

PLANNING & MANAGEMNT OF URBAN GREEN SPACE IN AKAKI- KALITY SUB-
CITY OF ADDIS ABABA



Esubalew Gashaw Bekele

A Thesis Submitted to the Department of Architecture & Urban Planning & Design Master's
Program, School of Civil Engineering & Architecture.

Presented in Partial Fulfillment of the Requirement for the Degree of Master's in urban
planning & design

Office of Graduate Studies
Adama Science and Technology University

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DECLARATION

I declare that this Master Thesis entitled “Planning & Management of Urban Green Space in Akaki- Kaliti Sub-City of Addis Ababa” is my original. That is, it has not been submitted for the award of any academic degree, diploma or certificate in any other university. All sources of materials that are used for this thesis have been duly acknowledged through citation

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We, the undersigned, members of the Board of Examiners of the thesis by Esubalew Gashaw have read and evaluated the thesis entitled “Planning & Management of Urban Green Space in Akaki- Kaliti Sub-City of Addis Ababa” and examined the candidate during open defense. This is, therefore, to certify that the thesis is accepted for partial fulfillment of the requirement of the degree of Master of Science in urban planning and design.

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ABSTRACT

Urban green space is any green space of land that is undeveloped and accessible to the public in which influenced by the Rapid urbanization & industrialization phenomenon. Now a time green space planning & management is one of the most crucial elements in healthy and sustainable development process. However due to high rate of industrialization and population within developing cities/towns, the needs of housing and other social infrastructures are increasing from time to time. These all phenomenon causes inadequate green space areas within cities. Therefore the objective of this study was to assess the current status of urban green space planning and management. The study utilized secondary data sources, questionnaires for the households, interviews for official's expert and managers, as well as personal observations. Qualitative and quantitative data were collected based on survey strategy from a total of 184 sample households from woreda 05, twelve officials and six managers by interviews and observation. So, The study founded that within woreda 05 of Akaki-kality sub city there has too much challenges to full fill the national and international standards of green spaces land use due to inability to enforce rules and regulations according to planning & management practice, unfair distribution, less availabilities of green space and no maintaining of the existed urban green space, financial shortage, professional obstacles during monitoring & evaluation. Even though the city has a few green space planning & management experience among some government sectors rather than to plan UGS, due to this the space is just used for the purpose of industry & informal settlements, As general evaluation the performance of existing green space management practice within the woreda of sub city is very limited in terms of accessibility, distribution, availability, quantity & quality and urban sustainable development senses. Therefore, the study suggest recommendation that the city requires improving the land use plan, should put in place a broad policy framework to facilitate coordination and reduce overlaps, follow the national and international standards of green spaces, use implementation strategies applicability with concerned bodies and adequate and qualified manpower.

Key words: Green Space, Planning, Management, Urban Green Space, Accessible, Distribution of UGS Availabilities of Green Space.

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LIST OF ACRONYMS

AA	Addis Ababa
AACGPDC	Addis Ababa City Government Plan and Development Commissioned
AACPO	Addis Ababa Commission Plan Office
AAEPA	Addis Ababa Environmental Protection Authority
AASBPDA	Addis Ababa Sanitation, Beautification and Park Development Agency
CSA	Census Statistics Agency
EEA	European Environmental Agency
EEPA	Ethiopian Environmental Protection Authority
ESA	Ethiopian statistics Agency
GIS	Geographical Information System
MoUDHC	Ministry of Urban Development, Housing and Construction
SPSS	Statistical Package for Social Science Software
Ups	Urban Parks
UGI	Urban Green Infrastructure
UGIS	Urban Green Infrastructure Standard
UGS	Urban Green Space
WHO	World Health Organization

CHAPTER ONE

1. INTRODUCTION

Urban Green infrastructure (UGI) is a broad term, and defined as the combined structure and connectivity of recreational parks and other types of green spaces that deliver multiple benefits for urban environment (Jennings et al. 2016; Wolch et al. 2014).

UGS have different forms and types of open spaces, community parks and gardens, landscapes areas. Some types of urban green spaces are formal green space, informal green space, natural green space, children's space, public participation, active sports space, recreation activities, and further land management policies.

Urban green spaces connect the urban and the nature while caring for the environment, social and economic elements. Public forests and green roofs in public and community buildings, and vacant and derelict land also provide ecosystem services.

Green space is one of the landscape components of urban environment represented as a patch where the built-up area is the dominant share of urban matrix. Urban green spaces are public and private open spaces in urban areas primarily covered by vegetation, which are active or passive recreation or indirectly positive influence on the urban environment available for the users (Tuzin et al., 2002).

The problem of urban green space in Addis Ababa is complex and has social, political, and economic dimensions. Rapid urbanization and population growth have led to informal settlements, illegal land use, and the conversion of open spaces for other development. In Woreda 05 Akaki-Kality Sub-City, urban green areas have been consumed by industrial, commercial, residential, and infrastructural developments, as well as by spontaneous and illegal settlements.

The researcher is aware of the challenges facing urban green space planning and management in Woreda 05 Akaki-Kality Sub-City, and is motivated to conduct further investigations and propose alternatives to overcome these challenges.

1.1. Background of the Study

More than half of the world's population now lives in urban Areas. By 2050 more than half of Africa and Asia's population will live in towns and cities (David, 2013). A range of strategies are used to integrate the environment in urban planning and management.

Urbanization and densification processes have led to a loss of urban green space (UGS) and biodiversity within cities, particularly within Asia and Australia and to a lesser extent Europe and North America (Haaland, C.; van den Bosch, C.K, 2015). With the increasing frequency and severity of environmental hazards and climate change such as heat, urban design strategies will play an important role in reducing vulnerability, promoting health and building resilience (Stone et al, 2010).

The 'green infrastructure' concept was proposed as a landscape approach to urban design, planning and management (Mell, 2017). Its key principles emphasis multi-functionality, connectivity and ecological networks of urban green spaces (Benedict and McMahon, 2006; Tzoulas et al., 2007), as well as integrated approaches to policy implementation (Lennon et al., 2017; Mell, 2017). More recently, 'nature-based solutions' has been proposed as "an umbrella concept that covers a whole range of ecosystem-related approaches all of which address societal challenges" (Cohen-Shacham et al., 2016).

Green space is an important part of urban ecosystems that provides environmental, esthetic, recreational and economic benefits to the urban dwellers. Vegetation provides sufficient oxygen through photosynthesis, pleasing temperatures, cooling through shading and enhanced evapotranspiration (Christian, E. and Ugoyibo, O. 2013).

Urban green spaces (UGS) are believed to solve environmental problems and provide goods and services that contribute to human well-being. Provision of food (Kaoma and Shackleton, 2014); provision of space for recreation (Andersson *et al.*, 2015) and socialization (Krellenberger *et al.*, 2014); carbon sequestration (Liu and Li, 2012); improvement of air quality (Escobedo 2011); regulating temperature (Mariani *et al.*, 201; Li *et al.*, 2018), and storm water management (Pappalardo et al 2017) and improving human health (de Vries *et al.*, 2003) are some of the benefits derived from UGS.

Urban green spaces and vegetation cover play major roles in balancing human biophysical interconnections and in keeping environmental quality. Green space is a basic requirement of any city that makes tremendous contributions aesthetically and ecologically to the city dwellers for better quality of life (Low et al, 2007).

For green space planning and management, it is important to know the visiting behavior, use patterns, and preferences of the urban dwellers in order to meet their demands and expectations (Li et al, 2017; Madureira et al., 2018).

Traditionally open space management in developed as well as developing cities has focused on beautification for recreation (Maruani & Amit-Cohen, 2007). However, over the past two decades the urban Green Infrastructure (GI) planning concept has gained attention, highlighting the multiple roles of urban green space in achieving physical, ecological, social and economic sustainability in cities (Breuste, Artmann, Li, & Xie, 2015).

The weak legal and regulatory framework in Sub-Saharan Africa is readily visible, leading to inadequate green space development and management in urban areas (Zakka et al, 2017). In the Ethiopian context, although there are policy and legal documents regarding urban green components, quantitative guidelines and standards do not exist. (Girma et al, 2019).

There are specific analyses available for different cities based on their own green space classifications and data, often available from the local planning agencies. For example, a recent green infrastructure strategy for Warsaw included diverse land use categories derived from the local register (Szulczewska, 2016).

The green space distribution and accessibility is a function of these indicators and their thresholds reveal the potential for implementation in planning, design and equality of green space distribution. Green space accessibility has important implication for the environmental, social and economic sustainability of the urban areas (Du and Zhang 2020). Planning for urban green spaces involves a trade-off between providing economic services and preserving and/or creating green spaces (Belmeziti et al. 2018).

Participation of all stakeholders and coordination between the institutions involved in the planning is the way to achieve success for expanding and sustaining the urban green areas (Lahdelma et al., 2000; McGill, 2001).

UGSs have already been the subject of extensive research, largely meant to support green space planning and management (e.g., Hansen et al., 2015; Kabisch, 2015; Rall et al., 2015). However, many of the relevant discussions, and especially formal planning documents, tend to overlook some green space types and overemphasize some others.

Many existing cities do not have enough space for the development of new parks and green areas; consequently, they are squeezed into any available space between buildings and roads. It is almost impossible, nowadays, to find an area sufficiently large enough for the design and

implementation of a major urban green space, especially in city centers or in a town, densely developed or built-up (Bell *et al*, 2007).

In Ethiopia, as stated in amenity green space manual No.15 (2016) the condition and management across the urban center have not been uniform and there is a great deal of variation among the urban center. Some urban centers have provided some components of green infrastructure and others yet not started. Furthermore, the stipulation and management of urban green infrastructure across the urban country have not been standardized and the urban dwelling communities in the country have not been receiving the goods and services that well planned developed and managed urban green infrastructure supposed to provide (Zenebe, et al, 2021).

Addis Ababa, the country capital of Ethiopia has been experiencing rapid urbanization. The growth of the city and the resulting customization with urban life styles are important social changes. The city has become the center of agglomeration. One of the many services which are provided by the city administration is provision of open green spaces; for recreation, social interaction and for balancing the ecosystem of the city. Urban open green spaces are crucial parts of urban land with its own specific set of function (Burke and Ewan, 1999).

In Addis Ababa, land is owned by the government and only the use right is exercised by residents and institutions. It could have some practical advantages as the government has the power to allocate land for green space such as the river buffers, mountain rehabilitation sites and new parks as proposed in the structure plan. However, the land in the city is administered by the Land Administration and Management Bureau which also is referred to as the 'strongest institution at all'. (LiseHerslund et al, 2016).

In addition, they are also struggling with problem of management, organization and design. About 82% of the population of Addis Ababa lives in unplanned neighborhoods, which lack basic urban facilities and infrastructural networks such as open spaces and recreation areas. (Alemakef Tassew and Akhila S. Nair, 2013).

To achieve such comprehensive planning, scholars argue that it must address a range of actors from all sides for active management of urban green spaces, including practitioners in planning, ecology and landscape (Andersson & Bodin, 2009), and urban residents and communities (Artmann, 2014; Ernstson et al., 2008).

Having development plans, policy or regulation is not enough by itself; unless there is an implementation or enforcement of these development controls. Study assessed that lack of proper planning and implementation of UGS proposals were the main challenges of UGS access in the city. For instance, many of the proposed UPs in 2003 structural plan of the city were almost not implemented. Through assessment of the structural plan of the study area and the actual physical development that have taken place shows that areas demarcated on the structural plan as UGS were either non-existent or were converted into different land-uses.

Similar findings were reported by previous studies conducted in the city. For instance, Abebe and Megento (2016) found the shrinking of urban green spaces, particularly urban forest and the increasing of built-up land use during the past three decades (1986–2015). Green space in woreda 05 of Akaki-Kality sub-city has no sufficient amount of accessible recreational parks that serve the city residents, a rapid decrease in the land use of UGS, at the same time increase in built up area in the city, & the prevalence of industries zone.

1.2 Statement of the Problem

In Ethiopia, urban green areas have been consumed by industrial, commercial, residential and infrastructural developments, as well as by spontaneous and illegal settlements along mountain slopes, river valleys and other open spaces. Addis-Ababa is one of the cities of Ethiopia that have experienced environment deterioration and, in some cases, the disappearance of its green areas (Yewoinesh, 2007). The rapid urbanization of Addis-Ababa aggravates the natural environment, including the deterioration of urban open green areas.

Due to a lack of suitable open public places, subpar administration, and imperfect planning, the city is experiencing severe environmental, social, and economic issues. Despite the Ethiopian National Urban Green Infrastructure Standard's recommendation that authorities set aside 30% of their urban land management plan for green spaces and shared public usage, the reality on the ground shows that urban areas are crowded with buildings and other constructions.

However, urban green spaces are rapidly disappearing, and vegetated surfaces are gradually being encircled by densely populated regions. In order to facilitate policy innovation as part of a socio-ecological shift towards more sustainable cities, developing urban GI could be seen as a challenge.

Weak management of urban environmental resources and lack of effective strategy, commitment and culture of participatory governance have become the main features to exhibit. Lack of awareness about the values of open urban areas also contributes for the mismanagement of the green public open spaces.

In Addis Ababa introduction of urban public spaces was a very difficult task for the urban managers because the idea was ignored since the establishment of the city. In the city special around Akaki-kality sub-city of woreda 05 areas which are no enough facilities, accessibility & distribution of urban green space around there to be lack of planning & management conditions. The green space management regime has not taken the plan into their daily activities which are mainly concerned with management and beautification of existing green spaces.

The consequence of Industrial expansion, informal settlements, commercial, residential and infrastructural developments in the area would be the main problem & lack of attention in planning & management on the urban green space by institutions & professionals.

As a result the Akaki-kality sub-city has insufficient green spaces, no accessibility and unbalanced green space distribution throughout the woreda 05 of Akaki-kality sub-city. This inadequate green space distribution and lack of attention in planning & management within woreda 05 of sub-city affect environments & all community as general. The following issues as a problem in the Woreda: Lack of access to green space; inadequate planning and management of green space; Lack of public awareness and participation; financial constraints; and Conflicting land use priorities. So, this all lack of appropriate planning & management urban green space within the city require to develop Urban Green space in sustainable urban planning practices by consolidated problem statement of this study was particularly in Woreda-05, Akaki-Kality Sub City of Addis Ababa. Therefore, these all the above problems motivate the researcher to evaluate the existed planning & management of urban green space issues and to recommend the best solution for the challenges to be observed in Woreda 05, Akaki-Kality sub-city of Addis Ababa.

The Addis Ababa city municipality has to increase the amount of urban park area by 6718.1, 3962.9, and 3044.5 ha to reach the minimum standards stated by Ethiopian UGIS, WHO and average per capita green index of Africa. This reveals that Addis Ababa city has a considerable scarcity in UGS accessible and the city needs more additional UGS to satisfy the current situation demand. Based on the national UGIS of Ethiopia Kolfe Keraniyo (1071.2 ha) needs more park area followed by Yeka (862.3 ha), and Nefas Silk-Lafto (768.7 ha). Whereas, Akaki Kality (449.7 ha) and Arada (501.3 ha) sub-cities relatively need the smallest UGs land amongst other sub-cities.

The extent to which previous studies have investigated the problem in area has to be elaborated due to this, the researcher tried to assess the problem in the study area special woreda 05 of Akaki-kality sub city and the study was initiated as an attempt to fill this gap and that is why this study is unique.

1.2 Objectives of the study

1.2.1 General objectives

The main objective of the study is to assess the current status of planning and management of urban green space (UGS) in Woreda 05 Akaki-Kality Sub-City of Addis Ababa and suggest recommendations for its improvement.

1.2.2 Specific objectives

The specific objectives of the study are:

- To evaluate the proposed land use plan with respect to urban green spaces in the study area;
- To examine the existing condition of urban green space in the study area ;
- To identify the urban green space management practices in study area;
- To suggest recommendations for improving the planning and management of UGS in Woreda 05 Akaki-Kality Sub-City.

1.3 Research Questions

1. To what extent does the proposed land use plan consider urban green spaces in the study area?
2. What does the existing condition of urban green space in the study area looks like?
3. What are the urban green space management practices in study area?
4. How can the planning and management of UGS in Woreda 05 Akaki-Kality Sub-City be improved?

1.4 Scope of the Study

Spatially, the study focuses on woreda 05 of Akaki-kality Sub-city in green space & consequence of Industrial expansion, informal settlements; commercial, residential and excess traffic junction in the area would be the main problem & lack of attention in planning & management on the urban green space by institutions & concerned professionals. As a result woreda 05 of Akaki-kality sub-city has insufficient green spaces, no accessibility and unbalanced green space distribution throughout the study area. This inadequate green space distribution and lack of attention in planning & management within woreda 05 of sub-city affect environments & all community as general.

Thematically, the study focused only on the public green spaces, which are policies related to urban green spaces, the planning and strategies followed to implement the planning of urban green spaces and urban green space policies of city administration as well as Ethiopia. Planning and Management of institutions, track circle of information and plans that are executed by different segments of concerned bodies.

