in the town?</i>			*	3	Some problems
	<i>Are there shade providing plant species along the streets?</i>			*		
	<i>Do the greeneries have contrasting plant species for visual quality?</i>			*		
	<i>Are there flowers along the street?</i>		*			
	<i>Are there appropriate planting observed for a variety of planting species?</i>			*		
	<i>Are there edible plant species especially for the parcels?</i>		*			
7. Utility						
❖ <i>Street lights</i>	<i>Do street lights appropriately installed?</i>			*	4	Good
	<i>Are there various types of street lights with contrasting colors in the evening?</i>		*			
	<i>Are there appropriately installed traffic signs?</i>			*		
❖ <i>Electric, Tele lines, and their Poles</i>	<i>Do those transmission lines have no attachment to building surfaces, trees, and other elements?</i>			*	3	Some problems
	<i>Do those lines are likely to control for safety?</i>			*		
❖ <i>Ditches and manholes</i>	<i>Do the open ditches have a bad smell?</i>	#*			2	Many problems

	<i>Do the closed ditches are precast concretes?</i>			*		
	<i>Do the closed ditches have no obstacles for a walk?</i>	#*				
	<i>Do the drainage lines visually attractive?</i>		*			
	<i>Do the manholes along the street are closed?</i>			*		
	<i>Do the ditches have maintenance problems?</i>	#*				
❖ Water lines and Pipes	<i>Do the downpipes are secured in the building facades?</i>			*	4	Good
	<i>Do the pipes and water lines observed over the ground surface?</i>			*		
	<i>Do the pipes have maintenance problems?</i>			*		
❖ Amenities	<i>Do there adequate and appropriately provided dust-bins?</i>			*	3	Some problems
	<i>Are there over-collected solid wastes?</i>	#*				
8. Parking	<i>Are there provided on-street parking spaces?</i>		*		2	Many problems
	<i>Is there off-street parking?</i>		*			
	<i>Do the parking spaces have green shades?</i>		*			
	<i>Are there separated cycle parking spaces?</i>		*			
9. Water Bodies	<i>Do there a Natural river that passes through the town?</i>		*		2	Many problems
	<i>Are there artificial ponds?</i>		*			
	<i>Do there enough recreational swimming pools?</i>			*		
	<i>Do there any aquarium in the town?</i>		*			

Table 2. Site observation for evaluating the principles of urban design (Field Survey, 2020).

1. Lighting	<i>Do the glassing of the building's facades are visually disruptive?</i>			*	3	Some problems
	<i>Do the building's interior spaces have considerable visibility?</i>			*		
	<i>Does the lighting system is contrasting at night?</i>		*			
	<i>Do there silent & dark areas at night?</i>	#*				
2. Legibility						
❖ Nodes	<i>Do the nodes have entertaining facilities?</i>			*	3	Some problems
	<i>Do there sufficient temporal waiting, standing, and sitting spaces?</i>			*		
	<i>Are there any attractive meeting centers for the public realm?</i>		*			
Land-marks	<i>Are there enough iconic elements to characterize the town?</i>			*	4	Good
	<i>Do the professionals effort observed for any special structures/odd building form?</i>		*			
	<i>Do the landmarks are visible in any direction without obstructions?</i>			*		
❖ Character	<i>Are there cultural houses that characterize the society?</i>			*	4	Good
3. Permeability & Accessibility	<i>Do all access ways to ensure permeability?</i>			*	3	Some problems
	<i>Do the streets are suitable for different transport modes?</i>			*		
	<i>Are there ramps provided for wheelchairs along with the pedestrians and crossings?</i>		*			

