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ADDIS ABABA UNIVERSITY

ETHIOPIAN INSTITUTE OF ARCHITECTURE, BUILDING CONSTRUCTION

AND CITY DEVELOPMENT (EIABC)

**ASSESSMENT OF RESIDENT'S PERCEPTION OF OPEN SPACES USES, VALUES,
AND PROTECTION IN ADDIS ABABA: THE CASE OF ARADA SUB-CITY**

BY

BETHELHEM MEKURIA

MARCH, 2024

ADDIS ABABA, ETHIOPIA



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And City Development (EiABC)

**Assessment of Resident's Perception of Open Spaces Uses, Values, and Protection in Addis
Ababa: The Case of Arada Sub-City**

By:

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the Requirements for the Award of Masters of Science Degree in Urban Planning

Advisor

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Addis Ababa, Ethiopia

DECLARATION

I, the undersigned, affirm that this thesis is my own work and has not been submitted in full or in part by anyone else for a degree in any field or any other university or institution. All materials used from other sources other than my own idea in this study are duly acknowledged & properly cited.

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APPROVAL

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ACRONYMS

CPCO	Cobblestone Project Coordination Office
GI	Green Infrastructure
IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
EIA	Environmental Impact Assessment
LDP	Local Development Plan
SPSS	Statistical Package for Social Science
UGI	Urban Green Infrastructures
POS	Public Open Spaces
QOS	Quality of Life
IBRD	International Bank for Reconstruction and Development
UNDESA/PD	United Nations Department of Economic and Social Affairs/ Population Division
UNOS	Urban natural open space systems
AU	African Union
UNECA	The United Nations Economic Commission for Africa
UN-HABITAT	United Nation Habitat
EPA	Environmental Protection Agency
UDZ	Urban Development Zone
CSA	Community Supported Agriculture
ISA	Impervious Surface Area
UHI	Urban Heat Islands
MEA	Millennium Ecosystem Assessment

Abstract

In Addis Ababa's bustling Arada sub city, a crucial challenge persists: a lack of well-designed and accessible green spaces. These havens, vital for residents' health and well-being, offer recreation, relaxation, social interaction, and environmental benefits. Yet, many in Arada lack equitable access, highlighting the need for transformation. Through surveys, interviews, and observations, this study delved into user perceptions, revealing several key hurdles: limited public awareness of green spaces' benefits, exclusion from planning processes, ineffective policy implementation, lack of essential features like maintenance and amenities, resource constraints, unsustainable practices, and fragmented stakeholder coordination. However, hope remains. By addressing these challenges, we can foster thriving green spaces in Arada. Empowering communities through participatory planning, maintenance training, and micro-grants fosters ownership and long-term sustainability. Creative design solutions like "pocket parks" and multifunctional spaces maximize accessibility and utility. Collaborative partnerships leverage diverse expertise, while dedicated government support ensures long-term success. This vision requires a long-term commitment, but the reward is immeasurable: a healthier, happier, and more resilient Arada, where green spaces flourish in the heart of the city, becoming vibrant hubs for recreation, social interaction, and environmental sustainability.

Key Words: Open Space, open space user, Planning and design, level of awareness, user's

CHAPTER ONE

1. Introduction

These chapters briefly describe the background of the study, the statement of problems, research questions, objectives of the study, scope of the study, significance of the study, and organization of the study.

1.1. Background of the study

Currently, more than 55% of the world's population lives in cities. 66% of the world's population is expected to live in cities by 2050 (UNDESA/PD, 2019). Most of the globalization urbanization takes place in Asia and Africa (Voigtländer, Jürgen, & Razum, 2008). When we see Africa, it is estimated that an annual average urbanization rate of 3.3% and expected to be the fastest urbanizing region from 2020 to 2050 eventually supporting 21% of the world's urban population (UNDESA/PD, 2019). Urban green spaces are increasingly recognized as essential components of the urban environment that provide various environmental, social, and economic benefits thereby contributing to the quality of urban life (Lee & Maheswaran, 2011). Green areas are one of the important components of the urban green space that provide benefits for urban peoples and visitors for recreation and provision of spaces, social interaction and physical activities, human health, and regulation of air condition which is temperature control, stormwater management, and biodiversity-ecosystem (Hoover & Hopton, 2019)

Residents' perception of green spaces in cities is shaped by their socio-economic background and awareness, highlighting the need for inclusive planning and targeted information campaigns. Additionally, varying national income levels influence city budgets, leading to differing priorities within green space projects. Recognizing these factors is crucial for equitable allocation of resources and ensuring green spaces effectively address the specific needs of each community. (Krauze, Sikorska, & Włodarczyk, 2020).

Even though the societal benefits are provided by nature's contributions to the people, urban area natural systems are exploited by unprecedented urbanization, with social, environmental, and socioeconomic costs (White, Turpie, & Letley, 2017). This indicates that there is a wide range of different ways that people think about and value urban nature and the ecosystem services it

provides. It also suggests that there is a lack of research on this topic, especially in developing countries.

People in sub-Saharan Africa as a whole do not fully understand the importance of urban nature and the ecosystem services it provides (Botzat, Fischer, & Kowarik, 2016). This lack of understanding makes it difficult to manage and protect urban green spaces in a sustainable way (Farahani & Maller, 2018).

More and more people are moving to cities in Africa, biodiversity and ecosystem services are still important for supporting the infrastructure that these cities need (White, et al., 2017). However, several challenges prevent green infrastructure from being used more effectively in African cities. These challenges include fragmented governance, limited knowledge and focus on open space beautification. (Herslund, et al., 2018). People living in informal settlements in Africa rely on the natural ecosystem for survival, rather than for recreation. This is because of their socioeconomic circumstances. (Adegun O. , 2017).

People are realizing that green infrastructure and nature-based solutions are important for making cities more resilient to climate change and other challenges (Cilliers, 2019) Scientists and urban planners have not paid enough attention to how people view and value urban natural open spaces or UNOSs for short. UNOSs are areas of land that are left undeveloped to protect the environment and provide benefits to people, such as clean air and water, and places to relax and recreate. UNOSs are often not formally protected, and their value is not always easy to measure. (Botzat, et al., 2016) is reflected in calls by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) (Pillay & Pahlad, 2014) to support their claim that there is a need to understand the multiple values of nature, including the perceptions and relational values of urban natural open space systems (UNOSs).

Addis Ababa is one of the largest cities in Africa, the capital of Ethiopia, and, the headquarters of the African Union (AU) and the United Nations Economic Commission for Africa (UNECA). Addis Ababa and its surroundings were beautiful during Abiy Ahmed's presidency. The project aims to ensure the safety and beauty of the city. In 2018, Abiy launched a project called "Riverside", which plans to extend the river 56 kilometers (35 miles) from Mount Entoto to the Akaki River. The unplanned spatial pattern dominates Addis Ababa. It accounts for about 40% of

the total administrative area or 56% of the developed part of the city. The majority of Addis Ababa's dwelling stock has historically been considered as a slum but the planned development post-2000 has brought some improvement in terms of urban pattern and living conditions. The significant proportion of unplanned settlements with slum conditions, particularly in the core of the city have a direct impact on the health status of residents due to the combination of high room occupancy and poor provision of WASH infrastructure. The inner sub-cities (Addis Ketema, Arada, Lideta, and, Kirkos) have the highest percentages of areas with unplanned urban spatial patterns. Addis Ketema sub-city tops the list as its urban fabric is 86% unplanned, with slum characteristics such as low incomes, dilapidated housing, very bad roads, and inadequate access to water and sanitation. On the contrary, the Bole sub-city's planned urban pattern accounts for 81% of its surface because it is where the city has expanded more recently and in a more organized manner (UN Habitat, 2017). The number of people living in the city is growing much faster than the economy, which has led to a large number of slums and informal settlements. Until recently, more than three-quarters of the city was made up of slum houses (CSA 2017).

Open spaces, like parks and squares, are the lungs of our cities. They're vital for our health and well-being, providing places to play, relax, connect with others, and get some exercise. They also help protect the environment and fight climate change. This study in Arada Sub City, Addis Ababa, aimed to understand how people use and value open spaces, and how to make them better. It also tries to investigate the current status of open spaces in the study area, and examine whether the needs are addressed in the design and arrangement of open spaces. This study surveyed and interviewed users, and explored existing research on open spaces. It found that people care about open spaces, using them for everything from walking to socializing and playing sports. But it also found that Addis Ababa's open spaces often fall short of people's needs. Many are too small, lack amenities, or are poorly maintained. The study's recommendations can help cities create better open spaces. For example, it suggests involving residents in planning, designing spaces for different uses, and ensuring good maintenance. By following these recommendations, we can create cities that are greener, healthier, and happier for everyone.

1.2. Statement of Problems

Green open spaces are important components of the urban open space that provide benefits to urban residents and visitors, including the provision of space for recreation (Cilliers, 2019), Social

and physical activity, improved sanitation, local temperature control, improved air quality, precipitation management, biodiversity conservation, and increased ownership. Urban parks can "damage" ecosystems, affecting urban infrastructure and human health, as tree roots destroy sidewalks (Lee & Maheswaran, 2011), pollen from urban vegetation causes allergies, and shading of houses caused by tall trees.

Africa's rich biodiversity and ecosystem services provide the basis for green infrastructure to support its growing population, even in the face of rapid urbanization (Hoover & Hopton, 2019). However, the full potential of green infrastructure to be effectively incorporated into city planning and decision-making is limited by fragmented governance, limited knowledge, and a focus on beautifying open spaces (Lee & Maheswaran, 2011).

While there is growing recognition of the importance of green infrastructure, including open space and nature-based solutions, in enhancing urban resilience (Cilliers, 2019), Some care and attention have been paid to the understanding and impact of the natural open system in the city: Land that is considered open space is often de-zoned and unprotected to preserve ecosystem services. Knowing the difference between values and knowledge (Botzat, et al., 2016) is reflected in calls by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) to understand the multiple values of nature (Pillay & Pahlad, 2014).

Preliminary observations made by the researchers around Piasa in the study area show that green areas are abused, homeless children and sleep in green areas, litter is thrown in the green areas, green spaces are assumed as negative and illegal spaces. Business people sell products in the green area or push the fence of the green area. For this reason, the researcher is interested in the understanding of green space by the residents of the region.

Sileshi and Hailu (2020) evaluated the current status, accessibility, and limitations of UGI in Addis Ababa, Ethiopia. The study shows that between 2003 and 2016, UGI's land use decreased by 9.2 percent. Urban arable land decreased (down 11.9%), followed by urban forests (down 3.0%). Access indicators also show that residents do not have adequate recreational and recreational opportunities. In the study, it was concluded that the infrastructure of the city deteriorated, the infrastructure of the city did not meet their needs and was not important for the residents of the city (Sileshi & Hailu, 2020). A lack of understanding of the benefits of nature in cities in sub-

Saharan Africa and across Africa is a barrier to the sustainable ecosystem services that urban green spaces offer (Lee & Maheswaran, 2011).

Even though Ethiopia is rapidly urbanizing, its biodiversity and ecosystem services provide a basis for green infrastructure to support its growing population (Cilliers, 2019). However, the full potential of green infrastructure to be effectively incorporated into city planning and decision-making is limited by fragmented governance, limited knowledge, and a focus on beautifying open spaces (White, et al., 2017). Therefore, understanding urban users' benefits and understanding the problems of urban parks helps to forward policy that meets the needs and preferences of urban communities.

Not many studies have been done on how people perceive and value nature, especially in developing countries (Botzat, et al., 2016). In sub-Saharan Africa and Ethiopia in particular, we do not know enough about how people value urban nature. This makes it difficult to provide sustainable ecosystem service from urban spaces (Herslund, et al., 2018). So, there is a critical gap in how people in developing countries, particularly sub-Saharan Africa and Ethiopia, perceive and value urban nature. This lack of knowledge poses a significant challenge in effectively utilizing and managing urban spaces for the provision of sustainable ecosystem services. By addressing the knowledge gap, we can create more sustainable and vibrant urban spaces that better serve the needs of communities and the environment.

1.3. Objective of Study

1.3.1. General Objective

The general objective of the study is to understand resident's perceptions of open space uses, values, and protection in the study area.

1.3.2. Specific objectives

The research is undertaken to meet the following specific objectives:

- To identify users', need for open spaces.
- To investigate the current status of open spaces in the study area.
- To examine whether the needs are addressed in the design and arrangement of open spaces.

- To forward policy, planning, and design recommendations for better management and development of open spaces.

1.4. Research Questions

The research answered the following questions

1. What is residents' perception about the (need) uses and values of the open spaces?
2. What is the current status of open spaces in Arada Sub-city woreda 05?
3. Do the design and arrangement of open spaces align with and/or address the users' needs?
4. What policy, planning, and design recommendations can help to preserve green spaces?

1.5. Scope of the study

This study focuses on understanding residents' perception within Addis Ababa's Arada sub-city, specifically Woreda 05, regarding the uses, values, and protection of open spaces. It employs a sample survey approach, meaning conclusions drawn from the selected participants will be applied to represent the broader population in this specific area. Therefore, the study's scope is geographically confined to Woreda 05 within the Arada sub-city and aims to capture the diverse viewpoints of its residents on the crucial topic of open spaces.

1.6. Significance of the study

This study will address the lack of understanding of residents' perceptions of urban open spaces in Addis Ababa, including their uses, values, and protection. It is important to understand these perceptions to effectively plan, design, and manage urban open spaces that meet the needs and preferences of urban communities.

It will give a new strategy in planning and designing Addis Ababa open spaces. To adapt and cope with uncontrollable situations, the research will give a way of solving problems that happen to ineffective planning, design, and management of open spaces for the communities. The information from these studies will go a long way to assist the city administration of environment and city development sectors in preparation of its plan and management. It will also enable the city administration of city development to identify areas of priority in its budgetary allocation and policy formulation strategies. Since the study is a descriptive research type, other researchers will take this study as a reference for conducting other similar assessments and deals abroad.

The study is expected to make a significant contribution to the understanding of open space users' needs and preferences and to the development of strategies for improving the design, management, and development of open space in urban areas.

The findings of this research will be used to inform the development of policies and programs that promote the creation and preservation of high-quality open spaces in urban areas.

1.7. Organization of the study

The study be organized into six chapters. The first chapter deals with the background of the assessment, the statement of problems, the objective of the assessment, significance, and scope of the research. The second chapter contains a review of related literature. The third chapter describes the methodology of the research. The fourth chapter is composed of results, findings, and discussion; and the fifth chapter addresses the summary of the findings, conclusion, and recommendation of the research.

1.8. Limitation Of the study

Conducting this study presented the researcher with a series of impediments. One major challenge involved engaging residents and securing their consent to participate in the questionnaire. Building trust, ensuring accessibility, and raising awareness of the research proved to be obstacles in themselves. Furthermore, the study design aimed for a large sample size to gather comprehensive data, but this collided with the limited number of open spaces in the case study area. Finding enough respondents stretched the data collection period considerably. Adding to the difficulties, accessing relevant academic resources, particularly books directly related to the research topic, proved to be surprisingly scarce. Despite these roadblocks, the researcher persevered, demonstrating the dedication and resourcefulness required to navigate the complexities of field research.

1.9. Operational Definition

Open Space: - Open spaces can be defined as the places, collective territories, which are conducive to functional activities and daily routines. These open spaces are open to public, spaces that support, produce or facilitate social and cultural interactions and spaces of common sharing that encompass three dimensions the social, functional and symbolic (Carmona M. , 2018).

Users: Users of a particular urban green space will vary depending on the location and features of the space. For example, a park located in a residential area is most likely to be used by residents, while a park located near a school is more likely to be used by students.

People's Perception: People's perception of urban green spaces varies depending on the specific location, as well as the physical features of the green space, the demographics and socioeconomic factors of the users, the quality of the green space, and the presence and quality of facilities in the green space (Kumilachew Y. , 2020). This means that a one-size-fits-all approach to planning and managing urban green spaces is not effective. Instead, a place-based approach is needed, which takes into account the specific needs and preferences of the people who use the green space.

Publicness: Public access is important to the quality of open space. Lynch (1981) defines accessibility in terms of explicit rights: rights, use, and mobility. Lynch's concept of place authority provides a useful measure of the effective "publicness" of open space (Varna and Tiesdell, 2010).

Natural systems and environmental quality: Open space is part of a larger system and is essential for urban health. A growing body of research has focused on the relationship between people and their environment (Cooper & Francis, 1998).

Safety: Open space is characterized by feeling spaces as an important precondition for people to use a place, especially for children, women, and elderly people (Carmona M. , 2018).

CHAPTER TWO

2. Literature Review

This chapter builds upon existing research to comprehensively explore the multilayered world of open spaces. We explore into their planning and governance frameworks, examining the characteristics of users and the biophysical attributes that shape these spaces. By analyzing user interactions and outcomes, we explore both the perceived and actual benefits individuals gain from engaging with open spaces. Through empirical studies on people's perspectives and conceptual frameworks, we aim to gain a deeper understanding of these valuable environments.

2.1. Theoretical Literature Review

The attraction of open spaces in public realms is undeniable. Research, as exemplified by Aljabri and Smith (2013), suggests that ample open areas foster extended stays and diverse activities, ultimately contributing to the success of a public space. This study researches deeper into this concept, exploring the multilayered advantages of public spaces through the lens of both their functional and physical properties.

Our primary focus lies on the human experience within these spaces. Cilliers (2019) emphasizes the importance of accessibility, ensuring that public spaces are free to access and reflect the local cultural fabric. While current models for urban open space often prioritize quantities like size, location, and distance, this study argues for a more nuanced approach. We aim to move beyond simple metrics and explore how these spaces can truly serve the needs of the communities they inhabit.

Despite the many advantages mentioned above, some cities still face some problems in creating and maintaining green space. Rapid urban development has put pressure on some of the city's green spaces, while unplanned urban growth has resulted in the loss of urban landscapes and ecosystems (Wheeler, 2011). Some cities have developed ideas and strategies to protect green spaces. The road is covered with trees and the houses are separated from the road by trees and bushes meters high. In some cases, trees are used to repair underground and landfills, thus creating more parks in the city.

Most green space management strategies are based on the concept of balance and distribution. For example, if we look beyond Africa, the planning strategy of the Bulgarian city of Sofia states that

recreational activities for citizens should be created away from home or within a few minutes' walking distance. It also refers to collaboration and collaboration between local communities, housing groups, companies, and other organizations to create and develop open spaces or to revive old businesses, replicas, and other problem areas (Cunningham, 2006). This approach ensures sustainable development by taking into account the three pillars of urban development: ecological, social, and economic.

Other master plans will focus on distribution and green spaces around the city or town. For example, the aim of the city of Zurich in Switzerland is to create some recreational and green sports facilities for all residents. Green spaces can also be used to protect rivers and wetlands and rehabilitate unhealthy areas such as landfills. For example, Bayrampaşa City Park, which used to be a landfill in Istanbul, has been transformed into an urban park that provides recreational facilities in densely populated areas. The Park features an amphitheater, an open-air cinema, and a large dining area (Yigitcanlar, 2015).

Although we can see that the majority of the African population lives in rural areas, there is still a large population shift from rural to urban areas. Sub-Saharan Africa is the world's fastest urbanizing region, with a ten-year average annual growth rate of 5.35% expected between 2010 and 2020. Therefore, Africa's largest city is expected to experience high growth in the coming years. The population is expected to be the largest in Dar es Salaam, Tanzania, which is now East Africa's largest city, with the new city's estimated average population of 226,000 per year ((UN-Habitat) U. N., 2014) will have to be accommodated and given access to infrastructure and other resources. There are different definitions of urban and rural areas or thresholds for the number of inhabitants either exclusively or in combinations.

The minimum number of residents for each city, simply stated as a description, is often not a reasonable standard that can be applied equally to all cities for classifying residential areas as "cities", along with other indicators. Some African countries do not even have such a definition (Parnell & Walawege, 2014).

2.1.1. Planning and governance of open space

The rapid growth of African cities is due to urban migration and population growth, which is the highest rate in the world (for example, Dar es Salaam, 5.48% per year) (Nations, 2015), with an

annual growth rate of built-up areas of almost 8% (Gombe, Asanuma, & Park, 2017). But as Parnell and Wallavig note, there is no consensus on what brings people to cities. However African cities are still expanding, particularly through urban integration or different types of interventions, from rural to urban management. Given the growing urban population, sub-Saharan African cities face many challenges, including increasing poverty, increasing conflict, and reconciliation (Kessides, 2006). Sustainable communities that integrate urban green infrastructure use community-based initiatives to simultaneously achieve environmental, economic, and social goals (Kramer, 2014). These goals include improving water quality, improving communities, reducing the risk of flooding, and providing parks that support physical activity.

A lack of understanding of the value and positive effects of existing urban green space is a problem in integrating open spaces into development plans. This issue causes many problems. It imposes constraints on land use management and planning decisions based on insufficient information about human benefits (Krauze, et al., 2020). A lack of appreciation of the value of certain green spaces leads to problems in deciding where to build them to benefit people rather than biodiversity, and vice versa. In addition, it is difficult for city planners to decide which green areas in the city will be improved, preserved, or integrated into the city's plans and projects. Moreover, this lack of knowledge has led to conflict between developers and planners. This is mainly because developers are not aware of the long-term benefits of improving, maintaining, or integrating green practices during construction. Often, developers are more concerned with short-term economic benefits than long-term environmental and social benefits.