1.5 Significance of the Study

Urban green spaces are an integral part of urban land use planning and zoning. Urban green spaces are emphasized in policy documents across the world and are considered as a key dimension of the sustainable city. making insight into the existing situation of inadequate open green space management due to lack of giving attention and to recommend possible ways of managing it to improve the observed bad problems of the city in order to go along the way to promote recreational area, the living conditions as well as the air and environmental quality of woreda 05 of Akaki-kality sub-city dwellers for positive relationship of public satisfaction and socio economic condition. For these and other reasons, it is hoped that the results of the study would contribute towards improved planning and management of the open green spaces of woreda 05 of Akaki-kality sub-city in Addis Ababa and, indeed, other cities in the country. So, the study is create a better understanding about the planning & management of urban green space in city Areas of Addis Ababa, Akaki-kality sub city, so as to give the right response towards bringing sustainable and livable city. This research is also valuable towards providing information to residents, responsible body, government, planners & designer, and other stake holders by identifying the planning & management of urban green space. Besides, this study may also lay baseline information to the next work who would like to conduct detailed and comprehensive studies in this study and other study area. It is hope, also, that this study will motivate other scholars to carryout similar research in this and other cities of Ethiopia and Africa at large.

1.6 Limitations of the study

While carrying out the study, the researcher was faced different types of challenges, some of them were absence of previous research work planning & managements on urban green space in the city, fear of respondents in regarding interview & questionnaires, shortage of budget, replying answer to the questionnaire in time would be a limitation of the study.

Regarding secondary data collection, the potential challenges faced by the researcher include: limitation of internet access and high cost of transportation, as solution the researcher applied different types of solutions like giving enough orientations for respondents, efficient and effective use of budget and time and gathering information from different sources in order to get adequate information.

1.7 Operational Definition

Management: it is the process or practice of managing.

Urban green space: It refers to those land uses and land cover that are covered with natural or man-made vegetation in the city and planning areas. It included urban vegetation, trees, gardens, grass-covered parks and other green patches.

Planning: define ensuring equitable access to green spaces and their uniform distribution.

Availability: quantitative linkages between the urbanization and green spaces.

Accessibility: means indicates ease of reaching activities, opportunities, and services. & in terms of proximity, size and maintenance and service-related.

1.8 Organization of the research

This research paper is organized in to five chapters. The first chapter contains background of the study, statement of the problem, significance of the study etc and chapter two tells us literature review. Chapter three contains research methods, materials and procedures and chapter four contains data result and discussion. The last chapter conclusions and recommendations.

CHAPTER TWO

2. LITERATURE REVIEW

2.1. Theoretical Literature Review

Historical Background

Several cities have been built on areas of natural beauty, where the aim is to concentrate human and economic activity at the expense of green areas. As cities grew, consuming rural and natural areas, 19th urban planners came to realize the importance of maintaining green spaces for the well-being of inner-city inhabitants.

In 1857, for instance, the construction of central park started in New York while the “Parc de la Tête d’Or” opened in Lyon (France). The “Parc de la Tête d’Or” is today one of the largest urban parks in France. Both of these parks, like many others around the world, from the same period, were built “to provide nature to those without access to it “(Claude- Marius Vaise, prefect and designated senator of the Rhône Valley, 1853-1864 Mathian and Bertin, 2008).”

Greek Agora is historically among the first quintessential open public spaces in ancient urban history whose central function serving as a central market, though later served as a place of assembly for the town’s people (Madanipour, 2003:194). This historically tells us that open public spaces are taken as part of urban structure, where space and societies are in the dynamic harmony of historical change.

2.2. Theories and concepts of urban green space

Concepts of urban green space

A poor understanding of the relationship between green space supply and demand can partly be attributed to the rapid growth of green space in the late 19th and early 20th centuries (especially parks). As Harnik (2010, p. 13) has explained, up until the 1920s, “parks were such a wondrous new phenomenon, that they were so rare, that the goal was to get as many as possible.” By the mid-1970s though, the ‘more is better’ approach to local government green space acquisition was creating problems for residents, local government managers, urban planners and land developers alike.

Green zones, which Maruani and Amit-Cohen (2007:6) define as a band of open space surrounding an adjacent urban area, have been applied during the 20th century in several large metropolitan areas including Vancouver, London and Sydney (Greenbelts) with dual

functions: urban growth management (containment) and open space protection (Amati & Yokohari, 2006; Evans & Freestone, 2010; Tomalty, 2012).

The terms “urban green space” or “green open space” are used synonymously to refer to parks, forests, green roofs, golf courses, and community gardens, green spaces surrounding historical places, green belts and greenery found in varied recreational areas.

Urban green space refer to soft landscape elements such as grass, shrubs and trees situated within city limits left by urban plans or by default (Jim and Chen, 2006; Lo and Jim, 2012). Comprising natural and artificial elements, urban green spaces exist mainly as public parks, gardens, playgrounds, sports fields, greenways, and woodlands (Kaplan and Kaplan, 1989; Jim, 2004).

Pathways, refreshment areas, sidewalks, squares, parks, green spaces, playgrounds, and none closed office boundaries are all considered to be open urban areas that are part of the urban (Şatir and Korkmaz, 2005). And it is thought that the most important perspective of city life is the use of inner-city open space between the city habitats and the interaction (Stanley et al., 2012).

Conedera et al. (2015) and Hadavi et al. (2015) defined urban green spaces as publicly accessible urban and peri-urban open spaces which are either partially or entirely covered by a large amount of vegetation.

Green spaces play a critical role in developing a more livable city, thus accruing social, economic and environmental benefits to the local population (Chiesura, 2004). Loss of green spaces causes a loss of biodiversity and environmental quality, and a decline of well-being in the local population (Mehmood et al, 2015, Farooqi et al, 2007 & Sajjad et al, 2009).

Public urban green spaces are accessible to and used by all the citizens. Arrangements of public activities and action on planned urban green spaces raise awareness amongst citizens of the city. For example, a public event can have the purpose to make users aware and educate them through experiencing and enjoying different activities organized in urban green spaces (Vargas-Hernandez, et al, 2017).

Public spaces in Addis Ababa serve as forum spot for political demonstrations; and as a social space where by the community performs its historic, religious and other socio cultural activities which include: sport tournaments, music festivals, and recreation and ritual observances (Kumlachew, 2007).

Open spaces tend towards being attractive by mixing up various functions, creating a connection to the sensor stimuli in an arrangement, unique planning which assists the current situation, and by being sustainable green space it leads to an elevated number of users and a sense of attachment (Nikšič and Watson, 2018).

The mainly found open spaces that are accessible for the public were the spontaneously left-over spaces that are saved for further infrastructure, street joints, avenues, and few squares which are insufficient to satisfy the number of populations in the urban area (Aragaw, 2011).

Studies show that poor coordination between government institutions has negatively affected the development and maintenances of urban green spaces (Mpofu, 2013). This might influence the availabilities of facilities on green spaces making the area unattractive for users (Mensah, 2014).

Green space allocation is a common problem across urban centers: it must be accessible by all social groups without segregation (Tassew, A.; Nair, A.S, 2014). It is shown that there is also a lack of appropriate green infrastructure approaches that integrate well into the planning and governance system of cities (Turok, 2014 & Herslund et al., 2018).

Arguably, Abebe and Megento (Abebe, M.T.; Megento, T.L. 2016) in their study on Bole sub city in Addis Ababa from a “Forest city” to “Urban Heat Island” revealed that the city is almost transformed into urban habitats due destruction the UGS and uncoordinated development. Similarly, Zewdie and Worku (2018) reported that the spatial extent of the city doubled over the past three decades. In spite of this, in recent years studies have shown that there was an increase in the UGS proportion in central city areas, while there was a decline of UGS in the outer zone (Larsen et al., 2019).

The urban green spaces’ coverage is not adequate to meet people’s needs due to population pressure, expansion of industry, and construction in the process of urbanization (Cetin 2015a, b, c). Urban planners have to visualize such growth during planning, policy, and decision-making.

Impulsive construction of unplanned informal houses in and outside the administrative boundaries of towns and cities is common in developing countries. These insightful changes cause a change in land use type which makes urban planning foreseeable (Zewdu 2011).

Urban green spaces are a green solution for the future development of urban landscapes (Darkhaniet al. 2019) because urban landscape management concerns the management of mainly green and open spaces (Jansson and Lindgren, 2012), to enhance multi

functionality in green infrastructure (Shi, 2013) and its effective management depends on the practice of good governance.

2.3. Empirical literature review

Despite the numerous benefits that urban green spaces offer to cities, statistics show that these spaces are on the decline in several cities across the world. For example in Europe, a study on changes in land-use in 25 European cities found between 7.3 and 41 percent of green spaces lost to different land-uses (European Environment Agency, 2002).

In USA, a study on land-use change in 274 metropolitan areas revealed about 1.4 million hectares of green spaces converted to different land developments (McDonald et al., 2010).

The situation in developing countries is even more critical as studies show that most urban green spaces in these areas have excessively been destroyed to make way for different human activities. For instance, studies in different African cities (Mpofu, 2013; Oduwaye, 2013; Fuwape & Onyekwelu, 2011; Makworo & Mireri, 2011; MaConnachie et al., 2008) found massive depletion of urban green spaces with the resultant effect being very low coverage of green spaces in the landmass of many African cities (in many instances they cover less than 10 percent of the total land area).

In cities such as Addis Ababa, Dares Salaam, and Ouagadougou (Burkina Faso), areas with higher vegetation cover have been shown to be cooler.(Linden, Jenny, International Journal of Climatology 31.4 (2011): Lindley et al. “Green Infrastructure,”).

Regarding the unequal experience of urban green areas, a study from Nigeria demonstrated that 65% of persons living in low-income residential areas were dissatisfied with their access to green space, whereas dissatisfaction dropped to 28% in middle-income neighborhoods and to only 8% in high income areas (Ochodo et al., 2014).

Throughout this article we used urban parks (UPs) to represent recreational UGI. Per capita green index is the most widely used indicator to assess green space access and described as the total area of UPs averaged by the total population within the geographic area (Taylor et al. 2011; Kabisch & Haase 2013). This indicator varies globally and among cities. For instance, World Health Organization (WHO) suggested 9m² parks per capita for the world and 7m² for cities of African countries (WHO 2016). Most developed countries adopt a 20m² park areas per capita (Wang 2009), and Urban Green Infrastructure Standard (UGIS) of Ethiopia also suggested 15m² park per capita (Ministry of Urban Development & Housing, 2015). Though the per capita ratio standard is widely accepted owing to simplicity in application, it is not

considered effective as it does not consider the spatial distribution or accessibility of green spaces to users (Yao et al. 2014; de la Barrera et al. 2016).

In Ethiopia's capital city Addis Ababa, green spaces, including urban forest and urban agriculture, have undergone a rapid decline (Teferi and Abraha, 2017; Azagew and Worku, 2020), and only 0.37 m² of park space per capita is available to residents (Azagew and Worku, 2020). Indeed, the reduction of overall vegetation cover in Addis Ababa and the reported 16% increase in built-up area from 1985 to 2015 is considered to have contributed to the land surface temperature of the city increasing 3–8°C over the same time period (Worku et al., 2021).

In recent years, Addis Ababa and its surroundings have observed unprecedented land degradation as a consequence of deforestation for firewood supply and human settlement. Big tracts of the city's vegetation area are transformed to permanent structures at a rate of 6.65 km²/year (Tamiru et al. 2005). About 10,000 ha of land initially reserved for green spaces have been allocated for other uses (Tadesse, 2010).

Over the years, Addis Ababa witnessed ecosystem degradation and vegetation cover is estimated at 14.6% (AAEPA 2005). In the city, 382 ha of riparian area are being cultivated by vegetable growing farmers, which cover up to 7.1% of the city's vegetable demand (Azeb, 2007).

Elias (2008) stated that like in many developing cities, a rapid population growth and high rural-urban migration poses many environmental problems to the city of Addis Ababa, especially in the old settlement Areas. These old and unplanned inner city settlements of Addis Ababa, which only cover less than 15% of the total area (54,000 ha), house 40% of the city's population.

Planning document for the city of Addis Ababa propose development of a green infrastructure based on principles such as integration and multi-functionality; but, the proposal is rarely implemented (Herslund et al., 2017).

2.4. The current status of urban green space planning & management practices in Addis Ababa

In Addis Ababa, open and green spaces are inadequate. The green coverage is drastically decreasing as construction of buildings was undertaken in the expense of open and green areas. The city lacks sufficient places for children, adolescents and adults to play and recreate in a healthy environment. The severity of the issue is such that most city kids are forced to

play on the streets, greatly increasing their risk of being involved in car accidents, being exposed to unsavory street life, and suffering from illnesses and injuries (Kumelachew Yeshitela, 2022).

The management practices of green areas are deeply concerned with development planning, developing and maintaining activities, and providing interpretation services to the beneficiaries. However, the planning activity is echo on paper but not implemented in a coordinated manner to urban green area, and place planning & managing activities are not taken into consideration (Kumelachew Yeshitela, 2022).

Recent studies by Woldeamayrat and Genovese (2021) indicate that public access to green space in Addis Ababa city was substantial declined as a result of city expansions and road infrastructures. Moreover, the ecological, educational, economic and social roles of urban green areas are getting less attention.

The status and management practice of urban green spaces highly determines the amount of carbon sequestered in green areas. Addis Ababa, the capital city of Ethiopia, is one of the cities with poor management of green areas. The city has developed only 41.36% of its planned urban green spaces. The city has an average of 0.7m^2 green areas per person, which is a substandard. Master Plan of Addis Ababa reveals that, urban green areas are categorized in to local, district and city level green areas (Tewelde Gebre.et al,2019).

2.5. Urban green areas in woreda 05 of Akaki-kality sub-city

The Addis Ababa city plan divides the city parks into recreational and special function parks. The recreational parks include city, sub-city, woreda (the smallest local administrative), and neighborhood scales, while the special function parks are meant for the conservation of wildlife habitat (AACPO, 2017).

Issues that express urban green areas in study areas, availability of green spaces, status of green spaces, and travel times to the closest green space were mentioned as indicators to show accessibility of green spaces and accessibility of green spaces may have association to green spaces planning & management in woreda 05 of Akaki-kality sub-city (Kumelachew Yeshitela, 2022).

However, other forest land of the city has been converted to built-up area and other land uses, for example, the reserved land for woodland forest in Akaki-Kality and forest patches in Nefas-silk sub cities were converted to built-up area. Currently, urban forest covered area in

Addis Ababa is mostly found in the north and northeast part of the city, with some forest patches also being found in the northwest and southwest part of the city (Kumelachew Yeshitela, 2022).

2.6. Urban Green Infrastructure Standards of Ethiopia

2.6.1. General Standards

According to MoUDH(2015) Urban green infrastructure (UGI) shall be managed and administered in the interests of the local community and shall address its needs. It provides brief note on the location, accessibility, and capacity of green and gray components of UGI.

Location, Capacity and Accessibility

- ✚ Urban Planning preparation and Implementation Strategy should allocate 30% of the land for roads and infrastructure, 30% for green Areas and shared public use and 40% for building construction in their urban land management plan.
- ✚ Accessibility standard should override the quantity standard. In circumstances where a settlement or neighborhood has a relatively high level of public green open space but some houses do not meet the accessibility standard this shall be addressed.
- ✚ Public green open spaces shall be evenly distributed within the city to keep the distances people have to travel to a green open space low
- ✚ Public green open spaces should be connected (1) with each other to create one large UGI network within the city, and (2) with green and nature in the urban fringe and outside the city. Existing natural / water / topographical characteristics of the Area should be used as starting points to guide the planning of the network and the location of the green open spaces.
- ✚ Economy: - Competent authorities may require members of the public to pay an entry fee to use public green open space. However, authorities shall keep in mind that many spaces are used by people who have no other free access to green spaces where they live, do not have gardens, do not have cars and might not be able to afford entry fees.

The Green Components

-  Where ever possible, existing vegetation (especially. trees) should be preserved.
-  For planting in all green infrastructure elements, indigenous plant species shall be preferred and plants with invasive character shall be avoided.
-  There should be diverse plant selection to improve the social, economic, and environmental value of a particular space, unless otherwise stated in different UGI elements standards.
-  There should be enough space that is provided for plants to grow healthy.
-  Type and size of plants, especially trees, and the required clearances and spacing etc. shall always be appropriate to the space available. Narrow Areas suggest a narrow tree and wide Areas suggest a wide tree. Wider spacing is recommended for ensuring sunny Areas, reduced spacing is recommended to provide more shady Areas.
-  When selecting plants it is essential that the mature height, trunk diameter and root zone is appropriate for the location. Location and mature size of plants shall never conflict with structures and services.
-  Root deflection barrier panels should be used in planting Areas located within the standard clearances.
-  The location of plants should not create visual and physical obstacle (even at maturity).

The Gray Components

Pavements

-  Pavements within green open spaces should be made of permeable materials, preferably cobblestones, in order to improve storm water management and groundwater recharge. Only access roads and entrances may have impermeable surfaces.
-  Pavements should be of long term service with the required comfort and convenience.
-  Competent authorities shall ensure a clear, unobstructed path of travel of a minimum width of 1.3 m on all pathways in green open spaces.

Fences and walls

-  Living fences and walls should be preferred in all green open spaces.
-  Fences and walls should be made of durable and as much as possible out of locally available materials.
-  Fences shall not contain pointed finials and sharp edges.

Facilities

- ✚ All play facilities like Playgrounds should be in safe condition at all times.
- ✚ Playgrounds should have at least 5 types of play equipment.
- ✚ Pavements on playgrounds should have protective surfacing.
- ✚ Playgrounds may include seating Area for parents around the play equipments

Tree pruning

Pruning improves public safety, tree health, and overall tree appearance. Trees should be pruned away from structures, surfaces, lights, and utility lines as follows:

Buildings: all branches shall be pruned to allow approximately 1 m clearance from a building.

