



**DEPARTMENT OF URBAN AND REGIONAL PLANNING,
SCHOOL OF BUILT ENVIRONMENT,
COLLEGE OF TECHNOLOGY AND BUILT ENVIRONMENT,
ADDIS ABABA UNIVERSITY**

**Assessment of Structure Plan Violations and Mitigation Strategies in Nifas
Silk Lafto Sub-City, Addis Ababa**

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June, 2025

ADDIS ABABA, ETHIOPIA



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in Nifas Silk Lafto Sub-City, Addis Ababa**

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A Thesis Submitted to the Department of Urban and Regional Planning, Addis Ababa University, in Partial Fulfillment of the Requirements for the Award of Master of Science Degree in Urban Planning

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DECLARATION

I am, **Zelalem Tamru** registration ID number: GSE/2606/13, hereby declare that this Thesis is my original work and that it has not been submitted partially, or in fully, by any other person for an award of a Master's Degree in any other University or Institution.

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ABSTRACT

Addis Ababa has been experiencing rapid urbanization that has profound impact leading to structure plan violations that undermine the envisaged city's development. Nifas Silk Lafto Sub-City, as one of the expansion area has been facing such viloations and related challenges such as unauthorized land use changes, encroachment on green areas, noncompliance with building height regulations, and obstruction of road rights-of-way. These violations reflect weak governance and socio-economic pressures that compromise the city's structural plan and long-term livability. This study assessed the extent, causes, and impacts of such violations, and explored possible mitigation strategies. A mixed-methods design was applied, combining descriptive surveys with qualitative and quantitative approaches. Data were gathered from 120 respondents through questionnaires, interviews, and field observations, supplemented by secondary sources. It used analytical tools that included frequency distributions, percentages, tables, charts, and spatial mapping. The findings indicate that rapid urbanization, population pressure, weak institutional capacity, and corruption are the main drivers of plan violations. Some of the outcomes include shrinkages in green space coverage, reduction in right-of-way spacxe and violstions of the building height regulations. It is then recommended to strengthen institutional and legal frameworks, enhance enforcement mechanisms, and apply technological tools such as GIS and other applicable monitoring tools. monitoring. Moreover the promotion of community participation, awareness campaigns, and transparent governance are also beneficial in mitigating plan violations.

KeyWords: Land use violation, Building height violation, Road plan violation, Green area encroachment.

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LIST OF ACRONYM'S

GIZ-----Gesellschaft für International Zusammenarbeit

MoUDH -----Ministry of Urban Development and Housing

UGI-----Urban Green Infrastructure

WHO-----World health organization

CHAPTER - ONE

INTRODUCTION

1.1 Background of the Study

Urban planning refers to the systematic process of guiding the development and organization of land, urban environments, infrastructure, and public services within a city. Its primary aim is to promote economic growth, enhance quality of life, ensure responsible natural resource management, and facilitate the efficient operation of urban systems. When these foundational principles are ignored or violated whether through unauthorized land use, neglected infrastructure standards, or disregard for spatial guidelines the result is known as *urban plan violation* (Krogstie et al., 2017, and Watson, 2009).

The Department of Economic and Social Affairs of the United Nations proposes four pillars for attaining sustainable urban development. These are the following: Social development, environmental protection, economic development, and effective urban governance are all priorities (Alekseeva and colleagues, 2016).

Land use violations in Addis Ababa are examples of common urban governance challenges across Sub-Saharan Africa. Feyisa et al. (2016) demonstrate how rapid urbanization in Addis Ababa has led to ecological degradation and spatial fragmentation, particularly through the encroachment of informal settlements into green zones and infrastructure corridors.

Addis Ababa city's growth, driven by both formal developments and informal settlements, often leading to conflict between the ideal scenarios laid out in the structure plan and the practical realities of housing shortages, economic pressure, and insufficient regulatory enforcement.

As Addis Ababa continues to expand, these violations create challenges for urban governance, infrastructural development, and environmental sustainability. Urban planning is a design to

order the use of land and other physical resources for public interest with objective of increasing the quality of life and well-being of people living in cities (Beltrao G, kessler E, 2013).

Addis Ababa, like many rapidly developing cities, is undergoing significant redevelopment initiatives that have contributed to changes in land use. These changes have affected previously designated lands and, in many cases, resulted in violations of existing urban planning regulations hindering the effective implementation of the city's recent urban plans. In response, the Addis Ababa City Administration's Construction Permit and Control Authority has issued a strict warning to developers found in breach of the building regulations, particularly those related to the enforcement of setback provisions. This measure follows a decision by the city administration cabinet during its 14th regular meeting on June 18, 2024, during which several key policies on building construction were adopted. Among the major regulations now being enforced are the Setback Regulation and building frontage requirements.

This research is significant as it is believed that it can positively contribute towards better urban management and policy-making processes in Addis Ababa. Moreover, the study can also be used as a background by researchers who want to pursue the same subject further in the same study area or elsewhere in the city. Finally, this study will provide some framework for designers, planners, engineers and decision makers involved in the urban plan implementation and monitoring.

Addis Ababa, as the capital city of Ethiopia, has been experiencing rapid urban growth and expansion, driven by economic development and population increases. The Addis Ababa city structure plan (often referred to as the Master plan) was designed to guide this growth in a sustainable and orderly manner, providing regulations on land use, zoning, building heights, road networks, and the protection of green spaces. However, violations of these structure plan regulations have been persistent, leading to several negative consequences, including the degradation of green areas, obstruction of road rights of way, and unregulated building heights that alter the cityscape.

Urban planning is believed to have been evolved and considered to be as old as the history of human civilization. However, the standard, development, and quality of planning show a

discrepancy from time to time and from place to place. The relatively long tradition of planning practice indicates that there is an understanding of physical land use planning, which mainly comprised of master planning, planning, building standard and regulation and a system of development control. The pre twentieth-century rise and fall of political capital period was taken as a historic landmark that shaped the current development of the urban system of Ethiopia in general and Addis Ababa in particular. There is a continuous change in urban planning process such as developing a theoretical framework to the study of urban physical structure, changing in the involvement of professionals involved in urban planning, planning method, the way urban plan has respond to the rapid change.

Since urban green areas are centers of public recreation and get together, they should be incorporated in the city structure plan in order to get proper management and development. Their management and development should base the planned and active participation of stakeholders and sound local strategic practices. The unprecedented rapid urbanization of Addis Ababa, coupled the city's high population growth has been entailing intricacies on city's management, amongst which Green spaces management constitute a part. However contrary to this rule, Green urban areas in Addis Ababa particularly Nifas silk Lafto sub city is facing problems related to their development and management.

Urban Planning Proclamation no 547/2008 has the scope to be applied to all urban centers throughout Ethiopia. This proclamation sought to achieve the establishment of a legal framework that promotes planned and well-developed urban centers. One plan recognized under this proclamation is the structural plan. Among the issues that the structural plan must address are principal land use classes and an environmental aspect whereby the green spaces can be addressed within these two themes in the structural plan. Furthermore, the structural plan (2017–2027) came up with a description of existing green spaces and proposes further development of the green spaces and the establishment of new parks.

However, there are some urban green space projects being implemented that are not included in the 2017–2027 master plans. Moreover, Environmental Policy of Ethiopia (1997) has a specific policy framework on forest, woodland, and tree resources. Under this subsection, urban forestry is overlooked, and the policy gives due emphasis on forest lands and partially on peril-urban

forests. Under the subsection on human settlements, urban environment, and environmental health, the policy clearly seeks to plan and create green spaces within urban areas, including community forests and woodlands for fuel wood, recreation, providing habitats for plants and animals, as well as modifying urban microclimates. Forest Development Conservation and Utilization Proclamation no 1065/2018 recognizes urban forests (roadsides, riverside, parks, and other green spaces), while the respective regulation on Forest development conservation and Utilization excluded the urban forestry part. To maximize the fulfillment of urban societal needs, the Ministry of Urban Development and Housing (MoUDH) prepared the Climate Change Resilient Urban Green Development Strategy as a road map to provide urban green infrastructure.

This research evaluates the significance of the federal to Addis Ababa city levels to manage the existing green spaces in Nifas Silk Lafto Sub city. Moreover, it evaluates how changes are made on green areas in the manner that contradict or adheres to laws governing green spaces in the city. Among the key obstacles to Addis Ababa's development, rapid urbanization plays a significant role. This accelerated growth has been accompanied by the illegal expansion of residential areas, which in turn has triggered numerous urban plan violations. These include unauthorized land use changes, encroachments into designated green zones, and disregard for building height regulations each undermining the integrity of the city's structural plan. The city government attempts to take action in order to minimize the plan violation in the city. But the success is not determined only the government, but also by active involvement of all stakeholders committed to controlling the urban plan violation as compliance with the urban plan is vital for the sustainable developments of the city as well as to the country at large.

1.2 Statement of the Problem

In Addis Ababa, violations of urban planning regulations have become a widespread problem, undermining the city's effort to guide the development of the city according to the structure plan. From them the main are non-authorized changes to land use, intursion into green areas, non-compliance to the building height regulations, and enchroachment of road rights of way. These violations disrupt the efficient functioning of urban systems, increase congestion, reduce green spaces, and compromise the city's aesthetic and environmental integrity. And also unequal land

distribution and unstable land development as well as spatial inequality are the main problems of residents in the study area and the researcher motivated to do on this topic to solve problems related to Structure plan violations.

Despite the city's efforts to revise its Structure plan and enforce zoning regulations, many areas of the city continue to experience uncontrolled development.

These violations impede the development of the city according to its short and longterm urban plan. Despite the city's efforts to revise its Structure plan and enforce zoning regulations, many areas of the city continue to experience uncontrolled development. A critical challenge lies in understanding why these violations occur, their impact on the city's planned development, and what strategies can mitigate these issues.

Addis Ababa, the capital of Ethiopia and the seat of the African Union, is often referred to as the "African Capital" due to its historical, diplomatic, and political importance to the continent. It hosts the headquarters of both the African Union and the United Nations Economic Commission for Africa. Preserving the city's standards is not a matter of choice it is a shared responsibility of both the government and its residents. However, the city has been increasingly compromised by various types of urban plan violations. Despite efforts made by the responsible authorities, these interventions have failed to produce effective and lasting solutions. This investigation focuses on identifying the root causes of Structure plan violations in Addis Ababa's Nifas Silk Lafto Sub-City, with particular emphasis on four critical areas: land use violations, green space encroachments, building height noncompliance, and road right of way encroachment.

This study seeks to investigate the Structure plan violations in Nifas Silk Lafto Sub City of Addis Ababa City. There are no studies that address the issues at the Sub City level and it is the researchers experience, violations were observed on the site as well as in the office. This motivated the researcher attempt to fill the research gap by identifying factors that affect Structure plan violations with regard to land use, green area, right-of-way and building height regulations specifically at Nifas Silk Lafto Sub City.