In Malawi, for example, the colonial city of Sumba was the administrative center of Nyasaland during the British colonial period. This is linked to the hope of strengthening the development of the central and northern regions of Malawi; The new capital is intended to be a symbol of the birth of a modern, strong, and prosperous Malawi. In addition, the capital's movement also "represents the symbol of the country's unity and is an important political factor in its effort to overcome ethnic opposition and the fragmentation of a happy future." (Adinna, Christian, & Okolie, 2009). Like everything else, the new capital should be a symbol of the birth of a modern, strong, and prosperous Malawi. We pursue a mission to give Lilongwe a 'true African character' (Gerke & Viljoen, 1968), the planning of low-density residential areas was a quality feature for the new capital. A "key feature of the city is its parkland setting. From the beginning there was a concern to create a high-

quality environment with spacious living standards, as befits a capital city” (Government, 1986). During this planning period, the green spaces acquired a beautiful design and design, resulting in an integrated city-like atmosphere of the small spaces separated from the space rather than open.

Although green spaces are successfully planned and managed in the new capital, Lilongwe, they are rapidly disappearing due to the high population and competition for available space. By the late 1970s, the city had become a favorite of the rural poor in the surrounding highlands. Newcomers build housing on tribal lands or free farmland outside city limits (Bose, 2017). Since there was not enough land in the city, the immigrants established settlements in every available area in the city. Slum areas are built and fielded with very strict rules. Illegal logging is common in the city's public green spaces, as most households use fires for cooking and heating. City residents also create illegal gardens in these areas, and the municipality believes this is a problem (Bose, 2017).

Addis Ababa has experienced significant land changes in recent years. With the rapid growth and development of housing and infrastructure, the size of built-up urban areas and closed areas has also increased ((UN-Habitat), 2017) green infrastructure i.e., Agriculture and open land decreased. The city's weak management capacity indicates that Addis Ababa is facing serious challenges in meeting basic needs and meeting its growing water demand.

Socio-political context

Urban planning authorities need to treat green space as a top priority; and work with allied institutions to develop and implement plans to protect and manage green spaces (Mensah, 2015). While political impact significantly shapes urban planning in many developing countries, its influence can be double-edged. Addis Ababa's tree campaign exemplifies the pitfalls of politicized forestry. Poorly planned planting on road medians, intended for eventual uprooting during railway construction, demonstrates how political maneuvering can prioritize appearances over long-term sustainability. However, Addis Ababa also offers positive examples of green space development. Engaging television media for public awareness on protecting and managing green spaces effectively reaches a wide audience. Additionally, the riverside project, spearheaded by the Prime Minister and city mayor, showcases the government's commitment to green infrastructure. This

ambitious initiative aims to mitigate flooding, create parks and public spaces, and ultimately enhance residents' well-being (Kumilachew, Shibre, & Stefen, 2020).

To overcome the pitfalls of politicized green initiatives, prioritizing transparency and accountability is crucial. Sound planning principles, factoring in the city's long-term needs and residents' well-being, should guide forestry decisions. This translates to inclusive stakeholder engagement – embracing public participation and oversight throughout the process. Furthermore, establishing a comprehensive and dynamic urban forestry vision is vital. This plan should encompass all relevant factors, encompassing not just immediate goals but also adaptability to future needs. Regular reviews and updates ensure its continued relevance and effectiveness in navigating the complexities of urban green space development.

In Ethiopia, there are policies and laws about urban green spaces, but there are no specific guidelines or standards for how much green space should be managed (Gemed, 2018). Addis Ababa, Ethiopia's bustling capital, wears two hats when it comes to green spaces. Its history boasts periods of rapid development focused on "grey" infrastructure, sometimes at the cost of its crucial green counterpart. This unique setup presents both challenges and opportunities, as both the federal and city governments hold sway over green space policies. However, recognizing the current lack of clarity and enforcement, the Environment Protection and Green Development Commission has acknowledged the need for robust, well-defined policies. Enter the Ministry of Urban Development, stepping forward with a strategic roadmap for providing urban green infrastructure. This initiative strives to bridge the gap between policy and practice, paving the way for a future where Addis Ababa seamlessly blends its urban ambitions with the life-giving power of green spaces (Kumilachew, et al., 2020).

The Ethiopian Urban Planning Proclamation (no 547/2008) is a law that promotes well-planned and developed urban centers throughout the country. It applies to all urban areas in Ethiopia. One of the plans that the proclamation recognizes is the structural plan. The structural plan must address major land use categories and environmental aspects, including green spaces. The structural plan for 2017-2027 describes the city's existing green spaces and proposes further development of these spaces and the creation of new parks.

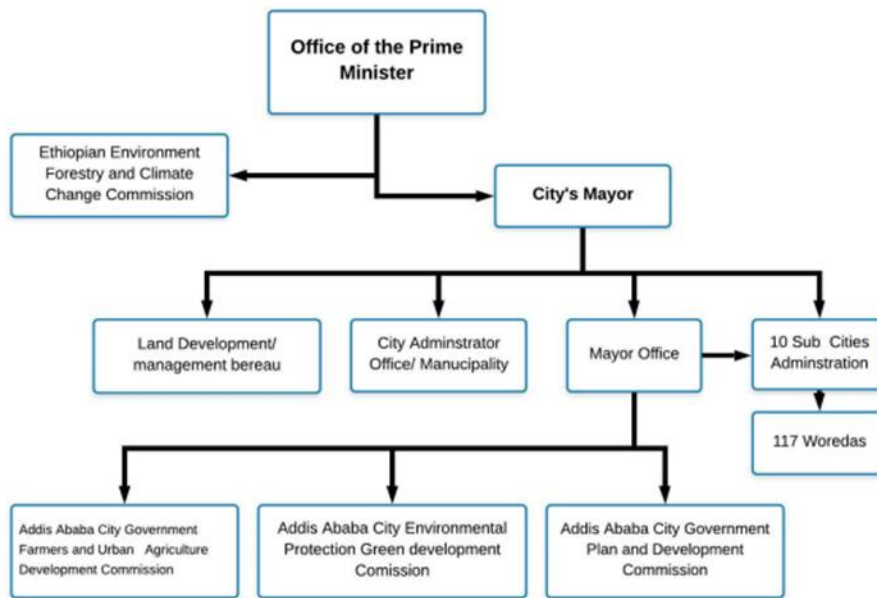


Figure 1 Organogra of institutions engaged in urban green space of Addis Ababa

Source: adapted from (Kumilachew, et al., 2020).

Planning and design principles

The planning and design principles of urban planning in Ethiopia are based on the following key concepts: Sustainability, inclusiveness, participation, flexibility, climate, and connectivity. The specific principles will depend on the specific context of each city. Multi-functionality, green-grey integration, connectivity, and social-inclusiveness are a commune guiding point, for different green space planning, which are found on the preparation of different planning documents (Kumilachew, et al., 2020).

As Urban Design Manual Ethiopia, may, 2016 referred to “Planning, connecting, and Financing Cities Now: priorities for City Leaders” Source: International Bank for Reconstruction and Development /IBRD/ – January 2013 on the urban design principles stated below.

“Green cities: providing technical and financial expertise to help cities plan for low carbon, climate resilient growth and to access the necessary financing, improve solid waste management systems and address pollution and livability challenges.

Inclusive cities: improving access to land, affordable housing, jobs and basic services, economic opportunities, and scaling up efforts to upgrade slums, enhance community participation, and tackle urban poverty and social exclusion.

Resilient cities: strengthening cities' multi-dimensional resilience and ability to cope with shock and better manage climate risk, disaster risk, economic shocks, and social conflict.

Competitive cities, concept urbanization, and growth: helping cities attract investments and jobs by improving land markets, connectivity, and regulation at the subnational level, creating an enabling environment for business, and better leveraging land and real estate assets.

Strong city systems and urban governance: supporting the urban agenda through strengthening land and housing markets, enhancing municipal finances and service delivery, and increasing the capacity to carry out integrated territorial development policies and land use planning.

Qualities of Resilient Systems

Source: City Resilience Framework - The Rockefeller Foundation | Arup

Reflective: Reflective systems are accepting of the inherent and ever-increasing uncertainty and change in today's world. Robust:

Robust systems include well-conceived, constructed, and managed physical assets so that they can withstand the impacts of hazard events without significant damage or loss of function. Redundant Redundancy refers to spare capacity purposely created within systems so that they can accommodate disruption, extreme pressures, or surges in demand. It includes diversity: the presence of multiple ways to achieve a given need or fulfill a particular function Flexible:

Flexibility implies that systems can change, evolve, and adapt in response to changing circumstances. This may favor decentralized and modular approaches to infrastructure or ecosystem management. Resourcefulness: Resourcefulness

implies that people and institutions can rapidly find different ways to achieve their goals or meet their needs during a shock or when under stress. This may include investing in the capacity to anticipate future conditions, set priorities, and respond, for example, by mobilizing and coordinating wider human, financial, and physical resources. under severely constrained conditions

Inclusive: Inclusion emphasizes the need for broad consultation and engagement of communities, including the most vulnerable groups

Integrated: Integration and alignment between city systems promotes consistency in decision-making and ensures that all investments are mutually supportive to a common outcome.”

Management and the Public Realm

Citizens often need to be governed to strike a balance between collective interest and self-interest. This inevitably means finding a balance between freedom and control. Even sound control of public places is complicated. Lynch and Carr (1979) argue that this includes: distinguishing between "destructive" and "non-destructive", managing the former without restricting the latter. Create a broad exemption for free use while developing a broad consensus on what is allowed. Separate group activities with less tolerance for each other in terms of time and space. And given the "marginal space" where extreme freedom can be achieved with little damage. Although public spaces can be regulated by laws and similar regulations, uncertain behavior and restricted activities in public spaces are reported and disseminated. Sideris and Banerjee (1999) describe two types of control: Hard (active) control using private security personnel, surveillance cameras, and regulations that prohibit certain activities or allow them to be allowed, assigned, or leased Soft (passive) control to focus on "restriction of benefits", prevent poor operation, and not provide certain places (like public restrooms).

Imagine a city seamlessly intertwined with nature, where vibrant green spaces not only beautify streetscapes but also bolster the well-being of its residents. This vision isn't a distant dream; it's the promise of urban green infrastructure. By strategically integrating parks, gardens, and green spaces into the urban fabric, cities can unlock a multitude of benefits. Preserving natural beauty and critical environmental areas safeguards ecological health. Community gardens and accessible

parks foster social connections and physical activity. Compact, mixed-use development with green building practices reduces sprawl and promotes sustainability. Pedestrian-friendly streets lined with trails encourage exploration and active transportation. These elements collectively cultivate a strong sense of place, fostering community pride and ownership. Perhaps most importantly, urban green infrastructure empowers residents. By encouraging collaboration and stakeholder engagement in development decisions, cities can truly become reflections of their communities, thriving not just in infrastructure, but in spirit.

Ethiopia's rapid urbanization, particularly in Addis Ababa, casts a shadow of environmental woes. Among these, the rampant degradation of open green spaces stands out as a critical concern. Greedily consumed by the insatiable demands of business, industry, housing, and infrastructure, Addis Ababa's once pristine landscapes are succumbing to destruction and immense strain. This relentless encroachment cripples the vital social, cultural, and economic functions of these green havens, ultimately robbing the city of its true potential for sustainable urban development (Mpofu, 2013). Most gatherings and children have to use the roundabout; Studies on traffic and child safety. It also forces young people to find places to play outside of their communities, which are difficult for their parents to control. After the Rio Conference held in Brazil in 1992, Ethiopia tried to solve the damage done to the environment in different ways. The first important decision was the addition of an article (Article 44) to the country's constitution in 1995. This article clearly states that the people of Ethiopia have the right to live in a healthy, clean environment. Following the publication of the article, the country established the Environmental Protection Agency (EPA) the same year. The national environmental policy was also created two years later, in 1997 (Mpofu, 2013).

In Addis Ababa, the revision of the master plan in 2003 to address environmental damage, following the aforementioned decisions, had important results. In the master plan, 22 thousand hectares, or 41 percent of the city's 54 thousand hectares area, is reserved for cultivation. And build a green office and beautify it. However, the difficulty faced by the municipal land management department in determining ownership of acres of land made it difficult to implement the plan developed by the new green office. This goes against the real use and real purpose of the open-source plan (Tesfaye, 2011).

Regarding the administrative structure, the organization is organized under the leadership of the Provincial Director, see the City Service Form below. The Department for the Development and Management of Urban Beauty, Parks and Cemeteries and a Vorda-level Case Team were formed to achieve the organization's goals and objectives. The city's open spaces, parks, and squares, are managed by the authorities to control the correct use of public spaces, their users, and their behavior (Nemeth & Schmidt, 2011). Ensuring the safety, hygiene, and efficient use of different users is the main purpose of public space management. But sometimes too much control can affect the user and playful behavior. Therefore, it is important to evaluate the management process.

Open spaces, while offering a breath of fresh air and community interaction, can also pose challenges in maintaining orderly and respectful use. Research points to a two-pronged approach to governing behavior in these shared areas. On one hand, external controls set the ground rules. Laws and regulations establish clear boundaries, while physical or symbolic surveillance discourages misconduct. Architectural design and imagery can subtly nudge users towards appropriate behavior, and controlled access can foster a sense of ownership and responsibility (Nemeth & Schmidt, 2011).

However, true success hinges on more than just external constraints. Ostrom's framework highlights the internal drivers that nurture sustainable open space systems. A shared community culture with established norms and values paves the way for responsible behavior. Supportive policies and strong leadership ensure effective management, while empowered community organizations provide a platform for collaboration and problem-solving. A sense of ownership, fostered by user involvement and clear legal backing, further incentivizes responsible use. Finally, a foundation of trust and agreement built through collaborative decision-making empowers communities to take ownership of their open spaces and ensure their long-term well-being.

Both formal and informal policies can affect user behavior in public spaces. (Carmona, 2010) found the two poles and face of a coin. Poor design and management can sometimes enable other groups to control public space through a small part of society (Carmona, 2010).

Most of the time, public administration is transferred to private authorities to be enriched and diversified to change the way of administration and presentation. The rules and regulations of

public spaces in big cities are important in guiding the appropriate use, but they should be used correctly and allow the rules and regulations to be created to be more integrated and non-intrusive.

Multilevel governance approach

Over the past few decades, there has been a gradual shift in the institutional hierarchy of EU member states. These hierarchies have evolved into multi-level systems of governance, where EU institutions and local structures are in direct contact with each other, with the central government having priority management and control. As a result, intergovernmental relations became more negotiable (Peters & Pierre, 2001); cities and regions are increasingly self-sufficient and less dependent on the central government; top management is transferred to the city, and the regional and central governments are divided (Le Galès & Lequesne, 1998).

While these developments may put organizations at all levels of politics in trouble, their greatest impact on open space management will be at the municipal level. New development plans encouraged cities and regions to explore international competition and cooperation to increase local income (Le Gales & Lequesne, 1998).

The Open Space Building Construction License serves as a critical legal process. It verifies that new buildings adhere to their planned surroundings and clearly defines what constitutes construction. This ensures orderly and responsible development. In today's rapidly urbanizing world, with growing populations and environmental concerns, good spatial planning is crucial. It acts as a blueprint for organized development, guiding future urban growth and economic prosperity. Therefore, every city, region, and state need a robust spatial planning system as a foundation for sustainable development. (Darmawati, Choirul, & Hanafi:, 2015).

From a water conservation perspective, as a strategy it focuses on assets that are negative, unsafe, and may be threatened by water stress (water, flooding, and pollution) (De Satgé & Holloway, 2002). Unlike rural life, urban life is more sensitive to economic and financial problems because urban life is more dependent on work, cash and income are mostly spent on food.

For this reason, institutions look at water and green space management systems, laws, codes of conduct, important values, and social arrangements specific to the learning environment. They are developed and managed through the interaction of user groups, service providers, regulators, regulators, and policymakers (Bandaragoda, 2000). Therefore, it is necessary to identify effective

and limited institutions that promote the health benefits of households for sustainable urban water management.

2.1.2. Users' Variable

Public spaces for different users: The success or failure of public spaces depends on the availability and behavior of users. But even researchers such as Whyte (1980, 1988), Jan Gehl (1987, 1996), Barenness (1999), and Kevin Lynch (1972, 1981) find that the true meaning of open space to the public is barely possible. To define a good public open space, and other scholars believe "use" is the first condition for a good space (Francis, 2003).

Resident's perception of open space

The way we design our open spaces, whether parks, plazas, or streets, subtly influences how people experience and interact with them. It's more than just aesthetics; it's about shaping the very choices they make within these spaces. Legibility plays a crucial role. A clear layout and intuitive design guide users, making it easy to understand what activities and possibilities the space offers. Variety comes next, ensuring options for different moods and preferences. A child's play area coexisting with a quiet reading corner caters to diverse needs. Robustness then steps in, allowing space to adapt and cater to various uses over time. A public plaza that transforms from a bustling farmer's market to a serene evening gathering spot exemplifies this flexibility. Visual appropriateness further guides behavior. Design elements like natural materials and thoughtful lighting can subtly nudge users towards appropriate activities, fostering a sense of respect for the space. Beyond functionality, richness enriches the user experience. Diverse sensory stimuli, from the rustling of leaves to the playful patterns of sunlight, engage the senses and create a memorable atmosphere. And lastly, personalization empowers users to make the space their own. Movable seating, open walls for community murals, or even designated areas for dog walking encourage residents to leave their mark, fostering a sense of ownership and attachment. Ultimately, good urban design, particularly in open spaces, goes beyond creating visually pleasing environments. It's about understanding the intricate relationship between space and human behavior, shaping choices that promote interaction, well-being, and a sense of belonging within the urban landscape (Carmona M. , 2018).

Perception involves collecting, organizing, and understanding information about the environment. This process usually consists of two processes, "sensing" and "perceiving", which collect and interpret the environment. In practice, it is unclear where imagination ends and understanding begins. Hearing refers to the human sensory response to environmental stimuli. The four most useful senses when interpreting the environment are sight, hearing, smell, and touch. In this way, people can have an idea, understand, and think about the environment / society / they live in.

While some view open spaces as wasteful gaps hindering development, research reveals their surprising economic benefits. Contrary to the belief that open space generates no tax revenue, studies show it boosts community income. Single-family homes often require more services than they generate in taxes, while open spaces are cost-effective for communities. Research in new communities further demonstrates the economic advantages of public spaces compared to these homes. Additionally, open spaces often raise property values for nearby residents, increasing property tax revenue. Furthermore, spending in open spaces frequented by tourists and locals sustains local businesses. Some open spaces can even be rented for income generation. In conclusion, open space shouldn't be seen as a hurdle to development, but rather as a positive land use with clear economic advantages for communities (Moll, 2003).

While open spaces offer undeniable advantages like connecting residents with nature, promoting health, and fostering community, understanding resident perception goes beyond simply listing these benefits. Here, the study delves into the common themes that shape residents' views of open spaces, regardless of perceived advantages or disadvantages:

Nature's Embrace: Open spaces offer an escape from urban environments, providing a place to reconnect with nature, a theme consistently valued across diverse demographics. Residents seek these spaces for relaxation, reflection, and experiencing natural beauty, contributing to their overall well-being (Kuo, 2001).

Health and Social Hubs: Open spaces serve as platforms for physical activity and social interaction, positively impacting residents' physical and mental health. Whether engaging in sports, leisurely walks, or simply socializing, these spaces promote a sense of community and belonging (Pretty, 2005).

Aesthetics and Property Values: Well-maintained open spaces enhance a neighborhood's visual appeal, potentially increasing property values and attracting new residents. This economic incentive reinforces the importance of investing in open space development and maintenance. (Freeman, 2000)

Safety Concerns and Accessibility: However, not all perceptions are positive. Some residents express safety concerns, especially at night or in poorly lit or maintained areas. Accessibility issues for individuals with disabilities can also hinder full utilization of these spaces. Addressing these concerns is crucial to ensure equitable access for all residents. (Sugiyama, 2008)

Displacement and Gentrification: In certain contexts, open space development can lead to gentrification, displacing long-term residents and altering the community dynamic. This raises concerns about equitable development and resource allocation, ensuring that open spaces benefit all residents, not just select groups. (Anguelovski, 2013).

These are just broad themes, and individual perceptions vary greatly due to factors like age, background, and personal preferences. Understanding the diversity of perspectives is crucial to creating open spaces that truly serve the needs and well-being of all residents.

Residents Preference

Visiting preferences of residents will affect their perceptions of the importance of open spaces for health-ecological and natural health. Different behavioral groups give different importance to health, which is reflected in the cultural and ecological service understanding. Social services of open space ecosystems can strengthen the bond between nature and man and between man and man. Lo and Jim's (2012) research on Hong Kong stated: "Green spaces are valued for their microclimate and convenience, not because of their environmental performance and social benefits"; "Residents need good content and supportive spaces"; and "Effective Public Participation" (Mitchell, 2003). People's opinions about the quality and facilities of green spaces affect why they visit them. These reasons, in turn, also affect how people see the problems with green spaces and what needs to be improved (Carmona M. , 2018). The condition and quality of a green open space generally affect how people behave and feel about it. While people benefit from visiting green open spaces, they also contribute to the natural and social services that these spaces provide. How often people visit green open spaces is related to how much they make from them.