Street/Road – all branches shall be pruned to allow approximately 4 m clearance over the centre of the street surface and 3 m clearance at the street surface edge.

Sidewalk / path – all branches shall be pruned to allow a minimum 2 m clearance over the Pedestrian / through zone of a sidewalk or a path.

Lights – all branches shall be pruned to allow a minimum 15 cm clearance from any light.

Overhead electrical distribution / power lines – all branches shall be pruned to allow a minimum 1.5 m clearance from any overhead electrical distribution / power line.

2.7. Green Infrastructures in Addis Ababa

2.7.1. Availability and Accessibility of Green Spaces in Addis Ababa

Kumelachew (2015) categorized the green spaces in Addis Ababa into field crop, vegetable farm, public recreational parks, riparian vegetation, plantation forest, institutional forest (mixed forest), street plantation, and grassland. As stated in (Tekle, 2016) the World Health Organization (WHO) standard is 9 m² and that of Africa is 7 m², hence to meet the WHO standard, Addis Ababa needs additional 2430 ha of publicly accessible green space.

According to AADPPO reports of 2017, one reasons for low per capita green space in Addis Ababa (currently 0.3m²) is lack of implementing these public parks as proposed by the outdated master plan of 2002.

The presence of the green areas was beyond the standard that is provided in 10th development plan of Addis Ababa (30% of the land for roads and infrastructure, 30% for green Areas and shared public use and 40% for building construction).which shows that there is a loss of green areas from time to time as (Kahsay, 2016) indicated 4,501 ha (15.5%) of the evapotranspiring surfaces present in 2006 were lost by 2011.

In recent years, there have been some attempts to develop recreational parks and urban green areas in urban renewal sites of Addis Ababa.

Accordingly, four hierarchies are recognized, which are largely named after the city's administrative hierarchy. Accordingly, all recreational parks are classified into 4 types: city park, Sub-city Park, Woreda Park and Neighborhood Park (Ketsela et.al 2014).

Table 2.1 Local standards of urban green areas in Addis Ababa

Type	Size in hectare	Managed by
• City	• >10ha	• City administration
• Sub-city	• 1-10ha	• Sub-city administration
• Woreda	• 0.3-1ha	• Woreda administration
• Neighboring	• 0.1-0.3ha	• Communities

(Source: Ketsela et.al 2014)

Proposed Environmental Map of Addis Ababa 2017

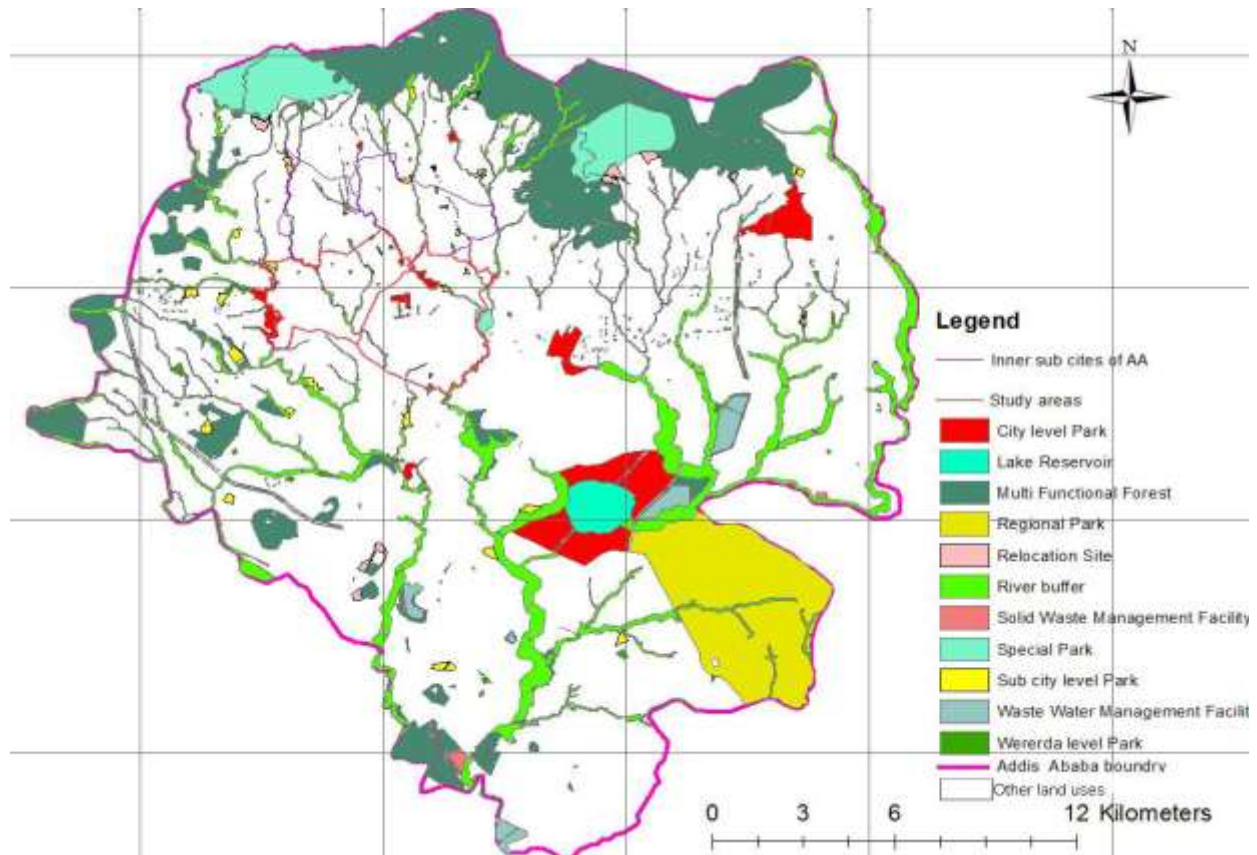


Figure 2.1 Proposed Environmental map of Addis Ababa from 2017- 2027

Source: Office for the Revision of the Addis Ababa Master Plan 2017(illustration, 2017)

In this structural plan, 15600 ha (nearly 30 %) of land are proposed for the environmental quality purpose. There will be 22 city level parks with the total Area of 1155.8 ha (2.1%) of land by increasing 7 city level parks from 15 as discussed by (Gebeyehu, 2014). According to 10th development plan of add Ababa, There will be 414 Woreda level parks in Addis Ababa with total Area of 357 ha (0.66%).

2.7.2. Green Space Availability and narrative Approaches for the Design and Planning of Compact Cities

WHO (2012) recommended the availability of a minimum of 9 m² of green space per individual with an ideal UGS value of 50 m² per capita. These statistical values correlate with a number of UGS standards, including: (1) linkages between sustainable cities and better health, (2) core health indicators to monitor progress and identify success, (3) expanding indicators values (e.g., governance indicators, access to health and sanitation services, food markets and urban infrastructure for social, recreation and livelihoods), (4) adding value to

health indicators and (5) feasibility of data reporting via cross-cutting issues (e.g., equity, governance and climate change).

Urban development, in the context of sustaining city compactness, is directed primarily on regeneration and renewal of existing developed areas and the rehabilitation of degraded ones (Tiran et al, 2018).

2.8. Urban Green Space Policies and Implementation

Urban Planning Proclamation no 547/2008 has the scope to be applied to all urban centers throughout Ethiopia. This proclamation sought to achieve the establishment of a legal framework that promotes planned and well-developed urban centers. One plan recognized under this proclamation is the structural plan. Among the issues that the structural plan must address are principal land use classes and an environmental aspect whereby the green spaces can be addressed within these two themes in the structural plan. Furthermore, the structural plan (2017–2027) came up with a description of existing green spaces and proposes further development of the green spaces and the establishment of new parks. However, there are some urban green space projects being implemented that are not included in the 2017–2027 master plans. (Eshetu, et al, 2021)

In the green space development of Addis Ababa, the major inputs are supplied by the federal and city governments. Policies and planning documents prepared at both city and federal levels provide guiding principles for implementing the green space plan of the city and manage the existing green spaces. Three processes are ongoing in order to deliver the output. These processes are:

Governance and steering process: Under this process, the actors and stakeholders who are responsible for green space planning and implementation go through task appointments and setting accountability. Though all actors have their own mandates and accountability, mandate conflict can arise due to unclear reporting lines. The planning commission, which is responsible for developing the master plan, must work with other stakeholders and should be accountable to the city government.

Core process: The core process in the city's green space development and implementation is the development of the master plan and other local development plans. Managing the core process plays a great role in attaining the desired output.

Auxiliary process: Under the auxiliary process, activities such as research and investigations, land use planning and consultations, as well as guiding principles produced at

the federal and city levels, are managed and checked. The auxiliary process directly contributes to the core process, which is the development of the master plan and local development plan. (Eshetu et al, 2021).

2.8.1. Environmental Policy of 1997 in Ethiopia

The Environmental Policy of Ethiopia was approved by the Council of Ministers in 1997. The Policy is based on the findings and recommendations of the National Conservation Strategy of Ethiopia. The goal of this policy is to improve and enhance the health and quality of life of all Ethiopians and to promote sustainable social and economic development through sound management of the environment and use of resources through appropriate land use planning.

The Environmental Policy provides a number of guiding principles that require adherence to the general principles of sustainable development. The National Conservation Strategy (1995) takes a holistic view of natural and cultural resources and seeks to present a coherent framework of plans, policies and construction works related to environmental sustainability.

A number of proclamations and supporting regulations contain provisions for the protection and management of the environment and put into effect the principles of the Constitution and the Environmental Policy. In general for the protection and management of the environment different Guideline and directive document prepared (Federal Affairs, 2005)

2.8.2. Principles Integrated in Green space Planning and Implementation

Multiple benefits and functions provided by different green spaces have been taken into account during the preparation of different planning documents, which are related to green spaces. The following documents integrated the green space planning principles (Eshetu et al, 2021). Through these documents, the principles of multi-functionality, green-grey integration, connectivity, and social-inclusiveness are explored, both explicitly and implicitly, in the policies and regulations.

1. The Environmental Policy of Ethiopia, which was formulated in 1997, explicitly particularized the objective to plan and create green spaces within urban areas that provide recreational activities, habitats for plants and animals and ameliorate urban microclimates.
2. The Urban Greenery and Beautification strategy, which was formulated in 2015, has the objective of developing green spaces that not just reduce environmental degradation,

pollution, and urban floods but also promote environmental sustainability in the urban area.

3. The Ethiopian National Urban Green Infrastructure Standard, which was formulated in 2015, has the objective of creating ecologically well-functioning, aesthetically pleasing, and socially beneficial green spaces in cities that also provide suitable, sufficient, and ecologically viable green spaces for the recreational, social, economic, and environmental needs of the community.
4. The Green Infrastructure Based Landscape Design Supporting Manual, which was developed in 2011, also proposes developing street tree plantings for shade provision, mitigating the urban heat island effect, reducing runoff, and sequestering carbon.

2.8.3. Challenges of Green Space Implementation

The paper uncovered several factors that impact negatively on the development and management of greens spaces in Africa as well as in Ethiopia. For the purposes of clarity and easy understanding, these challenges have been broadly categorized under three main themes. These are:

- i. the pressure of urbanization,
- ii. insufficient operation of urban planning regulations and,
- iii. socio-economic and political challenge

In Addis Ababa, the capital city of Ethiopia, the consequences of rapid urbanization on the development of green spaces is alarming. Most of the urban trees both exotic and local species that were grown to enhance the greenery of the city and also protect the natural environment have been destroyed or degraded due to rapid population growth of the city (Dubbale et al, 2010). The green vegetation of Addis Ababa now covers only 14.6 per cent of the total land area, this is because most of the urban trees have been cleared for housing purposes (Dubbale et al, 2010).

The following issues were found to hinder the effective operation of urban planning regulations on green spaces in Africa: the dysfunctional nature of urban planning regulations; bureaucratic processes involved in issuing development permits and weakness of the planning institutions as result of insufficient resources to work with. Factor analysis performed to ascertain the factors destructing green spaces in Lagos city pointed out lack of political will of the planning authorities to initiate policies on green paces as a major factor for such destructions(Olaleye, D. O., Ayoade, O. J., and Omisoro, E. O., 2013,). The issue of

lack of political will was also a major problem in Addis Ababa (Ethiopia). Beautification projects scheduled to be undertaken on about 300 hectares of land to enhance green spaces along the principal roads of Addis Ababa have not been accomplished for some years now due to lack of political will of the city authorities to get the project ongoing (Mpofu, T. P. Z., 2013).

2.9. Summary of Literature review

The terms “urban green space” or “green open space” are used synonymously to refer to parks, forests, green roofs, golf courses, and community gardens, green spaces surrounding historical places, green belts and greenery found in varied recreational areas.

Green spaces play a critical role in developing a more livable city, thus accruing social, economic and environmental benefits to the local population (Chiesura, 2004). Loss of green spaces causes a loss of biodiversity and environmental quality, and a decline of well-being in the local population (Mehmood et al, 2015, Farooqi et al, 2007 & Sajjad et al, 2009).

Urban green spaces provide numerous benefits, also called ecosystem services, to humans that are important for sustainability, live ability, and to plan attractive cities (De Vries et al., 2003; Colding et al., 2020; Bush, 2020).

Studies show that poor coordination between government institutions has negatively affected the development and maintenances of urban green spaces (Mpofu, 2013). This might influence the availabilities of facilities on green spaces making the area unattractive for users (Mensah, 2014).

Regarding the unequal experience of urban green areas, a study from Nigeria demonstrated that 65% of persons living in low-income residential areas were dissatisfied with their access to green space, whereas dissatisfaction dropped to 28% in middle-income neighborhoods and to only 8% in high income areas (Ochodo et al., 2014).

In Ethiopia’s capital city Addis Ababa, green spaces, including urban forest and urban agriculture, have undergone a rapid decline (Teferi and Abraha, 2017; Azagew and Worku, 2020), and only 0.37 m² of park space per capita is available to residents (Azagew and Worku, 2020). Indeed, the reduction of overall vegetation cover in Addis Ababa and the reported 16% increase in built-up area from 1985 to 2015 is considered to have contributed to the land surface temperature of the city increasing 3–8⁰C over the same time period (Worku et al., 2021).

The conversion of green spaces to built-up areas that led to the loss of green spaces in Addis Ababa was identified by (Horst, 2006; Fetene and Worku, 2013; AACPO 2017; Yeshitela, 2019). Studies on governance also identified issues of weak land governance; the land allocated for green areas in the master plan has been transferred to private use (Deininger et al., 2011; 2012); and lack of cooperation between sectors in the management of green spaces (AACPO, 2017).

2.10. Research Gap

Most of the research papers focused on the urban Open space, & other benefits of related things rather than urban green space planning, managements, accessibility, strategy to implement and its standard issues. From the review literature, different related studies were conducted by different researchers at world and national level like done on open space between the city habitats and the interaction (Stanley et al., 2012). Done on Social, economic and environmental benefits to the local population (Chiesura, 2004). Urban forest and urban agriculture, have undergone a rapid decline (Teferi and Abraha, 2017; Azagew and Worku, 2020), the city's vegetable demand (Azeb, 2007). & done on Population pressure, expansion of industry, and construction in the process of urbanization (Cetin 2015a, b, c). Those study specifically looks at the creation of coverage, forest and urban agriculture rapid decline, & about vegetable demand, The study also have shown green spaces are an important to minimize heat or temperate zone included in varying and unique ways but they can't consider how cities organize green space in plans, how cities standardize green spaces in plans, and the inclusion of equity in the distribution of green spaces in level of different cities.

These limited researches done on the urban green space planning and managements systems in Ethiopia & specially in Addis Ababa city, generally ignored the concept of land use by standard to accessibility of existing green space planning & management practices and level of community involvement; and assessing institutional capacity and integration techniques on urban green plan. It is therefore from this knowledge gaps this study seeks to assess the proposed land use, existed situation and management practices within the city and include the gap in this paper.

CHAPTER THREE

3. RESEARCH METHODOLOGY

3.1 Description of the study area

Addis Ababa is the capital city of Ethiopia. It is also the largest city in the country by population, with a total population of 3,384,569 according to (ESA, 2007). This capital city holds 527 square kilometers of area in Ethiopia.

Addis Ababa, founded in 1987, is the capital and largest city of Ethiopia and is located between 8055' and 9005' North Latitude and 38040' and 38050' East Longitude. The total area of the city is 520 km². Altitude in the city varies from 2100 m to a lit bit above 3000 m a.s.l.