1.3. General Objective

The primary objective of this study is to assess structure plan violations in Nifas Silk Lafto Sub – City, and come up with mitigation strategies.

1.3.1 Specific objective

The specific objective of the study are to

1. identify factors of green area violation
2. identify factors of violations in relation to land use
3. identify factors of building height violation
4. explore Potential mitigation strategies to align urban development with the city's structure plan.

1.3.2 Research Questions

Based on the problem statement and specific objectives, this study aims to answer the following research questions.

1. What are the factors of green areas violation ?
2. What are the factors of violations in relation to land use ?
3. What are the factors of building height violations?
4. What are the strategies to mitigate structure plan violations?

1.4. Scope of the study

The study will focus on selected districts with in Addis Ababa that are known to have significant urban planning violations. Nifas Silk Lafto Sub city is purposely selected as case study Sub City. Nifas Silk Lafto is one of the 11 sub cities of Addis Ababa. The Sub City is located in the southwestern section of the city. It borders with the Sub cities of Kolfie Keranio, Lideta, Kirkos, ,Bole, Akaki Kality and Sheger City . This study is concerned about the problems of management and violations of laws, rules and structure plan in Nifas Silk Lafto sub city. Mainly, the study aims at investigating the processes of changes made on green areas to other purposes such as residential homes and other purposes in contravention to structure plan of the city and

related planning laws regulating its implementation, land use violations, building height violations and road encroachment. Spatially, the study is limited to the Nifas Silk Lafto Sub city.

1.5 Significance of the study

This research is believed to be relevant and timely for enhancing urban management and policy making processes with in Addis Ababa. As the city continues to expand rapidly, aligning development with regulatory frameworks becomes essential to promoting sustainable, inclusive growth. The findings offer practical insights for urban planners, municipal authorities, policy makers, and private developers by identifying the underlying causes of structure plan violations and proposing strategies for improved compliance.

Addressing issues such as unauthorized land use changes, building height noncompliance, road encroachments, and the loss of green areas is vital for protecting the city's functionality, aesthetics, and ensuring development is compatible with the city's development vision. This becomes so important in light of the importance of addis Ababa as Ethiopia's political, economic, and diplomatic hub. Furthermore, the study may serve as a reference for future researchers interested in urban plan violations.

1.6 Limitation of the study

The study faces a number of limitations. First, the study focuses exclusively on Nifas Silk Lafto Sub-City, which may limit the applicability of the findings to other areas of the City as each Sub-City has its own distinctive features in terms of the aforementioned variables. Secondly as the study is largely depend on secondary data sources, including official documents and reports may shadow the study. Thridly, time constraints and limited resources prevented broader stakeholder engagement, particularly with community members and local developers whose perspectives could have enriched the findings. Despite these limitations, the study will contribute in understanding and mitigating planning violations in Addis Ababa and sets a foundation for further inquiry and policy reform.

1.7 Organizations of the Study

This thesis contains five chapters. The first chapter provides background information about the thesis-including research questions, objectives, significance, and organization of the study,

limitation of the study, statement of problem and description of the study area. The second topic is about literature review. This chapter investigates some studies done on problems of management of green areas, land use, road plan, building height violations in Addis Ababa. Moreover, in this chapter gaps of previous studies will be discussed, which will set the framework for further study by this research. The third chapter is about methodology. The fourth chapter discusses results and findings of the thesis. Finally, the last chapter is the conclusion and recommendation.

CHAPTER – TWO

REVIEW OF RELATED LITERATURE

The chapter explores the body of knowledge on urban planning violations with specific reference to Addis Ababa. The review is organized into theoretical review addressing concepts, principles, and policy frameworks, empirical review dealing with findings from previous studies and conceptual framework that integrates theory and evidence into the framework guiding this study. It should be noted that the review is not exhaustive.

2.1 Theoretical Review

2.1.1 Urban Planning and development in Addis Ababa

Despite Ethiopia's long-standing history and some urban development, the evolution of formal urban planning practices has been comparatively limited. Though Ethiopia's urban history dates back to the Axumite Kingdom, most modern towns, including Addis Ababa, were established within the last two centuries (Elias, Y. A., & Laura, S. , 2018; Hussen, B. W. , 2016; and Woldeamanuel, M. (2020).

Addis Ababa, meaning "new flower" in Amharic, was established in 1886 as a military garrison in the Entoto hills and relocated in 1888 to the plains surrounding Filwoha hot springs. Like other imperial encampments of the time, the city emerged from a tradition where Ethiopian emperors moved across the country with their forces, asserting control over local populations. The earliest urban structures included palaces, churches, marketplaces (Arada), and noble residences, shaped by Empress Taitu's informal but influential land use concept commonly referred to as Taitu's master plan. This plan's feudal land tenure system laid the foundation for Addis Ababa's inner-city informal settlements. Addis Ababa's selection as a permanent capital marked a shift from transient political centers to a fixed urban seat of governance.

The city's growth lacked formal planning during Emperor Menelik II's reign, with settlements spreading radially from hilltop cores. Land was allocated to chiefs, nobility, and the church

based on loyalty and defense, reinforcing feudal hierarchies. This system persisted into Emperor Haile Selassie's era, with land ownership concentrated among elite groups. Today, several city areas still bear the names of their original owners, professions, or churches. The five-year Italian occupation introduced the city's first master plan and infrastructure projects, along with a segregated urban model dividing colonists and Ethiopians. These spatial divisions and European style street layouts still influence the city's morphology. From the 1950's onward, Addis Ababa experienced steady but largely unregulated growth. In the 1960's, urban expansion followed major transport corridors, though inner city density and infrastructure deficits persisted. Post Italian occupation, trade routes shaped the city's spatial logic, extending influence into surrounding Oromia regions. This prompted administrative restructuring and rural urban tensions. While the 2003–2013 master plan aimed to formalize peripheral development with condominium housing, informal settlements continue to expand, often driven by affordability and land speculation. The government has responded with a mixed approach: legalizing some areas and demolishing others fueling both integration and conflict.

These historical and contemporary dynamics form the backdrop for critical debates on land use governance, spatial equity, and ethical responsibility. As Addis Ababa continues its rapid transformation, the city's planning practices must consider all contextual issues related to the legacy of hierarchical land control, informal urbanization, and fragmented administrative approaches. This context lays the groundwork for the literature review that will review the theoretical frameworks and practical challenges surrounding land use violations and other dimensions of urban planning in Addis Ababa.

2.1.2 Land use violation

Urban land use planning is multidisciplinary and integrates social, economic, and spatial aspects to shape the development of cities effectively. As stated by Keeble (1969), urban planning is both an art and a science focused on organizing land uses and placing buildings to achieve efficiency, convenience, and aesthetic appeal. The purpose of urban planning is to create sustainable and well ordered environments that accommodate growth, promote social cohesion, and support economic development. However, in many rapidly urbanizing cities, especially in developing countries, the realization of these ideals is disrupted by widespread land use

violations. Such violations occur when land is used contrary to officially designated purposes outlined in city structure plans. These infringements undermine orderly development, strain urban infrastructure, and challenge governance frameworks.

Historically, town planning evolved from rigid blueprint models in the post-war era to more flexible and participatory approaches. Ratcliffe (1974) emphasized the shift in the 1970's toward delivering the right site at the right time for the right people, while Greed (1996) later highlighted the politicization of planning in the 1990's, linking it to property, power, and economic interests. This evolution reflects the increasing complexity of planning as a socio-political activity, where decisions are influenced by governance structures, market forces, and community values.

Violations in land uses are often attributed to weak enforcement mechanisms, overlapping institutional responsibilities, and rapid urban sprawl. Abdo (2015), discusses that Ethiopia's expropriation laws lack clarity and transparency, contributing to unauthorized land conversions and conflicting property rights. These legal gaps are often testified by informal settlements and speculative development, that are out of the formal planning procedures.

According to studies by Moisa and Gemedda (2021), built up areas have expanded significantly over the past three decades, often encroaching on agricultural, green areas and environmentally sensitive zones. This has resulted in spatial mismatch between planned and actual land uses. Omole (2009) argues that land use violations are also the outcomes of broader urban management failures, including corruption, lack of public participation, and inadequate monitoring mechanisms. Moreover, in many instances, planning decisions are made without meaningful stakeholder participations.

Addressing these challenges, calls for integrated and participatory planning frameworks. Abdo (2023) highlights the need for legal reform and institutional capacity-building to strengthen land governance. Moisa and Gemedda (2021) recommend the use of GIS based monitoring tools to detect and prevent violations and Omole (2009) highlights the importance of civic education and stakeholder collaboration in promoting compliance and accountability.

2.1.3 Urban green areas

2.1.3.1 Conceptual frameworks of green areas and green areas encroachment

Green infrastructure (GI), green space, and open space are terms often used interchangeably in planning terminology, but they encapsulate nuanced differences. GI is strategic and multifunctional, designed to support biodiversity and ecological resilience. Green spaces, as defined by Schipperijn (2010) and Mensah (2014), include both public and private vegetated areas parks, cemeteries, wetlands, gardens that may or may not be accessible to the public. Open spaces are broader, encompassing both vegetative (green) and constructed (grey) land uses, such as plazas and roads. Mell (2010) emphasizes the spatial planning role of GI in enhancing urban sustainability. Understanding these definitions is crucial for clarifying what constitutes

Urban green infrastructure comprises a network of natural and semi-natural elements parks, woodlands, wetlands, floodways, and vegetated corridors that deliver ecosystem services essential to urban wellbeing (Joshua et al., 2012; European Commission, 2013; Mell, 2010). These features regulate air temperature, purify water and air, offer recreational spaces, and act as cultural and economic assets. However, in rapidly growing cities like Addis Ababa, green spaces are increasingly compromised due to land pressure, ambiguous land governance, and shifting urban priorities. encroachment and recognizing the diversity and scale of urban ecological assets.

2.1.3.2 Socio-ecological benefits and stakeholder perspectives of green areas

Green spaces deliver a range of health, social, and cultural benefits. They serve as natural filters, trapping particulate matter (PM_{10} and $PM_{2.5}$), and help reduce urban heat island effects through canopy shading and evapotranspiration (FAM et al., 2008). Coombes (2010) links access to green spaces to reduced government health expenditure and improved cardiovascular health. Socially, playgrounds and parks promote children's cognitive development and strengthen community ties (Lee, 2011). Culturally, they serve as heritage sites and gathering places for diverse populations. Economically, green infrastructure supports tourism, local commerce, and public service revenues. These multiple stakeholder values are often marginalized in urban planning processes that prioritize immediate economic returns over long-term sustainability.