People who visit green open spaces frequently are concerned about their health. Green open spaces also provide places where people can interact socially and build relationships, even when they have different ideas about what services green open spaces should provide.

In addition, in terms of people living in the environment, personal development and the environment they live in will affect their thoughts, especially the good environment in children and the perceptions of older adults about the changes in the natural environment, both of which may affect their preferences, needs, and behaviors. People's views of the benefits of something are influenced by factors such as their family background, financial situation, and cultural identity, in addition to other factors (Woolley, 2003), but also by their experiences with nature. Research shows that people who interact with nature as children are more likely to be aware of the natural world and to want to use green spaces as adults (Krauze, et al., 2020). People's experiences with the changing environment help to shape their local understanding of how land has been used in the past, which in turn affects how they view the environment today. Knowledge of the uses of open spaces such as exposure time and experience is vital to explain the services provided by those spaces (Byrne & Neil, 2010). Researchers are interested in how people's use of green open spaces affects their views on how those spaces can be improved.

Any design and policy for a good public open space should consider the critical user requirements. There are some dimensions of good open space which is suggested by many planners including (Mark Francis, 2003) are: needs, rights and means to responsive connection with the user.

User conflicts: frequently arise in open environments due to unclear design and inadequate consideration of user behavior. These conflicts can vary significantly across cultures, groups, and even age demographics. What works well for adults, for example, might not be suitable for children. (Kayden, 2000).

Safety and security: Open spaces should be designed and managed to ensure the safety and security of users, particularly women. Fear of crime is a real concern that can deter people from using open spaces, so it is important to take steps to mitigate this risk.

The conflict between use and ecology: traditionally, scientists advocated for separating human use and ecology to protect humans and wildlife. However, there's growing recognition of people's innate desire to connect with nature. Researchers explore ways to reconcile these opposing forces,

finding innovative solutions that allow humans to access natural environments while minimizing impact on ecosystems and ensuring animal safety. (Gobstar and Hull, 2000). They argue that the natural environment can be used as man provided it, without harming it.

Abuse: Underutilization plagues many open spaces due to a combination of design flaws and misuse. Vandalism and the dominance by specific groups can create an unwelcoming atmosphere, deterring others from using the space. Additionally, poor design often fails to distribute activity zones effectively, leaving large portions unused and neglected. These factors together contribute to the unfortunate reality of underutilized open spaces, despite their potential to serve the community.

Biophysical Aspects of Open Space

Open spaces should be carefully managed, taking into account the benefits and threats of biodiversity to support decision-making. To this end, open spaces can be characterized in terms of their species, ecosystems, and threats, but this information is often difficult to obtain and often not comparable across regions. It is important to consider green open spaces in the urban environment when examining temperature for the benefit of human health (Lang & Marshall, 2016). Honjo and Sawada (2004) elaborated on the importance of analyzing the shape of green areas to assess their cooling factors. Yuan and Bauer (2007) documented a strong relationship between impervious surface area (ISA) and land surface temperature, or UHI (urban heat islands) effect.

In biophilic open space urbanism, a city's inhabitants' physical and mental health, work productivity, and social capital are improved by putting "nature first in its design, planning, and management" (Jongman, 2013). Biophilic cities can contribute to urban sustainability on many levels, and green infrastructure associated with rivers, floodplains, wetlands, and forests usually increases adaptive capacity when it comes to climatic impacts. As urban planners become more aware of the importance of urban ecosystem services, ways of quantifying these services by defining urban vegetation structure types and their associated micro-climatic effects are being investigated (Mehilam & Loffelholz BságikC, 2007). Urban forms that exhibit connectivity and landscape heterogeneity are said to be essential for the provision of ecosystem services and long-term sustainability (Adinna, et al., 2009).

Increased global temperatures resulting from anthropogenically induced climate changes have increased the frequency and severity of adverse weather events, including extreme rainfall events, floods, and droughts.

2.1.3. Interaction

Open space management has many benefits as it provides ecosystem services (MEA, 2005). The extent of ecosystem services provided depends on the physical quality and functionality of the UOS, which benefits residents and the environment (Haines-Young and Potschin, 2008). Cities that embrace green spaces, sometimes encompassing over half their land, reap significant environmental rewards. These verdant havens act as natural air conditioners and pollution filters, while fostering diverse ecosystems. They offer far more than aesthetics; they're the lungs of the city, cleansing the air and promoting well-being (Haase, 2020). Beyond their aesthetic charm, urban spaces offer a symphony of vital services. Green areas act as eco-champions, nurturing urban biodiversity and providing us with clean air and habitat. Blue spaces, while offering cooling in colder climates, truly shine in cities by managing water and providing recreational havens for sports and exercise. Both green and blue spaces play a crucial role in climate change resilience, helping us adapt to and mitigate its effects through, for example, managing precipitation. Even brown spaces, often overlooked, contribute through their cooling potential and limited cultural offerings like recreation. And let's not forget the bustling gray areas, bursting with cultural services like entertainment and leisure. Each space, in its unique way, contributes to a vibrant and resilient urban fabric that caters to both people and nature (Barton, 2020; Luederitz, 2015). Several services are affected by UOS management, requiring a long-term perspective in different contexts and different indicators, including knowledge of practice and theory (Jansson, 2020).

Strategic ecosystem management issues; This is the point Schultz (2007) Contact the local Butler network. They are usually concerned with the creation of knowledge and cooperation around the management of cooperation, on the other hand, they are associated with establishing visions and policies, establishing language/meaning of opinions, solving problems, and linking opinions. organizations and other political, legal, and financial resources (Hahn, 2008). KVBR's network management was established by BO Director Magnusson. Many actors and organizations in this

administration plan to support local organizations of leaders and seem to provide a memory for responding to changes in the ecosystem (Olsson, 2007).

2.1.4. Outcomes of Good Public Open Spaces

Public spaces offer much more than just physical recreation. They serve as crucial platforms for social and political engagement, fostering interaction and expression among community members. Beyond fostering political rallies and artistic endeavors, these spaces hold symbolic value, embodying the unique identity and spirit of the communities they represent. In essence, public spaces go beyond their physical form, playing a vital role in shaping the social and cultural fabric of communities. (Jacob & Hellström, 2010).

As a result of these three important aspects of public space, Jacob and Hellstrom (2010) developed dimensions of the principles of public space that can be divided into: Games and Sports: In terms of sports, this will lead to a wealth of options for public space residents. Power and Organization: Represent the role and power of those who plan to create, influence, develop, and manage public spaces; Utility and change: about the resilience of the public sphere as it changes; Identity and Unity: Define the public space as the identity of the city and the people and provide a unique experience to the public.

The quality of urban life is the result of the interaction between the urban environment and people (Das, 2008). Satisfaction with the city environment is one of the indicators of a good life. One of the elements of the urban environment is public open spaces. Therefore, public open space satisfaction can be used as an indicator of satisfaction with the urban environment, which affects people's quality of life. As a public open space, a physical structure, and a place for various activities, it is beneficial to improve the quality of life, especially to meet people's health, recreation, and urban environment needs. Trees and gardens, as public spaces, can be enjoyed and enhanced by looking after them (Ulrich, 1984). As a place for many activities, public open spaces have many benefits in terms of quality of life, such as mental and physical health, recreational benefits, and meeting the needs of beautiful urban areas (Kaplan, 2009). Therefore, a good understanding of public open spaces can affect the quality of life. Differences in knowledge regarding the relationship between public open space and quality of life are created by factors such as research objects, scale of public open space, and urban features. Many studies have found a positive relationship between one or more open spaces and one or more quality of life (Chiesura,

2010). Other studies have analyzed the relationship between public open space and quality of life using secondary data and quality of life data (Lynch, 2007; Beck, 2009; Quintas & Curado, 2009). First, many researchers have conducted research in developing countries that have public opinion structures as part of the overall urban spatial structure.

One of the benefits of good open spaces is for tourist attractions. The attitude of the community found in that surroundings is essential for visitors' satisfaction (Sheldon & Abenoja, 2001). Attitudes are seen as a predisposed response to situations, objects, people, and other self-defined areas. They involve cognitive, behavioral, and affective components.

In the context of tourism, the literature suggests that the attitudes of individuals towards the activity tend to be influenced by the evaluation of the impacts of the activity on the community and the place (Cilliers, 2019).

Social Benefits

Community open spaces have a variety of uses for the surrounding community; connect or connect people in the community every day for leisure and outdoor activities and can support the creation and development of community motivation and social cohesion (Moll, 2003). In these situations, it is easy for children to play outdoors because play is an important part of society or cultural group and educational goal (Cooper & Cauli, 1998).

Recreational place

Public space facilitates community parks that can be considered recreational and recreational activities. Active sports represent a variety of activities such as basketball, soccer, basketball, and other sports, while passive sports represent childcare or other reading, rest, or meeting with friends, such as nature (Woolley, 2003).

Children's Play Ground

Children play games regularly, and daily success is associated with this developmental habit. Playgrounds should not be too far from where they are located, traffic regulations and routes that will cut off children's access to the playground should be considered (Woolley, 2003).

Environmental Benefits

Improved safety and environment provide opportunities for wildlife. It also cools the air and removes carbon monoxide from the air, which is an important benefit of outdoor space. Understanding that parks and green spaces can help improve the lives of people in that community.

Health Benefits

High-quality green space for the preventative health value evidence is growing. The health benefits can be identified primarily as mental and physical health benefits, with the restorative effects that nature can have and the importance of near nature in daily life (Woolley, 2003). In addition to the ability of urban green space to reduce pollution, and the buildup of particulates that can aggregate respiratory diseases such as asthma and bronchitis, green space contributes significantly to stress reduction, the alleviation of dementia and depression (Krauze, et al., 2020).

Economic Benefits

Properties that are located in neighborhoods with open spaces and green area parks have been found to have higher resale prices and homeowner value. These open spaces are important attributes when making decisions about residential location and housing choice (Byrne & Neil, 2010). This situation shows that the existence of open space leaves a positive impression on the people living in the space and contributes to the economic value of society. Urban green spaces can provide opportunities for community engagement that can help increase self-esteem and allow individuals and communities to develop new skills and create jobs (Woolley, 2003). In addition, open spaces with good value are also a form of tourism.

Publicness: Public access is essential for the quality of open spaces, encompassing legal rights, ease of use, and mobility. Lynch (1981) defines accessibility through these three dimensions, while his concept of place authority, as explored by Varna and Tiesdell (2010), provides a valuable tool for measuring the effectiveness of public space.

Natural systems and environmental quality: Open space is part of a larger system and is essential for urban health. A growing body of research has focused on the relationship between people and their environment (Cooper & Francis, 1998).

Safety: Open space is characterized by feeling spaces as an important precondition for people to use a place, especially for children, women, and elderly people (Carmona M. , 2018).

Comfort: Comfortable seating with protection from the elements (sun, wind, rain) is crucial for people to enjoy and use open spaces. This has been well-established as a key factor in creating successful public spaces. Beyond just physical comfort, these spaces should also consider the "sun and wind, body, and heart" of the environment, suggesting a holistic approach that incorporates aspects like aesthetics, social interaction, and overall ambiance. By designing for both physical and emotional comfort, open spaces can encourage residents to spend more time outdoors and foster a sense of community well-being (Cooper & Cauli, 1998).

2.2. Empirical Framework

Based on a review of existing research, researchers have identified several factors that contribute to the complex relationship between public open spaces and quality of life. These factors include education, the size of public open spaces, and the characteristics of cities that support open space. There is no single relationship between public open spaces and quality of life, many studies have found open spaces have multi-dimensional positive effects on quality of life (Chiesura, 2003; Sugiyama et al., 2010). Other researchers have examined the link between public open spaces and quality of life using existing data on both public open spaces and quality of life (Lynch, 2007; Beck, 2009; Quintas & Curado, 2009). First, many researchers have conducted research in developing countries that have public opinion structures as part of the overall urban spatial structure. Similar studies are not available in developed countries where there is no good public space.

Solomon (2020) conducted a study on public space comfort and user satisfaction in Meskel Square, Addis Ababa. The study explored user relationships, satisfaction surveys, and publicly available information. Combining qualitative and quantitative data from observations, questionnaires, and interviews, the research employed content and descriptive analysis (Zaharah, 2014; Zhang, Cao, & Han, 2021) to examine the link between events and user satisfaction. Notably, the study found that users' satisfaction with Meskel Square fell below average (2.72).

A study by Kumelachew (2020) addressed Resident Attitudes and Perceptions of the Benefits, Challenges, and Effectiveness of Community Parks in Sub-Saharan African African Cities. This

study aims to understand the perceptions and attitudes of residents in the legal area of Addis Ababa about the benefits, challenges, and effectiveness of community parks and to explore whether these factors are influenced by the culture of the participants. This study aims to understand the perceptions and attitudes of residents of Addis Ababa, Ethiopia on the benefits, challenges, and quality of work of public parks, and to explore whether this is affected by community characteristics. Descriptive and chi-square tests were used for analysis, while data were collected through household observations (n = 398) and three focus group discussions, home surveys, and focus group discussions for data collection. Data were analyzed using descriptive statistics and a chi-square test. Eighteen ecosystem services (benefits) and five challenges were selected through group discussions. This study highlights the importance of on-site research for visual assessment of benefits that identify ecosystem services/benefits and challenges affecting their use; The importance of participation in urban development and management as a lesson from Sub-Saharan Africa in attracting people. Usage and usage problems of urban parks. One of the most important things that cities in sub-Saharan Africa can learn from Addis Ababa is how to involve the public in the development and care of city parks.

Wahyuni Zahrah (2014) conducted a study on community perceptions of public open spaces and quality of life in Medan, Indonesia. the relationship between public open spaces (POS) and quality of life (QOL) across various countries. It highlights the significant impact of environmental factors on the quantity and quality of these spaces, underlining the need for environmentally conscious policies and practices in their development. Interestingly, the study identifies "activity" as the single most important factor influencing public perception of POS, suggesting the critical role of designing and managing spaces that encourage diverse and engaging activities. The research further reveals a positive correlation between POS and physical QOL, with "health" emerging as the most influential factor for individuals. This underscores the importance of accessible and well-maintained spaces in promoting physical well-being. While the study details remain unspecified, these findings offer valuable insights into the multifaceted link between public spaces and the lives they enrich, emphasizing the need for environmental sustainability, activity-driven design, and a focus on public health priorities when planning and managing these vital community assets.

This study by Zhang, Cao, and Han (2021) explores how residents in the Wuhan Urban Development Zone perceive and interact with green open spaces. Using surveys and interviews,

the research reveals diverse viewpoints based on residents' social backgrounds, interests, and specific considerations. Notably, significant changes in the natural environment itself have impacted public perception of the ecological benefits provided by these green spaces.

This research by Alemaw (2017) focuses on the complex challenges and potential opportunities related to urban green infrastructure (UGI) within Addis Ababa's inner city, specifically the Lideta and Kirkos sub-cities. The study examines various components of UGI, including parks, roads, tree-lined avenues, and cobblestone paths. Using a combination of quantitative and qualitative methods, including closed-ended surveys, open-ended interviews, and observations, the research identifies numerous challenges affecting UGI in the city. These challenges span across social, physical, economic, environmental, competitive, and administrative domains. Unfortunately, the provided excerpt doesn't detail the specific findings or opportunities identified. However, it highlights the comprehensive approach taken to understand the multifaceted issues surrounding UGI in Addis Ababa and paves the way for further exploration of potential solutions and advancements.

Mikyias' 2011 study, "Urban Use in Addis Ababa: The Case of Meskel Square," explores the relationship between urban culture and open spaces. Focusing on Meskel Square as a case study, it examines user preferences and how historical events have shaped the space's development and current uses. By analyzing this central and historically significant square, the study aims to shed light on the overall trends and future directions of open spaces in Addis Ababa.

Alexandra, Sosten, & Chiotha (2019) a comprehensive review article covering South. and East Africa, due to their high growth rates. It highlights the importance of policy-based strategy, promotion of cooperation, and strategic planning to address current issues such as ecological gentrification, social exclusion, displacement, lack of policy, local support, and resources to develop and maintain the open space of sub-Saharan Africa. It also highlights the importance of supporting everyday life through the promotion of urban agriculture, an important strategy for building resilience to climate change in Sub-Saharan Africa. As a result, the researchers concluded that a better understanding of urban competition in the world of residents and actors in East and South Africa, characterized by environmental change and insecurity, is essential to achieving sustainable and resilient cities.

The article *Building Urban Water Resilience from a Livelihood Perspective: Opportunities and Challenges in Addis Ababa* by Liku Workalemahu (2018) examines two communities in Addis Ababa (how residential and urban agriculture manage water resources and green spaces) and how they manage water resources and green spaces. The results showed that the livelihoods of both communities were greatly affected by water stress. Dependence on natural resources has made farming communities vulnerable, but also stronger than those living in low water quality.

2.3. Conceptual Literature Review

The subject of these studies is based on the need for the management of open spaces in the city to understand people's thoughts and behaviors about the benefits, difficulties, and advantages of open spaces. Open space assessment is an important tool to support land use and management decisions. Survey-based analysis can be used to assess public perception of ecosystem services. People's perception of urban open space is often context-specific and is influenced by many factors that affect the physical nature of open space, the population and economy of occupants, the quality of open space, the availability and quality of household furnishings, relevant village, and space.

An open space is a public place that promotes, creates, or supports social, cultural, and collective activities, including relationships, events, and symbols. The open space is open to the public and supports, creates, or encourages social, cultural, and collective activities in three aspects: social, functional, and symbolic (Carmona M. , 2018). From these perspectives, open space encourages the relationship between equality and citizenship, rights and social relations are important for the spatial transformation process (Lew, 2017). On the other hand, urban space can also be characterized as the principle of differentiation between rural and urban areas (Cilliers, 2019).

Researchers define green infrastructure as part of the urban landscape that consists of trees, parks, farmland, wetlands, lakes, and streams. In general, green infrastructure is infrastructure that provides benefits to people without harming the environment, that is, infrastructure that is good for the environment (Adegun O. , 2017). Different applications and methods enable automated sites to work towards creating additional sites that will meet the individual's needs and desires. In other words, space has a changing meaning, a meaning that can change according to new use and time (Carmona M. , 2018).

This is because people have a direct relationship with the change in the urban public sphere, and as society changes, so does the urban public sphere (Carmona M. , 2018). Urban space offers social, cultural, physical, and aesthetic aspects where tourism can be developed (Cilliers, 2019). Therefore, open space is one of the most important areas for visitors. Cultural, social, and physical features make up the tourism experience, the ability for tourists to interact with tourist attractions, and the infrastructure that can be developed for genre, not travel and tourism (Moscardo, 2008).

According to Carr, Francis, Rivlin, and Stone, (2009), open space is divided into three main categories of use and design. First, to create a connection and connection between people and places characterized by meaning; the second is freedom, which protects the rights of the user group, is open to all groups, and provides freedom of action; The result is a solution. The needs and characteristics of the residents stated by some different researchers are answered below. Different studies define the following as open-space characters

Imagine a vibrant tapestry woven from the threads of green spaces, bustling streets, and towering structures. This tapestry represents the urban landscape, and within its intricate weave lies a crucial element – urban open spaces. These green havens serve as the city's lungs, offering respite from the concrete jungle and fostering a sense of community. But how do residents truly perceive these spaces? What are their thoughts on their benefits, challenges, and perceived advantages?

To unravel this intricate tapestry of perception, a conceptual framework emerges, one that delves into the hearts and minds of urban dwellers. This framework recognizes the physical nature of open spaces as the first thread. It considers their size, accessibility, and the lush embrace of vegetation and amenities. A well-maintained park with accessible pathways and vibrant greenery will likely evoke a different perception than a neglected, poorly-connected space.

But the tapestry extends beyond the physical. The socio-demographic factors of the users form another crucial thread. Age, income, cultural values, and residential context all play a role in shaping perceptions. For a young family, a playground might be the heart of their open space experience, while for an elderly individual, a quiet park bench under a shady tree might hold greater value.

The framework then weaves in the intricate thread of individual perception and behavior. Residents assign meaning to open spaces, recognizing their benefits like recreation, relaxation, and

improved well-being. However, they also face difficulties – safety concerns, accessibility limitations, or inadequate maintenance – that can tarnish their experience. Understanding how open spaces compare to other options, such as private gardens or indoor recreational facilities, further enriches the tapestry. Finally, by studying usage patterns and activity preferences, the framework sheds light on how residents interact with these spaces.

This multi-layered tapestry culminates in the realm of management and decision-making. By understanding public needs and preferences, informed decisions can be made about open space planning, design, and resource allocation. Prioritizing investments towards features and qualities valued by users becomes possible, leading to spaces that truly cater to the community's desires. Moreover, this framework encourages effective management by addressing accessibility, safety, and maintenance concerns, ensuring that open spaces remain vibrant and inviting.

Ultimately, this conceptual framework transcends a mere understanding of open spaces. It fosters a dialogue between the spaces and the people who inhabit them. By recognizing the complex interplay between physical attributes, socio-demographic factors, and individual perceptions, we can create and manage urban open spaces that are not just green patches on a map, but vibrant threads woven into the very fabric of a thriving community.