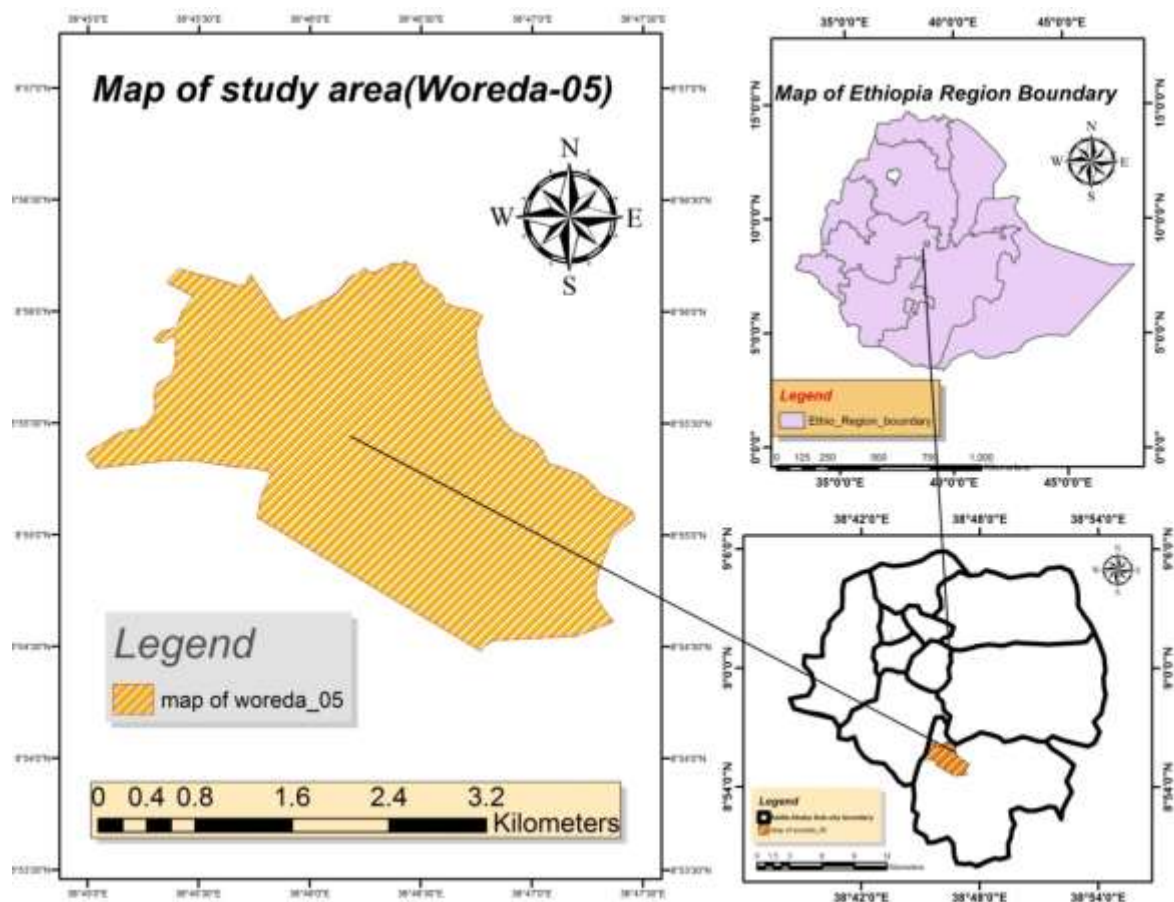
The 2007 population census reports the population of Addis Ababa 2.7 million, but various sources, including reports of the UN-Habitat estimate the population of the city is more than 4 million.

Akaki-Kality is one of the ten sub cities of Addis Ababa, located on the southern access route. The Sub city is divided into 11 administrative Woredas (districts). Akaki-kality sub-city is one of the largest sub-cities located in South Eastern part of Addis Ababa. It shares boundary with Bole Sub-city in the North, Kirkos and Nefas Silk Lafto Sub-cities in the North West and Sheger city administration.

The lowest point 2,050 meters in the Southern periphery and the maximum elevation is 2,331 meters above sea level. The Sub city has 11 woredas and covers total area of 156 km². (Addis Ababa City Land Information Center, 2014)

3.1.1. Population of Akaki-kality Sub city

According to the Housing and Population Census of Ethiopia, Akaki-Kality was reported to have a population of 181,270 of which 48.9 were males as compared to their 51.1% female counterparts. The sex ratio was observed to be 95.85% implying about 100 males to about 96 females, which can be compared to the entire sex ratio for Addis Ababa (91.0%) during the census (cf., CSA, 2007).



Figures 3.1 Location Map of Study area.

(Source: Produced by authors from Ethio GIS & Structural Plan of 2016).

3.1.2. Climate

Akaki-Kality has a climatic condition of subtropical highland with a complex mix of highland climate, with temperature differences of up to 10 °C (18 °F), depending on elevation and prevailing wind patterns. The high elevation moderates temperatures year-round, and the city's position near the equator means that temperatures are very constant from month to month. Addis climate is characterized by 2 rain seasons: the short one from September to November and the long one from June to August.

3.1.3. Topography

In Akaki-kality sub city, the altitude ranges from 2050 to 2331 meters above sea level which as a range of 281 meters. The highly elevated land exists in the northern part of the sub city and at the eastern part; there are small mountains while relatively lower elevation exists in southern parts. From the elevation map of Akaki-Kality sub city is characterized by different

types of topography and elevation difference. In the southern part, the sub city has especially lower landscape than the northern part.

In the slope analysis map of Akaki, slope is measured as percentage rise classification in to seven different ranges. Most of Akaki sub-city land is gently to moderately sloped, 35.49% to 30% of the area respectively. Very steep land in the area comprises not greater than 3% slope. As a result of these, most of the people settled in low and moderate sloppy area.

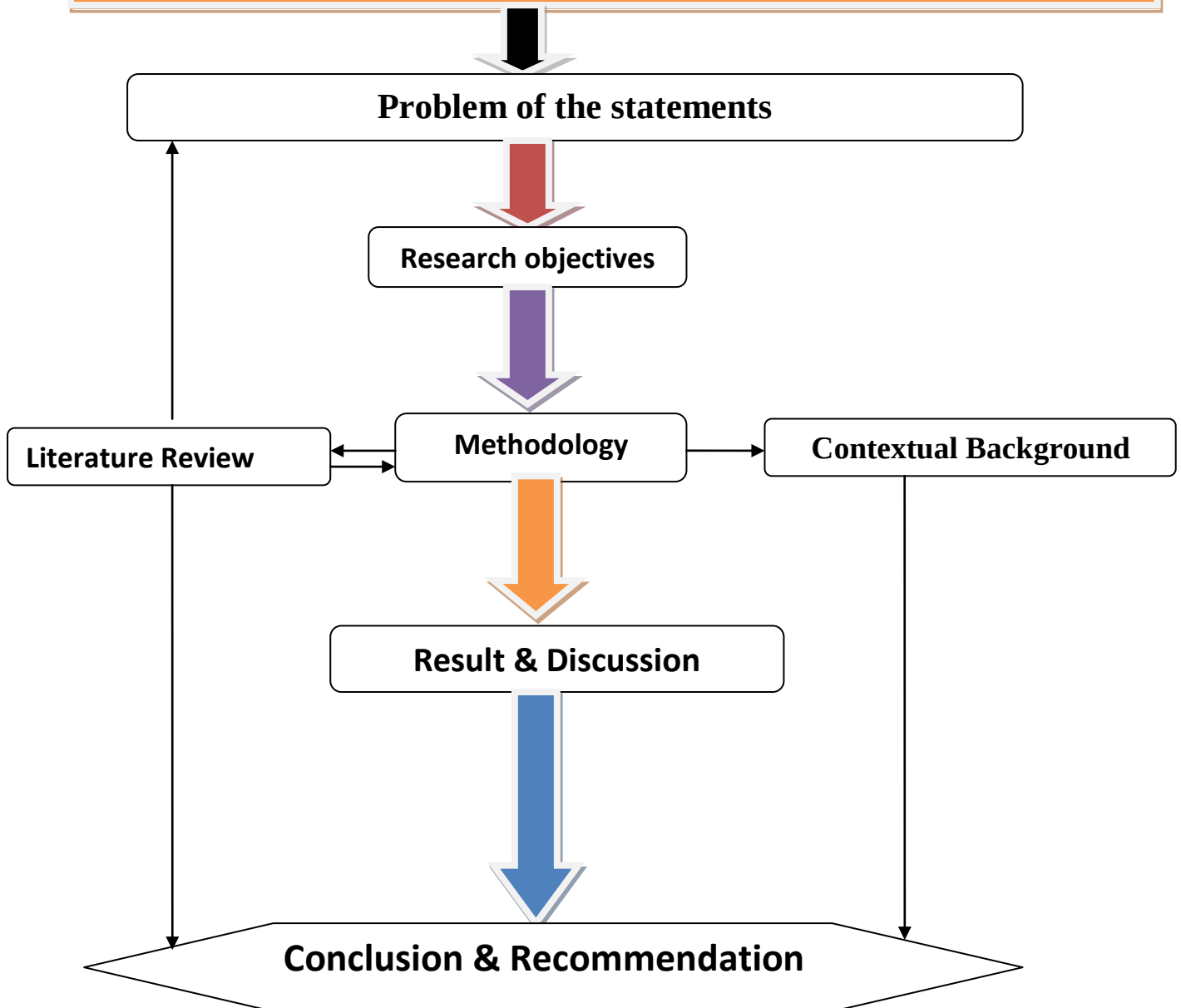
3.2. Study Design

The design of the study is a cross-sectional survey design involving both descriptive and explanatory types of research. The reason for using a descriptive type of research in this study is to describe the existing phenomenon of the issue under study. Descriptive research is important to provide an accurate depiction of a given phenomenon or experience (Kothari, 2004). Explanatory type of research has also been applied in this study to answer why a certain phenomenon happens about the issue of study. Explanatory research is important to explain why a certain phenomenon is happening in a particular (Kothari, 2004).

Based on the logic of reasoning, the research has followed an inductive approach. It starts with research questions and aims and objectives that need to be achieved during the research process. The study focused on collecting, analyzing, and mixing both quantitative and qualitative data to provide a better understanding of the research problem and research questions.

The reason for mixing for both approaches is to offset the weaknesses of the approaches and to benefit from their strength (Kothari, 2004). Therefore, the study has followed both quantitative and qualitative research approaches. The study is a cross-sectional study in which the samples of the population have been studied at a given point in time. The most common approach to mixing methods is convergent design; first researchers are going to collect and analyze both quantitative and qualitative data during the same phase of the research process and then merge and interpret the result. (Creswell et al., 2003).

Planning & management of urban green space in woreda-05 of Akaki-Kality Sub-city, Addis Ababa



Figures 3.2 Flow chart of the study area

(Source:-by own author, 2023)

3.3 Study approaches

In this study, both quantitative and qualitative approaches are used. Since qualitative approach deals with the subjective assessment of attitudes, opinion and behavior of respondents in the field about the planning & management of urban green space. In addition to this, quantitative approach is used to measure percentages and ratios of the analysis in the

planning & management of urban green space. The quantitative approach would also be used to quantify the responses of the questionnaires.

It is known that all methods have its own some limitations. Therefore, both qualitative & quantitative was used to minimize the biases in either of methods in order to strength the other.

3.4. Data Type and Sources

Since the study focuses on the planning & management of urban green space, the data was collected from both primary through questionnaires, interviews, and field observation. Secondary sources were also be used as reference.

3.4.1. Primary Data Sources

Primary data are collected from Questioners, interview and field observation of the study Areas. The sources of primary data were Akaki-kality sub city of branch office of plan & development commission, Greenery & beautification, & Land administration office and woreda 05 of Akaki-kality sub city the Greenery & beautification office, & Land administration office for all selected informants.

3.4.2. Secondary Data Sources

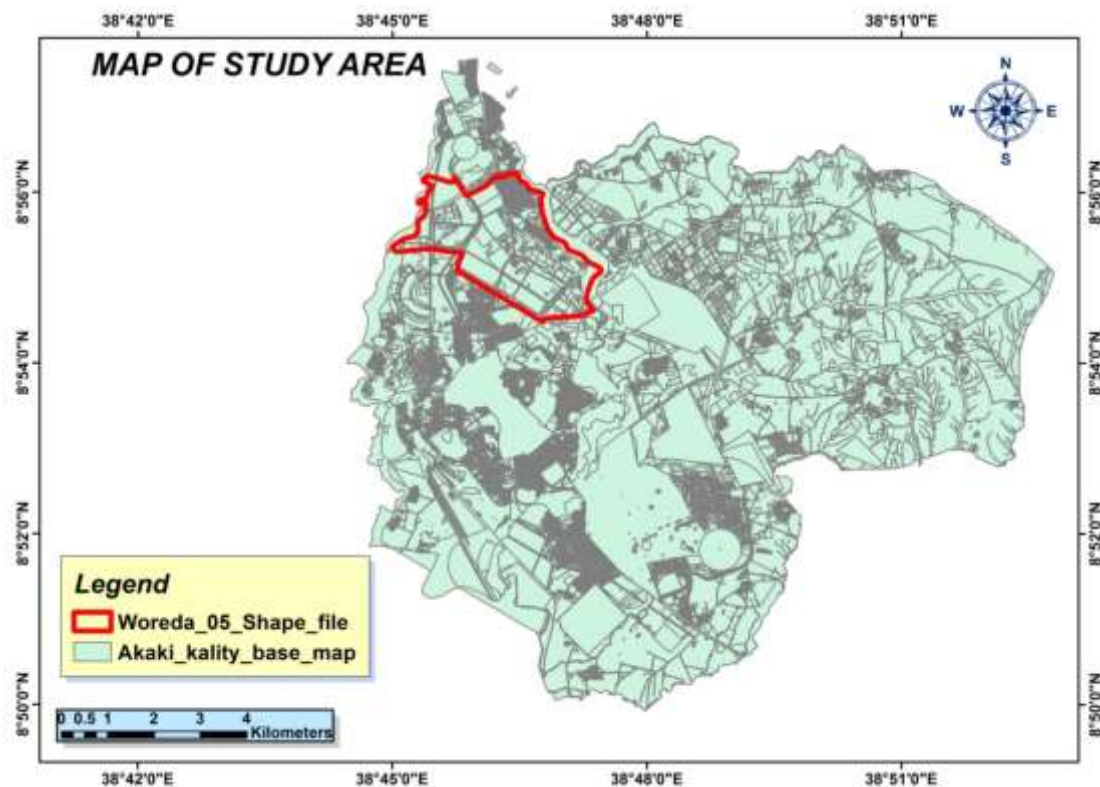
Secondary data were used to obtain the background information on planning & management of urban green space in Woreda-05 Akaki-Kality Sub-city of Addis Ababa including published and unpublished documents, journals, reports, books, internet sources, government archives and other official documents of relevant quality supporting the findings of the study.

3.5. Study Population

According to the Census of Ethiopia, woreda 05 of Akaki-Kality Sub-city was reported to have a population of 22,540 of which 48.9% were males as compared to their 51.1% female counterparts. The sex ratio was observed to be 95.85% implying about 100 males to about 96 females, almost nearly equal which can be compared to the entire sex ratio during the census (cf., CSA, 2007).

Three categories of people constituted the target population for the study. These are the house hold residents of woreda 05 (the reason why researcher select woreda 05, there are problems in area of urban green space due to more industries existed, informal settlements, existing unplanned residence & lack of attention to urban green space as well as ignorance of area by institution), sub-city & woreda-05 leaders of the office & experts of some various bodies

associated with sub-city & Woreda-05. The sub-city authorities are involved in the study on the basis that they constitute the local government of Akaki-kality sub-city of woreda 05 areas and are delegated with legal powers to ensure the overall development of the city. The sample size was drawn from households of woreda-05 and government offices such as Akaki-Kality Sub-city & woreda-05 of Land administration, plan & development commission branch office, Greenery & beautification office of the sub-city.



Figures 3.3 Map of study area of woreda-05 in Akaki-kality of Addis Ababa

(source: Produced by the authors from 2016 structural plan)

3.6. Case study area selection reason

In Akaki-kality Sub City of Addis Ababa, regarding woreda 05, urban green spaces are under intense hurt as a result of numerous issues. High levels of pollution, traffic congested, industry zone, and intense commercial activity define this woreda 05 from other neighbor woreda was chosen from among those woredas of Akaki-kality sub city based on the following problem in the study area.

Lack of access to green space; inadequate planning and management of green space; Lack of public awareness and participation; insufficient distribution & Conflicting land use priorities. There is hence potential for the development of further solutions, such as the UGS.

Woreda 05 of Akaki-kality, is situated between both Nefas silk & Bole sub city of Addis Ababa and based on the map it is surrounded by other woredas in Akaki-kality. Because of its direct physical connections to the rest of sub city, it serves as a significant and strategic location for both administrative in the social and economic activities of the city. Additionally, the neighborhood has a variety of uses, including residential, commercial & industry zone.

3.7. Sampling techniques

Both probability & non-probability sampling technique were used to select the key informants from the variety of probabilistic sampling techniques, the researcher used systematic sampling methods the reason why used this procedure each element in the population has a known and equal probability of Selection for large target population of households.

Systematic sampling is to be applied only if the given population is logically homogeneous, because systematic sample units are uniformly distributed over the population. And also from non-probabilistic sampling techniques purposive sampling method, because it would be produce well matched groups used to select key informants such as Sub-city & Woreda i.e. Greenery and Beautification office staff, Land Administration Office &, Plan & Development Commission Branch Office Staff. This is because due to their importance of providing the required information for this study.

The researcher took only one woreda which is Woreda 05 from the eleven (11) woreda of the Akaki-Kality Sub-city: there are Woredas in the Sub-city, which is Woreda 05 due to high occurrence of the problem on the residents and environment of the surrounding area. Woreda 05 was selected based on the lack of planning & management in urban green space because of gives attention more priorities for manufacturing industries rather than urban green space in the area.