2.1.3.4 Conceptual conflict and planning deficits of green areas

Ambiguity in land use categorization, conflicting definitions of green space, and institutional silos complicate preservation efforts. Some definitions restrict green space to publicly accessible land, ignoring privately held but ecologically vital areas. Moreover, the lack of a harmonized land classification system undermines monitoring efforts and creates loopholes for developers and informal settlers. Mensah's synthesis shows that the urban external environment encompasses both green and grey spaces, yet planning frameworks often lack clarity on managing their intersections. The challenge is thus both conceptual and operational: without consistent spatial definitions and coordinated institutional mechanisms, green areas remain vulnerable to incremental encroachments.

Although the ecological, social, and planning significance of urban green spaces is widely acknowledged, current literature offers limited empirical insights into several key dimensions relevant to Addis Ababa. There remains a lack of spatial characterization detailing the extent and typology of green space encroachments in the city. Institutional effectiveness in safeguarding green infrastructure against both informal settlements and formal land reallocation has yet to be rigorously assessed, while the ethical governance dimension focusing on equitable land use, stewardship responsibilities, and intergenerational justice is largely underexplored. These gaps constrain evidence-based policymaking and underscore the need for a more integrated, ethically grounded planning framework.

2.1.3.4 Policies, strategies and governance in urban green space

Policymakers all throughout the world are concerned about urbanization and unplanned urban growth. The 2030 Agenda for Sustainable Development deals with 20 issues Goal 11 of the Sustainable Development Goals aims to make cities more sustainable and human settlements that are diverse, safe, resilient, and long-term (Emas 2015). Although the concept of community involvement in construction and planning can be traced back to community involvement in the built environment is a more recent phenomenon in ancient society's origin.

A participatory method encourages actively incorporating 'the public' in decision-making processes, where the relevant 'public' is determined by the topic under consideration addressed. The public can be ordinary citizens or stakeholders in a specific project. Experts, government

officials, and even representatives of the private sector are all involved in a project or policy. Ordinary citizens, stakeholders in a particular project or policy, specialists, and even representatives of government and private sector can all be considered members of the public.

In general, policy processes can be thought of as a three-step planning cycle. When it comes to implementation and assessment, a participative method may be adopted some, all, or none of these steps (Atefeh 2012). Cities are primarily concerned with human activities; hence they must embrace functions and services.

The natural system provides structure to allow for their stability. Meanwhile, the color green as a vital component of cities, space plays a crucial role in urban planning metabolism, and a lack of these areas can lead to a slew of major problems in city living (Atefeh, 2012). The demand for selection in urban planning and management is high. The 2005 Ethiopian Urban Development Policy is the first government document to incorporate all good governance elements into its plan.

Following that, the administration launched a series of programs aimed at proving its commitment to successful and long-term decentralization, as well as its efforts to create favorable conditions in order to improve urban governance and make cities more competitive beneficial (UNHABITAT 2017). Institutional frameworks are the greatest impediment to urban green space growth and their willingness to put policies and strategies into action on the ground.

The Department of Economic and Social Affairs of the United Nations proposes four pillars for attaining sustainable urban development. These are the following: Social development, environmental protection, economic development, and effective urban governance are all priorities (Alekseeva and colleagues, 2016).

Without the active participation of cities and regions, no sustainable or green growth goals can be realized. Cities, as important engines of economic growth, job creation, and innovation, are at the heart of the transition to a green global economy. Cities, on the other hand, are the most significant contributors to global warming and environmental issues. To achieve more creativity, efficiency, and community involvement, responsibility and ownership of urban green spaces should not be split between different agencies and structures. Discussion groups, consultations,

artistic events, sport activities, ethnic minority background activities, leisure programs, environmental and horticultural activities, community gardens, organic food producing projects, and other methods are used by local governments to engage and involve users.

As a result, local governments committed to promoting partnerships should explore actively encouraging community groups and people to get involved in specific initiatives and accept responsibility for relevant activities in urban green areas, ideally through a collaborative process (Hernandez et al. 2018).

2.1.3.5 Urban green space planning principles

Green spaces planning, according to Davis et al. (2015), is a process aimed at improving connectivity between specific green spaces while also reducing waste recognizing and supporting their various functions, as well as creating social cohesion several academics suggested various design concepts that must be followed. Green spaces in cities Lennon and Scott (2014), Kambites and Owen (2006), and Four key ideas were stated by Hansen and Pauleit (2014). Multi-functionality is one of the most important factors to consider.

Multi-functionality

Multi-functionality refers to the potential of green spaces to serve multiple services and advantages on the same specific location, according to Lennon and Scott (2014). As a result, hypothesizing this idea is to unite the green space's ecological, social, economic, and cultural purposes (Pauleit et al. 2017). These functions can be environmental, such as biodiversity conservation, climate change adaptation, and carbon reduction and sequestration, social, such as access to urban green spaces, healthy living, improved aesthetics, increased recreational space, and a connection to the natural environment, or economic, such as job creation, energy conservation, and property price increases (Molla, 2015). According to Pauleit et al. (2017), multifunctional green space design must be based on a comprehensive understanding of society's needs regardless of economic power.

Integration of green and grey

Physical and functional integration are created through Green-Grey integration. Hansen and Pauleit (Hansen and Pauleit) propose that green spaces be coordinated with other urban infrastructure. (Hansen and Pauleit, 2014). Storm water management has been identified as one of the most important issues in several researches. Green-grey integration is a prominent function of urban green spaces. Furthermore, Bike routes, green corridors for natural ventilation, and green roofs are examples of infrastructure. The benefits of the design idea of for cooling are also something that might be considered Integration of green and grey (Hansen et al. 2017).

Networking

The notion of connectedness is used in green space design to increase social connectivity (easier access), ecological connectivity (plant and animal distribution), and abiotic connectivity (water and temperature regulation), according to Hansen and Pauleit (2014). Green space connectedness is defined by Lennon and Scott (2014) in three ways: geographical, scalar, and institutional.

The physical connection of distinct green spaces across the landscape is referred to as spatial connectivity, and this study takes the notion of connectivity into account when connecting different green spaces across Addis Ababa's environment. The necessity for coordination and consistency across spatial and administrative scales is addressed by scalar connection. Institutional connectedness entails collaboration and partnerships across various administrative bodies, as well as integrated governance, in the planning of green spaces.

Social Acceptance

Social-inclusiveness is the process of ensuring that all members of society, regardless of their background, have equal chances (Hansen and Pauleit 2014). This urban green space plan fails to meet these social cohesiveness criteria and exacerbates social inequality. In urban green space planning, a socially inclusive approach can help to create social cohesion and address issues such as fair access to green infrastructure and taking user requirements into account (Hansen et al. 2017).

2.1.3.6 Green space policies and implementation in cities

The scope of the Urban Planning Proclamation No 547/2008 is to apply to all urban centers across Ethiopian urban landscape. This proclamation aims to achieve the goal of building a legislative framework for the promotion of well-planned and developed urban areas. The structural plan is one of the plans recognized by this declaration. Among the difficulties that the structural plan must address are the major land use classes and environmental aspects with greens-paces. Furthermore, the structural plan (2017-2027) includes descriptions of existing green spaces, their continued development, and the creation of new parks. However, some urban green space projects are currently underway that are not part of the master plan for 2017-2027. Ethiopia's 1997 Environmental Policy includes a sectorial policy framework for forest, woodland, and tree resources.

Urban forestry is neglected in this subsection, and the policy prioritizes forest lands and partially peril-urban woods. The policy has clearly set planning and creating of green spaces within urban areas, including community forests and woodlands for fuel wood as well as recreational amenity, providing habitats for plants and animals, under the subsection; Human Settlements, Urban Environment, and Environmental Health.

2.1.4 Right-of-way violations

A Right-of-Way (ROW) refers to the legally designated corridor of land reserved for roads, sidewalks, pedestrian walkways, utilities, and other public infrastructure. Its purpose is to safeguard mobility, ensure safe pedestrian and vehicle movement, and allow for future road expansion and service provision. A ROW violation occurs when private or institutional actors encroach into this reserved land by constructing houses, fences, kiosks, shops, or other structures that obstruct its intended use.

The drivers of ROW violations are linked to monitoring failures, institutional weaknesses and socio-economic pressures. Informal settlements and small-scale businesses often occupy reserved public spaces due to the city's shortage of affordable land and housing. The impacts of ROW violations are considerable. Narrowed roads contribute to severe traffic congestion, pedestrian vehicle conflicts, and increased accident risks. Encroachments also complicate the expansion and maintenance of infrastructure, as demolitions, redesigns, and compensation

payments become necessary. These problems reflect broader governance challenges in enforcing structure plans and safeguarding reserved public spaces.

2.1.5 Building height violation

Building-height regulations are a central instrument of land-use control that shape urban form, density, skyline character, and infrastructure demand. Historically, height limits have been used to protect public interests such as sunlight, ventilation, heritage views, and street character while balancing developer incentives and municipal capacity for service provision (Brueckner & Singh, Lincoln Institute working paper). Empirical research shows that strict height limits can substantially constrain housing supply and increase land prices in high-demand areas, while more flexible height regulations tend to support densification and housing affordability if combined with adequate infrastructure planning (Glaeser et al., 2005; Cheshire et al., 2018).

Beyond economic effects, building-height rules have measurable environmental and social consequences. Some Studies linking neighborhood density and building height to microclimate and energy outcomes suggest that changes in vertical form affect wind patterns, day lighting, and urban heat islands. This indicates that height policy should be considered alongside other form controls such as setbacks, street width, coverage ratios, and open space provisions (Oke, 1988; Ng, 2010).

Methodologically, recent advances enable improved assessment and enforcement: 3 D GIS models, remote sensing, and AI can predict and map building heights where official 3 D data are lacking, supporting both regulation design and compliance monitoring in data-poor cities. These techniques have been successfully applied to estimate building-height distributions and identify regulatory “height gaps” between permitted and actual built form (Biljecki et al., 2017; Taubenböck et al., 2021). Such tools are especially relevant for rapidly changing Sub Saharan African cities where cadastral and 3 D data are incomplete.

Finally, height rules are not neutral as their formulation and implementation reflect political priorities, market forces, and institutional capacity. Comparative studies show worldwide variation in how height limits are prepared and enforced. In many cities, height rules have been revised to accommodate developer demand or remain loosely enforced, producing skyline

heterogeneity and tolerating some deviations from plans. This governance dimension is highlighted in studies of Addis Ababa, where the preparation and revision of height regulations have faced analytic, participatory, and enforcement gaps, increasing the likelihood of noncompliance and informality (Heyaw, 2019; Nega, 2020).