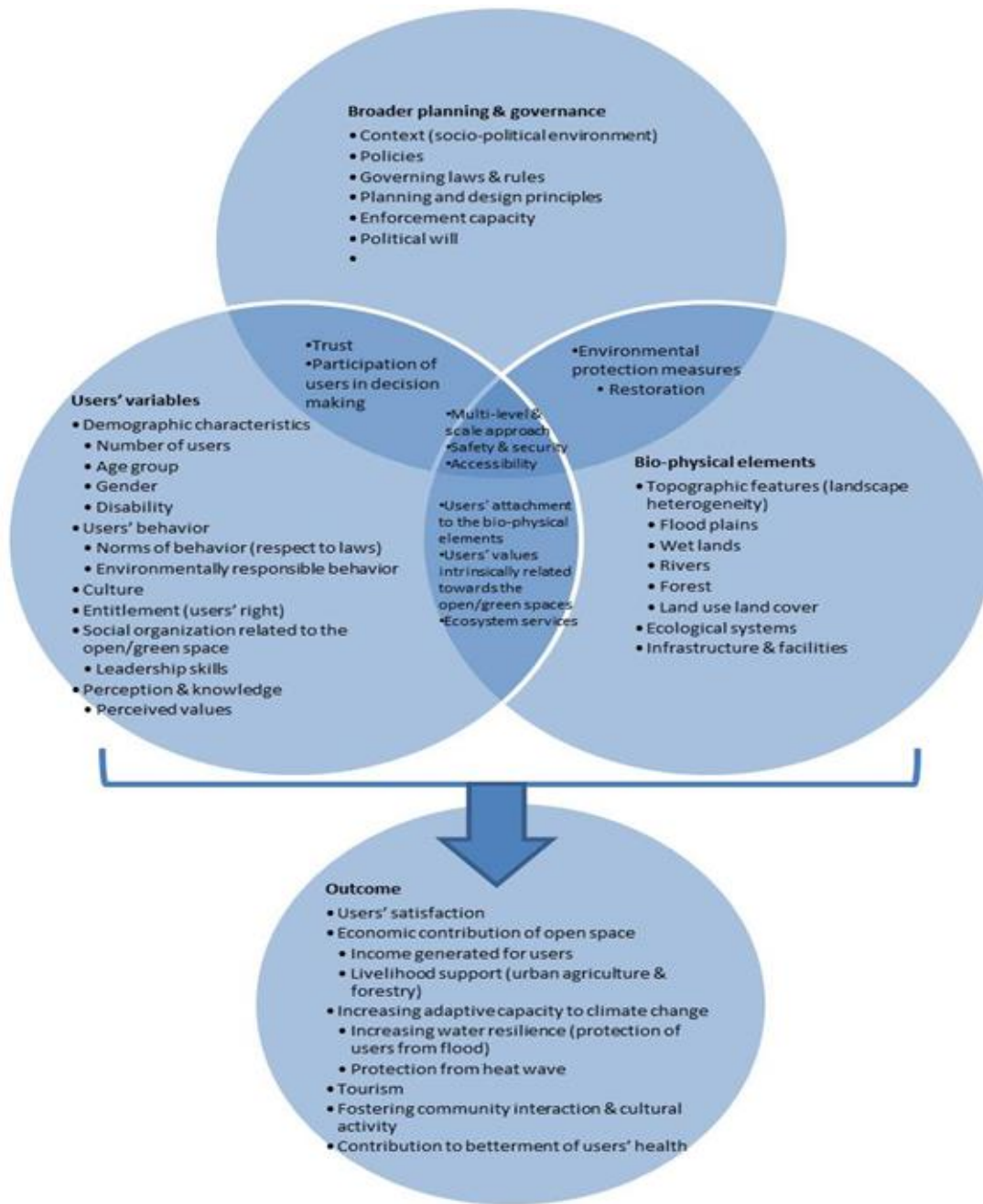


Figure 2 conceptual framework

Source: adapted from (Ostrom, 2009).

CHAPTER THREE

3. METHODOLOGY

3.1. Introduction

This chapter deals with the description of the Research approach and design, data types and sources, data collection, and methodology that will be used in the study by presenting methods, techniques, and procedures utilized in the study to reach the research findings. The research population, data collection, and sampling methods are described; then this chapter explains collection procedures, issues related to validity, and the reliability of the instrumentation is discussed. Also, the data analysis process and the statistical tools that will be used are explained.

3.2. Description of Study Area

Arada Sub-City is a sub-district in Addis Ababa Province, Ethiopia. It is one of the 11 districts of Addis Ababa, the capital city of Ethiopia. In between, it is a big city with many historical monuments, many schools, and cultural institutions, and is the place where religious ceremonies are held every year. Arada is one of Addis Ababa's oldest cities and its early history is the most authentic. The narrow, sloping streets are dotted with beautiful one- and two-story old houses with balconies, columns, bay windows, and other decorations in Indian, Middle Eastern, and European styles. But along the main road to Ras Mekonen Bridge, there are three-story buildings of modern buildings. At the heart of the city is the Piazza (pronounced Piassa), a bustling commercial district on Charles de Gaulle's site; the imposing city built in 1965, the administrative center of the city; octagonal neoclassical St. George's Cathedral (Ethiopian Orthodox church.), built to commemorate Emperor Menelik's victory over the Italians at the Battle of Adwa in 1896, named after Ethiopia's patron saint, with shops and boutiques selling European clothing, jewelry, and more. Street, Prices are also higher in comparison. other places in town (Wikipedia, no date). The case study Area is the green open space of Wereda 05 located in Ras Mekonn Park, the Ras Mekonnen-seba dereja area, the open green space in front of Ras Mekonnen Park, St. George Road separator and St. George's Square.

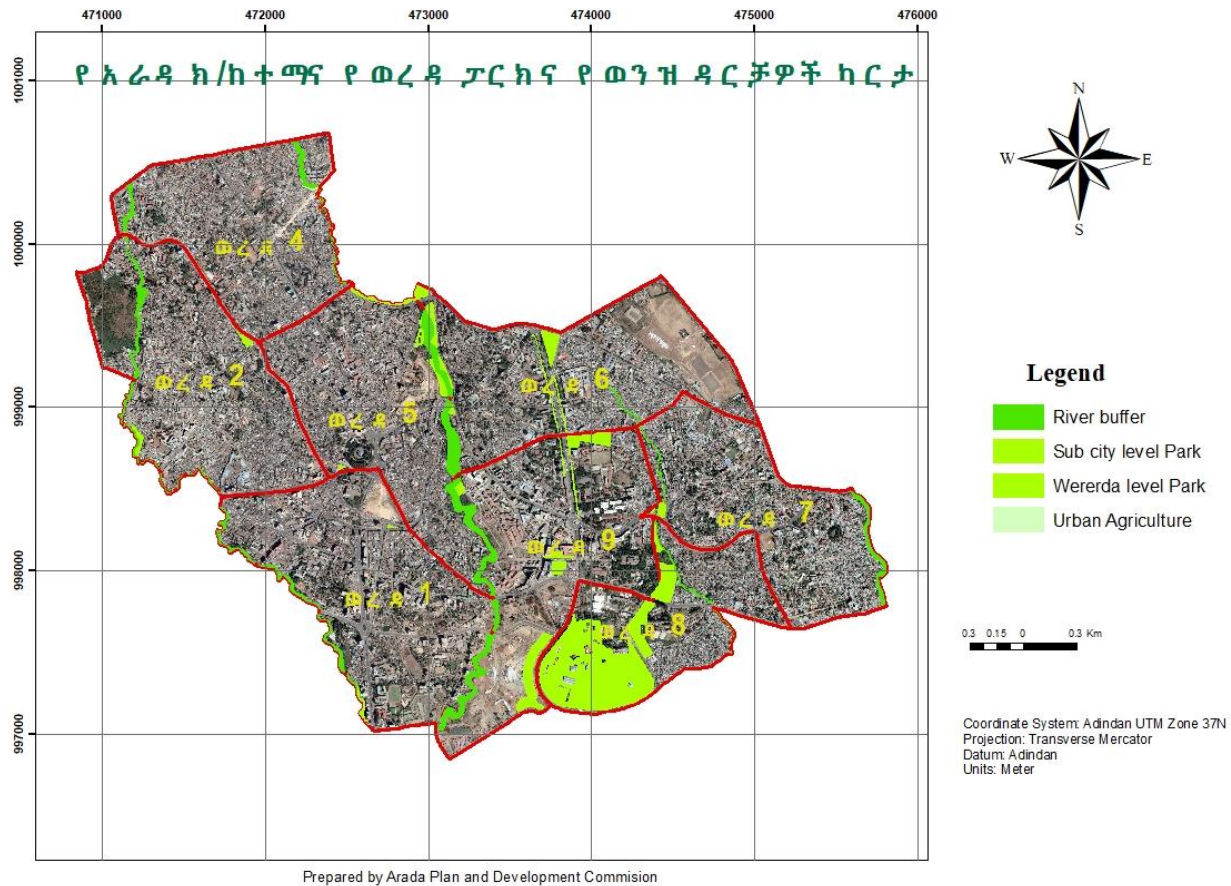


Figure 3 Map of Arada sub city Park and River Buffer Green Area

Source: adapted from Arada plan and Development Commission

3.3. Research Design

The study employed descriptive in the quantitative part and case study research design in the qualitative approach. Descriptive research is concerned with the assessment of attitudes, opinions, demographic information, conditions, and procedures (Creswell, 2012). It involves collecting data from the respondents. According to Sturman (1997), a case study is a general term for the exploration of an individual, group, or phenomenon. Therefore, a case study is a comprehensive description of an individual case and its analysis; i.e., the characterization of the case and the events. A case study “is a description and analysis of an individual matter or case with the purpose to identify variables, structures, forms and orders of interaction between the participants in the situation, or, to assess the performance of work or progress in development (practical purpose)(Starman, 2017). Thus, the study will use descriptive and case study research design.

3.4. Research Approach

Both qualitative and quantitative research methods were used in this study. Quantitative research is used to establish and examine the relationship between two variables or concepts. It is used for the investigation and study of various objects and events and their relationships. Many studies aim to develop and apply mathematical models, theories, and hypotheses about natural phenomena. It includes the use of computational, statistical, and mathematical tools to support the results (Adugna, 2019). Qualitative research is a "subjective" assessment of a question based on a subject's thoughts, feelings, emotions, or behavior. In the research, different methods will be used in the analysis of the questions, and qualitative methods will be used in the analysis of the interviews. Therefore, a combination of research methods will be used in this study.

3.5. Population of the Study

The case study is the green open space of Weara 05 located in Vice City in Between. Ras Mekonn Park, the Ras Mekonnen-seba dereja area, is the open green space in front of Ras Mekonnen Park, St. George Road, and St. George's Square. The benefits of these areas are linked to justice, public health and recreation, biodiversity, and helping to protect cities against climate change. In addition, the fact that some parks are free and do not charge a service fee invites the whole community to participate. Therefore, everyone in the city is seen as a beneficiary or user. Therefore, the population of this study will be the residents of Wearda 05 in the Arada district. There is a total of 10 Wearda in the sub-city of Arada. This study only has Wearda 05 in Vice City in between to obtain representative data. According to the data obtained by the researchers from Wereda 05, the population of the sub-city of Wereda 05 Arada in 2022 will be approximately 17,456 people.

3.6. Sampling size determination and sampling techniques

Wereda 5 is selected purposively since this wereda has more green open spaces than the others. Among the 17,456 population of Woreda, the researcher uses the following formula to determine the sample size which is developed by Yamane (1967).

$$n = \frac{N}{1 + N(e)^2} = \frac{17,456}{1 + 17,456(0.05)^2} = 391.04, \text{ approximately } 392 \text{ respondents, by using this formula at } 95\% \text{ confidence level and } 5\% \text{ level}$$

Where:

N=population size

n=sample size

e=level of statistical significance (5%=0.05)

Therefore, the sample size(n)=392

3.7. Data Types, sources, and Methods of Collection

Research uses primary data; Primary data is collected directly from participants. Primary data was obtained through questionnaires and interviews. The questionnaire was divided into two parts; The first part was designed to collect demographic information such as gender, age, marital status, and education level of the participants. The second part of the questionnaire consisted of a 5-point Likert scale. The interview will be conducted by the sub-city and Wildas Green Development Office officials.

3.8.Method of Data analysis and presentation

The collected data were analyzed both quantitatively and qualitatively. The data collected through questionnaires was analyzed with descriptive statistics, such as frequency, percentage mean, and standard deviation, using a statistical package for social scientists (SPSS) version 26. The data obtained with open Interviews were analyzed qualitatively by bringing the common thoughts of the responses together into a common understanding.

3.9. Reliability and validity analysis

According to Kothari (2004), a tool is reliable if it gives consistent results. Cranach alpha is the reliability coefficient. It is often used to measure the internal consistency or reliability of psychometric test scores among a sample of test takers. To evaluate the reliability of the data, Cronbach's Alpha was calculated to evaluate the reliability of the research tool. According to Zikmund, Babin, and Griffin (2010), the alpha coefficient between Measurements between 0.8 and 0.95 is considered very good, α coefficients between 0.7 and 0.8 are considered reliable, and measurements with α coefficients between 0.6 and 0 are considered reliable.7 shows that there is a lot of faith. The Cronbach Alpha must be above 0.7 for each dimension and for all results to be reliable. Cronbach's Alpha was calculated and found to be 0.881 and gave quite good results.

Table 3. 1: Reliability test result

Reliability Statistics	
Cronbach's Alpha	N of Items
.881	51

Source: Survey result, 2023

Content validity involves the degree to which the study is measuring what it is supposed to measure. More simply, it focuses on the accuracy of the measurement (John et.al, 2007). All measures used to construct the instruments should have shown an acceptable level of construct and content validity in previous studies and are used in this study with modification. Additionally, several measures were employed to ensure that the results were free from material errors from the design of the questionnaire. Such measures are clarity of instructions, clarity of the questions, the layout of the questionnaire, and other comments

3.10. Ethical considerations

According to Creswell (2012), "Since researchers must collect data, they must respect the participants and the place where the research is conducted". In research, researchers maintain objectivity, helpfulness, and high standards of work throughout the research process and do not falsify, alter, or distort information for fraudulent or other reasons. This work is accepted as an ethical responsibility. This includes providing participants with information about the purpose of the study and the use of information. The researchers kept the information they received confidential. The names of the participants are kept confidential so that the participants can express themselves freely and safely.

CHAPTER FOUR

4. DATA ANALYSIS, PRESENTATION AND DISCUSSION

4.1. Introduction

This chapter dives into the heart of the research, presenting the analyzed data and the researcher's insights. Utilizing various tools like frequency tables, percentages, means, and standard deviations, the quantitative analysis paints a clear picture of residents' perceptions regarding open space usage, values, and protection in Arada sub-city. Additionally, qualitative analysis captures common themes and ideas expressed by respondents. By "triangulating" these findings with document reviews, a richer understanding emerges. Ultimately, the analysis aims to fulfill the study's objectives and answer the research questions posed.

This research explores the perspectives of 392 residents in Addis Ababa's Arada sub-city, focusing specifically on the Wereda 5 communities. We distributed 392 questionnaires to gather data, and the rich information collected from respondents is meticulously analyzed in this chapter. This analysis reveals valuable insights into their perceptions, values, and interactions with open spaces, serving as a foundation for informed discussions and potential improvements.

4.2. Response rate of the respondents

A total of 392 questionnaires were distributed to open space users of Addis Ababa, Arada sub-city where 5 people and 383 questionnaires were filled and returned their questionnaires properly. Thus, approximately 97.7% of the questionnaires were returned, while 9 of the respondents didn't respond and never returned the questionnaire.

4.3. Demographic characteristics of the respondents

The questionnaire includes a segment of the employee's profile such as an assortment of demographics and other factors that are likely to influence the residents' perception of open space uses, values, and protection in the Arada sub-city. In studies like this, it is important to analyze the background information of the respondents. This is because people's social background influences their thinking patterns and to a larger extent what they do. The background information comprised age, gender, educational level, occupation, and marital status.

Table 4. 1: Demographic characteristics of the respondents

Demography		Frequency	%
The gender of the respondents	Male	218	56.9%
	Female	165	43.1%
Age of the respondents	Below 25	66	17.5%
	25-30	66	17.5%
	31-35	147	39.0%
	36-40	71	18.8%
	Above 41	27	7.2%
Level of Education	Illiterate	30	7.8%
	Grade 1-8	12	3.1%
	Grade 8-12	45	11.7%
	Diploma	99	25.8%
	Bachelor degree	182	47.5%
	Master Degree	6	1.6%
	PhD	9	2.3%
Marital status	Single	193	50.4%
	Married	178	46.5%
	Divorced	12	3.1%
	Widowed	0	0.0%
Occupation of the respondents	Government employee	202	53.2%
	Merchant	22	5.8%
	NGO Worker	0	0.0%
	Private Worker	117	30.8%
	Other	39	10.3%

Source: Researchers survey result, 2023

As we can see from Table 4.1, the first demographical part of the study was sex. There were 218 male respondents which represent 56.9 % of the respondents and 165 females which cover 43.1% of the respondents. The majority of this study respondents were represented by male and the composition was relatively balanced.

The majority of respondents belong to the age group of 31-35 years which accounts for 39 %, followed by 36-40 years having 18.8% 71 in numbers. This shows that most participants in this study are between the age of 31 and 40 years. It implies that the data collected from the respondents who have lived for a long period and have good experience with the environment.

The majority of the respondent's education level was bachelor's degree which number 182 which represents 47.5% of the respondents. This implies that the majority of the respondents are educated and hence have good knowledge about open space uses, values, and protection.

The background information about the marital status of the respondents is 193 which represents 50.4% are single, and 178 respondents which represent 46.5% are married. Hence the majority of respondents are single and then next married.

The last part of the demographic information was respondents' occupation status and hence their occupation indicates that the majority of the respondents as governmental employees.

4.4. Descriptive Statistics

The data collected in this section are analyzed using various data analysis tools such as mean, standard deviation, frequency, and percentage. Descriptive statistics for each variable were measured on a 5-point Likert scale ("1" for "disagree" and "5" for "agree"). According to Pihie and Akmaliah (2009), overall mean (M) score between 4.21-5.00 is considered as the respondents strongly agreed (SA), if the respondents' score between 3.41-4.20 means agreed (A), the score between 2.61-3.40 is considered as the respondents are neutral(N), the respondents' score between 1.81-2.60 shows that disagreed and if the respondents' score between 1-1.80 shows that strongly disagreed. Thus, detail of the analysis is presented on Table 4.2.

Respondents were asked whether or not they were aware of the benefits of the open areas, and 359 of the respondents representing 93.7% of the total respondents they aware of the benefits of the open areas, and the remaining 24 representing 6.3% were not aware of the benefits of the benefits of the open areas. As we saw the majority of the respondents were aware of the benefits of open spaces and hence this implies that the Addis Ababa, Arada sub-city community is aware of the benefits of open space.

Table 4. 2: General introducing questions about green open space

Questions	Answers	Frequency	%
Are you aware of the benefits of the open areas?	Yes	359	93.7%
	No	24	6.3%
Are you aware of the rights and responsibilities in the open space area?	Yes	335	88.2%
	No	45	11.8%
How often do you visit the open space area?	Most Days	84	23.2%
	Weekly	69	19.1%
	Monthly	54	14.9%
	Occasionally	88	24.3%
	Rarely	67	18.5%
Why do you visit the open space?	For peace	101	
	Get some fresh air	255	
	Visit the play area	153	
	Attend events	20	
	For a walk	62	
	Enjoy the surroundings	124	
	Play/watch sports or games	5	
	See birds and wildlife	54	
	Take a shortcut	13	
	Children/family outing	4	
	Eat / drink	2	
	Meet friends	45	
Did you participate in the planning, protection, and management of open green spaces?	Yes	111	29.2%
	No	269	70.8%

Source: Survey result, 2023

The next question is whether or not people understand the rights and responsibilities associated with using open spaces. The 335 which represents 88.2% of the respondents aware of the rights and responsibilities in the open space area. The remaining 45 respondents which covers 11.8% of the respondents were not aware of the rights and responsibilities in the open space area. The majority of the respondents are aware of the rights and responsibilities in the open space area which implies that the Addis Ababa Arada sub-city communities are aware of the rights and responsibilities in the open space area.

Respondents also asked How often they visit the open space area and 84 respondents representing 23.2% visit most days, 69 respondents which cover 19.1% visit the open space area weekly, 54 respondents which cover 14.9% visit monthly, and the remaining 88 respondents cover 24.3% visits occasionally. As we saw there is a uniform distribution of visiting frequency and hence this implies that the Addis Ababa city Arada sub-city community has different initiations for visiting.

Respondents were asked whether or not they participate in the planning, protection, and management of open green spaces. 111 respondents which covers 29.2% participated in the planning, protection, and management of open green spaces, and the remaining 269 respondents which covers 70.8% did not participate in the planning, protection, and management of open green spaces. The majority of respondents did not participate in the planning, protection, and management of open green spaces. This implies that the Addis Ababa Arada sub-city community did not participate in the planning, protection, and management of open green spaces.