Table 3.1 Distribution of representative sample households in the study area

Study area	Total No House Holds of in Woreda 05	Sample size from Woreda 05
Woreda 05	5928	162
Total	5928	162

Table 3.2 Interview for two office managers/office Heads

No	Office from where Respondents is selected	No. of selected respondents	Method of selection
1.	Akaki-Kality Sub-city Plan & development commission, Greenery & beautification, & Land administration office head	4	purposive
2.	Woreda-05 Greenery & beautification, & Land administration Office head.	2	purposive
Total		6	

Table 3.3 Interview for concerned expertise's who gave information

No	Office from where Respondents is selected	No. of selected respondents	Method of selection
1.	Akaki-Kality Sub-city plan& development commission, Greenery & beautification, & Land administration Office Staff.	12	purposive
2.	Woreda-05 Greenery & beautification, & Land administration Office staff.	4	purposive
Total		16	

3.8. Sample size

Sample size is actually the total number of units which is selected for the analysis in the research. By Frank Yates “Sample is set of units of an aggregate.”

The sampling frame of this study was from the total households of the specific area of woreda 05 of Akaki-Kality Sub-city of Addis Ababa i.e., 5928 households, which is less than 10,000 target populations.

According to Kothari (1990), in order to determine the sample size of a population which is less than 10,000, the sample size will be calculated using the following formula:

If N is greater than 10,000 ($N > 10,000$) using the formula of: $n = Z^2 pq / e^2$ (Kothari, 2004)

Where, n= Desired sample size N= Population size.

Z = the standard normal variable at the required confidence level or Z statistic (95 %).

P= Estimated characteristics of target population.

q =1- p, non-estimated characteristics of the target population.

e = Level of statistical significance or margin of error (5%).

The researcher used the above formula to get the desired sample size (n) when N > 10,000 with 95% confidence level, if there is no estimated characteristic of target population, 50% used then, P= 0.5 and q = 1- p = 0.5. And the Z statistics is 1.81 (95% confidence level) and the desired accuracy at the 0.07 level of significance. Therefore, based on above explanation the sample size is computed as follows

$$n = \frac{Z^2 * p(1-p)}{e^2} = \frac{(1.81)^2 * 0.5 * 0.5}{(0.05)^2} = 167.15 \text{ approximately } 167$$

According to Kothari (1990), if N< 10,000 the following formula will be used:

$$fn = \frac{n}{1+n} = \frac{167}{1+ \frac{167}{5928}} = 162.42 \text{ approximately } 162$$

Where: fn= the desired sample size when the target population is less than 10,000 which is 162, n= the sample size when the population is greater than 10,000, which is 167 at 95% confidence level. N= target population size accordingly, n= 167, N= 5928.

The total sample size of this study was (162) households of the respondents. Both official leaders & experts in this study were 22, i.e. six (6) of them are leaders as well as sixteen (16) are experts respectively.

3.9. Data collection tools

The techniques used in the study to collect data were in three ways. These were:-

Questionnaire: both closed and open ended survey questionnaire of main issues like accessibility, distribution, facilities & availability of UGS included & etc were used for 162 sampled households. The researcher used systematic sampling methods the reason why used this procedure each element in the population has a known and equal probability of Selection for large target population of households to obtain in depth and basic information regarding the planning & management in urban green space.

Interviews: interview was made for Sub-city & woreda-05 head and experts office of Beautification & development office, plan commission branch office and Land development & Administration office to collect quantitative and qualitative data about the planning & management in urban green space as the main issue raise like responsible of plan, way of managing, financial constraint, actors of plan, etc of included in the interview of leaders & experts in Woreda-05 of Akaki-Kality Sub-city and their response. This is because due to their importance of providing the required information for this study.

Observation: observation was done through visiting the study area to have a look at what is currently happening with regard to the existing situation, & recently use. Observation was taken by physical reconnaissance, taking photo of the existing problem areas.

3.10 Methods of Data Analysis

Analyzing the data is a crucial part of a research. In order to achieve objectives, the researcher used both qualitative and quantitative methods since it is more appropriate to describe planning & managements of urban green space in the city. The researcher analyzed and interpreted both qualitative and quantitative data by using the appropriate tools and instruments such as percentage, tables, pie charts, and frequencies and others to facilitate the interpretations of the results like SPSS. Finally, conclusions and recommendations are made based on the data obtained.

3.11. Data Presentation

After the data was gathered by different techniques the results of the analysis were presented in the form of tables, pie – charts, bar –chart and percentages for interpretation.

3.12. Ethical Consideration

In this research study, areas relating to the ethical conduct of research such as informed consent, confidentiality, privacy, and anonymity would be maintained. According to (Saunders et al. 2009), the norms or standards of behavior that guide moral decisions about our behavior and relationships with others are referred to as ethical norms or standards of behavior. Participants and respondents would provide with detailed information about the study's purpose and objectives. So that they could make an informed decision about whether or not to participate. Moreover, all information regarding the uniqueness and personality of respondents is preserved with extreme confidentiality. Additionally, all information gathered would be used for the sole purpose of this study.

CHAPTER FOUR

4. RESULTS AND DISCUSSION

This chapter presents the analysis and discussion of data collected on planning and management of urban green space in woreda 05 of Akaki-kality sub-city, Addis Ababa. The data was collected from households, official managers, official experts, and through observation. It includes response rate, demographic data, results, interpretation, and discussion.

The data was analyzed using percentages for quantitative data and qualitative analysis for close-ended and open-ended questions and interviews. The chapter is divided into two parts: the first part discusses the characteristics of the respondents and the second part analyses the findings of the study in relation to the research questions.

4.1. Response Rate

In order to conduct the planning & managements totally about 162 survey questionnaires were distributed to determined sampled respondents. Consequently, 162 (100%) of them filled and returned consisting responses and views of the respondents. Therefore, the analysis was done based on 162 by the planned of 162 and the questionnaire that could fully return which are significant to the results.

4.2. Demographic Characteristics

Basic information of the respondents has direct relation with the study topic of this research that is planning & management of urban green space in woreda 05 of Akaki-kality sub-city, Addis Ababa. Because of this it is important to discuss these variables like gender, age, and level of education of respondents.

Table 4.1 Respondents of General Profile

Respondents information		Frequency	Percent
Gender	Male	114	70.4
	Female	48	29.6
	Total	162	100
Age	Less than 18 years	2	1.2
	18-25 years	21	13
	26-35 years	81	50
	36-45 years	44	27.2
	46-55 years	14	8.6
	Total	162	100
Level of education	Under 12 grade	2	1.2
	Diploma/vocational education	24	14.8
	Bachelor's degree	105	64.8
	Master's degree and above	31	19.1
	Total	162	100

Source: Survey data from household, 2023

4.2.1. Gender of the respondents

Gender distributions of the respondents have a different interpretation in relation to planning & managements of urban green space, Majority of households 70.4% were male while 29.6% were females. The women often spend most of their time at home & other activities. Even if their number is small than that of the male counterparts, the percent shown that women has no more information about the planning & management in the urban green space. This implies the more men knows than women in regarding urban green spaces this much because women spend most of the time at home. Therefore, gender distribution of respondents affects the aim of using planning & managements of green spaces, especially for those women who are not educated and has low awareness for the benefit of green spaces areas, or has an intention of using green spaces for other purpose.

4.2.2 Age category of respondents

Different age groups had different implications for green area planning and management of the city. Well planned and managed urban green areas contribute more to the psychological, health and social developments of all age. This is also useful for practical implication and experience processes of young group and for development of interactive life among age mates. For adults, green areas create conducive environment for socio cultural development and social cohesion and for celebration of different ceremonies. For the aged, it provides a place for leisure, rest, reading books and information exchange among each other from different sources like magazines, journals and social media.

From the Table 4.1 above showed that, one can understand that green area development is very important for all age groups or residents, i.e. for less than 18 years accounts 1.2% of the respondents, 18-25 years which accounts 12.96%, From 26-35 years who account for 50.0%, the respondents of 36-45 years which accounts 27.2% and from age of 46-55 years accounts 8.6%. It helps to mental, Recent studies have shown that green spaces improve mental health, by directly impacting the human brain (Bratman *et al*, 2015) and social development and practical education about the environment and nature, Socially, benefits from urban greenery can increase to urban communities through access to urban green spaces, healthy living and education.

Many public green areas provide the local community and visitors with opportunities for physical recreation and relaxation, as well as for social interaction. (Mpofu, 2013). For less than 18 years who account for 50.0% of respondents it creates fertile ground for different socio-cultural cohesion, environmental protection,& social contact who accounts for 27.2% and for adults people who account for 8.6% it is used as restful place and for leisure activities also information exchange and for 1.2% younger less awareness about green urban space.

4.2.3. Level of Education of the Respondents

Regarding education level of the respondent, on table 4.1 above showed that the majority of the respondents (64.8%) have Bachelor's degree and above. Among the respondents 19.1% were attended Master's degree & above and 14.8 % of respondents have Diploma and vocational education, and whereas 1.2% of the respondents are under 12 grade. However, the issue is that a considerable number of individual have high education. According to the level of education the percent of the respondents have more or less aware about urban green space

& its planning & managements. But it needs additional training programs to those who have less awareness.

4.3 Proposed Land Use Plan With Respect To Urban Green Spaces

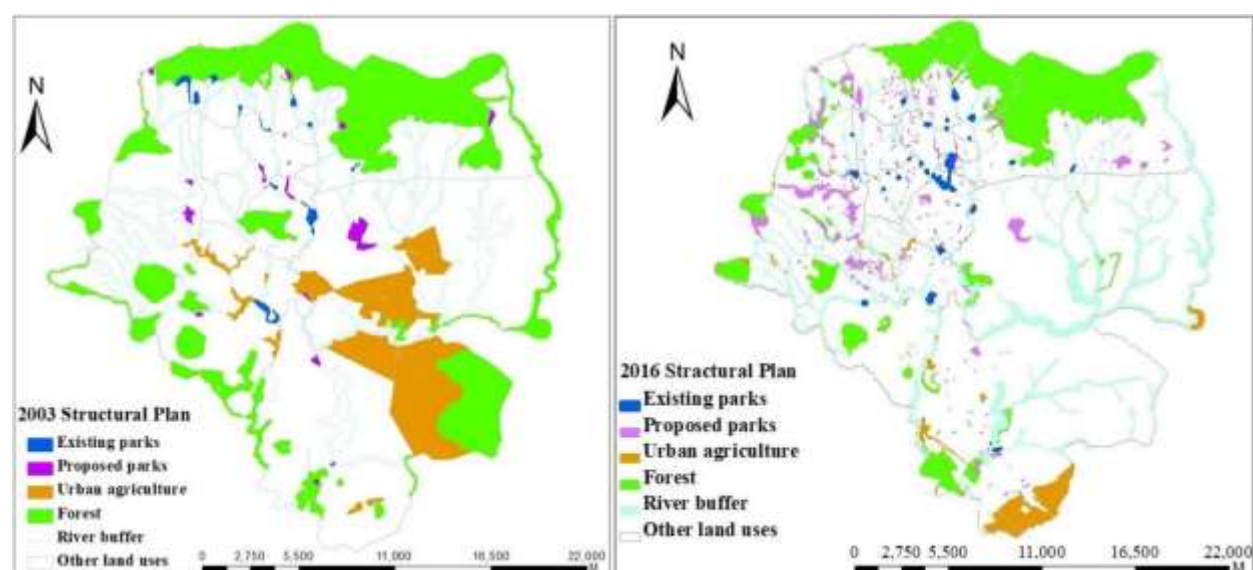


Figure 4.1 Land uses maps of UGI of Addis Ababa city in the year 2003 and 2016.

Source: Azagew and Worku, (2020).

Table 4.2 Land use land cover of urban green infrastructure in 2003 and 2016

Urban green infrastructure and built-up area	2003		2016		Percentage of change
	Area/ha	LUP (%)	Area/ha	LUP (%)	
Green infrastructure					
Urban forest	12,168	23.4	10,301.5	19.7	-3.7
River and river buffer green	1144	2.2	4026.5	7.7	+5.5
Urban agriculture	7176	13.8	996.1	1.9	-11.9
Urban parks	468	0.9	938.7	1.8	+0.9
Total	20,956	40.3	16,262.8	31.1	-9.2
Built Up Area	31,044	59.7	36,029.2	68.9	+9.2
Total Area	52,000	100	52,292	100	

Figure 4.2 Land uses maps of UGI of Addis Ababa city in the year 2003 and 2016.

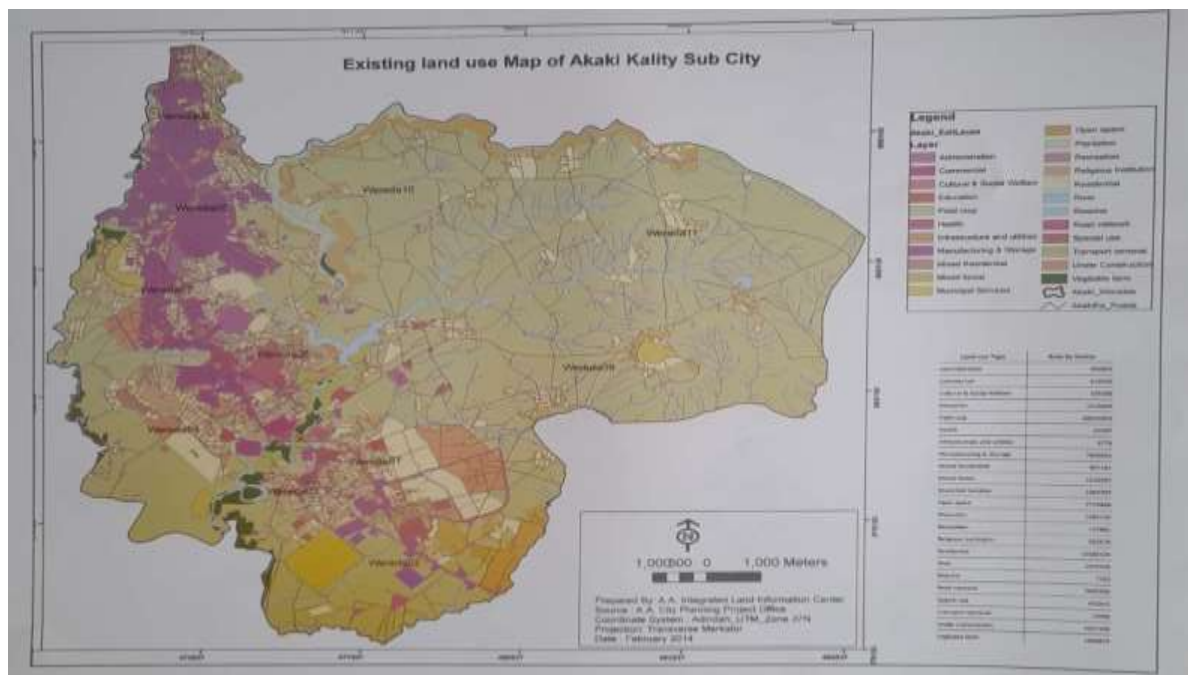
Source: Azagew and Worku, (2020).

From the finding clearly revealed that there had been a rapid decrease in the land use of UGS and at the same time increase in built up area in the city. The land use of urban agriculture decreased more significantly followed by urban forest. Similar findings were reported by previous studies conducted in the city.

4.3.1 Existing situation of green space management related to urban plan

Woreda 05 of Akaki-kality sub city is one of the Addis Ababa city administrations of Ethiopia that have experienced environment deterioration and, in some cases, the disappearance of its green areas due to high urbanization rate and high industrialization. Since the current performance of green space planning & management within the woreda 05 of Akaki-kality sub-city is not balanced with the rate of environmental deterioration, & the problems still continuous.

Map 4.1 Developmental map of Akaki-kality sub city



Source: Addis Ababa city administration integrated land information center, 2008

The existing development plan of sub city was prepared based on the physical & socio economic situation of Akaki-kality function to be used for 10 years planning period and didn't give priority for environmental development and special for green areas. Data of the manufacturing (industry) didn't show exact percentage because industry has held more than the planned. This development plan has the problems of old cartographic data that does not stand the existing land use.

Tables 4.3 Existing land use map of Akaki-kality sub city

No	Type of land use	Area by hectare(ha)	Area in percent (%)
1.	Administration	866883	0.71
2.	Commercial	613330	0.497
3.	Cultural & Social Welfare	105586	0.086
4.	Education	1015024	0.83
5.	Field Crop	68043052	55.3
6.	Health	81607	0.066
7.	Infrastructure & Utilities	9778	0.008
8.	Manufacturing & Storage	7363063	5.99
9.	Mixed Residential	307181	0.25
10.	Mixed Forest	1510267	1.23
11.	Municipal Services	2484707	2.02
12.	Open Space	7776350	6.32
13.	Plantation	1481132	1.2
14.	Recreation	127831	0.10
15.	Religious Institutions	562576	0.46
16.	Residential	15380105	12.51
17.	River	3348306	2.7
18.	River line	7763	0.006
19.	Road Network	7405356	6.02
20.	Special Use	435567	0.35
21.	Transportation Terminal	19009	0.015
22.	Under Construction	2637156	2.14
23.	Vegetation Farm	1409874	1.15
	Total	122,991,503	100%

Source: Addis Ababa city administration integrated land information center, 2008

Table.4.12. indicates a gap between existing green space land use and development plan for green space even didn't consider. But the existing open space & mixed forest land use accounts are 1.23% & 6.32% this is by itself its own limitation inconsidering standard. This means the standard of green open space land use allowed for the town was 30% According to the Ethiopian urban land use planning standard. But the existing green space covered didn't existed from the whole existing land use of the sub city of which most of space is field crop.

4.3.2 Monitoring & evaluation plan to manage urban green space

Addis Ababa City Government Plan and Development Commissioned to do the structural planning of the city monitor and evaluate according to local development plan of the city. It also implements green space plans developed by planning commission.