2.1.6 Factors contributing for urban green plan violations

2.1.6.1 Institutional and regulatory challenges

Institutional challenges are considered to be the most significant obstacle to the implementation of green space policy and planning on the ground. Even though their direct contribution to the implementation of green space plans is minimal, including institutions in the planning process is critical (Bekele Nigatu., D. 2025). The green space development plan and its execution in the city have been hampered by a lack of fully engaged institutions throughout plan creation. Different institutions implementing the city's master plan have released separate plans that fail to recognize milestones reached by other institutions working on the same location.. All significant respondents cite miscommunication across institutions as a major barrier to green space development in the metropolis on the ground, the institutions' shaky communication about their actions is realized (Koroso, N. H., & Zevenbergen, J. A ,2024) .

Green spaces that had been constructed on several roundabouts and street trees had been uprooted. Ethiopian Road Authority is a government-owned company based in Addis Ababa, River Basin and Green Areas Development, for example, claims that Seven (7) roundabouts have been demolished as a result of green area development, according to the agency (Admasu,W.F., et.al. 2019) .

This has happened, furthermore, Ethiopian Electric Power Corporation's roadside action in which street trees have been removed without warning to the appropriate organization. This demonstrates a lack of communication between the parties and Institutions with separate functions that execute their strategies in the same area. Another issue that causes disagreement among organizations is institutional reorganization. Conflicting functions amongst institutions is another issue covered under institutional challenge institutions (Baye, F., et.al. 2023).

2.1.6.2 Socio-economic pressures

The lack of awareness of green spaces in society is exacerbated by the current increasing urbanization, which is encroaching on green spaces. As people relocate to the periphery at the expense of green areas, urban population settlement drastically diminishes available green space (peril-urban forest areas), (Gelet, G. B., et al.2023). Agricultural fields around Kality are being turned into residential neighborhoods as Addis Ababa's urban population shifts to the south. The city's growth into agricultural green land is being driven by development, which includes a motorway and condominiums (Debele, E. T., & Negussie, T.,2023).

The unemployment rate in Addis Ababa is high, at 23 percent, with 28 percent of the population living in poverty. Inflation reached, a peak of 38 percent in 2018 and 2019, and life is becoming more expensive (Charitonidou, M., 2022). The city's green spaces are impacted both directly and indirectly as a result of this economic expansion. The impoverished encroach on the river bank of Addis Ababa unlawfully, and river buffer construction is hampered by the city's economic predicament. Furthermore, city dwellers in Addis Ababa harvest fuel wood from the city's green spaces, a problem that is particularly acute in the city's northern reaches (Adigeh, D. T., et al.2025).

2.1.6.3 Rapid urbanization

The broader scale process of urbanization involves the increasing concentration of populations into urban areas and urban regions; thus, migration from rural to urban areas and regions is one of the causes of land use change (Woldesemayat, E. M., & Genovese, P. V. (2021). A major component of this increasing population and human activity concentration is an increased weight associated with a country's main metropolitan centers (Bikis, A., et al.2025), (Benti, S.,et al.2022).

2.1.6.4 Planning and policy gaps in urban green programs

Forestry development should be implemented based on studies and with a long-term strategy in mind. Politicizing forestry, particularly in metropolitan settings, risks distorting the city's strategy and destroying the environment in its long-term strategy. Prime Minister Abiy Ahmed launched a new green legacy initiative (Udessa, F.,et al.2023).

In 2019, Ethiopia launched a program to plant 4 billion seedlings, including more than one billion in the capital city of Addis Ababa. The River Basin and Green Areas Development Administration Agency distributed a million saplings to Addis Ababa City. This program is both a great endeavor and a difficulty at the same time. Urban forestry necessitates a long-term strategy but the tree campaign, on the other hand, emphasized the rapid planting of trees, regardless of species or microclimate (da Cruz, N. F., & Rode, P. (2024).

A well-thought-out urban forestry tree campaign necessitates meticulous preparation, which includes species identification, matching to appropriate areas in advance, and seedling growing. Plantation locations were not selected in advance, but seedlings were supplied to all sub-cities.

2.1.7 Mitigation strategies for urban planning violations

Urban plan violations undermine the goal of Addis Ababa's urban development plans leading to environmental degradation, social inequality, and economic inefficiencies. Essential mitigation strategies are essential to prevent, detect and address this violation. These are discussed below

2.1.7.1 Strengthening Governance and Enforcement

Policy reforms aimed at enhancing the enforcement capacity of urban authorities in Addis Ababa (Aytnew, A., et al.2025). By providing clear and concise regulations, regular review and updates, harmonization across different level of government and agencies. Reduce conflict or overlapping regulations, providing adequate resource, specialization unit, technology and innovation. Inorder to implement this transparent and accountability should be assured by keeping and giving open data, modernizing reporting mechanism, independent oversight, regular audits since it provide an opportunity for improvement.

2.1.7.2 Community Engagement

Involving local communities and stakeholders in planning processes to ensure more compliance with regulations ((Digafe, B., et al. 2022). Creating educational programs, community meeting and media engagement. Communities in planning process from the outset, through public consultation, survey and participatory mapping exercise. Stakeholder's engagement, subsidizing housing, upgrading informal settlement, job creation, skill training, microfinance and incentive for affordable housing (Negeri, M.,et al. 2023), (Moretto, L.,et al, 2023).

2.1.7.3 Technological Innovations

Usage of software's like GIS, remote sensing, and digital tools for real-time monitoring and enforcement of planning violations. Controlling large number of data within the system, it is easy to access and getting data (Taye, M. E.,et al.,2025).

2.1.7.4 Legal and Institutional Reforms

Reforming urban governance structures to improve accountability and reduce regulatory gaps (Yimam, S. H.,et al,2022).Taking corrective and remedial action, enforcement of penalty's restitution and compensation alternative, dispute resolution like mediation and community court are essential (Tanku, M. (2024).

2.2.Emprical Review

2.2.1 Land use violation

Land use violations in Addis Ababa represent a persistent challenge to the city's structural plan and sustainable urban development. As outlined in Chapter One, one of the core objectives of this study is to assess the extent and nature of structure plan violations, particularly those related to land use, and to identify institutional and socio-economic factors that contribute to these disruptions. The literature consistently highlights that rapid urbanization, informal settlement expansion, and weak enforcement mechanisms are central to the proliferation of land use violations in the city.

However, Addis Ababa's urban growth has been shaped by informal land tenure systems and reactive planning practices. According to Elias and Laura (2018), the city's spatial evolution has been multiform and fragmented, often driven by political interests and speculative development rather than coordinated planning. This has led to widespread conversion of land designated for public use such as green spaces and road corridors into residential and commercial uses without compliance to the planning regulations. Gudina Feyisa et al. (2016) found out that the thermal and ecological consequences of unregulated land use changes in Addis Ababa are significant, particularly in terms of urban heat island effects and loss of vegetation cover. They used remote sensing to analyze land cover dynamics and come to the finding that informal settlements and unauthorized developments are expanding into environmentally sensitive areas.

The issue of enforcement is also a central theme in the literature. Messay Mulugeta (2017) discusses that the city's planning institutions often lack the technical capacity and political autonomy to regulate land use effectively leading to the frequent violations of the master plan, particularly in peri-urban areas where land speculation is widespread and control is insufficient or totally lacking.

Gizachew Berhanu et al. (2022) highlights the socio-economic dimensions of land use violations in which in informal settlements in Addis Ababa many residents occupy land illegally due to financial constraints and limited access to formal housing. This is a reflection of the failure of city government to ensure inclusive and equitable land distribution mechanisms.

Urban land use violations are becoming a serious challenges in rapidly urbanizing sub-Saharan Africa. These violations include illegal construction, unauthorized land conversions, informal settlements, and encroachments on protected areas. All of which undermine sustainable urban development. The phenomenon is closely linked to rapid urbanization, inadequate planning frameworks, and systemic governance challenges.

In Lagos, Nigeria, similar patterns emerge. Oduwaye (2009) highlights the challenges of sustainable physical planning in metropolitan Lagos, where urban sprawl and loss of agricultural land in peri-urban areas are driven by speculative development and institutional inefficiencies. Olajide et al. (2018) add that neoliberal urban policies have marginalized low-income communities, exacerbating informal land use and undermining inclusive planning efforts.

Nairobi, Kenya, faces a multitude of land governance issues. K'Akumu and Olima (2007) identify fragmented land use management and weak regulatory frameworks as key contributors to violations of zoning policies. The coexistence of customary and statutory tenure systems has created ambiguity in land rights, complicating enforcement and enabling informal development. Okoth-Ogendo (2002) critiques the historical suppression of indigenous land systems, arguing that the failure to integrate customary tenure into formal planning has perpetuated spatial inequality and land grabbing.

Kampala, Uganda, presents a case where informal settlements and environmental degradation intersect. Mugagga et al. (2012) examine land use changes on the slopes of Mount Elgon and link them to increased landslide risks and ecological stress. In urban Kampala, Mugagga (2006)

discusses the limitations of public-private partnerships in managing municipal land use, noting that governance gaps and lack of community engagement have allowed violations to persist, particularly in peri-urban zones. Omole (2009) defines land use violations as instances where land utilization contravenes zoning codes and planning regulations. His study in Nigeria underscores how political interests, economic inequality, and weak enforcement mechanisms allow violations to proliferate.

The urban expansion of Addis Ababa is not different from other cities of Sub-Saharan Africa. Ayenachew and Abebe (2024) note that land expropriation for residential and commercial development often occurs without due consideration to regulatory frameworks which results in peri-urban sprawl and the erosion of agricultural land an issue compounded by informal settlements. Moisa and Gemedda (2021) confirms that how urban growth has led to significant land use/land cover change, replacing green spaces with built-up zones using geospatial techniques.

In support of institutional problems, Nega (2020) highlights overlapping mandates and corruption within urban land administration agencies in Addis Ababa. His study suggests that fragmented governance not only enables violations but also impedes enforcement. Jinollo et al. (2024) add that the disconnect between theoretical land use plans and actual implementation creates fertile ground for unauthorized developments which shows the failure of urban plans to account for population dynamics and economic pressures leading to difficulty of controlling land misuses.

Land use violations have a number of consequences. From an ecological standpoint, Moisa and Gemedda (2021) emphasize the degradation of green buffers and water bodies. Socially, the rise of informal settlements marginalizes low income populations, locking them into precarious living conditions. Omole (2009) argues that the erosion of public trust in institutions results when planning rules appear arbitrary or selectively enforced.

A number of mitigation strategies are discussed in the literature. Participatory planning is frequently proposed as a mechanism for improving compliance and community buy-in (Omole, 2009). Technological solutions such as GIS mapping can help identify violation hotspots and improve monitoring (Moisa & Gemedda, 2021). Legal reform is also central: Abdo (2015)

advocates for revisions to Ethiopia's expropriation law to provide transparency, equitable compensation, and clearer procedural safeguards.