4. Robustness	<i>Are there spaces for performing different activities in the same area?</i>		*		2	Many problems
5. Orientation	<i>Does the buildings-built slope-based?</i>			*	3	Some problems
	<i>Do the buildings built considering the climatic conditions, like a harsh sun?</i>		*			
	<i>Do the buildings built following the street's alignment?</i>	*				
	<i>Do the street networks consider the sun path effect?</i>		*			
6. Set-backs	<i>Do the building setbacks are greater than 2m from the street?</i>			*	3	Some problems
	<i>Do the setbacks are enough according to the function of buildings?</i>		*			
7. Safety and securities	<i>Are there inappropriate gorges and ditches through the neighborhood areas?</i>	#*			2	Many Problems
	<i>Are there dead areas with no human activities in the community?</i>	#*				
	<i>Are there congested areas of human activities like public markets?</i>	#*				
8. Climate						
• Temperature	<i>Does the shadow casting from buildings and greeneries are considerable?</i>		#*		4	Good
	<i>Does the temperature is Challenging while walking through?</i>			*		
	<i>Are there optimum temperature observed on most days of the year?</i>			*		
❖ Wind	<i>Do the openings of buildings oriented to natural ventilation?</i>			*	4	Good
	<i>Does the wind flow in a specific direction annually?</i>		#*			
❖ Rain Fall	<i>Do the flooding flows out of the ditches in the rainy season?</i>	#*			2	Many problems
9. Topography						

❖ Slope	<i>Do there characterized the gentleness of the land?</i>	*			4	Good
❖ Gorges	<i>Are there big gorges?</i>	#*			3	Some problems
10. Harmony	<i>Do the buildings have a huge height difference?</i>	#*			3	Some problems
	<i>Do the building's colors are appropriate?</i>		*			
	<i>Do the buildings are complement with other urban elements?</i>		*			
11. The comfort of Houses (supported by another housing condition evaluation checklist)	<i>Are most of the residence houses Governmental?</i>	#*			3	Some problems
	<i>Do the size of the plot areas and Parcel areas of houses similar?</i>	#*				
	<i>Are there houses bellow 2.80m height?</i>			*		
	<i>Do the roofing materials used are sheet metals?</i>	#*				
	<i>Do the houses built with mud walls?</i>			*		
	<i>Do the houses have sufficient openings?</i>			*		
	<i>Do the dwellers have private outdoor space?</i>			*		
	<i>Do most dwellers have low-income?</i>	#*				
	<i>Are there any measures taken to improve the condition of houses?</i>			*		
	<i>Can the houses be generally considered as a slum?</i>		*			
12. Mixed-use and Variety	<i>Do most buildings have mixed functions?</i>			*	3	Some problems
	<i>Do there observed land-use segregation?</i>	#*				
	<i>Do there housing opportunities and choices?</i>		*			
13. Compact Urban form	<i>Are there high-rise buildings?</i>			*	2	Many problems
	<i>Do the buildings have connectivity with each other?</i>		*			
	<i>Are there community buildings like city-mall?</i>		*			
	<i>Do the contractors follow the legal construction process?</i>			*		Some problems

14. Construction process	<i>Do there no dumped wastage materials, construction materials, and equipment along the streets?</i>	#*			3	
	<i>Do the buildings start to function after the completion of construction?</i>		*			
15. Sustainability	<i>Are there buildings that encourage vernacular architecture?</i>		*		2	Many problems
	<i>Do some approaches practiced for the conservation of nature?</i>		*			
<i>Sustainable Communities by rules of low carbon city</i>	<i>Are there easy access to transit?</i>		*		3	Some problems
	<i>Does the community apply short trips to reach their Job sites?</i>		*			
	<i>Do the services and facilities are nearby to the community's houses?</i>			*		
	<i>Is there separation of income levels?</i>	#*				
	<i>Is there observed integration to the natural environment?</i>		*			
	<i>Do the infrastructures utilized carefully?</i>			*		
<i>Sources of Energy for efficiency</i>	<i>Are there trials to adopt renewable energies?</i>	*			3	Some problems
	<i>Do there observed sources of solar energy sites?</i>		*			
	<i>Are there wind energy sources observed?</i>	*				