According to the Official leader and observation attested that information on green areas will be organized and monitored with the relevant stakeholder sector to protect the area from illegal activities. However, as they stated there is no proper follow-up and monitoring to take measures against illegal activities in green space. Based on the observation made in the greenery, there is less of a facility that is restricted from the green space, which shows that there is low monitoring. The problem here is not only the coverage but also the maintenance, protection, and management of this land use. This existing land use was not used for the purpose of planning and some of them changed into other land use.



Figure 4.4 Lack of monitoring in the study area

(Source: photo taken by the researcher, 2023)

4.4 Existing condition of urban green space

4.4.1 Availability of Urban Green Space

The existed urban green space in study area was very limited in number, during observation the researcher is personal observed. Due to this, it could be conclude that from the point view of availability of urban green space was very limited in quantity.

Tables 4.4 Urban green space at residence

Items		Frequency	Percent	Valid Percent	Cumulative Percent
Urban green space at residence	Yes	97	59.9	59.9	59.9
	No	65	40.1	40.1	100.0
	Total	162	100.0	100.0	

Source; field survey, 2023

As shown in the table 4.2 the data gathered from respondents indicate that 97 of responds said yes to urban green space at residence, 65 respondents said no, respondents did not know about urban green space at residence (neighborhood). Information existed about green space in the area is generally very weak.

4.4.2 Number of urban green space in woreda of study area

Based on the observation and interview officials' expert results that there are 2 up to 3 urban green areas, some experts responded that it is difficult to distinguish in numbers, and they just say could not be sure exact number. According to the observation of the researcher, 4 of them were visited. But there are extra green spaces. However, occupied by parking long vehicles, dumped waste disposal, & put some machinery.



Figures 4.5 Number of urban green space in woreda of study area

(Source: photo taken by the researcher, 2023).

4.4.3. Status of urban green space in study area

Table 4.5 Response rate on category in urban green space in the area

		Frequency	Percent	Valid Percent	Cumulative Percent
Status of urban green space in the area	Not Good	24	14.8	23.8	23.8
	Moderate	49	30.2	48.5	72.3
	Good	14	8.6	13.9	86.1
	Excellent	14	8.6	13.9	100.0
	Total	101	62.3	100.0	
Kinds of green space at areas	No response	61	37.7		
Total		162	100.0		

Source; field survey, 2023

According to households respondent for category of urban green space on table 4.3 about 30.2%, 14.8%, 8.6% and 8.6% respectively respondents said moderate, not good, good and excellent on category of urban green area respectively and regarding in categories of moderate & not good are shown that status of urban green areas is not planned & managed in well kinds of greenery areas where as good & excellent are not well category. The rest of the respondents replied No which account is 37.7%, this implies that there is no green space within woreda 05 of Akaki-kality sub-city.

4.4.4 Evaluation of urban green space in locality

Rate of urban green space is the identified way of the existed situation in which green area found in the surrounding what look like as rated from the point view of its condition.

Table 4.6 The rate of urban green space in locality

Items		Frequency	Percent	Valid Percent	Cumulative Percent
Rate of urban green space	Well organized	12	7.4	7.4	7.4
	To some extent good	58	35.8	35.8	43.2
	Not good	60	37.0	37.0	80.2
	I don't know	32	19.8	19.8	100.0
	Total	162	100.0	100.0	

Source; field survey, 2023

For the overall availability of green spaces that majority of respondents 60(37%) answered not good, 58(35%) to some extent good, 32(19.8%) not know & 12(7.4%) is well organized.

The availability of green spaces in the city is not well satisfied, emphasis not given for greenery area in the city are challenging the availabilities of green areas.

In addition to as of personal observation and interview undertaken green space is very important especially in our district but we have seen that most of the area is being used for building and industrial services, It is good but there is no green space because all the spaces are occupied by the house, no care and protection.

4.4.5. Accessibility of green spaces

Generally speaking, accessibility is ability for all public, including people with physical disabled person with access mobility and all ages, to physically reach the nearest, services activities from green open space. Green space can support higher levels of physical activity, and there are indications that people may enjoy and be more likely to repeat an activity if it takes place in a natural setting (Thompson Coon J, 2011).

As information obtained from respondents said that 51.9% it is not accessible to all community, 13.58% don't know, while the rest 9.88% of respondent said it is accessible to all people. This indicated that there are no sufficient open green spaces for residents. Studies also indicated that the accessibility of green space can be expanded in the city by building more small-to-medium sized green space (Tabassum and Sharmin 2013).

4.4.5.1. Accessibilities of green space component

Gebeyehu (2014) discussed when we talk about availability of green spaces; we should consider the Area coverage and their per capita, biodiversity, location and accessibility of city parks and other green area components.

Table 4.7 Accessibilities of green space component

Items		Frequency	Percent	Valid Percent	Cumulative Percent
Accessibilities of green space component	Yes	17	10.5	10.5	10.5
	No	86	53.1	53.1	63.6
	Not sure	59	36.4	36.4	100.0
	Total	162	100.0	100.0	

Source; field survey, 2023

The table 4.5 above shows 53.1% Of respondents said there is no accessibilities of green space component around woreda 05 of sub-city area, 36.4% of the respondents said not sure about accessibly of components & the remain 10.5% said there is accessibilities of green

space components like usage of enough space, quality of planning, standardize way & other to the community.

4.4.5.2. Way of accessibilities of green space in the existing

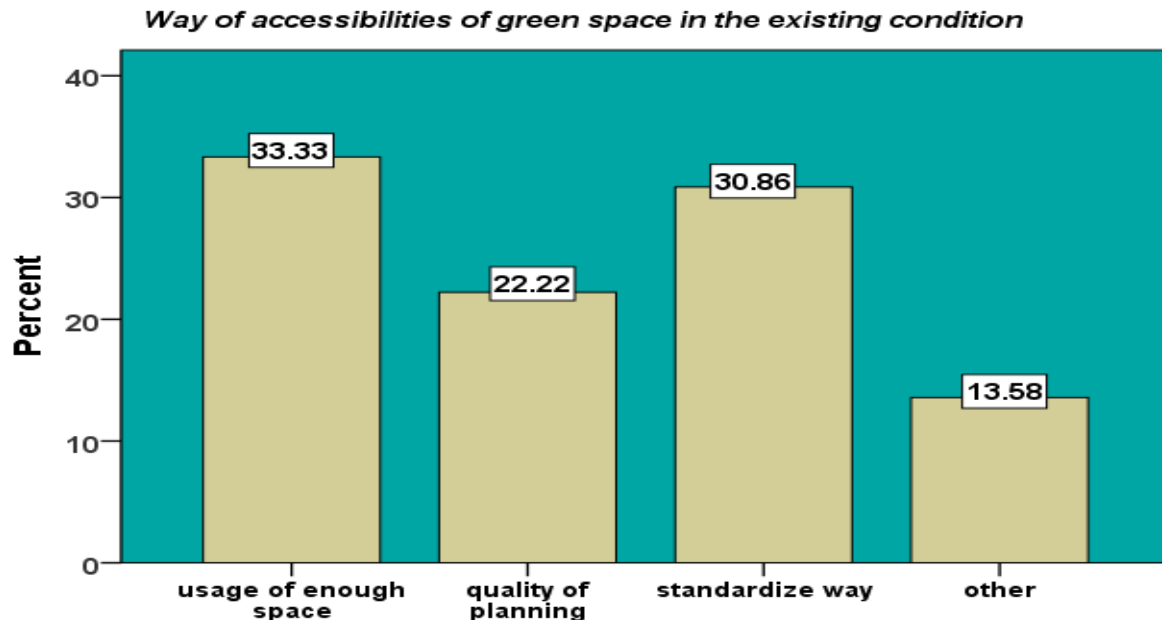


Figure 4.6 Way of accessibilities of green space in the existing condition

Source; field survey, 2023

4.4.5.3. Time to reach the urban green space have visited

According to MoUDH (2015), Accessibility standard should override the quantity standard and Public green open spaces shall be evenly distributed within the city to keep the distances people have to travel to a green open space low.

From graph 4.14 below result obtained from respondents expressed in percent 29% of the respondents said 30 minutes to reach visited green space, 20.37% of the respondents said 25 minutes to reach, 20.9% of respondents said 15 minutes, 12.35% of the respondents said 10 minutes and 6.17% of the respondents said 5 minutes & don't known about the average to reach. Shorter distance from a resident to green areas assumed to increase accessibility of people to green areas as European Environmental Agency (EEA) recommends 15 minute of hour to reach to the nearest green areas on foot and this has an association to management of green areas (Peschardt & Stigsdotter, 2013 as cited by Lidia, 2016).

When the number of each sub-city population within park service areas is analyzed, Lideta (20.4%) and Kirkos (4.6%) have relatively the highest served population, whereas the three big sub-cities Akaki-Kality (0.4%), Nifas Silek (0.4%), Addis Ketema (0.4%) and Bole

(0.2%) have the lowest number of served population within the 400 m distance. Overall, the proximity of UPs to the city residents within the walking distances of 400 m and 800 m is inadequate and the majority of the city residents are forced to walk more distances to use UPs.(Sileshi and Hailu, 2020).

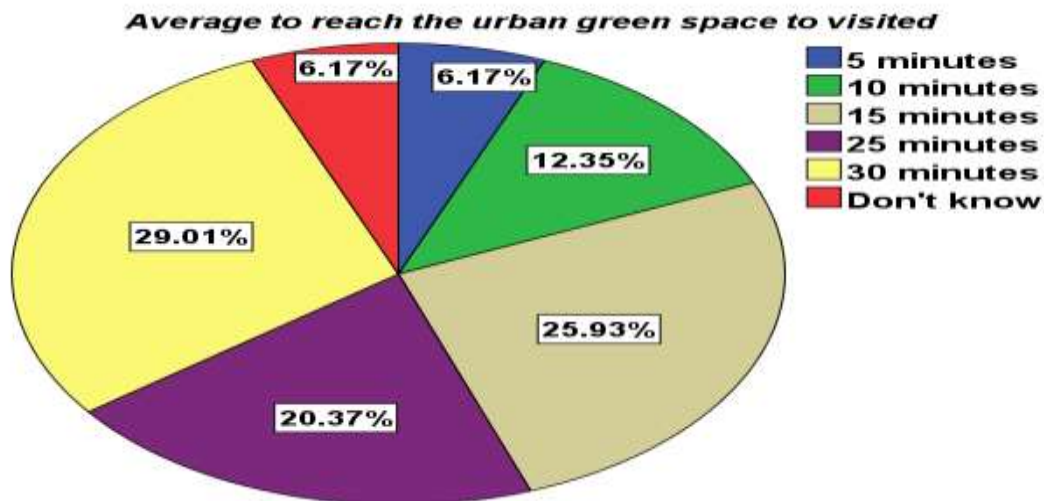


Figure 4.7 Average to reach the urban green space by foot
Source; field survey, 2023

4.4.6 Distributions in green areas

Correspondingly, the per capita distribution among the districts in the study area also provided supporting evidence of the inequalities of the UGS supply. of the total number of 116 districts in the city, 61 districts reported per capita UGS of less than 15 m²/inhabitant (below the Ethiopian Urban Green Infrastructure standard), demonstrating that more than 50% of the districts were poor in terms of the distribution of UGS.

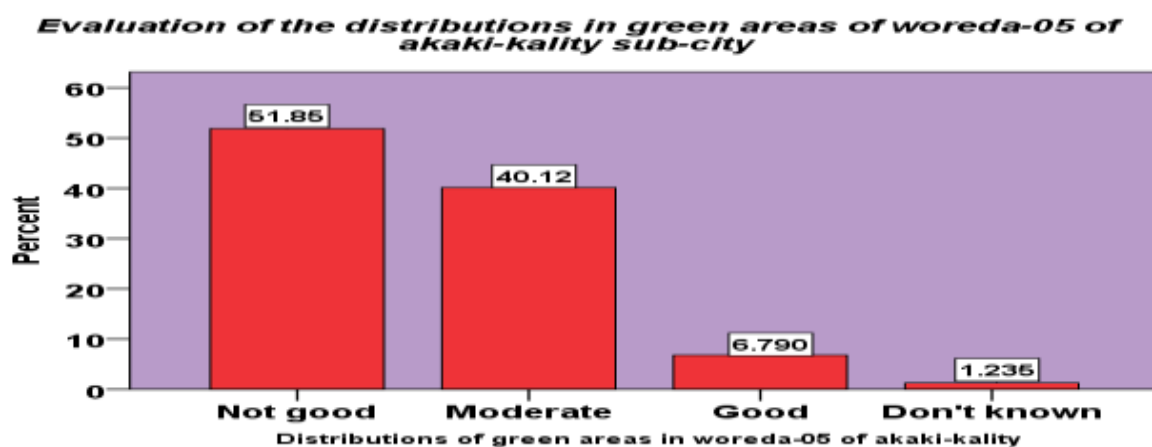


Figure 4.8 Distributions in green areas of the study area
Source; field survey, 2023

Additionally from fig.4.6 above as information obtained from respondents and expressed in percent, the distribution of green areas among respondents which is 51.9% of them said there is not good distribution,40.1% of them said there is moderate distribution,6.8% responds good distribution & the rest of 1.2% said don't known the distribution of green areas in study areas.

4.4.6.1. Distribution of green space in area

According to the latest structure plan and master plan for the city, these areas are used for commerce and business activities and were significantly lacking of UGS.

Table 4.8 The existing distribution of green space in area

Items		Frequency	Percent	Valid Percent	Cumulative Percent
The existing distribution of green space in area	Fair	37	22.8	22.8	22.8
	Unfair	73	45.1	45.1	67.9
	Not sure	52	32.1	32.1	100.0
	Total	162	100.0	100.0	

Source; field survey, 2023

The major existed distribution of urban green area in the surrounding is 45.1% of the respondents said unfair in the existed distribution area, 32.1% of the respondents said not sure to distribution of existed area and 22.8% of the respondents replied that fair. Therefore, one of the challenges that are revealed in this study is unfair distribution and lack of planning of the total number of 116 districts in the city, 61 districts reported percapita UGS of less than 15 m²/inhabitant (below the Ethiopian Urban Green Infrastructure standard), demonstrating that more than 50% of the districts were poor in terms of the availability of UGS, and thus require urgent urban planning intervention to increase the quantity of UGS (Eyasu Markos Woldesemayat & Paolo Vincenzo Genovese,2021).

4.4.7. Facilities found in the existing green space

From table 4.6 below results show that in terms of facilities in the existing of green space components found in the city 56 (34.6%) respondents said specify other facilities, 55 (34.0%) respondents said seat, 16 (9.9%) respondents said children play area, 15 (9.3%) respondents said cafeteria services, 10 (6.2%) both respondents said toilet and sport facilities respectively. This shown that the expected facilities in the existed green space components found more of out the list below but the existed facilities selected other & seat. So, it is less facilities.



Figure 4.9 Facilities found in the existing green space

(Source: photo taken by the researcher, 2023).

Table 4.9 Facilities found in the existing green space components

Items		Frequency	Percent	Valid Percent	Cumulative Percent
Facilities found in existing green space	Toilet	10	6.2	6.2	6.2
	Children play area	16	9.9	9.9	16.0
	Sport facilities	10	6.2	6.2	22.2
	seat	55	34.0	34.0	56.2
	Cafeteria services	15	9.3	9.3	65.4
	Other	56	34.6	34.6	100.0
	Total	162	100.0	100.0	

Source; field survey, 2023

4.4.7.1. Issues regarding lack of facilities & maintenance of existed green space

According to households respondents for facilities & maintenance regarding the existed green space, first there are no greenery space at the area, even in the existed greenery space no fulfilling of facilities like library room, toilet service, children playing areas, sport facilities, seat area, gymnastics space, shower service, light, water service & cafeteria are not planned to the existed green space. Secondly some house hold responds about the issue of

maintenance for example one of the respondent said on maintaining some individual open space used to dumped solid waste disposal, so such condition create disturbing of air quality in the surrounding, made the environments unattractive, & unnecessary things was done in the areas. Additionally as information obtained from respondents is that lack of standardize planning, problems of management in regarding to facilities again not inclusive disabled person, absence of supporting & follow up by concerned bodies and one time maintain but not have continuity more than that. The other problem was mentioned by the respondents there are no sufficient greenery space around the surrounding just no get attention to such idea rather the space is taken to plants the industry & other purposes.



Figure 4.10 Existed green space in the study area

(Source: photo taken by the researcher, 2023).

As shown in the above figure, 33.3 % of the respondents said way of accessibilities in existing condition is usage of enough space. 30.86 % of the respondents is said standardize way of existed condition, 22.2% of the respondents said quality of planning & 13.58% of the

respondents said other conditions. The accessibility indicators also revealed that the city residents have no sufficient UGI access such as recreational parks.

4.4.8 Size of the urban green space of the areas

Urban green spaces are classified in different categories by size, spatial characteristics, geographic locations, uses, functions (Byrne & Sipe, 2010) service purposes, facilities, and property. About 38.89 % of respondents indicated that medium, 29.01% of the respondents replied that narrow width, 27.78% of respondents said unrated & 4.32% of the rest respondents said wide. Therefore, size of the green areas is medium rate of green space.