Land use violations in Addis Ababa are examples of common urban governance challenges across Sub-Saharan Africa. Feyisa et al. (2016) demonstrate how rapid urbanization in Addis Ababa has led to ecological degradation and spatial fragmentation, particularly through the encroachment of informal settlements into green zones and infrastructure corridors. Berhanu et al. (2022) further emphasize the socio-economic pressures driving these violations, noting that limited access to formal housing and weak enforcement mechanisms have pushed many residents into unauthorized land occupation.

Across these cities, common themes emerge: institutional weakness, socio-economic exclusion, and legal pluralism contribute to fragmented urban landscapes and persistent land use violations. While Addis Ababa's centralized planning structure offers unique opportunities for reform, the comparative evidence suggests that harmonizing tenure systems, strengthening enforcement capacity, and promoting inclusive governance are critical for mitigating violations and fostering sustainable urban development.

It is to be concluded that land use violations are not only the outcomes of technical failures but also mirrors of socio-political and institutional dynamics. Accordingly, successful urban planning must therefore balance regulatory enforcement with inclusive governance, technological innovation, and legal safeguards to ensure planned urban development. In conclusion one can say that urban land use violations in Addis Ababa reflect the tensions between rapid urbanization and weak planning enforcement.

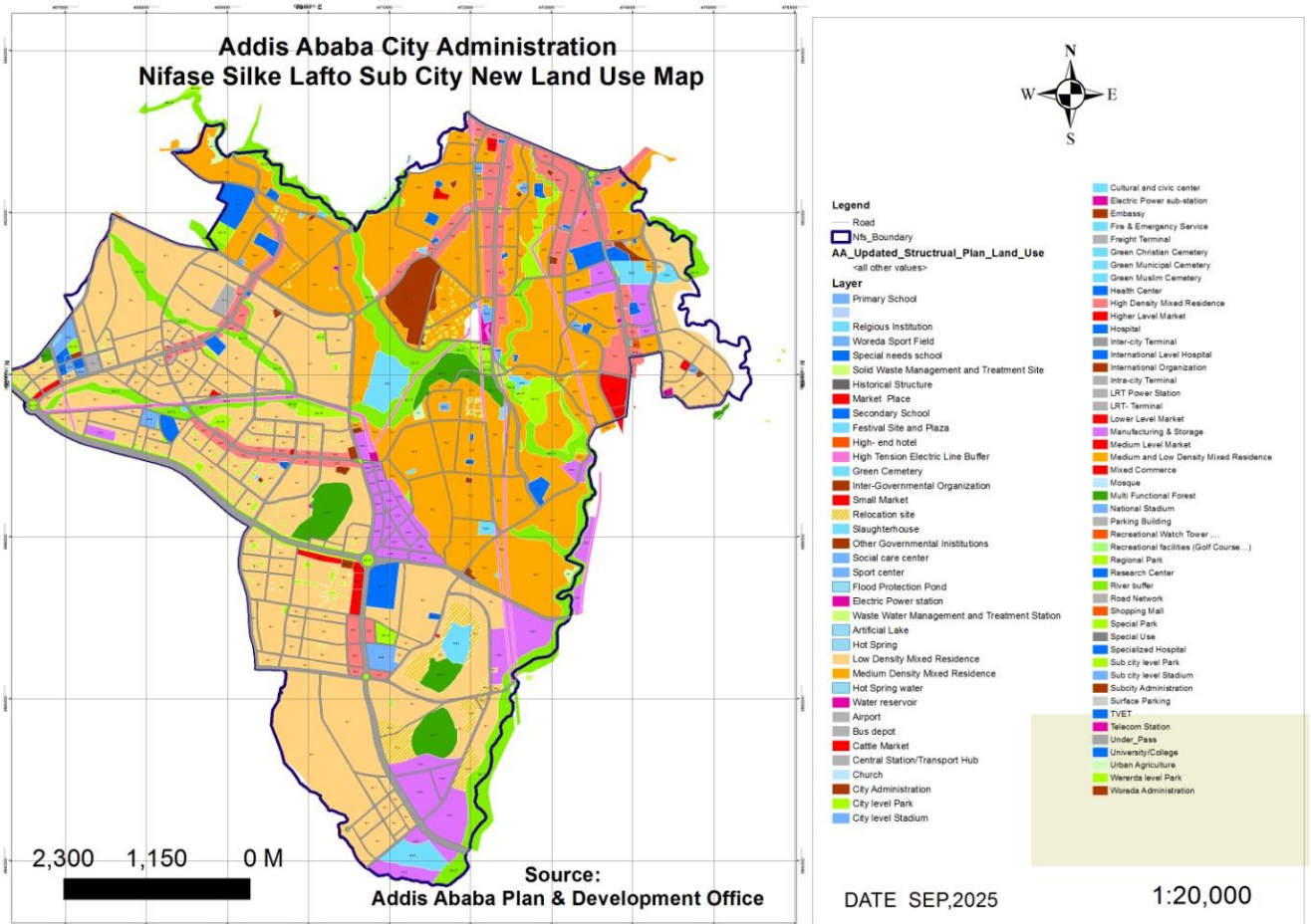


Figure 1: Land use map of Nifas Silk Lafto Sub City

Source: Nifas Silk Lafto Sub City plan and development commission office

As it was illustrated in the above figure, the main land use parts were housing/residential, business and commercial centers and market places, social services, green areas, administration, manufacturing and storage, and infrastructure and transport.

2.2.3 Urban growth and ecological vulnerability of green areas

The encroachment of green spaces in Addis Ababa stems from uncontrolled spatial expansion, speculative development, and inadequate institutional response. Urban land cover changes are uneven and dynamic, resulting in the loss of vegetated zones amid rising demand for housing and infrastructure. Legesse's (2014) thermal remote sensing study across 21 parks in Addis Ababa

underscores the climate-regulating function of green areas compact parks were found to be more effective in cooling than elongated ones. However, Asemelash (2012) cautions that certain forest species can emit volatile organic compounds (VOCs) that contribute to O₃ formation, indicating that not all greenery has uniformly positive outcomes. These findings highlight the complex environmental roles green areas play, which are often ignored when land is reallocated for urban expansion.

2.2.4 Building height violation

Despite its long urban history, Ethiopia has a very short history of urban planning by local professionals and large scale implementation of plans. As a result, gaps are expected not only in implementation of plans but also in preparation of planning components such as building height regulations. Building-height regulations are a central instrument of land-use control that shape urban form, density, skyline character, and infrastructure demand. Historically, height limits have been used to protect public interests such as sunlight, ventilation, heritage views, and street character while balancing developer incentives and municipal capacity for service provision (Brueckner & Singh, Lincoln Institute working paper). Empirical research shows that strict height limits can substantially constrain housing supply and increase land prices in high-demand areas, while more flexible height regulations tend to support densification and housing affordability if combined with adequate infrastructure planning (Glaeser et al., 2005; Cheshire et al., 2018).

Beyond economic effects, building-height rules have measurable environmental and social consequences. Some Studies linking neighborhood density and building height to microclimate and energy outcomes suggest that changes in vertical form affect wind patterns, day lighting, and urban heat islands. This indicates that height policy should be considered alongside other form controls such as setbacks, street width, coverage ratios, and open space provisions (Oke, 1988; Ng, 2010). Methodologically, recent advances enable improved assessment and enforcement: 3-D GIS models, remote sensing, and AI can predict and map building heights where official 3-D data are lacking, supporting both regulation design and compliance monitoring in data-poor cities. These techniques have been successfully applied to estimate building-height distributions and identify regulatory “height gaps” between permitted and actual built form (Biljecki et al.,

2017; Taubenböck et al., 2021). Such tools are especially relevant for rapidly changing Sub Saharan African cities where cadastral and 3 D data are incomplete. Finally, height rules are not neutral as their formulation and implementation reflect political priorities, market forces, and institutional capacity. Comparative studies show worldwide variation in how height limits are prepared and enforced. In many cities, height rules have been revised to accommodate developer demand or remain loosely enforced, producing skyline heterogeneity and tolerating some deviations from plans. This governance dimension is highlighted in studies of Addis Ababa, where the preparation and revision of height regulations have faced analytic, participatory, and enforcement gaps, increasing the likelihood of noncompliance and informality (Heyaw, 2019; Nega, 2020). In the Ethiopian context, the 2017–2027 Addis Ababa Structure Plan specifies height restrictions based on zoning categories, urban corridors, and heritage considerations. This is the fourth revision of the regulation on building heights in the city. The first one was made in 1993 with the Master Plan, and it divided the buildings into three general categories: small, medium and high, the maximum height not exceeding 10 floors. The second one that came in 2002 restricted buildings to 10 floors, and the third revision, in 2011, extended it to 52 floors. Figure 2 below shows the current Building height Regulation for Nefas Lafto Silk SubCity.