4.5. Current status and accessibility of Green Open Spaces

Respondents were asked different questions to measure the current status and accessibility of green open spaces. The results are presented and discussed in Table 4. 3.. The first statement was if there are enough green spaces in their area and 34 respondents which represents 8.9% strongly disagreed, 216 respondents which represent 56.4% disagreed with the idea there are enough green spaces in my area, 112 respondents which represent 29.2% from the total agree about the idea there are enough green spaces in my area, 9 respondents which represent 2.3% from the total strongly agree. From these the majority of respondents disagree with the statement there are enough green spaces in my area and this implies that there are not enough green spaces in the Addis Ababa Arada sub-city area.

Table 4. 3: Current status and accessibility of Green Open Spaces in Arada sub-city

Current Status	Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Overall	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Mean	SD
There are enough green spaces in my area	34	8.9%	216	56.4%	12	3.1%	112	29.2%	9	2.3%	2.60	1.071
The green spaces are in good condition in my area	51	13.3%	100	26.1%	52	13.6%	180	47.0%	0	0.0%	2.94	1.124
The green spaces are well equipped in my area	51	13.5%	134	35.5%	96	25.5%	81	21.5%	15	4.0%	2.67	1.079
The green spaces in my area are suitable for children to play	54	14.1%	95	24.8%	99	25.8%	126	32.9%	9	2.3%	2.85	1.102
The green spaces are safe in my area	33	8.6%	108	28.2%	68	17.8%	156	40.7%	18	4.7%	3.05	1.106
The green spaces are attractive in my area	39	10.2%	72	18.8%	116	30.3%	141	36.8%	15	3.9%	3.05	1.058
Green spaces are important for the appearance of my area	0	0.0%	6	1.6%	31	8.2%	259	68.2%	84	22.1%	4.11	.596
Green spaces attracted me to my area	9	2.3%	45	11.7%	88	23.0%	220	57.4%	21	5.5%	3.52	.859
Green areas are accessible to the people	0	0.0%	99	26.1%	82	21.6%	181	47.6%	18	4.7%	3.31	.912

Source: Survey result, 2023

Respondents were asked to give their opinion on the statement, "The green spaces are in good condition in my area." 51 respondents representing 13.3% strongly disagreed with the statement, 100 respondents representing 26.1% disagreed about the statement, 52 respondents (13.6%) were neutral, and the remaining 180 respondents (47%) agreed. The majority of respondents disagree with the idea that green spaces are in good condition, suggesting that green spaces in Addis Ababa's Arada sub-city might not be in good condition overall.

The third question that respondents were asked to measure the accessibility of the green open space was whether the green spaces were well equipped in my area. This response **received** strong disagreement from 51 respondents (13.3% of respondents), disagreement from 134 respondents (35.5%), neither agreement nor disagreement from 96 respondents (25.5%), agreement from 81 respondents (21.5%), and strong agreement from 15 respondents (4%). The majority of the respondents disagree with the statement that green spaces are well-equipped in my area, suggesting that green spaces in Addis Ababa's Arada sub-city may not be well-equipped.

A survey in Addis Ababa's Arada sub-city asked residents if they consider their local green spaces suitable for children's play. Among 397 respondents, 54 (14.1%) strongly disagreed, 95 (24.8%) disagreed, and 99 (25.8%) neither agreed nor disagreed. Conversely, 126 (32.9%) agreed and 9 (2.3%) strongly agreed. While a significant portion (69.7%) disagreed or were neutral, these findings suggest that some residents perceive the green spaces as suitable for children's play. Further investigation into residents' concerns and the specific characteristics of these green spaces could provide valuable insights for improvement.

In the survey conducted, 156 respondents (40.7%) agreed that green spaces are safe, while 108 respondents (28.2%) disagreed. While more respondents agreed, nearly a third expressed concerns about safety. This suggests that safety perceptions regarding green spaces may vary among residents in Arada sub-city. Further investigation into specific safety concerns and characteristics of the green spaces could provide valuable insights for improvement.

The other statement that respondents asked was whether or not they agree that the green spaces are attractive in my area. This response was strongly agreed by 39 respondents which covers 10.2% of the total and disagreed by 72 respondents which covers 18.8% of the total and became neutral with 116 respondents which covers 30.3%. The remaining 141 respondents which covers 36.8%

agree and 15 respondents which covers 3.9% strongly agree. This diversity of opinion suggests different preferences and needs regarding green spaces, potentially highlighting areas for further exploration to understand what residents find attractive.

Residents in Addis Ababa's Arada sub-city shared their views on the role of green spaces in their community. Notably, many residents acknowledged the positive impact of green spaces on the area's appearance. A large majority agreed that these spaces contribute to the overall aesthetics of the sub-city, highlighting their potential value in enhancing visual appeal.

Furthermore, the survey revealed that green spaces played a significant role in attracting residents to the area. A majority of respondents indicated that the presence of green spaces was a factor in their decision to choose Arada sub-city as their home. This suggests that green spaces hold potential in not only enriching existing communities but also in attracting new residents.

A majority of respondents within the study agreed that green areas in the area are accessible to them. This finding points towards a perceived ease of reaching green spaces within the specific population surveyed.

Residents in Addis Ababa's Arada sub-city participated in a survey that explored their perceptions of local green spaces. The findings suggest that while opinions varied amongst respondents, some key trends emerged. Regarding the adequacy of green spaces, the average response (mean 2.60) leaned towards disagreement, suggesting a perceived lack by participants. This perception was reflected in the slightly dispersed responses (standard deviation 1.07), highlighting some variation in individual opinions. Similarly, the statement about the green spaces being in good condition received an average response (mean 2.94) indicating neutrality amongst participants. Again, the slight dispersion in responses (standard deviation 1.124) suggests varying individual perceptions of their condition.

The average response (mean 2.67) to the statement "The green spaces are well-equipped in my area" suggests disagreement among participants. The slight dispersion in responses (standard deviation 1.079) indicates some variation in individuals' opinions. However, it's important to avoid generalizing this finding to the entire Arada sub-city based solely on this survey data.

The average response (mean 2.85) on the statement "The green spaces in my area are suitable for children to play" suggests some disagreement among participants, as indicated by the slightly

dispersed responses (standard deviation 1.102). However, it's important to avoid generalizing this finding to the entire Arada sub-city based solely on this survey data.

The average response (mean 3.05) to the statement "Green spaces in my area are safe" suggests neither agreement nor disagreement among participants, indicating a neutral perception. The slight dispersion in responses (standard deviation 1.106) highlights some variation in individual opinions about safety in these green spaces. However, it's important to avoid generalizing this finding to the entire Arada sub-city based solely on this survey data.

The overall mean about the Current status and accessibility of Green Open Spaces is 3.12 which indicates that respondents become neutral. This implies the respondents do not agree about the Current status and accessibility of Green Open Spaces statements.

4.6. Satisfaction with the green open spaces

This section discusses the satisfaction of the respondents with the open green spaces. Different statements were filled in by the respondents to measure the satisfaction of the communities with the green open spaces.

In the Table 4.4 respondents were asked about their satisfaction with the availability of green spaces. Of the respondents, 21.4% (82 respondents) strongly disagreed with being satisfied, 37.1% (142 respondents) disagreed, 17.2% (66 respondents) were neutral, and 24.3% (93 respondents) agreed. This suggests that while a significant portion (58.5%) expressed dissatisfaction, a notable portion (41.5%) were either neutral or agreed with the current availability. This implies that the people are not satisfied with the current availability of green areas in Addis Ababa, Arada sub-city.

Table 4. 4: Satisfaction of respondents on green open spaces

Satisfaction Factor	Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Mean	SD
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%		
I am satisfied with the current availability of green areas in this woreda	82	21.4%	142	37.1%	66	17.2%	93	24.3%	0	0.0%	2.44	1.079
I evaluate the nature of green areas in my woreda as very good	60	15.7%	94	24.5%	79	20.6%	141	36.8%	9	2.3%	2.86	1.148
I am happy with the range of facilities on the Green Open Spaces	48	12.6%	129	33.9%	52	13.7%	133	35.0%	18	4.7%	2.85	1.169
The Green Open Spaces contribute to my quality of life	9	2.3%	15	3.9%	54	14.1%	257	67.1%	48	12.5%	3.84	.780
I would support keeping the existing Green Open Spaces would increase my property value	6	1.6%	0	0.0%	33	8.6%	254	66.3%	90	23.5%	4.10	.673

Source: Survey result, 2023

Residents were asked to evaluate the nature of green spaces in their area. While 39.1% (141 respondents who agreed and 9 who strongly agreed) viewed them favorably, 40.2% (94 who disagreed and 60 who strongly disagreed) expressed concerns. The remaining 20.6% (79 respondents) remained neutral. This diversity of opinion suggests that residents hold various perspectives on the quality of green spaces in the sub-city, highlighting the potential need for further investigation into specific aspects of the green spaces that residents value.

Residents were asked to evaluate their satisfaction with the range of facilities in green spaces. The majority of respondents disagreed with the statement "I am happy with the range of facilities on the Green Open Spaces," suggesting potential areas for improvement. This implies that in Addis Ababa, Arada sub-city people are not happy with the range of facilities in the green Open Spaces.

The majority of respondents in Addis Ababa's Arada sub-city agreed with the statement "Green Open Spaces contribute to my quality of life." This suggests that many residents perceive these spaces as having a positive impact on their well-being.

The final questions that respondents asked about their opinion on preserving existing green spaces and its potential impact on property value. The majority of respondents agreed with the statement "I would support keeping the existing Green Open Spaces as it would increase my property value."

In a survey that explored their satisfaction with the current availability of green spaces. The average response (mean 2.44) suggested disagreement with the statement "I am satisfied with the current availability of green areas in this woreda." Additionally, the slight dispersion in responses (standard deviation 1.079) indicated some variation in individual opinions.

Residents were asked to evaluate the nature of green spaces in their area. While the average response (mean 2.86) on the statement "I evaluate the nature of green areas in my woreda as very good" suggests a neutral perception, the slight dispersion in responses (standard deviation 1.148) indicates some variation in individual opinions.

Residents were asked about their happiness with the range of facilities in green spaces. The average response (mean 2.85) suggests a neutral perception on the statement "I am happy with the range of facilities on the Green Open Spaces." This indicates that residents neither strongly agreed nor disagreed with the statement. This implies that in Addis Ababa, Arada sub-city people are not happy with the range of facilities on the Green Open Spaces.

The overall mean about the satisfaction level of the people in green open space is 3.218. This indicates that the respondents were not satisfied with green open space. This implies that in Addis Ababa, Arada sub-city the green open space was not satisfied.

4.7. Ecological Benefits of Green Open Spaces

This section analyzes survey responses from residents in Addis Ababa's Arada sub-city to assess their understanding of the ecological benefits of green spaces. Table 4.5 specifically examined their perception of climate improvement. Over 90% of respondents (60.1% agreeing and 30.8% strongly agreeing) acknowledged that green spaces contribute to better climate conditions.

Table 4. 5: Ecological benefits of green open spaces

Ecological benefits	Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Overall	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Mean	SD
Green Open Spaces improve the climate	6	1.6%	0	0.0%	9	2.3%	230	60.1%	138	36.0%	4.29	0.665
Green Open Spaces act as ecological corridors between urban, urban, and rural areas.	6	1.6%	6	1.6%	15	4.1%	251	68.2%	90	24.5%	4.12	0.695
Green Open Spaces help reduce daytime higher temperature	0	0.0%	6	1.6%	18	4.7%	229	59.8%	130	33.9%	4.26	.618
Green Open Spaces help to prevent water floods by absorbing excess water.	0	0.0%	0	0.0%	30	7.8%	217	56.7%	136	35.5%	4.28	.598

Source: Survey result, 2023

The response suggests that a majority of residents agree with the statement "Green Open Spaces act as ecological corridors between urban, peri-urban, and rural areas." This finding indicates potential awareness among residents of the role green spaces play in connecting different types of environments.

The majority of the respondents agree with the statement "Green Open Spaces help reduce daytime temperatures". This implies that potential awareness among residents that Green Open Spaces help reduce daytime temperatures.

The final questions that respondents asked were to give their agreement level about Green Open Spaces helping to prevent water floods by absorbing excess water. This response is agreed by the majority of the respondents and this implies that potential awareness among residents that Green Open Spaces helps to prevent water floods by absorbing excess water.

The mean of the response Green Open Spaces improve the climate was 4.29 which indicates that the respondents agree with the statement Green Open Spaces improve the climate. This implies that in Addis Ababa, Arada sub-city Green Open Spaces improve the climate. The response SD is 0.665 slightly above which indicates that the response was slightly dispersed.

The response Green Open Spaces act as ecological corridors between urban, urban, and rural areas. Have a mean of 4.12 which indicates that the respondents agree that Green Open Spaces act as ecological corridors between urban, urban, and rural areas. The response has a standard deviation of 0.697 which is slightly above which indicates that the response is slightly dispersed and hence this indicates that in Addis Ababa, the Arada sub-city Green Open Spaces act as ecological corridors between urban, per urban, and rural areas.

The response Green Open Spaces help reduce daytime higher temperatures have a mean of 4.26 and SD of 0.618. This indicates that respondents agree with the statement Green Open Spaces help reduce daytime temperatures.

The overall mean for ecological benefits of green open spaces is 4.2375 which indicates that the respondents agree with the statements of ecological benefits of green open spaces.

4.8. Green Open Spaces for Pollution Control

This section analyzes residents' understanding of pollution control benefits offered by green spaces in Addis Ababa's Arada sub-city, based on responses from Table 4.6. Survey participants were asked to assess their agreement with the statement "Green Open Spaces can reduce noise pollution." While the majority (61.4% agreed, 27.4% strongly agreed) expressed positive beliefs in this benefit, a portion of respondents remained neutral (9.7%) or even disagreed (1.6% strongly disagreed). The majority of the respondents agree about the idea Green Open Spaces can reduce noise pollution and this implies that in Addis Ababa, Arada sub city Green Open Spaces can reduce noise pollution

Table 4. 6: Green open space as pollution control

Factors	Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Overall	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Mean	SD
Green Open Spaces can reduce noise pollution	6	1.6%	0	0.0%	37	9.7%	235	61.4%	105	27.4%	4.13	0.704
Green Open Spaces can absorb different gaseous pollutants	6	1.6%	9	2.3%	6	1.6%	251	65.5%	111	29.0%	4.18	0.714
Green Open Spaces reduces solid waste (As recycling and composting centers)	12	3.1%	24	6.3%	52	13.6%	190	49.6%	105	27.4%	3.92	0.969

Source: Survey result, 2023

The response found that the majority of respondents agreed with the statement "Green Open Spaces can absorb different gaseous pollutants." This suggests potential awareness among residents of this benefit.

The response found that the majority of respondents agreed with the statement "Green Open Spaces reduces solid waste (As recycling and composting centers)." This suggests potential awareness among residents of this benefit.

The mean of the response to the statement Green Open Spaces can reduce noise pollution was 4.13 which indicates respondents agree with the statement. The response has an SD of 0.704 which is slightly above which indicates that the response is slightly dispersed. This suggests potential awareness among residents of this benefit.

The mean of the statement Green Open Spaces can absorb different gaseous pollutants was 4.18 which indicates the respondents agree with the idea Green Open Spaces can absorb different gaseous pollutants. This suggests potential awareness among residents of this benefit.

The overall mean about pollution is 4.08 which indicates that the respondents agree with the statement of pollution in Addis Ababa, Arada sub-city.

4.9. Green Open Spaces as Biodiversity and Nature Conservation

This part discusses Green Open Spaces as Biodiversity and Nature Conservation. In the Table 4.7 respondents were asked to rate their agreement on green open space biodiversity and natural conservation. The first statement that respondents asked was green spaces provide habitat for a variety of birds, fish, animals, insects, and other organisms, while also providing corridors and greenways to link habitats. These responses disagreed 9 which represents 2.3% of the total, neutral 58 respondents 15.1% and 232 respondents which covers 60.6% of respondents, and the remaining 84 respondents representing 20.9% of the total sample strongly agreed with the statement green spaces provide habitat for a variety of birds, fish, animals, insects, and other organisms, while also providing corridors and greenways to link habitats. Here the majority of the respondents agree with the statement green spaces provide habitat for a variety of birds, fish, animals, insects, and other organisms, while also providing corridors and greenways to link habitats.

Table 4. 7: Green Open Spaces as Biodiversity and Nature Conservation

	Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Overall	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Mean	SD
Green spaces provide habitat for a variety of birds, fish, animals, insects, and other organisms, while also providing corridors and greenways to link habitats.	0	0.0%	9	2.3%	58	15.1%	232	60.6%	84	21.9%	4.02	0.682
Green Open Spaces prevent soil erosion and absorb rainwater, thereby improving drainage.	0	0.0%	15	3.9%	79	20.6%	178	46.5%	111	29.0%	4.01	0.809
Green Open Spaces provide common bird and animal species and	0	0.0%	15	3.9%	60	15.7%	239	62.4%	69	18.0%	3.95	0.701
Green Open Spaces have good natural features such as grass, trees, and flower beds.	0	0.0%	0	0.0%	24	6.3%	260	67.9%	99	25.8%	4.20	0.532

Source: Survey result, 2023

This implies that in Addis Ababa, Arada sub-city green spaces provide habitat for a variety of birds, fish, animals, insects, and other organisms, while also providing corridors and greenways to link habitats.

The response Green Open Spaces prevent soil erosion and absorb rainwater, thereby improving drainage strongly agreed with the majority of the respondents. This implies that in Addis Ababa sub-city Green Open Spaces prevent soil erosion and absorb rainwater, thereby improving drainage.

The statement “Green Open Spaces provide common bird and animal species” agreed by the majority of the respondents and hence this implies that in Addis Ababa sub city green Open Spaces provide common bird and animal species.

The last question that respondents requested was to give their agreement levels on the idea that Green Open Spaces have good natural features such as grass, trees, and flower beds. The majority of the respondents agreed with these ideas and this implies that in Addis Ababa, Arada sub-city green Open Spaces have good natural features such as grass, trees, and flower beds.

The mean of “green spaces provide habitat for a variety of birds, fish, animals, insects, and other organisms”, while also providing corridors and greenways to link habitats was 4.02 which implies that the respondents agree. The response has an SD of 0.682 which is slightly above and hence this implies that the residences agree on the benefit that green spaces provide habitat for a variety of birds, fish, animals, insects, and other organisms, while also providing corridors and greenways to link habitats.

The average response (mean 4.01) to the statement "Green Open Spaces prevent soil erosion and absorb rainwater, thereby improving drainage" suggests agreement with this potential benefit. The overall mean about Green Open Spaces Biodiversity and Nature Conservation is 3.99 and this indicates that respondents agree with the statement of Green Open Spaces Biodiversity and Nature Conservation.

4.10. Factors Affecting the Green Open Spaces

This section discusses the factors affecting green open spaces as follows:

Table 4. 8: Factors Affecting the Green Open Spaces

Factors	Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Overall	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Mean	SD
Lack of public awareness	12	3.1%	6	1.6%	43	11.2%	192	50.1%	130	33.9%	4.10	.888
Low level of community participation	0	0.0%	6	1.6%	27	7.2%	212	56.2%	132	35.0%	4.25	.652
Poor implementation of government policies	0	0.0%	9	2.3%	15	3.9%	233	60.8%	126	32.9%	4.24	.636
Lack of budget	18	4.7%	18	4.7%	46	12.0%	190	49.6%	111	29.0%	3.93	1.010
Lack of skilled human power	24	6.3%	49	12.8%	100	26.1%	144	37.6%	66	17.2%	3.47	1.108
Shortage of land in urban areas	24	6.3%	46	12.0%	88	23.0%	123	32.1%	102	26.6%	3.61	1.179
Illegal Settlement	18	4.7%	21	5.5%	63	16.4%	146	38.1%	135	35.2%	3.94	1.076
Lack of regular follow-up	15	3.9%	18	4.7%	33	8.6%	226	59.0%	91	23.8%	3.94	.929
Lack of coordination among different stakeholders	9	2.4%	0	0.0%	39	10.4%	205	54.8%	121	32.4%	4.15	.790

Source: Survey analysis result, 2023

In the above Table 4.8 respondents were asked to give their agreement on the Factors Affecting the Green Open Spaces. Different factors were listed and respondents were asked to rate those factors. The first factor that respondents were asked to rate was the lack of public awareness. This response was strongly disagreed by 12 respondents which represents 3.1%, disagreed by 6 respondents which represents 1.6%, and 43 respondents which represents 11.2% became neutral about the statement lack of public awareness. The remaining 192 respondents which represents 50.1% agree and 130 respondents which represents 33.9% of the respondents strongly agree about the statement lack of public awareness is the factor affecting green open spaces. From this, the majority of the respondents agree with the statement lack of public awareness is the factor affecting green open spaces. This implies that in Addis Ababa, Arada sub-city, lack of public awareness is the factor affecting the green open spaces.

The statement Low level of community participation is the factor which affects the green open space is agreed by the majority of the respondents and hence this implies that in Addis Ababa, Arada sub city Low level of community participation is the factor which affects the green open space.

The response Poor implementation of government policies disagreed by 9 respondents which represent 2.3%, and 15 respondents which represent 3.9% became neutral about the factors poor implementation of government policies. The remaining 233 respondents which represent 60.3% of the respondents agree and 126 respondents which represent 32.9% strongly agree with the statement Poor implementation of government policies affects green open spaces. The majority of the respondents agree with the statement Poor implementation of government policies affects green open spaces. This implies that in Addis Ababa, Arada sub-city Poor implementation of government policies affect green open spaces.