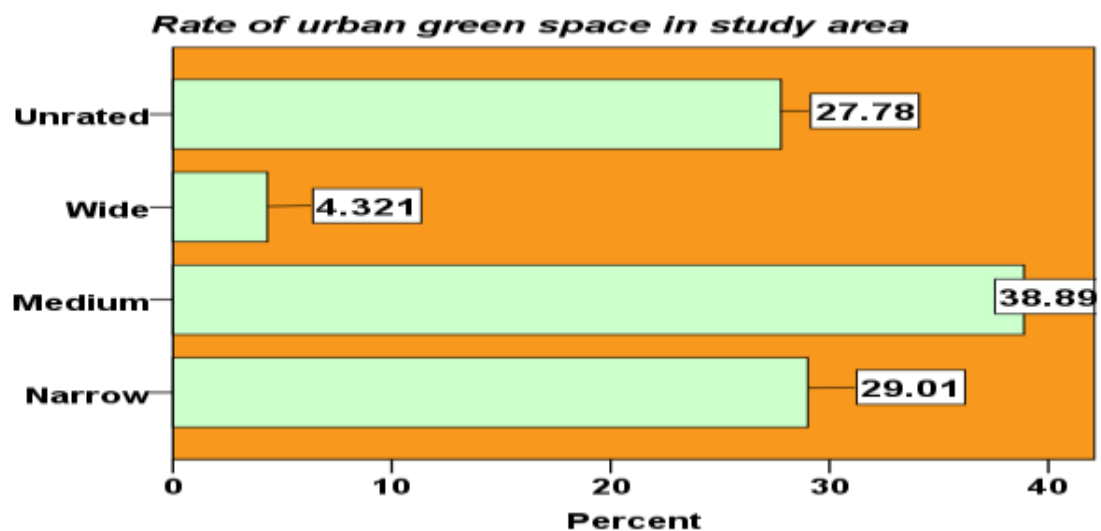


Figure 4.11 Rate of urban green space of the areas

4.4.8.1 The purposes to visit green space areas

The figure 4.17 below shows 29% of respondents said for relaxation, 20.99% of the respondents said nature appreciation, 18.5% of the respondents said other, 14.8 of the respondents said privacy, 9.26% of the respondents said to physical exercise and 7.41% of the rest respondents said social contact. As a result, many young and households raise their complain in which worded 05 that have no enough activities in green space plan & managements practices.

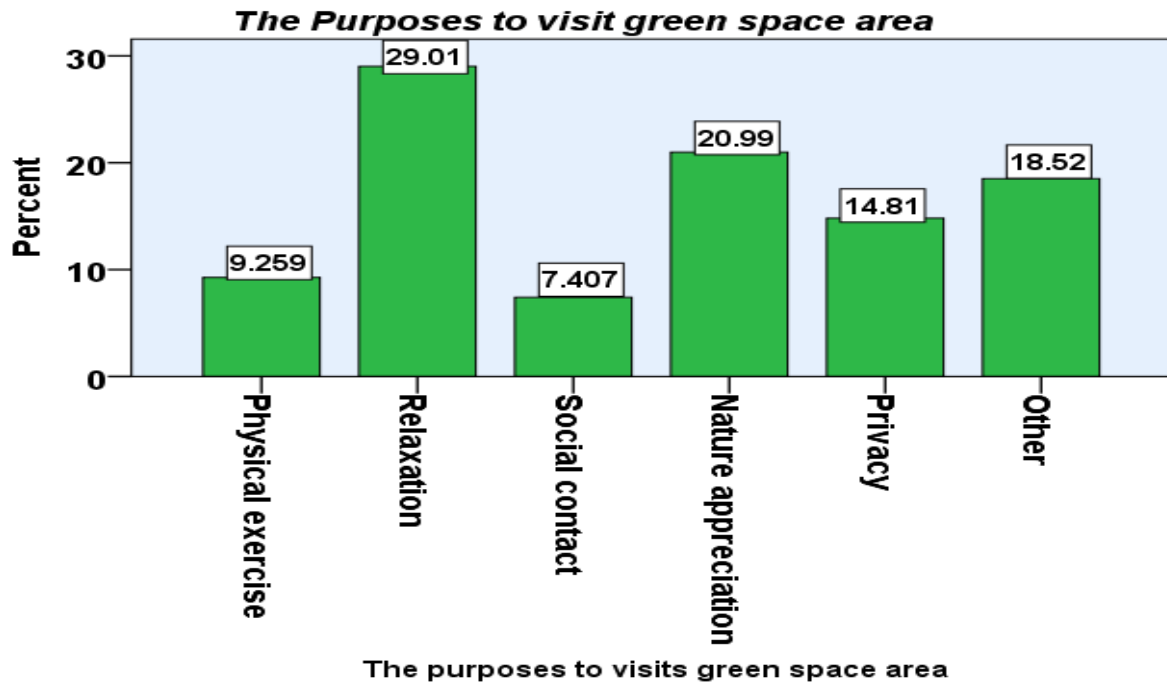


Figure 4.12 The purposes to visit green space areas.

Source; field survey, 2023

4.4.8.2 Reasons for visiting green spaces

Different enjoyments can be obtained from different types of green spaces (Fleischer and Tsur, 2003). Green space by itself is a scientific deposit where people can play with natural environment and simultaneously gather knowledge about nature. The social benefits obtained from the urban green space are not mutually exclusive. Contact with neighborhood and engagement in social activities brings great psychological satisfaction and dissipates unhappiness (McAuley et al., 2000). So, that is why visiting urban green space by the respondents responded about the reason.

Table 4.10 Choose to visited green space

no	Why choose to visited green space	Frequency	Percents (%)
1.	To get fresh air	50	14.37
2.	Privacy (time alone)	46	13.2
3.	Social contact	30	8.6
4.	To sport activity	20	5.75
5.	To refresh mind	30	8.6
6.	For health status	4	1.15
7.	To read book	14	4.02
8.	For relaxation	66	18.97
9.	To prevent sound pollution	4	1.15
10.	Nature appreciation	28	8.06
11.	More attractive than other	2	0.57
12.	To take rest	4	1.15
13.	Spent extra time	4	1.15
14.	To know what don't know	2	0.57
15.	Freely plays with child	2	0.57
16.	To create healthy communities	6	1.7
17.	For environmental beautification	2	0.57
18.	To meditate	4	1.15
19.	No response	28	8.06

Source: computed by the author, 2023

Most of respondents (18.97%) responded that choose to visit for the relaxation in green area in locality. About 14.37% of respondents responded that to get fresh air during visit time green areas which are found in locality.

Most of respondents 13.2% responded that to privacy (time alone) in the places. About 8.6% respondents are responded that both for refresh mind & Social contact in green area. About 8.06% of respondents responded that again both nature appreciation visited green area& no response why choose to visit. About 5.75% of the respondents respond that to sport activity in their locality. About 4.02% of the respondents respond that to read book. 1.7% of the respondents respond that to create healthy communities.1.15% of the respondents respond that for health status, to prevent sound pollution, to take rest, spent extra time, and to

meditate. From this we can conclude that green areas in the study area is choose to visit for the relaxation, get fresh air, privacy (time alone),social contact & refresh mind, nature appreciation, sport activity, read book & respectively are choose to visit the greenery areas.

During visited problem encountered in green space

During visited green areas there are different problem faced. The following problem mentioned by the table frequency & percents according to the respondents responded.

Table 4.11 Visited greenery space respondents' responds on problem encountered.

No	Problem encountered	Frequency	Percents	Rank
1.	problem of cleanliness	18	11.1%	3
2.	Problem of toilet	14	8.64%	4
3.	Insufficient seat	19	11.73%	2
4.	No accessibilities of walking	6	3.7%	10
5.	No usage of water & electric service	2	1.85%	13
6.	No enough nature & man made things	7	4.3%	9
7.	No sport facilities	13	8.02%	5
8.	Not well standardized of planning	12	7.4%	6
9.	High cost of fees for service	5	3.1%	11
10	Absence of maintenance & follow up	10	6.17%	8
11.	Greenery space used for addiction purpose	6	3.7%	10
12.	No cafeteria	11	6.8%	7
13.	No enough greenery space	22	13.6%	1
14.	Nothing face	7	4.3%	9
15.	Don't known	6	3.7%	10
16.	Dumping of solid waste	4	2.5%	12
Total		162	100%	

Source: computed by the author, 2023

Most of respondents 13.6 % responded that there is no enough green area in their locality. About 11.73% of respondents responded that there are insufficient seat during visited time green areas which are found in their locality. Most of respondents (11.1%) responded that problem of cleanliness in the places. About 8.64% respondents are responded that Problem of toilet in green area. About 8.02% of respondents responded that no sport facilities they visited

green area in their locality. About 7.4% of respondents responded that not well standardized of planning. About 6.8% of respondents responded that there is no cafeteria. About 6.17% of respondents responded that absence of maintenance & follow up to greenery space. About 4.3% of respondents responded that no enough nature & man made things as well as nothing face. About 3.7% of respondents responded that Greenery space used for addiction purpose, no accessibilities of walking & don't known about the problems respectively. About 3.1% of respondents responded that high cost of fees for service when green areas enter to visit. And about 2.5% of respondents responded that dumping of solid waste. From this we can conclude that green areas in the study area there is no enough green area, there are insufficient seat, problem of cleanliness, problem of toilet in green area ,no sport facilities, not well standardized of planning, and absence of maintenance & follow up to greenery space respectively.

4.5 Management practices of UGS

Studies on governance also identified issues of weak land governance; the land allocated for green areas in the master plan has been transferred to private use (Deininger et al., 2011; 2012); and lack of cooperation between sectors in the management of green spaces (AACPO, 2017).

In spite of this, in recent years studies have shown that there was an increase in the UGS part in central city areas, while there was a decline of UGS in the outer zone (Larsen et al., 2019). Regarding this management practices in the study area were lack of cooperation between concerned bodies & other private institution as well as around community.

4.5.1. The major challenges in managing UGS

From table 4.8 below result obtained from respondents expressed in 69(42.6%) of the respondents said ignorance of the institution, 35(21.6%) of the respondents said absence of professionals follow up, 34(21%) of the respondents said lack of budget, 23(14.2%) of the respondents said lack of attitudes towards the city and the rest of the respondents which is accounts 1(0.6%) said other challenges respectively. Similarly according to officials' response in the study area there are different types of green space plan & management challenges including financial shortage, skilled man power and low awareness creation of community, improper implementation of plan, weak integration and high rate of land use.

Table 4.12 The major challenges in managing urban green space

	Items	Frequency	Percent	Valid Percent	Cumulative Percent
Major challenges in managing	Lack of budget	34	21.0	21.0	21.0
	Absence of professionals follow up	35	21.6	21.6	42.6
	Lack of good attitudes towards the city	23	14.2	14.2	56.8
	Ignorance of institution	69	42.6	42.6	99.4
	Other challenges	1	0.6	0.6	100.0
	Total	162	100.0	100.0	

Source; field survey, 2023

4.5.2. The main problem affects management in managing UGS

According to interviews held with, there is a wide demand to use the space for other activities, people who have problems with attitude, and people who want to take the contract of green space and include it. They do not have enough green space to be prepared and protected. This starts from the fact that there is no green space in the city because of the large migration of people to the city & the problem of protecting the community and the lack of control.

4.5.3. Responsible body in planning & management of green areas.

From table 4.11 below result obtained from respondents expressed in 65(40.1%) of the respondents said residents around green areas, 48(29.6%) of the respondents said city administration, 32(19.8%) of the respondents said other, 11(6.8%) of the respondents said woreda administration & 6(3.7%) the rest of respondents said sub city administration respectively.

The 1995 constitution of Ethiopia emphasized citizen's environmental rights in Article 44 and for environmental objectives in Article 92 (Constitution of 1995). Therefore, to realize this Proclamation No. 9/95 established the Ethiopian environmental protection Authority (EPA) in 1995 with mandates and responsibilities. Following the establishment of EPA, the Ethiopian environmental policy was developed and enacted in 1997 and gave somehow little attention to planning and development of green areas in urban settlements.

Table 4.13 Responsible in planning & management of green areas

Items		Frequency	Percent	Valid Percent	Cumulative Percent
Responsible in planning & management	Residents around green areas	65	40.1	40.1	40.1
	Woreda administration	11	6.8	6.8	46.9
	City administration	48	29.6	29.6	76.5
	Sub city administration	6	3.7	3.7	80.2
	Other	32	19.8	19.8	100.0
	Total	162	100.0	100.0	

Source; field survey, 2023

4.5.3.1 Responsible bodies for planning in UGS to woreda of sub-city

Data from official expert compiled according to the responded by the table below.

Table 4.14 Responsible bodies for planning urban green space

Respondent	Responsible bodies for planning		Frequency	Percent
Data from official expert's interviewed	1.	Addis Ababa City Planning and Development Commission	2	16.67%
	2.	City Beautification and Green Development Office	3	25%
	3.	It is the responsibility of all parties.	1	8.33%
	4.	It is everyone's institution	1	8.33%
	5.	Society, government and private institutions	1	8.33%
	6.	City beautification and park agency	1	8.33%
	7.	The city administration, sub-city and district	2	16.67%
	8.	Urban Beauty and Green Development Office followed by districts in each city	1	8.33%
	Total		12	100%

Source: computed by the researcher, 2023

According to the data from the table above, official experts responds that 25% of the interview results were City Beautification and Green Development Office, 16.67% of the experts said that both Addis Ababa City Planning and Development Commission & the city

administration, sub-city and district and 8.33% of the interview shown that responsibility of all parties, everyone's institution, Society, government and private institutions, City beautification and park agency & Urban Beauty and Green Development Office followed by districts in each city. So, according to the leader interview, the responsible bodies for planning UGS are the City Beautification and Green Development Office, Addis Ababa City Planning and Development Commission and the city administration, sub-city, and district respectively.

4.5.4. The existed planning UGS

From official leader & observation attested that even though the existing green space is being protected and taken care of by the community, there is a wide gap in terms of making a design of working in the usual way and bringing out a better design. Although not enough space, it is not good, because it is not well maintained, it is drying up and the cattle are destroying the green areas, In terms of being a recreation and park for all citizens, they should be protected and taken care of; it needs protection because indigenous plants are disappearing.

In general for the protection and management of the environment different Guideline and directive document prepared (Federal Affairs, 2005). Allocation of land resources in the planning document and implementation on the ground is highly associated with institutional arrangements (Wang and Chan 2019).



Figure 4.13 The existed urban green space in study area

(Source: photo taken by the researcher, 2023).

4.5.5 Implementation level of UGS coverage in related with city master plan

The National Urban Green Infrastructure standard of 2014 stipulates that 30 percent of the land should be allocated for roads and infrastructure, 30 percent for green areas and shared public use and 40 percent for building construction. It also states that cities should ensure a minimum of 15 meter square public green open space per capital within the city boundaries and every resident to live within 500 meter from a public green open space of a size of at least 0.3 hectare.

Based on the interview made with officials responded as district(woreda) up to less than 10% & in city level also not more than 15% of coverage. Again other official leader responds that implementation of the master plan can be 50 percent of coverage to city. This shown that the information they were giving didn't much with the standards.

4.5.6 Institutional arrangement for planning implements & managing UGS

According to MoUDH (2015) Urban green infrastructure (UGI) shall be managed and administered in the interests of the local community and shall address its needs. It provides brief note on the location, accessibility, and capacity of green and gray components of UGI.

Experienced delays in land delivery from the Urban Land Management and Development Bureau of Addis Ababa, inability to implement the rules and regulations to protect urban green areas, conflicts of interests and overlapping of responsibilities, weak coordination among sub-cities, inefficient follow-up and close supervision (Tewelde Gebre.et al,2019).

According to interviews from official leaders & experts, the site was not protected from illegal encroachment and a small amount of green space was preserved. To do the work according to the instructions, not integrated with the community's & institutions' system, green space is food for the community, and it has become a place for the eyes and entertainment. Beauty and cleanliness for user-friendly entertainment are needed, implementing & managing it has somewhat delayed from monitoring and protection, there is financial growth and no applicable, It is very low between society & administration. So, weak implementation of plan & management in institutional arrangements

4.5.6.1 Institution of planning for the developments & management of UGS

The new office for greening and beautification of the city i.e. Sanitation, Beautification and Park Development Agency, is very recent and does not have much of the plans and strategies lined out yet, but green areas, parks and urban open spaces are managed under this office

(Tewelde Gebre.et.al,2019). Organizational structure of Sanitation, Beautification and Park Development is illustrated below:

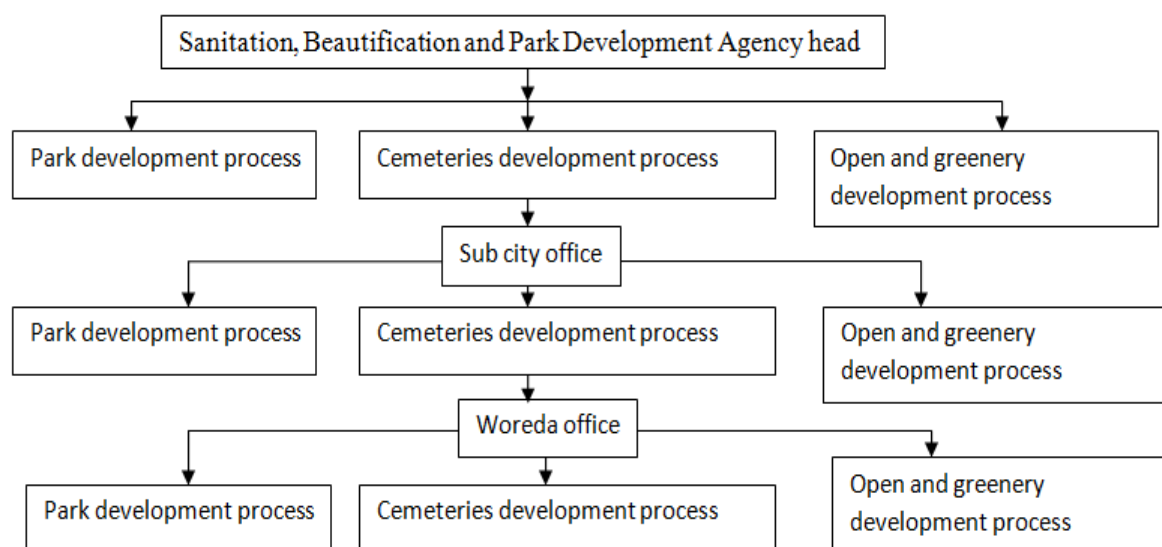


Figure 4.14 Organizational structure of urban green space management

(Source: Tewelde Gebre.et al,2019).