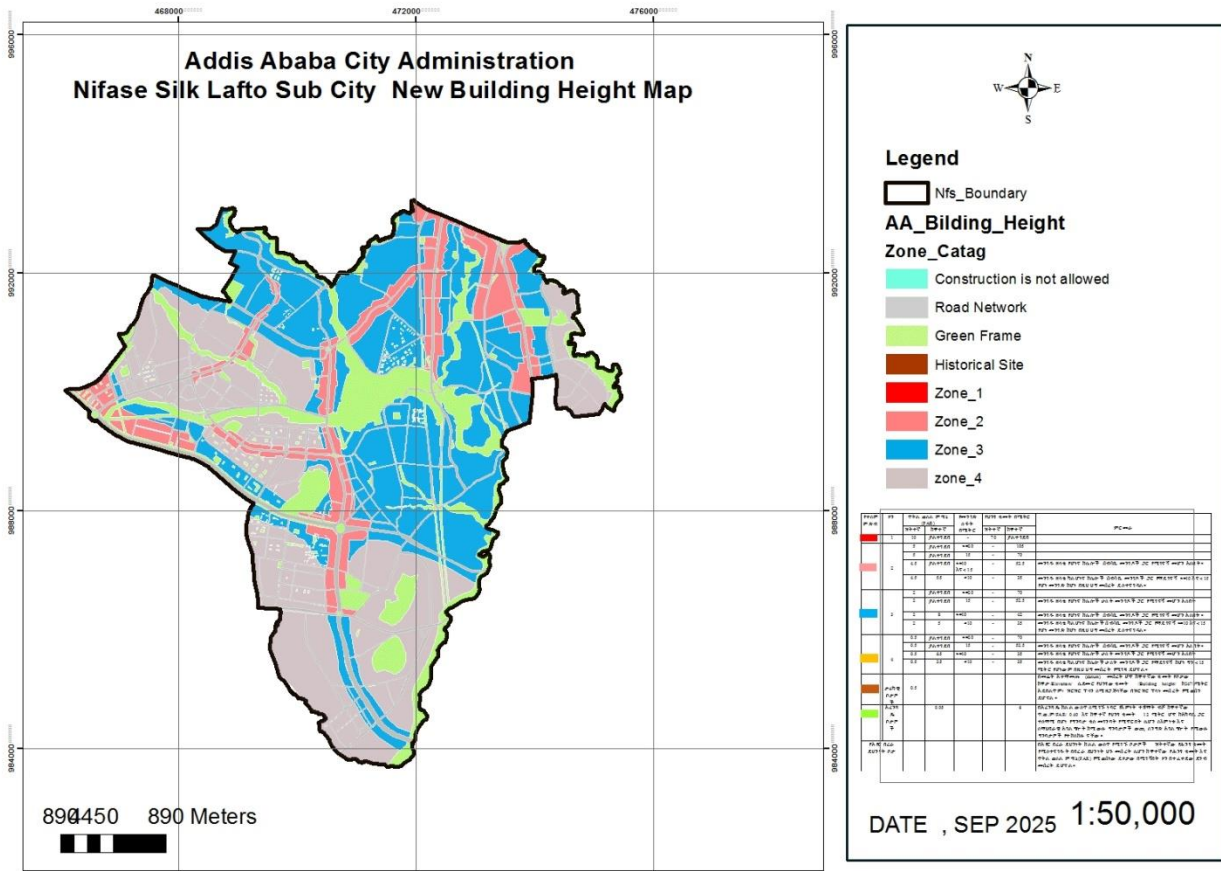


Figure 2: Building Height of Nifas Silk Lafto Sub City

Source: Addis Ababa plan and development bureau

The above figure shows building height regulations of Nifas Silk Lafto Sub City in different zones (zone 1-zone 4), from the structure plan. However, implementation challenges including limited field inspections, political interference, and inadequate GIS-based monitoring have weakened compliance, leading to widespread violations. These violations are particularly frequent along main commercial and mixed use corridors where land values are high as exemplified by the Jemo – Lebu and Furi corridor.

2.2.5 Right-of-way violations

As the outcome of the constitution in 1993, Addis Ababa was established as one of the regions. The Addis Ababa administration during this period established the “bureau of works and urban development” and the bureau organized a department under it to carry out the road construction and maintenance works. The newly established road department constructed and maintained the

city roads till the establishment of the Addis Ababa City Roads Authority in March 15, 1998 by regulation No. 7/1998 to be administrated by board of directors to construct maintain and administer the road works in Addis Ababa by the city Administration. As it is obviously known, Addis Ababa is the capital city of both Ethiopia and Africa and this fact makes the necessity of standardized roads in the city even more critical and vital. Despite the fact that efforts of the city administration are visible, construction delay remained to date the main problem and there are various factors which affect the accomplishment of projects as planned (Selamawit, 2020).

Addis Ababa city has been rapidly urbanizing, and many new roads are being developed. Addis Ababa city roads authority is a charge of the maintenance of roads in Addis Ababa city and maintenance and management of the equipment. In the city, ROW violations are increasingly visible due to rapid population growth, informal settlement, and weak enforcement of urban planning regulations. Residential houses, commercial establishments, and informal market stalls are often built within designated road corridors, narrowing carriageways and sidewalks. Such encroachments reduce road capacity, disrupt pedestrian movement, and obstruct infrastructure such as drainage and utilities.

ROW challenges are among the most persistent obstacles to effective urban transport planning. Tegabu (2015) identified that slow clearance of obstructions from ROW limits is a major risk in road construction projects, leading to delays and increased costs for the Addis Ababa City Roads Authority (AACRA). Similarly, Dagne (2022) reported that inadequate ROW acquisition processes including delays in compensation, relocation, and public participation negatively affect road project performance in Lemi-Kura Sub-City. Aynalem et al. (2016) also highlighted “complex right of way challenges” and “utility conflicts” as key problems facing ongoing road projects in Addis Ababa. Mersha, Gebremariam, and Gebretsadik (2022) demonstrated that weak land delivery systems and corruption encourage informal land transformation in peri-urban Addis Ababa, while Hailu, Assefa, and Zeleke (2024) found that informal settlements frequently encroach on open land and public reserves, including ROW areas.

ROW violations in Addis Ababa could be addressd through stronger institutional frameworks, transparent compensation mechanisms, and coordinated land use transport planning. The adoption of GIS based monitoring and community awareness campaigns can also help safeguard

ROWs, ensuring that road networks support sustainable urban mobility and align with the city's structural plan.

2.3 Conceptual framework

The conceptual framework of this study is designed to visually represent and guide the investigation into the factors contributing to structure plan violations in Addis Ababa, specifically within the Nifas Silk Lafto Sub-City. As illustrated in the Figure, the framework shows that structure plan violation is the dependent variable, representing the outcome being studied. The primary independent variables presumed to have a direct influence on this dependent variable are land use violations, Green area Violations, Building height regulation violations, and Road Plan Violations. These specific independent variables were selected as they represent key areas where urban planning regulations are frequently contravened in Addis Ababa, as highlighted in the literature review.

Furthermore, the conceptual framework acknowledges the role of underlying or contributing factors that can influence the independent variables or directly contribute to structure plan violations. These include Technological problems, institutional and regulatory challenges, funding constraint, institutional weakness, lack of community participation, rapid urbanization, socio-economic pressure as well as governance and corruption. These factors, identified in the literature as exacerbating urban planning challenges, provide a broader context for understanding violation causes of the core independent variables.

Finally, the consequences structure plan violations, such as unequal land distribution, unstable land development and spatial inequality, are also considered within the framework. This conceptual framework provides a structured approach to examine the complex interplay of factors contributing to structure plan violations in Addis Ababa and directly informs the research objectives, which aim to explore these contributing factors, the extent of violations, and potential mitigation strategies.

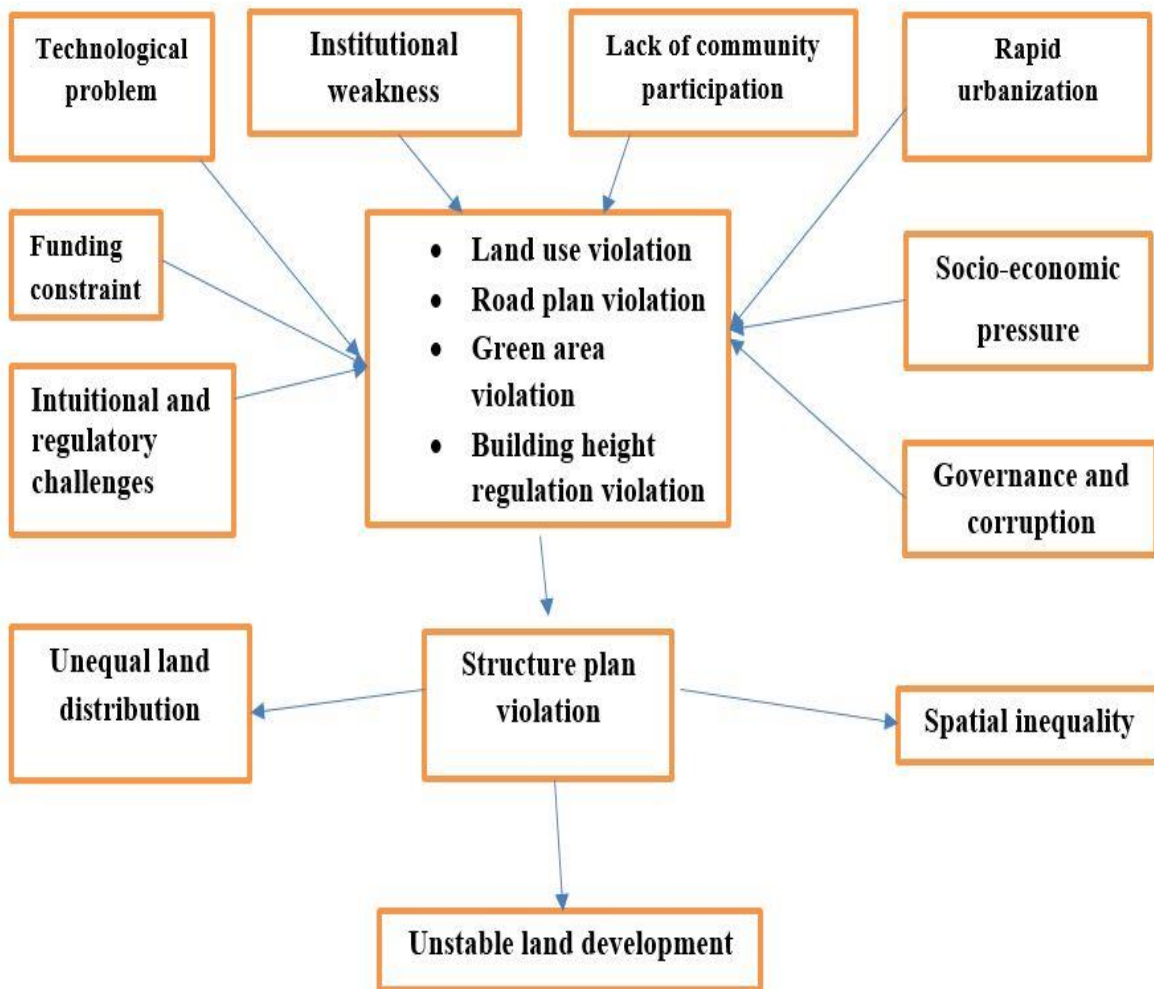


Figure 3: Conceptual framework

CHAPTER - THREE

RESEARCH METHODOLOGY

This chapter discusses the research methodology employed to systematically investigate Structure plan violations in Nifas Silk Lafto Sub-City, Addis Ababa. The methodology is developed in line with a pragmatic research paradigm, integrating both quantitative and qualitative strategies. This mixed-method design supports the multidimensional inquiry required to explore complex urban phenomena of urban plan violations within the real-world context of Addis Ababa.

The research tools and methodologies that were employed in the study are presented in this chapter. The investigation was carried out primarily on structure plan violations, processes and its mitigations in the case of Nifas Silk Lafto Sub City. Geographical information system (GIS) was used to locate the spatial distribution of violations.

Research Philosophy

This study adopts a pragmatic philosophical stance, as articulated by Creswell (2014) and Morgan (2007), which considers the research question as the basis for selecting methods. The approach recognizes that urban planning violations involve both objectively observable patterns (e.g., spatial encroachments) and subjective interpretations (e.g., institutional responses and community narratives). Therefore, pragmatism is particularly well-suited for urban studies where physical interventions, governance, and social behaviours intersect.