A majority of respondents in a survey identified "Lack of budget" as a factor affecting green open spaces. This suggests that budget limitations might be a prominent issue in managing green spaces within Addis Ababa's Arada sub-city.

A majority of respondents in a survey agreed that "Lack of skilled human power" is a factor affecting green open spaces. This suggests that the availability of skilled personnel might be a concern for managing green spaces in Addis Ababa's Arada sub-city.

A majority of respondents agreed with the statement "Shortage of land in urban areas affects green open space." This suggests that limited land availability might be a perceived challenge for maintaining green spaces within the sub-city.

A majority of respondents identified "Illegal Settlement" and "Lack of Regular Follow-up" as factors affecting green open spaces. This suggests that these elements might be perceived as significant challenges in managing green spaces within the sub-city.

The final survey question in Addis Ababa's Arada sub-city asked residents to assess their agreement with the statement "Lack of coordination among different stakeholders affects green open spaces." A majority of respondents agreed, suggesting potential concerns about the impact of inter-stakeholder collaboration on green space management within the sub-city.

The mean of different factors which can affect the green open space is calculated and discussed as follows. The main factors are Lack of public awareness, Low level of community participation, Poor implementation of government policies, Lack of budget, Lack of skilled human power, Shortage of land in urban areas, Illegal Settlement, Lack of regular follow-up, and Lack of coordination among different stakeholders are 4.10, 4.25, 4.24, 9.93, 3.47, 3.61, 3.94, 3.94, and 4.15 respectively.

Overall, the survey responses in Addis Ababa's Arada sub-city suggest that residents perceive various factors as affecting green open spaces. These factors include lack of public awareness, low community participation, poor policy implementation, budget limitations, skilled workforce shortages, land scarcity, illegal settlements, insufficient follow-up, and stakeholder coordination challenges.

4.11. Quality of life and well-being of the people

The following Table 4.9 presented the results about the quality of life and well-being of the people as follows. After that, the results were discussed accordingly.

Table 4. 9: Quality of life and well-being of the people

Factors	SD		Disagree		Neutral		Agree		Strongly Agree		Mean	SD
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%		
Green Open Spaces can improve comfort in a wider sense	0	0.0%	15	3.9%	18	4.7%	193	50.4%	157	41.0%	4.28	.731
Green Open Spaces have Health benefits	0	0.0%	6	1.6%	18	4.7%	164	42.8%	195	50.9%	4.43	.659
Green Open Spaces have social benefits that link people to participate in communal or group activities in urban parks	0	0.0%	15	3.9%	15	3.9%	194	50.7%	159	41.5%	4.30	.724
Green Open Spaces enhance the Aesthetic value of the city	0	0.0%	6	1.6%	9	2.3%	185	48.3%	183	47.8%	4.42	.621
Green Open Spaces help to enjoy the weather and get fresh air	6	1.6%	9	2.3%	0	0.0%	151	39.4%	217	56.7%	4.47	.761
Green Open Spaces to reduce stress, relax	6	1.6%	0	0.0%	18	4.7%	151	39.4%	208	54.3%	4.45	.729
Carrying out different ceremony	6	1.6%	18	4.7%	9	2.3%	181	47.3%	169	44.1%	4.28	.848
Create job opportunity	6	1.6%	27	7.0%	58	15.1%	150	39.2%	142	37.1%	4.03	.973

Factors	SD		Disagree		Neutral		Agree		Strongly Agree		Mean	SD
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%		
Green Open Spaces are beneficial to the specific health concerns affecting lower-income urban communities.	21	5.5%	0	0.0%	80	20.9%	171	44.6%	111	29.0%	3.92	.994
A daily base interaction with green landscapes is needed for physical well-being	6	1.6%	9	2.3%	24	6.3%	194	50.7%	150	39.2%	4.23	.797
A weekly visit can enhance human well-being and mental growth,	0	0.0%	0	0.0%	27	7.0%	209	54.6%	147	38.4%	4.31	.598
A green environment improves work performance in the office	0	0.0%	9	2.3%	21	5.5%	239	62.4%	114	29.8%	4.20	.640

Source: Survey result analysis, 2023

From the above Table 4.9 respondents were asked to rate their agreement on different statements which helps to measure the quality of life and well-being of the people. The first statement in which respondents requested to rate their agreement was about how Green Open Spaces can improve comfort in a wider sense. The response disagreed 15 respondents represented 3.9% of the sample, become neutral 18 respondents which represents 4.7%, and agreed by 193 respondents which represents 50.4% of the sample, and the remaining 157 respondents which represents 41% strongly agreed with the statement Green Open Spaces can improve comfort in a wider sense. The majority of the respondents agree with the statement Green Open Spaces can improve comfort in a wider sense. This implies that in Addis Ababa, Arada sub-city Green Open Spaces can improve comfort in a wider sense.

Respondents requested were to rate the statement “Green Open Spaces have Health benefits”. The majority of the respondents’ responses agree with the statement Green Open Spaces have Health benefits.

A majority of respondents agreed with the statement "Green Open Spaces have social benefits that link people to participate in communal or group activities in urban parks." This suggests potential agreement among residents that green spaces facilitate community engagement through group activities.

A majority of respondents agreed with the statement "Green Open Spaces enhance the aesthetic value of the city." This finding suggests potential widespread agreement on the contribution of green spaces to the city's aesthetic appeal.

Respondents were also asked for their agreement about the statement “Green Open Spaces help to enjoy the weather and get fresh air”. This response was strongly disagreed by 6 respondents representing 1.6% of the sample, disagreed by 9 respondents which represent 2.3% of the sample, and the remaining 151 respondents which represents 39.4% agreed, and 217 respondents which represents 56.7% respondents strongly agreed. From this, we can see that the majority of the respondents agree with the statement Green Open Spaces help to enjoy the weather and get fresh air. This implies that in Addis Ababa, Arada sub-city Green Open Spaces help to enjoy the weather and get fresh air.

A majority of respondents agreed with the statement "Green Open Spaces help to reduce stress and relax." This suggests potential agreement among residents that green spaces contribute to stress reduction and relaxation.

Respondents agreed with the statement "Green Open Spaces are used for carrying out different ceremonies." This suggests potential widespread agreement that green spaces serve as venues for various ceremonial activities within the sub-city. The statement "Green Open Spaces create job opportunities" also received agreement from a majority of respondents in a survey conducted in Addis Ababa's Arada sub-city. This indicates a potential belief among residents that green spaces contribute to job creation within the sub-city.

The other questions raised for respondents were to rate their agreement on Green Open Spaces are beneficial to the specific health concerns affecting lower-income urban communities. This

response was agreed by the majority of the respondents. This implies that in Addis Ababa, Arada sub-city Green Open Spaces are beneficial to the specific health concerns affecting lower-income urban communities.

Respondents agreed with the statement "Daily interaction with green landscapes is needed for physical well-being." This suggests potential agreement among residents on the perceived importance of regular green space access for physical health.

Respondents agreed with the statement "A weekly visit to green spaces can enhance human well-being and mental growth." This suggests potential widespread agreement on the perceived benefits of regular green space visits for human well-being and mental health.

Respondents agreed with the statement "Green environments improve work performance in the office." This suggests potential agreement among residents that access to greenery at work could be beneficial for employee performance.

The mean of Green Open Spaces can improve comfort in a wider sense was 4.28 which indicates that the respondents agree about the idea Green Open Spaces can improve comfort in a wider sense. The SD of the response was 0.731 which is slightly above and indicates that the response is slightly dispersed. This implies that in Addis Ababa, Arada sub-city green Open Spaces can improve comfort in a wider sense.

Respondents rated the statement "Green Open Spaces have health benefits" with an average score of 4.43 (standard deviation 0.659). This suggests that, on average, respondents agreed with the statement. This implies that in Addis Ababa, Arada sub city green Open Spaces have Health benefits.

Respondents rated the statement "Green Open Spaces have health benefits" with an average score of 4.43 (standard deviation 0.659). This suggests that, on average, respondents agreed with the statement. This implies in Addis Ababa, Arada sub-city green Open Spaces have social benefits that link people to participate in communal or group activities in urban parks.

Respondents in Addis Ababa's Arada sub-city rated the statement "Green Open Spaces enhance the aesthetic value of the city" with an average score of 4.42 (standard deviation 0.621). This

suggests that, on average, respondents found the statement agreeable. This implies that in Addis Ababa, Arada sub-city green Open Spaces enhance the Aesthetic value of the city.

The overall mean about the quality of life and well-being of the people was 4.276667 which indicates that respondents agree about the quality of life and well-being of the people statements.

4.12. Planning and Governance of green open spaces

This section discusses the planning and governance of open spaces as presented on Table 4.10 respondents were asked to rate their agreement on planning and governance. The response Having easy access to information about green spaces in my neighborhood will encourage me to be more involved in its planning and management is strongly disagreed by 48 respondents which represent 12.5% of the sample, disagreed by 51 respondents representing 13.3% neutral by 60 respondents which represent 15.7% and the remaining respondents which represent 164 respondents which cover 42.8% agree and 60 respondents which represent 15.7% strongly agree about the statement Having easy access to information about green spaces in my neighborhood will encourage me to be more involved in its planning and management. Here the majority of the respondents agree with the response Having easy access to information about green spaces in my neighborhood will encourage me to be more involved in its planning and management. This implies that in Addis Ababa, Arada sub-city Having easy access to information about green spaces in people's neighborhoods will encourage them to be more involved in its planning and management.

The majority of the respondents disagree with the statement "The office invites us to engage in the planning, protection, and management of green open spaces". This implies that in Addis Ababa, Arada sub-city the office did not invite them to engage in the planning, protection, and management of green open spaces

Table 4. 10: Planning and governance of green open space

	Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Mean	SD
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%		
Having easy access to information about green spaces in my neighborhood will encourage me to be more involved in its planning and management	48	12.5%	51	13.3%	60	15.7%	164	42.8%	60	15.7%	3.36	1.251
The office invites us to engage in the planning, protection, and management of green open spaces	193	50.4%	67	17.5%	33	8.6%	60	15.7%	30	7.8%	2.13	1.382
I can say the management of open green spaces is more of a community participative	166	43.3%	81	21.1%	33	8.6%	76	19.8%	27	7.0%	2.26	1.373
I can say the government is more concerned about green open spaces	54	14.1%	88	23.0%	111	29.0%	94	24.5%	36	9.4%	2.92	1.189
There is improvement in open space management and protection	27	7.0%	24	6.3%	70	18.3%	232	60.6%	30	7.8%	3.56	.977

Source: Survey analysis result, 2023

The statement "the management of open green spaces is more community-participative" was disagreed by most respondents, suggesting dissatisfaction with the current level of community involvement.

Most respondents disagreed with the claim of "more government concern for green spaces," suggesting a perceived gap between government rhetoric and resident experiences in Arada sub-city.

The survey's final statement regarding improvement in open space management and protection received agreement from most respondents, reflecting their perception in Addis Ababa's Arada sub-city.

In a survey, the statement "Having easy access to information about green spaces in my neighborhood will encourage me to be more involved in its planning and management" received an average rating of 3.36, with a standard deviation of 1.251. This suggests that on average, respondents were neutral on the statement's influence on their involvement.

"The office invites us to engage in the planning, protection, and management of green open spaces" received an average rating of 2.13 with a standard deviation of 1.382 in a survey. This suggests that, on average, respondents disagreed with the statement. This implies that in Addis Ababa, Arada sub-city the office did not invite us to engage in the planning, protection, and management of green open spaces.

The statement "I can say the management of open green spaces is more community participative" received an average rating of 2.26, with a standard deviation of 1.373. This suggests that, on average, respondents disagreed with the statement. This implies that in Addis Ababa, Arada sub-city the management of open green spaces is not more of community participative.

4.13. Discussion of Qualitative Results from the Interview

The information about the proper uses of the open green spaces in Addis Ababa, Arada sub city wereda 5 were traced from the interview respondents, and visual observations of the activities on site were taken.

Almost all interviewers have a very good attitude toward the presence of open spaces in their neighborhood. But they are not satisfied with the present open spaces area in Addis Ababa, Arada

sub city wereda 5 green open spaces. But as they mentioned the absence of proper management hinders them from enjoying it and discourages them from letting their children play on it. Different reasons make the communities unsatisfied with the open green spaces. Some of them are discussed below:

Degradation and increased difficulty of access to public spaces: The once vibrant open spaces in the area have unfortunately fallen into disrepair, losing their original charm and functionality. This lack of proper management and care has stripped them of their defining characteristics, leaving residents without a truly public space to enjoy. As highlighted by user interviews, even basic needs like finding a place to rest and refresh are unmet, further diminishing the value of these spaces. This decline not only robs the community of a valuable resource but also highlights the need for urgent action to revitalize these areas and ensure they serve their intended purpose.

Reduction of safety and de-characterization of spaces: The community perceived that there is no security in the open green spaces, there is an increase of crimes inside of those green open spaces, and deterioration of the spaces of interest and de-characterization of the places.

Respect for the rules of public spaces: certain good practices should be adopted when green open spaces are formed.

Pollution in the spaces: The open spaces found in Wereda 5, Arada sub-city are full of pollutants. The place is not properly cleaned, the toilet is freely used in the open area and most places can be unhealthy for users. These reasons unsatisfied the community as to the interview results.

The quality of green open space: Although the trees and gardens make the open space green and shady, the dirty things make uncomfortable place for recreation and relaxation. The public open space in Addis Ababa, Arada sub city has no facilities to support community activities like sports facilities like a jogging track, multipurpose field, and exercise instruments, and also it has no kids' playgrounds and grass fields for various recreation activities. Even there are no facilities with a low quality, car park, public toilet, shelters, and other basic services.

Beyond just data points, the interviews painted a vivid picture of resident dissatisfaction with green spaces in Wereda 5 of Addis Ababa's Arada sub-city. The glaring absence of basic amenities like toilets, seating areas, and play spaces significantly detracts from the usability and attractiveness of

these open areas. Additionally, the lack of street vendors and designated food areas further limits their potential as vibrant community hubs.

However, physical shortcomings aren't the only hurdle. The report highlights two crucial factors hindering the success of these green spaces: improper use and a lack of community ownership. The report suggests these spaces are not being utilized as intended, potentially due to a disconnect between community needs and design choices. Furthermore, the absence of a sense of belonging and participation breeds apathy and neglect. Residents don't view these spaces as "theirs," leading to less care and involvement in their upkeep.

This lack of community ownership directly relates to the perceived shortcomings in green space management. The interviews reveal a disconnect between residents and the responsible authorities. The suggestion that management should be more "community-participative" implies a current lack of collaboration and input from residents. The report argues that fostering a sense of ownership through community involvement, such as clean-up activities, could significantly improve the condition and utilization of these green spaces.

4.14. Discussion of results from KII

The key informant's interview was employed and, in this section, the idea raised on those be discussed as follows.

Informant 1 from the sub-city replied that

“Green open spaces were once neglected in terms of planning, development, and management. This was due to a lack of government prioritization and public awareness of their benefits. As a result, past efforts to create green spaces fell short. However, recognizing their importance as community assets, a project is underway to transform them into beautiful and standardized public parks. While progress has been made, there is still more to be done to fully realize their potential and ensure they are seamlessly integrated within the community.”

“Several roadblocks hinder the rapid development of green open spaces. Firstly, a lack of skills and knowledge among some individuals creates a motivational

hurdle. Secondly, inadequate government attention persists, requiring stronger top-down leadership and dedicated resources beyond current expectations. Specifically, establishing a standardized park system in Wereda 05 faces financial constraints, as expanding construction demands significant funding the government seems hesitant to offer. Additionally, weak government oversight and control over open spaces, coupled with insufficient water supply and administrative construction systems, further complicate planning, implementation, and monitoring efforts.”

“Despite experiencing a net loss of green space in the past, we are now prioritizing its restoration and expansion. We have a concrete plan in place and are actively working towards its implementation. While acknowledging challenges like illegal activities, our primary focus is on community awareness and empowering external authorities to take legal action when necessary. This combined approach aims to reverse the decline of our green spaces and ensure their future sustainability.”

Informant 2

“Transforming Addis Ababa's Arada sub-city into a green haven faces two main obstacles: public awareness and land scarcity. Residents lack knowledge on using and caring for existing green spaces, hindering their full potential. Additionally, being an inner-city area, finding land for new green spaces presents a significant challenge. These hurdles impede the creation of more attractive and accessible green areas for the community. However, we remain committed to overcoming these challenges through public education and exploring innovative solutions for utilizing scarce land. After all, beautiful and accessible green spaces are essential for a thriving Arada community.”

“While Woreda 05 boasts the popular Ras Mekonen Park, currently dominated by younger users, its vision extends beyond. Recognizing the need for inclusivity, they've implemented a plan to transform the park into a truly multi-generational space. Managed uniformly by Woreda 05, the park will cater to all age groups, incorporating amenities like cafes, fast food options, and dedicated children's

playgrounds. Ultimately, the goal is to ensure the park fulfills its potential as a green open space that caters to the diverse needs of the entire community.”

Informant 2 also asked whether or not this Woreda meets the demand for Green Open Spaces. Are there certain types of Green Open Spaces that are more in demand?

He replied as

“I disagree because in Woreda 05 they have one woreda-level park so it’s not enough to relax the people in this woreda. Limited awareness, budgets, land availability, and resource constraints pose significant hurdles to green space development in our office. Yet, we remain undeterred. We envision vibrant green spaces combating climate change by offering fresh air, enhancing city aesthetics, and fostering an outdoor-loving community. We believe the government shares this responsibility and urge stronger support to expand and improve green areas. Together, we can overcome these challenges and build a greener, healthier future for all.”

Informant 3

“While Wereda 5 has open green spaces, they often fall short, especially for children. Lack of awareness among both residents and our office regarding proper utilization and management hinders their true potential. Going forward, we plan to address both issues simultaneously: educating the community on the value and uses of green spaces while simultaneously beautifying and improving existing ones in Wereda 5, creating vibrant and accessible havens for all.”

Informant 4

“Urban sprawl in Addis Ababa and other cities is shrinking valuable green spaces, negatively impacting both the environment and human health. While the need for more open spaces is clear, the very factors driving population growth – increased density and prioritization of housing – create significant challenges for their development. Additionally, financial constraints further hinder progress. This complex issue demands innovative solutions that balance urban

development with green space preservation for a healthier and more sustainable future.”

“Despite the vital role of green spaces in offering recreation, social interaction, and even job opportunities (think farmers markets or local vendors), developing and managing them in urban areas like Wereda 05 faces significant challenges. Limited budgets, particularly in Wereda 05, coupled with the scarcity of land, make meeting community needs difficult. Additionally, factors like lack of awareness, low community participation, and insufficient professional expertise further hinder progress. Recognizing these challenges, addressing them through increased funding, public education, and collaborative efforts with the community is crucial for ensuring vibrant and accessible green spaces that benefit everyone.”

“While Woreda 05 hasn't experienced green space loss, our office plays a crucial role in its protection and future development. We hold primary responsibility due to our authority and enforcement capabilities, working in tandem with the government's overall green space management roadmap. Additionally, the community plays a vital role in safeguarding green spaces through various combined approaches. These include regulatory measures like zoning, environmental impact assessments, and land dedication initiatives. By working together, we can ensure Woreda 05's green spaces thrive and continue serving the community.”

Informant 5

“Addis Ababa's inner city faces a crucial green space challenge: limited land availability. To overcome this, I propose a transformative approach: constructing green spaces vertically, integrating them into the existing urban fabric. This "city as a plane" concept would require collective responsibility - everyone, from residents to authorities, actively participating in their management. Additionally, fostering stronger collaboration across stakeholders would be vital to address current challenges and ensure the success of this

innovative solution. By embracing vertical green spaces and collaborative efforts, we can transform Addis Ababa into a greener and more sustainable city.”

Informant 6

*“Despite the benefits green spaces offer to both wildlife and residents, their development in urban areas like Addis Ababa faces multiple hurdles. The biggest challenge is undoubtedly a lack of available land, compounded by limited budgets. Additionally, green spaces themselves can face threats like illegal settlements. To effectively manage existing spaces and create new ones, we need to address public awareness – ensuring residents understand the value of green areas and participate in their upkeep. This multi-faceted challenge demands innovative solutions like utilizing **vertical green spaces** or integrating greenery into existing infrastructure. By collaboratively addressing land limitations, budgetary constraints, and public awareness, we can create and protect valuable green havens for both humans and wildlife in Addis Ababa.*

Green spaces aren't just patches of nature; they're social hubs that connect people and improve our health. That's why community involvement is crucial in managing them. Making information about existing green spaces readily available empowers residents to participate in planning and development. This collaborative approach, coupled with ongoing improvements in management and expansion, will ensure our green spaces not only thrive, but also become vibrant centers for community activity and well-being.”

Informant 7

“The biggest hurdle for effective green space management lies in the lack of skilled and experienced professionals. Bringing in such experts could unlock solutions for using and managing these spaces efficiently, through proper planning and design. This requires a collaborative effort involving the government, relevant institutions, and the community itself. Such synergy can pave the way for thriving green spaces that benefit everyone.”