As per interview results from office experts, the institution of planning in UGS development & management said most of the Planning Commission Office take the first role, Urban Beauty and Green Development Office give the second as responsible institute, it should be urban planning and development in the third place, Construction Permit (to maintain plan level and construction monitoring & ensuring appropriate monitoring) & finally the Office of Environmental Protection as well as other stakeholders according to the interview of experts.

4.5.7 Government plan to distribute the land to UGS & follow implementation in woreda/sub city

Land management authority has a mandate to provide permission for the proposed development and give the rights of ownership for the intended purpose but it lacks integration with AASBPDA since plans that are proposed for the green areas are changed to another development. AA urban planning institute and offices of the structural plan preparation have a role of follow up the implementation of recreational parks according to the plan or not and prepare plans and documents. The good sides of the these organizations as mentioned by Ato Ephrem in AADPO they prepare sufficient recreational and green spaces but failed to follow up the implementations due to lacks of integration too.

According to an interview with the official leader & written document, it says that, in spite of the plan, the problems of institutions not reading each other are seen to pull into each other.

It is planned, & the plan is being implemented at the national level, but it is not being widely implemented.

4.5.8 Mechanism of implementation plan to UGS

Urban Planning Proclamation no 547/2008 has a scope to be applied to all urban centers throughout the country. This proclamation is aimed to achieve an objective of establishing a legal framework in order to promote planned and well developed urban centers. One of the plans recognized under this proclamation is the structural plan.

Based on the interview made with official leaders, about the mechanism to implement by placing the read information and executive body & according to the plan of implementations

4.5.9 Number of professional experts in the administration related to UGS

As information from office manager interviews, from the beginning required staff and the available staff are fewer in number and the tasks are not related to the education they have learned, from supervisors to field workers. Most of them are professionals, but leaders were not sure of the number of professional experts. Based on these results, those professionals within the sub-city administration were both inadequate and nonexistent.

4.5.9.1 Professional & its effective qualified in planning of UGS

According to Sara *et al.* (2015) the importance of communication and collaboration is elimination of professional barriers in order to incorporate green qualities and bring effective and efficient development in the densification plans and projects.

According to information obtained from official leaders, a professional makes a much better effort, but the problem with a career and skill is very broad. There is ignorance. They are qualified & eligible but it is still questionable in their effective planning at UGS.

4.5.10 Effective managements issue in planning of UGS

To enhance multi functionality in green infrastructure (Shi, 2013) and its effective management depends on the practice of good governance.

As information obtained from official leaders regarding effective management issues, there are issues during the planning of urban green space such as:

- i. Sufficient funding:-the budget does not match with work to planning
- ii. Group effort:- It is good that they work together but not effective
- iii. Legal frame work :- every bodies knows about it & no one need to use
- iv. Qualified professionals: appropriate professionals are there but the result reveals less effective.

4.5.11 Financial resource obtained for UGS to locality

According to the interview made with official experts, there were mentioned different institution & sectors as well as stakeholder as follows:

- It receives no funding
- Budget released from the district (woreda) & sub city administration
- By turning it into a park and using it for library and cafe service
- It is covered by the office of urban beauty and green development through the city administration
- With the support of the government and the coordination of society
- Budget of the city administration
- Revenue that is budgeted by the city administration and collected by local residents
- From the tourist

From the above interview, results conclude that the finance resources are generated from different stakeholders, tourists, and governments. Again some of them respond that it receives no funding. According to the interview from official experts.

Similarly World Bank studied that in developing countries the financial challenges of preserving land, investing, green infrastructures development and management practices are all the main challenge of green space planning & managements.

4.5.12 Actors in planning & management of UGS

According to the interview with official experts that actors in planning and management were expressing from their point of view in regarding to urban green space. Different office, sector & stakeholders were mentioned, those actors are:

- ✓ Planning and management is mainly given to the Planning Commission Development Office, Urban Beauty and Green Development Office and other related public sector offices.

- ✓ Land Development and Administration Office.
- ✓ Local residents and stakeholders
- ✓ At the government level, they are the head and staff of the beauty and park office
- ✓ Institutions at all levels and especially the society have a big role to play
- ✓ Urban Beauty Care Group
- ✓ The gardener and the environmental protection and all concerned.
- ✓ Government, public and private institutions.

CHAPTER FIVE

5. CONCLUSIONS AND RECOMMENDATIONS

5.1. Conclusion

The effectiveness of urban planning solutions depends heavily up on the Urban Planning approach specially the current approaches of sustainable urban development that emphasized sound environmental management including planning & managements of urban green space. As broadly discussed in the proceeding chapter, planning & managements of urban green space require multidisciplinary professionals, advanced technology, enough budget, public participation, good policy implementation, independent sectors, applicable strategy and guidelines. Even though the sub city of woreda 05 has little bit experience like planting of trees in few selective areas, insufficient of urban park, urban agriculture, forest and less road side trees and ignorance to manage the planning & managements of urban green space, the current planning & managements of urban green space is not as such satisfactory. Because the planning & managements of urban green space influenced by various economic and social development and non-developmental activities, such as construction of informal housing, industrialization, deforestation and illegal use of land. These challenges basically generated from inattention of official administration leaders & experts, low attitude, low capacity building and insufficient of supply land resources for this infrastructure.

In the sub city of woreda 05 there are improper green space planning and low participation of community on planning & managements of urban green space, which leads to unfair distribution of green space areas in coverage, quality and quantity. The mechanisms of green space planning, operation and maintenance were lacking community and stakeholders' involvement. This lacks of community and other stakeholders' involvement affecting the quality and quantity of existing green space within the study areas. As the researcher conclude from the observation, questionnaire and interviews the green spaces in the city centre is not well distributed to all parts of the city and street trees which makes a great contribution to city's green space design is not well documented in the case of woreda 05 Akaki-kality sub city of Addis Ababa.

In the city specially around Akaki-kality sub-city of woreda 05 areas which are no enough facilities, accessibility & distribution of urban green space around there to be lack of planning & management conditions.

In related to urban plan, the existing green space plan & management was not applied according to urban master plan because of the city gives less attention for the environment and gives high priority for the industry prevalence and other economic values. So, to sum up the green space plan & management within woreda 05 Akaki-kality sub city was not satisfactory when evaluated in terms of institutional standard, guidelines and proposed land use, accessibly, coverage and sustainable development senses.

5.2. Recommendations

Based on the objectives of the study and the findings obtained from the data interpretations, the following recommendations are suggested in order to improve the planning & managements of urban green space and to improve the challenges of urban green space plan & management within the woreda 05 Akaki-kality sub city.

- ✚ Woreda administration must assign skilled professionals who have good experience in green area planning and management
- ✚ Improve collaboration between different governmental sectors have common working Plan, monitoring and evaluation system and continuous feedback according to their hierarchy,
- ✚ City, sub city & district (woreda) administration of all concerned bodies should communicates each other & plan implementation according to the level of authorities is given from up to bottom in regarding to urban green space.
- ✚ They should be integrate with stakeholder like residents, community based organizations and NGOS to minimize the challenges of green area plan & management
- ✚ The Woreda's beautification & developments office should have monitoring & follow up the existed green area.
- ✚ Develop well and recommended green space design on master plan and implement. □
- ✚ The Woreda should be allocate sufficient budget for better development and management of green area
- ✚ At Woreda level, there should be a governing laws, policies and regulations, which should be implemented with an enforcement measure regarding green management

- ✚ Develop regulatory and delivery capacity by strengthening political and governmental bodies and multidisciplinary professionals like; urban Planners, Landscape Architects, Environmental experts and public health experts and Engineers, whose can play a significant role in the coordination of green space plan & management activities
- ✚ Woreda administration should provide facilities for the existing green areas
- ✚ Competent sectors and Universities encourage different researchers to conduct their thesis on modern planning & management of urban green space for further findings and investigation.
- ✚ The applications of planning, design and financing basis for built infrastructure should be similarly used for green space planning initiatives, which include:
 - i. Designed holistically
 - ii. Planned and implemented with public participation
 - iii. Based on multidisciplinary professional involvement
 - iv. Planned comprehensively
 - v. Funded up-front

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APPENDIX
ADAMA SCIENCE AND TECHNOLOGY UNIVERSITY
SCHOOL OF CIVIL ENGINEERING & ARCHITECTURE
ARCHITECTURAL & URBAN PLANNING & DESIGN MASTER'S
PROGRAM

Appendix I: Questionnaire for sample households heads

I am studying urban planning and design in Master's program at Adama science & Technology University. I am going to conduct a study on the topic “**planning & management in urban green space in woreda-05 of Akaki-kality sub-city in Addis Ababa**”. Thus, this questionnaire is prepared to investigate the specified problem in order to achieve the desired study objectives.

The questionnaire contains both close ended and open- ended questions. You are kindly requested to reply according to the questionnaires presented. So feel free when responding to the questions. The information obtained from the respondents will be kept and will not affect any one in any means. It will be used only for academic purposes. Therefore, you are kindly requested to answer all the questions honestly.

Thank you in advance!

Key guide to be followed when responding the questions

No need writing name

Encircle the letter which contains your answer.

Write your opinion on the open space provided in the questions.

It is possible to encircle more than one if your answer is more than one in the close ended questions.

Part I: Basic Information Data

1. Gender

- a. Male b. Female

2. Age

- | | | |
|-----------------------|----------------|------------------|
| a. Less than 18 years | d. 36–45 years | f. Over 56 years |
| b. 18–25 years | e. 46–55 years | |
| c. 26–35 years | | |

3. Level of Education

- | | |
|---------------------------------|-----------------------------|
| a. Under preparatory | c. Bachelor's Degree |
| b. Diploma/Vocational Education | d. Master's Degree or Above |

4. The position you hold in the organization

- | | |
|---------------|---------------|
| a. Manager | d. Officer |
| b. Supervisor | e. Staff |
| c. Expert | f. other_____ |

5. Experience

- | | |
|----------------------|---------------|
| a. Less than 1 years | |
| b. 1–5 years | c. 5–10 years |

Part II. Questions on Planning & management of urban green space

1. Are there any urban green spaces around your residence?

- | | |
|--------|-------|
| a. Yes | b. No |
|--------|-------|

2. If your answer to question no 2 is yes, what category of urban green space is it?

- | | | | | |
|-------------|-------------|---------|--------------|--------------|
| a. Not good | b. moderate | c. good | d. very good | e. excellent |
|-------------|-------------|---------|--------------|--------------|

3. How do you see the availability of urban green space in your locality?

- | | | | |
|-------------------|------------------------|-------------|-----------------|
| a. Well organized | b. To some extent good | c. Not good | d. I don't know |
|-------------------|------------------------|-------------|-----------------|

4. Do you think that available of urban green areas are sufficient in number?

- | | | |
|--------|-------|-----------------|
| a. Yes | b. No | c. I'm not sure |
|--------|-------|-----------------|

5. What is your opinion about urban green areas in regarding to accessible to the residents of woreda 05?

6. How do you evaluate the distributions of green areas in woreda-05 of akaki-kality sub-city?

- | | |
|-------------|--------------|
| a. Not good | c. Good |
| b. Moderate | d. Excellent |

7. What are the facilities found in the existing green space components in your surrounding area?

- | | |
|-----------------------|------------------------|
| a. Toilet | e. Cafeteria services |
| b. Children play area | f. Other(specify)_____ |
| c. Sport facilities | _____ |
| d. Seat | |

8. Are there any accessibilities of green space component at your woreda/sub-city area?

- a. Yes b. No c. Not sure

9. What did you identify some specific issues regarding the facilities and maintenance of existing green spaces?

10. On what way the accessibilities of green space in the existing condition to the surrounding area of your woreda/sub-city?

- a. Usage of enough space b. Quality of planning c. Standardize way
d. Specify other_____

11. How do you see the existing distribution of green space in area of your woreda/sub-city?

- a. Fair b. unfair c. Not sure

12. Did the green areas accessible to the people in your woreda-05 of sub-city?

- a. Yes b. No c. I don't know

13. Is the sub-city guided by urban planner?

- a. Yes b. No c. I don't know

14. How do you rate the urban green space of the areas?

- a. Narrow b. Medium c. Wide d. Unrated

15. How long does it takes in average to reach the urban green space on foot?

- a. 5 minutes b. 10 minutes c. 15 minutes d. 25 minutes e. 30 minutes

16. What are the major challenges in managing urban green space at woreda/sub city?

- a. lack of budget b. absence of professionals follow up c. lack of good attitudes towards the city
d. ignorance of institution

17. What are the additional facilities found in the existing green space you have visited?

18. Is it accessibly for the purposes of your visits of green space area?

- a. Physical Exercise
- b. Relaxation
- c. Social contact
- d. Nature appreciation
- e. privacy
- f. Other (specify)_____

19. What are the problems you encountered during visiting the urban green space?

21. What are the things that have been experienced shared in your previous living area regarding urban green space?

22. Why do you choose to visit urban green space?

23. Who is responsible in planning & management of green areas?

- A. Residents around green areas
- B. Woreda administration
- C. City administration
- D. Sub city administration
- E. Other specify _____

Appendix II

Interview for officials (Expertise's)

I am studying urban planning and design in Master's program at Adama science & Technology University. I am going to conduct a study on the topic “**planning & management in urban green space in woreda-05 of Akaki-kality sub-city in Addis Ababa**”. Thus, this questionnaire is prepared to investigate the specified problem in order to achieve the desired study objectives.

The questionnaire contains both close ended and open- ended questions. You are kindly requested to reply according to the questionnaires presented. So feel free when responding to the questions. The information obtained from the respondents will be kept and will not affect any one in any means. It will be used only for academic purposes. Therefore, you are kindly requested to answer all the questions honestly.

Thank you in advance!

Key guide to be followed when responding the questions

No need writing name

Mention or explanations which contains your answer where needed.

It is possible to write more than one if your answer is more than one in the close ended questions.

Part I. Interview questions on Planning & managements of urban green space

1. Who is responsible for planning of urban green space in the woreda/sub-city?

2. How many urban green spaces are there in your woreda of the sub-city?

3. How are the financial resources for the green spaces in woreda/sub-city obtained?

4. What is expected from you to manage urban green space in your locality?

5. Are you identifying different actors in the planning and management of urban green spaces in Woreda-05/sub-city?

Which institutions/organizations should be planning for the development and management of green spaces?

6. How do you think about the awareness of the local community and stakeholders on the benefit of urban green space?

How do significant institutions converse for the period of urban green spaces planning & management process?

7. What are the financial support mechanisms for planning and running urban green space?

8. Are there sufficient legal and instructional frameworks that encourage the planning and management of the urban green spaces?

9. How do you think about the teamwork of different government part in the planning of green spaces?

10. What is the institutional arrangement in put for planning implementing and managing urban green space?

11. What are the main gaps and limits of recent urban green space planning practices?

12. What do you think are the possible actions to overcome the troubles associated to the planning & management of urban green spaces?

13. Do you think there is the public participation in the planning and management of urban green space?

Appendix III

Interview Guide For sub-city& woreda leaders, greenery and beautification team leader Land administration and plan & development commission branch office.

Part I. Interview questions on Planning & managements of urban green space

1. Is there monitoring and evaluation plan to manage urban green space in the woreda/city?

2. How do you see the availability of urban green space in your locality?

3. What do you think about the planning of existing urban green spaces?

4. How do you see the attitude of the local community regarding the planning and management of the green spaces?

5. What are the main problems that affect the management of urban green spaces?

6. What is the distribution of urban green space to satisfy the communities in the woreda/city level?

7. How you evaluate the satisfaction level of societies in urban green space?

8. What is the implementation level of urban green space coverage in related with the urban master plan in your woreda/city in percent's (%)?

9. What is the institutional arrangement input for planning implementing and managing urban green space?

10. Does woreda/sub-city facilitate the accessibility to green space & implemented in your local area?

11. How does your institution work for integrating green space planning principles into planning documents and managements?

12. Does government plan to distribute the land to green space & follow the implementation in woreda of sub-city?

13. What do you think about the accessibility of existing urban green spaces in woreda/sub-city?

14. To what extent is the planning of green space implemented on the institution? And what mechanisms are in place to ensure implantation of plans?

15. How many experts are professionals in the woreda/sub-city administration related with green space management?

14. Do you think professionals' in your institution are effectively qualified to the planning of urban green space?

15. How do you think about the effect of the management issues such as sufficient funding, group effort, legal framework and qualified professionals on the planning of urban green space?