Research Design

The research adopts an embedded case study design (Yin, 2018), focusing on Nifas Silk Lafto Sub-City as a bounded spatial unit of analysis. The reason in which using embedded case study design is to examine a phenomenon with in its real world context by embedding single or multiple quantitative and qualitative mixed methods, where one data type is primary and the

other is embedded to provide supplementary details. This approach is valuable when a single type of data is insufficient. Within this case, the study examines multiple embedded units (land use violations, green area encroachments, building height violations, and right of way obstructions) through a mixed-method approach (Creswell & Plano Clark, 2017), allowing for triangulation and synthesis of findings. The mixed method approaches were employed, combining quantitative and qualitative data collection methods. This approach allows for a comprehensive understanding of the extent of violations and their impacts on Addis Ababa's city development.

Data Types: Primary data collected through questionnaire survey, interviews with key stakeholders (urban planners, city officials, architects), and field observation of areas experiencing violations. The sources include questionnaire survey, field survey, expert interviews and photos.

Secondary data was collected from government reports, city structure plan, local development plan, previous research on Addis Ababa's urban plan and development bureau, and academic literature on urban planning violations. Data sources were the sub city local government.

3.1 Description of the study area

The study is to be conducted on Nifas Silk Lafto sub city. Nifas Silk Lafto is one of the eleven sub cities in Addis Ababa city administration. The Sub City has 13 Woredas and covers an area of 68.3 sq.km, which makes Nifas Silk Lafto Sub City the 6th largest Sub City in Addis Ababa. It is situated in the south western part of Addis Ababa, bounded from south by Sheger City, from North West by Kolfe-keranio, from east by Bole and Akaki-kality and from north by Lideta and Kirkos. Nifas Silk Lafto sub city is characterized by moderately steep type of topography with noticeable elevation difference and steep land escape around river gorges. Nifas Silk Lafto Sub City geographical location combined with its political and socio-economic status has made , the melting pot for hundreds of thousands people come from all corner of the country in search of employment and other activities. Such a rapid increase in population together with the rapid development of the city has produced increasing volumes of building and road as well as green area facility, induced greater infrastructural demand, institutional setup, and community participation for its management. Its absolute location is, approximately 8°57' 26" N latitude and 38°43' 30" E longitude . The total population of Nifas Silk Lafto Sub City was 335,740 in 2011.

Its altitude is between 2074 and 2485 meters above sea level, which has a range of 411 meters.

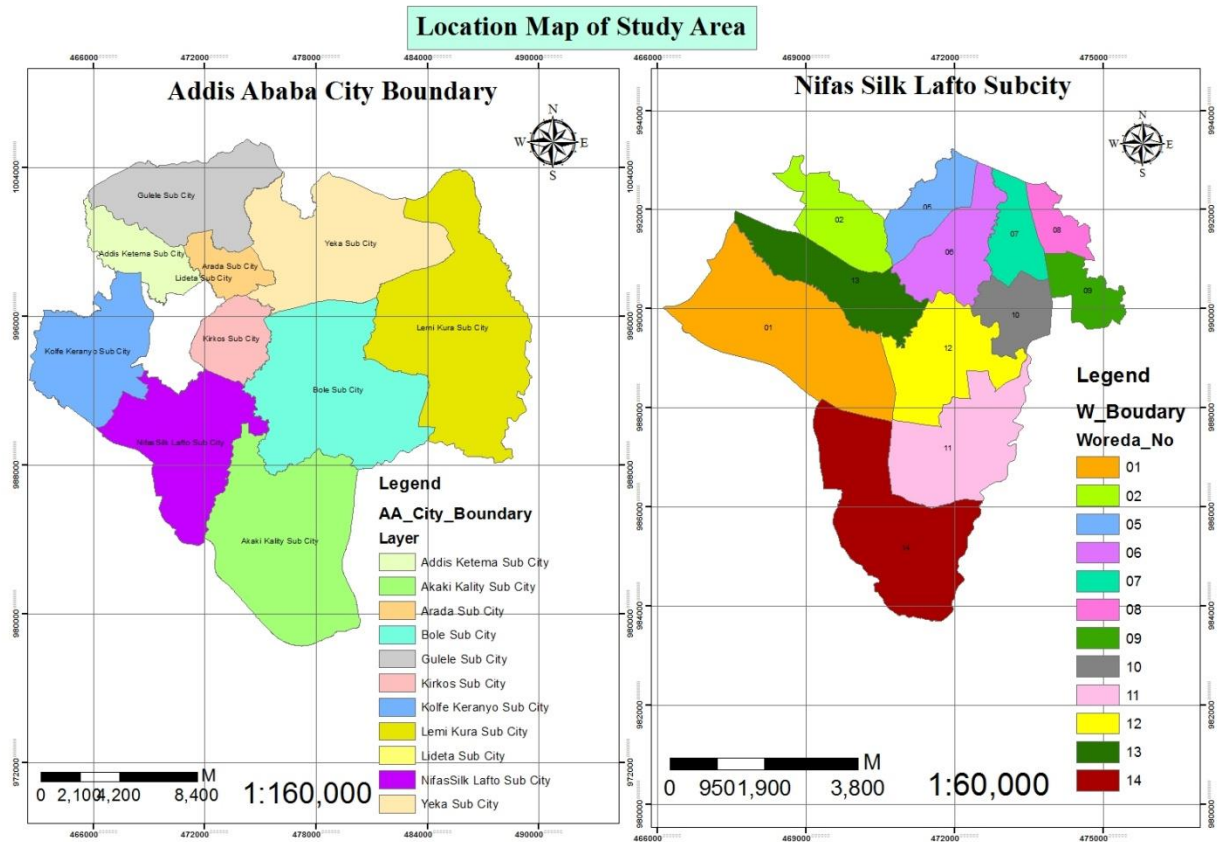


Figure 4: Location map of Nifas Silk Lafto Sub City

Source: Nifas Silk Lafto Sub City plan and development commission office

3.2 Methods of Data Collection

3.2.1 Questionnaire Survey

Structured surveys were administered to a sample of public servants and planners in the selected offices. The survey focuses on their perceptions and experiences of urban planning violations. To that end a structured questionnaire, pilot-tested for reliability, was administered to 120 from purposively selected office participants including:

- Urban planning officials
- Officers/planners
- Architects

Questions were aligned with the research objectives, incorporating both closed and open-ended items. Moreover, field surveys were conducted involving site visits to verify violations and collect data directly

3.2.2 Semi-Structured Interviews

Interviews were conducted with key informants selected through purposive and snowball sampling. These included:

- planners and architects
- Legal officers
- officers

Interview protocols were theory-driven (Yin, 2018) and designed to elicit rich narrative accounts of enforcement challenges, socio-political pressures, and procedural bottlenecks. The semi structured interviews involved key informants (e.g., urban planners, architects) so as to understand the processes leading to violations and the challenges in enforcing regulations.

3.2.3 Field Observation

Fieldwork involved direct, systematic observation of known violation hotspots, guided by planning maps and GPS coordinates. Observations were logged in field journals, and photographic evidence was collected with spatial referencing.

3.2.4 Document Review

Content analysis was conducted on the following categories of documents:

- structure plan and zoning regulations
- Local development plans
- Office reports

3.3 Sampling Strategy

3.3.1 Sampling Technique

A multistage sampling framework was employed:

- Purposive selection of Nifas Silk Lafto Sub-City due to its high rate of documented violations.
- Simple random sampling within strata to select survey respondents.
- Snowball sampling for identifying knowledgeable informants for interviews.

3.3.2 Sample Size

A sample of 120 respondents was determined based on solvin’s formula and adjusted for the finite target population (172). These respondents were selected from Nifas Silk Lafto Sub-City land development and management (60 respondents), Nifas Silk Lafto Sub-City urban plan and development commission banch office (30 respondents), Nifas Silk Lafto Sub-City construction permit and control authority (30 respondents).

In order to determine sample size, solvin’s1960 formula is used.

$$n = \frac{N}{1 + Ne^2} = \frac{172}{1 + 172*0.05^2} = 120$$

Where, n = sample size N = Population = error margin

The final sample was stratified by profession and institutional affiliation to ensure representation.

3.4 Data Analysis Methods

The analysis was structured to address each research question explicitly.

Research question 1: What constraining factors determine the green areas development?

- Descriptive statistics: frequencies, means, and standard deviations
- Thematic coding of interview data
- Spatial overlays to correlate encroachments with land use zones

Research question 2: What are the factors of plan violations in relation to land use, building height, green areas and right-of-way violations?

- GIS mapping and digitization of violations from field data

- Comparison with structural plan overlays
- Statistical summaries (frequency distributions by violation type)

Research question 3: What are the strategies to mitigate structure plan violations?

- Qualitative content analysis of interviews

Quantitative Analysis

Descriptive statistics (frequency, percentages) will be used to analyze survey responses on the extent of violations and their impacts. Cross tabulations will help compare violations across different districts. Descriptive statistics analysis was chosen due to several reasons.

This includes Data Summarization, Identification of Trends, Comparison Across Regions, Informing Decision-Making Basis for Further Analysis, Communication descriptive statistics provide essential insights that help urban planners understand, address, and communicate urban plan violations effectively.

Resource Allocation, Policy Evaluation, Community Engagement, Baseline Establishment, Risk Assessment, Integration with Geographic Information Systems (GIS), Benchmarking, Impact Analysis, Legal and Regulatory Framework

By leveraging descriptive statistics, urban planners can create a more comprehensive understanding of urban plan violations, leading to more effective strategies for compliance and community development.

By employing descriptive statistics comprehensively, urban planners can create a robust framework for understanding and addressing urban plan violations, ultimately leading to more sustainable and livable urban environments.

For simplifying data analysis and interpretation, Statistical package for social sciences (SPSS) is used and known for its comprehensive statistical functionality, effective data management and interpretation of results.

Qualitative Analysis

Content analysis of interview transcripts were conducted to identify common themes regarding the causes of violations, institutional weakness, and proposed solutions.

Spatial Analysis

GIS were employed to map the spatial distribution of violations (e.g., building heights, land use and green areas) across Nifas Silk Lafto Sub City, providing a visual representation of how violations are concentrated in certain areas.

The target of study is purposively determined by the researcher, because of the problem burning affair at current and suit to data gathering from the respondents. Nifas Silk Lafto Sub City was one which selected for the aim of the study. Nifas Silk Lafto Sub City Land development and management office, Nifas Silk Lafto Sub City urban plan and development commission office and Nifas Silk Lafto Sub City building height permit and control authority were the stalk holders that, study data has been gathered.

3.5 Validity, Reliability, and Trustworthiness

The study applied common standards to ensure the credibility of its findings. The standards are adapted from Lincoln & Guba (1985) for qualitative inquiry and Creswell (2014) for mixed-methods research.