4.15. Design and arrangement of open spaces

Modern urban development now recognizes the importance of incorporating public spaces, green areas, and community input for sustainability. Studies, like those focused on pocket playgrounds, highlight that public space safety thrives on **active use, regular maintenance, pedestrian-friendly design, diverse activities, community involvement, supervision, emergency access, and ample lighting**. These principles, outlined by the Foundation (2009), contribute to creating safe, vibrant, and well-maintained public spaces that enhance residents' well-being and foster a strong sense of community, as highlighted by research like Chiesura's (2004) work on urban parks. By prioritizing these elements, urban planners and communities can ensure everyone benefits from thriving public spaces.

While open spaces are crucial for sustainable urban development, those in Arada sub city wereda 5 fall short of expectations. The spaces lack regular maintenance, pedestrian-friendly design, diverse activities, adequate supervision, and proper lighting. This contrasts with the recommended elements for neighborhood open spaces outlined by Olmos (2014), which include greenery, seating, play areas, shade, picnic facilities, signage, and security lighting. By addressing these shortcomings, Arada sub city wereda 5 can create more inviting and functional public spaces that benefit residents and contribute to a more sustainable community.

In addition to the points mentioned above, it is also important to consider the needs of the community when designing open spaces. For example, if there are a lot of families in the area, it would be important to include a playground. If there are a lot of older adults, it would be important to include benches and seating areas. By taking the needs of the community into account, it is possible to create open spaces that are truly beneficial to everyone.

Open space design considerations

Pedestrian movements

The scale and form of the space will affect the behavior of travelers and the types of relationships that will occur in that space. Physical distancing, which brings people closer or further apart, is an important element of design, and in installations designed to facilitate social communication or provide some privacy, the level of eye contact and appropriate precautions should be carefully considered. Within the scope and environment of the site (Charles W. Harris undated).

Standards for movements

Based on the standards obtained from a book called Time Saver Standards for Landscape Architecture the following stairs and ramp slopes are listed.

- Minimum width for stairways should be 1 500 mm for public spaces
- Ramp slopes should be no greater than 1:12 or 8.33 %. Curb cuts may be 1:8 or 12% if the run is less than 900 mm.
- Landings should be provided every 9,000 mm or less of ramp length. Heights between stair landings should be a maximum of 1,500 mm to allow an average adult standing on one landing to see the ground plane of the next higher landing. Seating walls are typically 400 to 450 mm (16 to 18 in) wide and between 350 and 450 mm (14 and 18 in) in height.

Sitting space

Arranging sitting spaces is essential in landscape design. While designing a sitting space one should emphasize comfort, simplicity of form, simplicity of detail, ease of maintenance, durability of finish, and resistance to vandalism. Sitting spaces within the proposed public space must be along the street and at the sitting area.

CHAPTER FIVE

5. SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1. Introduction

This chapter summarizes the key findings, conclusions, and recommendations from the study on open green space users' perception. Building upon the research presented in the previous chapter, it offers actionable recommendations to enhance user perception.

5.2. Summary of findings

Data analysis using descriptive statistics revealed key findings from questionnaires distributed in Addis Ababa's Arada sub-city, Wereda 5. With a high response rate of 97.95% (383 valid responses from 392 distributed questionnaires), the study provides valuable insights into residents' perceptions of green open spaces.

Despite a relatively balanced demographic distribution with a majority of male respondents, residents hold diverse opinions on the current state and accessibility of these spaces. While acknowledging the multifaceted benefits of green open spaces – from ecological improvements like climate regulation and flood control to pollution reduction, biodiversity conservation, and social interaction – a common sentiment expressed dissatisfaction with Wereda 5's lack of sufficient and well-maintained green spaces.

The analysis identified several challenges hindering effective green space management:

- Limited public awareness and community participation: Residents feel disengaged and uninformed about green space planning and management.
- Inadequate implementation of government policies: Existing policies are not effectively translated into action, leading to shortcomings in green space development and maintenance.
- Budget constraints and lack of skilled workforce: Financial limitations and a shortage of qualified personnel hamper green space initiatives.
- **Land scarcity, illegal settlements, and insufficient ** These factors contribute to the loss of green spaces and hinder their proper upkeep.

- Poor coordination among stakeholders: Lack of collaboration between government agencies, communities, and other stakeholders impedes effective green space management.

Despite these challenges, residents recognize the potential of green spaces to enhance comfort, health, social interaction, aesthetics, stress reduction, job creation, and overall well-being. However, concerns were raised regarding the planning and governance of green spaces, including:

- Lack of community involvement in master plan development: Residents feel excluded from the decision-making process regarding green spaces.
- Limited authority for local offices: Local authorities lack the power and resources to effectively manage green spaces.
- Perceived government apathy towards green spaces: Residents perceive a lack of governmental commitment to prioritizing and investing in green spaces beyond showcase projects.

Residents in Addis Ababa, particularly in Wereda 5, express dissatisfaction with the state of their open green spaces. Interviews reveal a multitude of issues hindering their enjoyment and potential. Firstly, inadequate management plagues these spaces. Residents lack access to basic amenities like toilets, play areas, and seating, while issues like uncleanliness and improper use further deter engagement.

Secondly, systemic challenges impede progress. Limited government oversight and control leave the spaces vulnerable, while resource constraints like water scarcity and inadequate construction systems restrict maintenance and development.

Thirdly, lack of awareness and participation play a role. Residents may not fully understand the value and proper use of green spaces, hindering their involvement and support for improvement efforts.

Furthermore, external pressures exacerbate the issue. Urban population growth shrinks existing green spaces, while a lack of collaboration between government, institutions, and communities hinders coordinated efforts.

Finally, challenges specific to Wereda 5 add another layer of complexity. Limited land availability in the inner city restricts the creation of new spaces, while a lack of skilled professionals hinders effective management and design.

Addressing these multifaceted challenges requires a comprehensive approach. Increased government support, improved resource allocation, public awareness campaigns, collaborative planning, creative use of available space, and investment in skilled personnel are all crucial steps towards transforming Addis Ababa's green spaces into vibrant and enjoyable havens for all residents.

5.3. Conclusion

Residents in Arada sub-city yearn for more and improved green spaces, as highlighted by a study exploring their perceptions of open space use, value, and protection. Analyses revealed a two-pronged concern: insufficient quantity and quality of existing green spaces. Residents expressed dissatisfaction with the current provision, despite recognizing the diverse benefits these spaces offer, ranging from ecological advantages like climate regulation and flood control to pollution reduction, biodiversity conservation, and social interaction opportunities.

Unfortunately, several challenges hinder the effective management of these vital areas. Lack of public awareness and community participation, coupled with inadequate implementation of government policies, create a knowledge and action gap. Additionally, resource constraints like budget limitations and skilled personnel shortages pose further hurdles. Furthermore, land scarcity and illegal settlements threaten the very existence of green spaces, while poor stakeholder coordination impedes collaborative efforts.

Beyond these general challenges, residents specifically raised concerns about the planning and governance of green spaces. They feel excluded from decision-making due to a lack of community involvement, and perceive limited authority and resources assigned to local offices responsible for management. Further compounding the issue is a perceived lack of government commitment to prioritizing and investing in green spaces beyond showcase projects.

Addressing these challenges and concerns is crucial for creating and maintaining green spaces that cater to the needs and well-being of Arada sub-city residents. Fostering public awareness, engaging

communities in planning, effectively implementing policies, and ensuring collaboration among stakeholders are all critical steps towards building a greener and more livable sub-city.

5.4. Recommendation

Creating thriving open spaces in developing country inner cities requires innovative planning and dedicated government support. Here, the researcher forwarded the following recommendations.

Recommendations for Open Space Planning:

Developing effective open spaces within inner-city areas of developing countries presents unique challenges. Limited resources, infrastructure constraints, and diverse community needs must all be carefully considered.

- **Propose Pocket parks:** These are small, strategically located parks that can provide much-needed green space in densely populated areas. They can be created on vacant lots, rooftops, or even under bridges. Pocket parks can be designed for a variety of uses, such as passive recreation, play, or community events.
- **Multifunctionality:** Combine play areas with sports courts, community gardens with educational displays, and plazas with open-air markets. This maximizes limited space and caters to diverse needs.
- **Embrace local ingenuity:** Utilize recycled materials like tires and bottles for creative seating, play equipment, or landscaping elements. This promotes sustainability, reduces costs, and fosters community ownership.
- **Prioritize native plants:** Choose drought-resistant, local flora that requires minimal water and maintenance. This conserves resources and enhances the local ecosystem.
- **Integrate shade and natural ventilation:** Employ locally available materials like bamboo or fabric to create shade structures and encourage natural airflow. This makes the space comfortable even in hot climates.
- **Think beyond green:** Include water features like fountains or ponds, artistic installations, and performance spaces to add vibrancy and attract diverse users.
- **Accessibility for all:** Ensure ramps, wide pathways, and accessible amenities are incorporated to cater to people with disabilities.

Government Strategies for Implementation and Protection:

- **Participatory planning:** Involve residents in decision-making through surveys, workshops, and community meetings. This builds ownership and ensures the space meets their needs.
- **Public-private partnerships:** Leverage private sector expertise and resources to co-develop and manage open spaces. This can unlock funding and ensure professional maintenance.
- **Community-based maintenance:** Train and empower residents to maintain the space, fostering a sense of responsibility and reducing reliance on government resources.
- **Micro-grants and incentives:** Encourage local businesses and artists to contribute to the space through micro-grants or tax breaks. This fosters a vibrant and diverse atmosphere.
- **Targeted security measures:** Install adequate lighting and security cameras, train community patrols, and collaborate with local police to ensure safety and prevent vandalism.
- **Sustainability initiatives:** Implement rainwater harvesting, greywater systems, and composting programs to minimize resource consumption and environmental impact.
- **Long-term commitment:** Allocate dedicated funding and personnel for ongoing maintenance and improvement of open spaces. This demonstrates commitment and ensures long-term success.

Therefore, thriving open spaces in developing inner cities require a collaborative effort. By embracing innovative planning, community engagement, and effective government strategies, these spaces can become vibrant hubs for recreation, social interaction, and environmental sustainability, ultimately improving the lives of their residents.

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APPENDIX I: Questionnaire

Research Topic: Assessment of Residents' Perception of Green Open Spaces Uses, values, and Protection in Arada sub city Woreda 05

Dear Participant,

I am a postgraduate student at Addis Ababa University. Currently, I am researching the Assessment of residents' perception of Green Open Spaces uses values, and protection in the Arada sub-city Woreda 05. You are one of the respondents selected to participate in this study. Please assist me in giving correct and complete information to present a representative finding on **the subject**. Your participation is entirely voluntary, and the questionnaire is completely anonymous. I confirm that the information that you share with me will be kept confidential and only used for **academic purposes**. Therefore, I kindly request you to answer the questions freely and openly to share your competence and knowledge with me.

Thank you in advance for your kind cooperation and dedicating your time.

Instructions

- No need to write your name
- Indicate your answers with a check mark (✓) in the appropriate box.

SECTION A: USERS' VARIABLE

A. Gender

1. Male

2. Female

B. B. Age

1. Below 25

2. 25- 30

3. 31- 35

4. 36 - 40

5. Above 41

C. level of education

1. Illiterate

2. Grade 1-8

3. Grade 8-12

4. Diploma

5. Bachelor Degree

6. Master

7. PhD

8. Other state here _____

SECTION B: LIKERT SCALE QUESTIONS ON GREEN OPEN SPACES

please indicate your responses to each of the following statements. Indicate with an \checkmark in the appropriate answer box; please rate your response as follows:

No	Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
A	Current status and accessibility of Green Open Spaces					
1	There are enough green spaces in my area					
2	The green spaces are in good condition in my area					
3	The green spaces are well equipped in my area					
4	The green spaces in my area are suitable for children to play					
5	The green spaces are safe in my area					
6	The green spaces are attractive in my area					
7	Green spaces are important for the appearance of my area					
8	Green spaces attracted me to my area					
10	Green areas are accessible to the people					
B	Outcomes					
I	Satisfaction					
1	I am satisfied with the current availability of green areas in this woreda					

2	I evaluate the nature of green areas in my woreda as very good					
3	I am happy with the range of facilities on the Green Open Spaces					
4	The Green Open Spaces contribute to my quality of life					
5	I would support keeping the existing Green Open Spaces would increase my property value					
II	Ecological Benefits of Green Open Spaces					
1	Green Open Spaces improve the climate					
2	Green Open Spaces act as ecological corridors between urban, urban, and rural areas.					
3	Green Open Spaces help reduce daytime higher temperature					
4	Green Open Spaces help to prevent water floods by absorbing excess water.					
III	Pollution Control					
1	Green Open Spaces can reduce noise pollution					
2	Green Open Spaces can absorb different gaseous pollutants					
3	Green Open Spaces reduces solid waste (As recycling and composting centers)					
IV	Green Open Spaces Biodiversity and Nature Conservation					
1	Green spaces provide habitat for a variety of birds, fish, animals, insects, and other organisms, while also					

	providing corridors and greenways to link habitats.					
2	Green Open Spaces prevent soil erosion and absorb rainwater, thereby improving drainage.					
3	Green Open Spaces provide common bird and animal species and support biodiversity conservation					
4	Green Open Spaces have good natural features such as grass, trees, and flower beds.					
C	Factors Affecting the Green Open Spaces					
1	Lack of public awareness					
2	Low level of community participation					
3	Poor implementation of government policies					
4	Lack of budget					
5	Lack of skilled human power					
6	Shortage of land in urban areas					
7	Illegal Settlement					
8	Lack of regular follow-up					
9	Lack of coordination among different stakeholders					
D	Quality of life and well-being of the people					

1	Green Open Spaces can improve comfort in a wider sense					
2	Green Open Spaces have Health benefits					
3	Green Open Spaces have social benefits that link people to participate in communal or group activities in urban parks					
4	Green Open Spaces enhance the Aesthetic value of the city					
5	Green Open Spaces help to enjoy the weather and get fresh air					
6	Green Open Spaces to reduce stress, relax					
9	Carrying out different ceremony					
10	Create job opportunity					
11	Green Open Spaces are beneficial to the specific health concerns affecting lower-income urban communities.					
12	A daily base interaction with green landscapes is needed for physical well-being					
13	A weekly visit can enhance human well-being and mental growth,					
14	A green environment improves work performance in the office					
E	Planning and Governance					

1	Having easy access to information about green spaces in my neighborhood will encourage me to be more involved in its planning and management					
2	The office invites us to engage in the planning, protection, and management of green open spaces					
3	I can say the management of open green spaces is more of a community participative					
4	I can say the government is more concerned about green open spaces					
5	There is improvement in open space management and protection					

Interview with Arada sub-city green development Key Informants

1. What is the biggest challenge regarding planning, delivering, and managing Green Open Spaces? Do you have any suggestions for overcoming these challenges?
2. How is open space used in this Woreda? Who uses green spaces in Woreda 05?
3. What are the biggest pressures or constraints on open space in Woreda 05? How does this Woreda manage Green Open Spaces? Do you manage Green Open Spaces uniformly or do they differ? Why?
4. Does this Woreda meet the demand for Green Open Spaces? Are there certain types of Green Open Spaces that are more in demand?
5. What is the biggest challenge regarding your organization's work with urban Green Open Spaces? How are your organization's decisions regarding Green Open Spaces made?
6. How do you describe the factors affecting green areas development and management?
7. If there is a lost/changed open space, how much is it? Why lost or changed?
8. What can you say about your enforcement capacity and power?
9. What is the government planning to mitigate problems related to the management of green open spaces such as lost/changed/improper uses etc....
10. What measures are taken to protect open spaces and what plan do you have?
11. What types of socio-economic environment, policy, governing laws and rules, planning, and design principles did you recommend to protect and manage green open spaces?

Interview with users of Green Open Spaces at Arada sub city woreda 5

1. Did you observe any Green Open Spaces used improperly, lost, or changed? Please discuss it.
2. Are you satisfied with the green spaces in your area? If yes/no why please discuss it.
3. What factor did you think caused the Green Open Spaces not to perform as planned in the area?
4. Did you think the green management is community participative?

THANK YOU

APPENDIX 2: Interviewer Information (KII)

Informants Code	Name	Informants' Position of Works	Education levels	Interview Date
Informant 1	Girma	Addis Ababa city Environmental Protection Green development commission Officer	Degree	April 20, 2023
Informant 2	Hanna	Addis Ababa city Environmental Protection Green development commission Officer	Degree	April 20, 2023
Informant 3	Haimanot	Addis Ababa city Environmental Protection Green development commission Officer	Degree	April 20, 2023
Informant 4	Mebratu	Addis Ababa city Environmental Protection Green development commission Officer	Degree	April 20, 2023
Informant 5	Melaku	Addis Ababa city Environmental Protection Green development commission Officer	Diploma	April 29, 2023
Informant 6	Mekebeb	Addis Ababa city Environmental Protection Green development commission Officer	Diploma	April 29, 2023
Informant 7	Saba	Addis Ababa city Environmental Protection Green development commission Officer	Diploma	April 29, 2023

APPENDIX 3: Publishable Manuscript

ASSESSMENT OF RESIDENT'S PERCEPTION OF OPEN SPACES USES, VALUES, AND PROTECTION

ADDIS ABABA: THE CASE OF ARADA SUB CITY

Bethelhem Mekuria* Dr Liku Workalemahu (PhD)²

Abstract

Green open spaces, such as parks, gardens, and greenbelt areas, provide a variety of benefits, including improved microclimates, purified air, and improved soil and water quality. They also serve as places for socializing and recreation. This study aimed to understand how people perceive, use, and protect open spaces. The study found that users have a low level of awareness of the benefits of open spaces and that there is a lack of community participation in planning and implementing open-space projects. The study also identified several factors that affect the quality of open spaces, including lack of public awareness, lack of budget, and lack of skilled human resources.

Key Words: Open Space, open space user, Planning and design, level of awareness, user's variable

1. Introduction

Green open spaces are important components of the urban open space that provide benefits to urban residents and visitors, including the provision of space for recreation (Cilliers, 2019), Social and physical activity, improved sanitation, local temperature control, improved air quality, precipitation management, biodiversity conservation, and increased ownership. Urban parks can "damage" ecosystems, affecting urban infrastructure and human health, as tree roots destroy sidewalks (Lee & Maheswaran, 2011), pollen from urban vegetation causes allergies, and shading of houses caused by tall trees.

Africa's rich biodiversity and ecosystem services provide the basis for green infrastructure to support its growing population, even in the face of rapid urbanization (Hoover & Hopton, 2019). However, the full potential of green infrastructure to be effectively incorporated into city planning

and decision-making is limited by fragmented governance, limited knowledge, and a focus on beautifying open spaces (Lee & Maheswaran, 2011).

While there is growing recognition of the importance of green infrastructure, including open space and nature-based solutions, in enhancing urban resilience (Cilliers, 2019), Some care and attention have been paid to the understanding and impact of the natural open system in the city: Land that is considered open space is often de-zoned and unprotected to preserve ecosystem services. Knowing the difference between values and knowledge (Botzat, Fischer, & Kowarik, 2016) is reflected in calls by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) to understand the multiple values of nature (Pillay & Pahlad, 2014).

A lack of understanding of the benefits of nature in cities in sub-Saharan Africa and across Africa is a barrier to the sustainable ecosystem services that urban green spaces offer (Lee & Maheswaran, 2011).

Preliminary observations made by the researchers around Piasa in the study area show that green areas are abused, homeless children and sleep in green areas, litter is thrown in the green areas, green space is negative and illegal. Business people sell products in the green area or push the fence of the green area. For this reason, researchers are interested in the understanding of green space by the residents of the region.

Not many studies have been done on how people perceive and value nature, especially in developing countries (Botzat, Fischer, & Kowarik, 2016). In sub-Saharan Africa, and Ethiopia in particular, we do not know enough about how people value urban nature. This makes it difficult to provide sustainable ecosystem service from urban spaces (Herslund, et al., 2018). The fact that the operation of parks and facilities is not good and in line with the needs of customers and social culture results in the use of maintenance and benefits, such as encouraging interaction and expanding user goals.

Even though Ethiopia is rapidly urbanizing, its biodiversity and ecosystem services provide a basis for green infrastructure to support its growing population (Cilliers, 2019). However, the full potential of green infrastructure to be effectively incorporated into city planning and decision-making is limited by fragmented governance, limited knowledge, and a focus on beautifying open spaces (White, Turpie, & Letley, 2017). Therefore, understanding urban users' understanding of

the benefits and problems of urban parks in Ethiopia and their attitudes towards urban parks should be planned, developed, and managed; To meet the needs and preferences of urban communities. Neighborhood Park (NP) is the most accessible public green space in Addis Ababa. These parks are often built by neighboring communities with support from local governments. The Addis Ababa City Government allocates free land for the development of the National Park and the community must provide funding and labor for the creation, construction, and maintenance of the National Park. While public parks in the Addis Ababa area are primarily designed to provide recreational and social opportunities, they also provide other environmental and economic benefits. Parks in Addis Ababa are not well-liked because they are not planned, built, or maintained with public input. Park planners, designers, and managers need to understand what park users think about the benefits and problems of Addis Ababa's parks, how they rate the quality of the parks, and what factors are important to them. This information will help to ensure that parks meet the needs and interests of the city's residents.

Sileshi and Hailu (2020) evaluated the current status, accessibility, and limitations of UGI in Addis Ababa, Ethiopia. The study shows that between 2003 and 2016, UGI's land use decreased by 9.2 percent. Urban arable land decreased (down 11.9%), followed by urban forests (down 3.0%). 0%. 7%). Access indicators also show that residents do not have adequate recreational and recreational opportunities. In the study, it was concluded that the infrastructure of the city deteriorated, the infrastructure of the city did not meet their needs and was not important for the residents of the city (Sileshi & Hailu, 2020)

Much research has been done on the problems of lack and inaccessibility of urban green infrastructure (UGI) in developing countries. In contrast, there are few similar studies in rapidly growing African cities. In the city of Addis Ababa, users' behavior and understanding of the benefits, challenges, and advantages of urban green spaces are not understood, making it difficult to implement urban green spaces. So, the researchers started with these gaps.

Objective of Study

The overall goal of the study is to comprehend the attitudes and behaviors of open space users in the study area. The specific objectives are to pinpoint the specific requirements of open space users, to look into the current state of open spaces in the study area, to assess whether the design

and placement of open spaces address the specific needs, and to offer policy, planning, and design recommendations for better open space management and development.

Statement of the problem

The concrete jungle's relentless expansion casts a long shadow, not just on cityscapes, but on the very well-being of its inhabitants. The stark absence of open spaces isn't merely an aesthetic shortcoming; it's a silent health crisis unfolding in plain sight. Residents become prisoners of confined balconies and choked streets, bearing the brunt of this green vacuum.

Their physical health suffers first. With playgrounds replaced by parking lots and parks turned into apartment blocks, opportunities for exercise dwindle. This sedentary lifestyle paves the way for a grim procession of chronic ailments – obesity, diabetes, heart disease – taking root in the absence of green havens for recreation and stress relief. Mental health, too, succumbs to the suffocating pressure of urban density. Anxiety and depression find fertile ground in the absence of nature's calming embrace, leaving residents yearning for the solace of rustling leaves and open skies.

Social bonds fray under the harsh glare of concrete. Community spaces shrink, replaced by impersonal high-rises that isolate rather than connect. The vibrant tapestry of intergenerational interactions, spontaneous laughter in sun-dappled parks, and shared picnics under trees fade into a wistful memory. Without these shared green spaces, the very fabric of the community weakens, leaving individuals adrift in a sea of unfamiliarity.

The environment, caught in the crossfire, bears the brunt as well. Air quality plummets as green lungs vanish, replaced by exhaust fumes and heat islands. The delicate balance of ecosystems crumbles as habitats vanishes, leaving flora and fauna struggling for survival. Water filtration systems overload, choked by the relentless pace of development, leading to polluted waterways and ecological imbalances.

This isn't merely a bleak picture; it's a call to action. The lack of open space isn't an inevitable consequence of urban growth; it's a failure of imagination and prioritization. We must reclaim the green heartbeat of our cities, nurturing parks, rooftop gardens, and green corridors that break the monotony of concrete. These are not luxuries, but necessities, the lifeblood of healthy communities and a thriving planet. By reclaiming open spaces, we reclaim not just land, but our health, our social fabric, and ultimately, our future.

2. Literature Review

In general, having a high level of open space is a good thing. The best public space allows people to stay longer and have more activities (Aljabri & Smith, 2013). Quality of open space is about usability, some standards depend on people's needs, and understanding of public open space is not ineffective and incomplete (Lynch K. , 2007). The advantages of public space can be seen in two ways, functional and physical properties. This study is about people and their activities in public spaces. The space should be accessible to all aspects of life, be free, and reflect local culture and traditions (Cilliers, 2019).

2.1. Planning and governance of open space

Sustainable communities that integrate urban green infrastructure use community-based initiatives to simultaneously achieve environmental, economic, and social goals (Kramer, 2014). These goals include improving water quality, improving communities, reducing the risk of flooding, and providing parks that support physical activity.

A lack of understanding of the value and positive effects of existing urban green space is a problem in integrating open spaces into development plans. This issue causes many problems. It imposes constraints on land use management and planning decisions based on insufficient information about human benefits (Krauze, Sikorska, & Włodarczyk, 2020).

Socio-political context

Urban planning authorities need to treat green space as a top priority They should work with allied institutions to develop and implement plans to protect and manage green spaces (Mensah, 2015). Mosely in developing countries political impact strongly affects the urban planning process. The case of the tree campaign in Addis Ababa is a good example of how politicizing forestry can have a negative impact, but it was not well planned. The seedlings were not planted in appropriate sites, and they were planted on the road median, which is not a permanent location. As a result, the seedlings will have to be uprooted once construction on the railway begins. This shows that political engagement is not always a good thing when it comes to planning and implementing green spaces. Political consideration can sometimes lead to decisions that are not in the best interests of the city or its residents (Kumilachew, Shibre, & Stefen, 2020).

Policies, Enforcement capacity, and Political will

In Ethiopia, there are policies and laws about urban green spaces, but there are no specific guidelines or standards for how much green space should be managed (Gemed, 2018). As the capital of Ethiopia, Addis Ababa has undergone several development phases in terms of grey infrastructure, which has sometimes come at the expense of its green infrastructure. It is also the only city in Ethiopia where both the federal and city governments are involved in the planning and implementation of green space policies (Kumilachew, Shibre, & Stefen, 2020).

The Ethiopian Urban Planning Proclamation (no 547/2008) is a law that promotes well-planned and developed urban centers throughout the country. It applies to all urban areas in Ethiopia. One of the plans that the proclamation recognizes is the structural plan. The structural plan must address major land use categories and environmental aspects, including green spaces. The structural plan for 2017-2027 describes the city's existing green spaces and proposes further development of these spaces and the creation of new parks.

Planning and design principles

The planning and design principles of urban planning in Ethiopia are based on the following key concepts: Sustainability, inclusiveness, participation, flexibility, climate, and connectivity. The specific principles will depend on the specific context of each city. Multi-functionality, green-grey integration, connectivity, and social-inclusiveness are a commune guiding point, for different green space planning, which is found in the preparation of different planning documents (Kumilachew, Shibre, & Stefen, 2020).

2.2. Users Variable

Public spaces for different users: The success or failure of public spaces depends on the availability and behavior of users. But even researchers such as Whyte (1980, 1988), Jan Gehl (1987, 1996), Bareness (1999), and Kevin Lynch (1972, 1981) find that the true meaning of open space to the public is barely possible. To define a good public open space. and other scholars believe "use" is the first condition for a good space (Francis, 2003).

Resident's perception of open space

The design of an open space isn't just about aesthetics; it profoundly shapes how people experience and interact with it. It dictates accessibility, influencing where people can move freely and where they encounter barriers. This influence extends to comprehension, determining how easily users understand the space's potential uses and offerings – a quality known as legibility. Furthermore, design impacts the variety of activities the space supports, catering to diverse needs and preferences. It also governs robustness, the adaptability of the space to accommodate various uses over time. The detailed visual elements play a crucial role in visual appropriateness, guiding users towards available choices. Moreover, design influences the sensory experience, impacting how people perceive space through sight, sound, and touch. Finally, a well-designed space allows for personalization, enabling users to add their own touch and create a sense of ownership. In essence, the design of an open space acts as a silent language, dictating the possibilities and experiences it offers to its users.

Residents Preference

Visiting preferences of residents will affect their perceptions of the importance of open spaces for health-ecological and natural health. Different behavioral groups give different importance to health, which is reflected in the cultural and ecological service understanding. Social services of open space ecosystems can strengthen the bond between nature and man and between man and man. Lo and Jim's (2012) research on Hong Kong stated: "Green spaces are valued for their microclimate and convenience, not because of their environmental performance and social benefits"; "Residents need good content and supportive spaces"; and "Effective Public Participation" (Mitchell, 2003). People's opinions about the quality and facilities of green spaces affect why they visit them. These reasons, in turn, also affect how people see the problems with green spaces and what needs to be improved. (Carmona M. , 2018). The condition and quality of a green open space generally affect how people behave and feel about it. While people benefit from visiting green open spaces, they also contribute to the natural and social services that these spaces provide. How often people visit green open spaces is related to how much they make from them. People who visit green open spaces frequently are concerned about their health. Green open spaces also provide places where people can interact socially and build relationships, even when they have different ideas about what services green open spaces should provide.

Biophysical Aspects of Open Space

Open spaces should be carefully managed, taking into account the benefits and threats of biodiversity to support decision-making. To this end, open spaces can be characterized in terms of their species, ecosystems, and threats, but this information is often difficult to obtain and often not comparable across regions. It is important to consider green open spaces in the urban environment when examining temperature for the benefit of human health (Lang & Marshall, 2016). Honjo and Sawada (2004) elaborated on the importance of analyzing the shape of green areas to assess their cooling factors. Yuan and Bauer (2007) documented a strong relationship between impervious surface area (ISA) and land surface temperature, or UHI effect. Bauer et al. (2007) mentioned the importance of impervious surfaces in urban planning and management.

Interaction

Open space management has many benefits as it provides ecosystem services (MEA, 2005). The extent of ecosystem services provided depends on the physical quality and functionality of the UOS, which benefits residents and the environment (Haines-Young and Potschin, 2008). Green spaces can constitute more than 50% of a city's total land cover (Haase et al., 2020) and provide many environmental management functions such as air conditioning and cloud remediation, with many programs such as good atmosphere, games, spiritual inclusion, social relations, and physical activity. opportunities. In addition, green spaces are important service providers to urban areas and fauna and ensure the conservation of urban biodiversity. Blue areas provide cooling services in cold climates, but in cities, they will be most effective in water support services or cultural services such as time for sports and physical exercise. Both green and blue areas are important for climate change adaptation and mitigation, for example, through precipitation management. Brown spaces provide cooling services from normal facilities and therefore also provide cultural services as green spaces, although generally to a lesser extent. Cultural services such as recreation are often offered to gray areas (Barton et al., 2020; Luederitz et al., 2015). Number of services affected by UOS management, requiring a long-term perspective in different contexts and different indicators, including knowledge of practice and theory (Jansson et al., 2020).

Outcomes of Good Public Open Spaces

Many types of pleasure are practiced in open public spaces. Some of these are political and social, as public spaces provide space for social interaction as well as political and artistic activity. In addition, the public sphere is a valuable symbol representing a particular community (Jacob & Hellström, 2010).

As a result of these three important aspects of public space, Jacob and Hellstrom (2010) developed dimensions of the principles of public space that can be divided into: Games and Sports: In terms of sports, this will lead to a wealth of options for public space. residents. Power and Organization: Represent the role and power of those who plan to create, influence, develop, and manage public spaces; Utility and change: about the resilience of the public sphere as it changes; Identity and Unity: Define the public space as the identity of the city and the people and provide a unique experience to the public.

Social Benefits

Community open spaces have a variety of uses for the surrounding community; connect or connect people in the community every day for leisure and outdoor activities and can support the creation and development of community motivation and social cohesion (Moll, 2003). In these situations, it is easy for children to play outdoors because play is an important part of society or cultural group and educational goal. (Cooper & Cauli, 1998).

Environmental Benefits

Improved safety and environment provide opportunities for wildlife. It also cools the air and removes carbon monoxide from the air, which is an important benefit of outdoor space. Understanding that parks and green spaces can help improve the lives of people in that community.

Health Benefits

High-quality green space for the preventative health value evidence is growing. The health benefits can be identified primarily as mental and physical health benefits, with the restorative effects that nature can have and the importance of near nature in daily life (Woolley, 2003). In addition to the ability of urban green space to reduce pollution, and the buildup of the particulates that can aggregate respiratory diseases such as asthma and bronchitis, green space contributes significantly

to stress reduction, the alleviation of dementia and depression (Krauze, Sikorska, & Włodarczyk, 2020).

Economic Benefits

Properties that are located in neighborhoods with open spaces and green area parks have been found to have higher resale prices and homeowner values. These open spaces are important attributes when making decisions about residential location and housing choice (Byrne & Neil, 2010). This situation shows that the existence of open space leaves a positive impression on the people living in the space and contributes to the economic value of society. Urban green spaces can provide opportunities for community engagement that can help increase self-esteem and allow individuals and communities to develop new skills and create jobs (Woolley, 2003).

3. Methodology

3.1. Research Approach and Design

Research Design

The study utilized a mixed-methods approach, employing both descriptive research for the quantitative component and case study research for the qualitative component. Descriptive research focuses on gathering and analyzing data to describe a particular situation or phenomenon. Case study research involves in-depth exploration of a specific case or instance to gain a comprehensive understanding of the context, factors, and relationships at play.

Research Approach

Both qualitative and quantitative research methods were used in this study. Quantitative research is used to establish and examine the relationship between two variables or concepts. It is used for the investigation and study of various objects and events and their relationships. Many studies aim to develop and apply mathematical models, theories, and hypotheses about natural phenomena. It includes the use of computational, statistical, and mathematical tools to support the results (Adugna, 2019). Qualitative research is a "subjective" assessment of a question based on a subject's thoughts, feelings, emotions, or behavior. In the research, different methods will be used in the analysis of the questions, and qualitative methods will be used in the analysis of the interviews. Therefore, a combination of research methods will be used in this study.

3.2. Study Area

Arada Sub-City is a sub-district in Addis Ababa Province, Ethiopia. It is one of the 11 districts of Addis Ababa, the capital city of Ethiopia. In between, it is a big city with many historical monuments, many schools, and cultural institutions, and is the place where religious ceremonies are held every year. Arada is one of Addis Ababa's oldest cities and its early history is the most authentic. At the heart of the city is the Piazza (pronounced Piassa), a bustling commercial district on Charles de Gaulle's site; the imposing city built in 1965, the administrative center of the city; octagonal neoclassical St. George's Cathedral (Ethiopian Orthodox church.), built to commemorate Emperor Menelik's victory over the Italians at the Battle of Adwa in 1896, named after Ethiopia's patron saint, with shops and boutiques selling European clothing, jewelry, and more. Street, Prices are also higher in comparison. other places in town (Wikipedia, no date). The case study Area is the green open space of Weara 05; Ras Mekonn Park, the Ras Mekonnen-seba dereja area, the open green space in front of Ras Mekonnen Park, St. George Road separator and St. George's Square.

3.3. Data Type and Data Source

Research uses primary data; Primary data is collected directly from participants. Primary data was obtained through questionnaires and interviews. The questionnaire was divided into two parts; The first part was designed to collect demographic information such as gender, age, marital status, and education level of the participants. The second part of the questionnaire consisted of a 5-point Likert scale. The interview will be conducted by the sub-city and Wildas Green Development Office officials.

3.4. Methods of Data Analysis

The collected data were analyzed both quantitatively and qualitatively. The data collected through questionnaires was analyzed with descriptive statistics using the Statistical Package for Social Scientists (SPSS) version 26. The data obtained with open Interviews were analyzed qualitatively by bringing the common thoughts of the responses together into a common understanding. For the quantitative part, the study used descriptive statistics such as frequency, percentage mean, and standard deviation.

4. Data analysis, presentation and Dissection

To present the findings about the residents' perception of open space uses, values, and protection in the Arada sub city the researcher used different forms of tables of frequency, percent, mean, and standard deviation for the quantitative part and collecting common thought of the respondent's idea for the qualitative part. The results of the study are discussed by triangulating the different source results; questionnaire results and document review results. The data analysis intends to accomplish the objectives of the study and answer the research questions.

4.1. Demographic characteristics of the respondents

The first demographical part of the study was sex. There were 218 male respondents which represents 56.9 % of the respondents and 165 females which covers 43.1% of the respondents. The majority of this study respondents were represented by male and the composition was relatively balanced.

The majority of respondents belong to the age group of 31-35 years which accounts for 39 %, followed by 36-40 years having 18.8% 71 in numbers. This shows that most participants in this study are between the age of 31 and 40 years. It implies that the data collected from the respondents who lived for a long period and have good experience with the environment.

The majority of the respondent's education level was bachelor's degree which number 182 which represents 47.5% of the respondents. This implies that the majority of the respondents are educated and hence have good knowledge about open space uses, values, and protection.

The background information about the marital status of the respondents is 193 which represents 50.4% are single, and 178 respondents which represent 46.5% are married. Hence the majority of respondents are single and then next married.

The last part of the demographic information was respondents' occupation status and hence their occupation indicates that the majority of the respondents as governmental employees.

4.2. Descriptive Statistics

The data collected in this section are analyzed using various data analysis tools such as mean, standard deviation, frequency, and percentage. Descriptive statistics for each variable were measured on a 5-point Likert scale ("1" for "disagree" and "5" for "agree"). According to Pihie

and Akmaliah (2009), overall mean (M) score between 4.21-5.00 is considered as the respondents strongly agreed (SA), if the respondents' score between 3.41-4.20 means agreed (A), the score between 2.61-3.40 is considered as the respondents are neutral(N), the respondents' score between 1.81-2.60 shows that disagreed and if the respondents' score between 1-1.80 shows that strongly disagreed. Thus, detail of the analysis is presented as follows:

Current status and accessibility of Green Open Spaces

The mean about the Current status and accessibility of Green Open Spaces is 3.12 which indicates that respondents become neutral. This implies the respondents do not agree about the Current status and accessibility of Green Open Spaces statements.

Satisfaction with the green open spaces

The mean about the satisfaction level of the people in green open space is 3.218. This indicates that the respondents were not satisfied with green open space. This implies that in Addis Ababa, Arada sub-city the green open space was not satisfied.

Ecological Benefits of Green Open Spaces

The mean for ecological benefits of green open spaces is 4.2375 which indicates that the respondents agree with the statements of ecological benefits of green open spaces.

Green Open Spaces as Biodiversity and Nature Conservation

The mean about Green Open Spaces Biodiversity and Nature Conservation is 3.99 and this indicates that respondents agree with the statement of Green Open Spaces Biodiversity and Nature Conservation.

Factors Affecting the Green Open Spaces

The mean of different factors which can affect the green open space is calculated and discussed as follows. The mean of the factors Lack of public awareness, Low level of community participation, Poor implementation of government policies, Lack of budget, Lack of skilled human power, Shortage of land in urban areas, Illegal Settlement, Lack of regular follow-up, and Lack of coordination among different stakeholders are 4.10, 4.25, 4.24, 9.93, 3.47, 3.61, 3.94, 3.94, and 4.15 respectively. This indicates that respondents agreed with all factors listed as affecting the green open space. This implies that in Addis Ababa, Arada sub city a Lack of public awareness, Low level of community participation, Poor implementation of government policies, Lack of

budget, Lack of skilled human power, Shortage of land in urban areas, Illegal Settlement, Lack of regular follow-up, and Lack of coordination among different stakeholders affects green open space.

Quality of life and well-being of the people

The mean about the quality of life and well-being of the people was 4.276667 which indicates that respondents agree about the quality of life and wellbeing of the people statements.

Planning and Governance of green open spaces

The mean for the statement Planning and Governance was 2.846. This implies that the respondents disagree about the statements of planning and governance statements.

Discussion

Based on interviews and observations, the report finds that green spaces are not well-managed, leading to several problems including improper maintenance, lack of facilities, pollution, safety concerns, and community dissatisfaction. So, the research recommends several actions to address these problems, including establishing clear ownership and management, implementing comprehensive maintenance programs, providing amenities and facilities, encouraging community participation besides developing and enforcing regulations.

The research concludes that the open green spaces in Arada Sub City Wereda 5 can be transformed into valuable community assets that promote recreation, environmental sustainability, and social well-being. Here are some specific examples of improvements that could be made planting more trees and flowers, installing benches and trash cans, creating playgrounds and sports fields, providing public restrooms, and organizing community events and activities. These improvements would make the green spaces more inviting and enjoyable for everyone.

A key finding of the report highlights the yearning of residents in Arada Sub City Wereda 5, Addis Ababa, for more accessible and abundant green spaces. They view existing parks and gardens as inadequate, hindering their enjoyment of the numerous benefits these verdant havens offer. From regulating temperatures and combating pollution to fostering social connections and enhancing well-being, green spaces hold immense potential. However, their expansion and long-term survival are hampered by challenges like low public awareness, limited government involvement, and the relentless march of urban sprawl. The report thus emphasizes the crucial need for improved

management, active community engagement, and a stronger government commitment to unlock the full potential of these green jewels. Only through such concerted efforts can environmental, social, and economic benefits bloom for all residents, paving the way for a greener and brighter future for this vibrant community.

5. Conclusion

The study was conducted to understand residents' perceptions about the uses, values, and protection of open spaces in the Arada sub-city. The study found that residents are not satisfied with the current amount and quality of open spaces in the area. Several factors affect the quality of open spaces, including lack of public awareness, low levels of community participation, poor implementation of governmental policies, lack of budget, lack of skilled human resources, shortage of land in urban areas, illegal settlement, lack of regular follow-up, and lack of coordination among different stakeholders.

Recommendation

Transforming inner-city open spaces in developing countries requires innovative planning and dedicated government support. This means creating pocket parks for green access, designing spaces with multifunctionality like play areas and gardens, and embracing local ingenuity with recycled materials. Governments can support this vision by involving residents in participatory planning, forming public-private partnerships, and empowering communities through maintenance training and micro-grants. Ultimately, thriving open spaces require a collaborative effort, blending creative design with a long-term commitment to ensure vibrant hubs for recreation, social interaction, and sustainability in the heart of the city.

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