Table 1: Standards for mixed research approach

Criterion	Quantitative Methods	Qualitative Methods
Credibility	Instrument pre-testing; statistical validation	Triangulation; member checking; thick description
Transferability	Detailed contextual background of study area	Inclusion of institutional narratives and policy context
Dependability	Use of consistent data collection protocols	Audit trail of codes, memos, and thematic development
Confirmability	Data entry validation; double	Peer debriefing and reflective

	coding for key variables	journaling
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The reason in which using the above variables for mixed methods research is to ensure the rigor and trustworthiness of findings, providing a more robust understanding than a single method.

3.5.1 Validity of Data

To ensure the validity of the data collection instruments of the study, a comprehensive evaluation conducted, focusing on both face validity and content validity. Face validity assessed by gathering feedback from professionals, including experts in infrastructure development, to confirm that the survey items appear relevant and clear. Content validity established by adapting the questionnaire and interview checklist based on pertinent literature and theoretical frameworks, ensuring comprehensive coverage of the relevant topics. A pretest conducted with a small group of active employees in the field to identify any ambiguities or issues. Following this, a pilot study involve distributing questionnaires to selected professionals in the office to validate the instruments, ensuring how they effectively capture the necessary data to meet the study objectives.

3.5.2 Reliability of Data

To assess the reliability of the data collection instruments in this study, Cronbach's alpha utilized as the primary measure of internal consistency. This statistical index helps to evaluate the extent to which the items within the questionnaire consistently measure the underlying constructs. Aiming for a high Cronbach's alpha score, typically considered excellent, indicate strong reliability among the measurement items. Additionally, the reliability analysis supported by pilot testing, where feedback from participants helps identify any inconsistencies or areas needing refinement. These comprehensive approaches ensure that the selected instruments accurately and reliably measure the intended variables, thereby enhancing the overall integrity of the study.

To test the research reliability for the study questions of 26 objective related questions were prepared, and the overall Cronbach's Alpha is 0.714. Therefore, the research instruments are reliable to the Analysis of urban violation practice in Nifas-Silk Lafto Sub-City.

Table 2: Reliability test

Reliability Statistics	
Cronbach's Alpha	N of Items
0.714	26

Source: From statistically analyzed SPSS data

3.6 Ethical Consideration

The research has attempted to adhere to ethical issues. Before conducting interviews and distributing questionnaires, participants were informed of the objectives and scope of the study. Their voluntary consent was obtained, ensuring that participation was based on a clear understanding of the research purpose. Confidentiality and anonymity were strictly maintained. Participants were assured that any data provided would be used solely for academic purposes and would not be disclosed or traced back to individual identities.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

Introduction

This chapter presents the results of the study on structure plan violations in Nifas Silk Lafto Sub-City, Addis Ababa, and discusses them in relation to the research objectives and questions outlined in Chapter One. The findings are drawn from both quantitative and qualitative data, collected through surveys, key informant interviews, field observations, and a review of relevant documents, as described in Chapter Three. The analysis begins with an overview of respondents' socio-demographic characteristics to contextualize the results, followed by a detailed examination of violations in four key areas: green space encroachment, land use violation, building height noncompliance, and right-of-way violation. These findings are discussed in relation to the literature reviewed in Chapter Two, highlighting that the findings are consistent with broader urban governance challenges observed in many rapidly growing Sub-Saharan African cities. The chapter integrates statistical evidence, spatial patterns, and stakeholder perspectives to provide a sound understanding of the scale, nature, and underlying factors of structure plan violations, forming the basis for the conclusions and recommendations in Chapter Five.

Open and close ended questionnaires are the main data collection instruments for this study. The questionnaires were distributed to different professionals/officers/officials in Nifas-Silk Lafto Sub City land and related departments. Through using simple random sampling methods, 120 questionnaire were distributed and from these 120 questionnaires are returned and the response rate was 100% .

4.1 Results

4.1.1 Demographic and socio economic profile of respondents

Under this section, general information about respondents such as gender, age, marital status and educational level was described as follows.

As shown in Table 3 below, 69 (57.5%) of the informants were males, where as 51 (42.5%) were females. This shows both sexes participated, it is a key principle in urban planning is to foster gender equality by mainstreaming a gender perspective into planning processes and outcomes. And also 120 (100%) respondents are public servants. More than half of the respondents are BA/Bsc holders. It reveals that those respondents can understand urban planning issues through their profession and educational background.

Regarding the marital status of respondents as shown in Table 3, reveals 17 respondents, 14.17% of the participants are unmarried, while 85.83% of were married. Regarding educational status, about 8.33 % were below grade 12 and the remaining 41.67 % were diploma holders. Thus, 50% of the sampled informants have BA/BSC and above, thus can understand the issue clearly. More than 46.67% were between 26-40 age group, reveals this mid career professionals and young families, can significantly influence planning decisions related to housing and public amenities. More than 85.83% of respondents were married, describes they can understand housing needs, public service utilization, socio economic disparities, and demographic trends that influence urban development and policy.

Table 3: Demographic characteristics of respondents

Variables	Options	Total Response Rate	
		Number	Percentage
Sex	Male	69	57.5
	Female	51	42.5
	Total	120	100.0
Age	=<25 years old	2	1.67
	26-35years old	6	5
	36-40 years of old	56	46.67
	41-45 years	17	14.17

	46-55	39	32.5
	Total	120	100.0
Occupation	Governmental	120	100.0
	Total	120	100
Marital status	Unmarried	17	14.17
	Married	103	85.83
	Total	120	100
Educational Level	Less than 12	10	8.33
	Diploma	50	41.67
	BA/BSc	60	50
	Total	120	100.0

The data collected from respondents through questionnaire and interview is shown below. The summary of descriptive statistics of all variables that are evaluated, based on a five point Likert scale such as 1 for very low, 2 for low, 3 for medium, 4 for high and 5 for very high and also likert scale ranges from 5 (Strongly Agree) to 1 (Strongly Disagree). The statistical values for items implies that the mean (M) score from less than the midpoint 3.0 as low effects, the mean score from 3.01 to 4.0 was considered as moderate effects, and the mean score 4.01 and above was considered as high effects.

4.1.2 Factors of green area violation

As shown in Table 4 below, 69 respondents (57.5%) strongly disagree on the variable of the The necessary care and protection were given to green areas in the sub city, and also 77 (64.17%) of respondents agree on the idea of, there are controversial green areas, by corruption practices of local administration. 71 respondents (59.17%) are strongly disagree on the idea of The plan of green areas are on their right position and dependt on the order of professionals.

Table 4: Factors of green area violation in the study area (through frequency and percentage)

Variables	Strongly agree	agree	neutral	disagree	Strongly disagree	Rating
The existence of the green area important to the city's beautifulness.	72	45		3		Number
	60	37.5		2.5		Percentage
The necessary care and protection were given for green areas of in the Sub City.		27	4	20	69	Number
		22.5	3.33	16.67	57.5	Percentage
Enough green areas are designed in the sub city		6		69	45	Number
		5		57.5	37.5	Percentage
The plan for green areas are on their right position and depend on the order of professionals		27	3	19	71	Number
		22.5	2.5	15.83	59.17	Percentage
There are controversial green areas, by corruption practices of local administration		77		37	6	Number
		64.17		30.83	5	Percentage

As shown in Table 5 below, Weak institutional capacity was the cause for green area development, greater respondents were rated this challenge, at highest range with 4.325 mean score and the response was differentiated by (0.655) standard deviation. Therefore, greater parts from the respondents were assured that, the presence of controversial green areas by corruption practiced of local administration, the main curbing factor for green area development at the study area.

In addition, interview data from sub city planner responded that, lack of institutional capacity as well as lack of institutional coordination was exacerbated challenges in the study area. Absence of technological capacity also the major challenge in the Sub City.

The other challenges for for the development of green areas were relating to care and protection given for green areas in the sub-city with 2.05 mean score and 1.71 standard deviation.

*Table 5: Factors of green area violation in the study area through descriptive tools
(Minimum,Maximum,Mean and Standard deviation)*

Factors affecting green areas development	Minimum	Maximum	Mean	Std. Deviation
The existence of green area important to the city's beautifulness	1.00	4.00	1.7750	1.31046
The necessary care and protection given for green areas of in our sub-city	1.00	4.00	2.0500	1.17561
Enough green areas are designed in the sub-city	1.00	4.00	1.6250	.74032
The plan of green areas were on their right position and depend on the order of professional	1.00	4.00	1.6500	.73554
There are controversial green areas by corruption practices of local administration	2.00	5.00	4.3250	.65584

In the Sub City level there are 132 parcels (places) were green areas. There area covers 30.46 hectare. In Woreda 12, according to the data in Nifas Silk Lafto Sub City Urban plan and development commission shows, on 12 green parcels building activities has been conducted illegally.



Figure 5: Green Area Violation at Lafto Micael

Source: Field observation in the site

The above figure shows that Green areas on the structure plan was built on the site. According to Addis Ababa city Structure plan information and, plan and development commission the above violated sites must be protected as a green area wrote a letter on 18/08/2011 with letter number አ/አ/ፕ/ኮ/03/114/11. Nifas Silk Lafto Sub City Urban plan and development office also identified them as violated sites on the field.

As the interviewee planner responded, the coming of Takele Umma as a Mayor of Addis Ababa, he appreciates land holders/farmers who has possession right on their land. The City provides land certificates, in order to assure their right. This creates an opportunity for violations and corruptions for planned lands arbitrarily; results non possessors become gained a land holding right opportunity. Once the system interrupted all urban plan categories violated through mal administration, corruption and their benefit networks. This reveals how the plan becomes easily violated.

On literatures, Joshua et al., 2012; European Commission, 2013; Mell, 2010 indicates rapidly growing cities like Addis Ababa, green spaces are increasingly compromised due to land pressure, ambiguous land governance, and shifting urban priorities.

Factors determining green areas development are; The absence of necessary care and protection given for green areas in the sub city, enough green areas were not designed in the sub city, The plan of green areas were not on their right position and depend on the order of professionals and the availability of controversial green areas through corruption practices of local administration.

4.1.3 Factors of land use violation

As shown in Table 6 below illustrates, 78 respondents (65%) strongly agree on the variable, non applicability of rules and regulation has a direct or indirect effect on land use disturbance, and also 63 (52.5%) of respondents strongly agree on the variable that Lack of responsibility and accountability towards extent of violations on land use.

Table 6: Factors of violations in relation of land use

Variables	Strongly agree	agree	neutral	disagree	Strongly disagree	Rating
urban plan violation has direct effect on urban development	81	39				Number
	67.5	32.5				Percentage
Private interest is major cause of urban planning	62	40		8	10	frequency
	51.67	33.33		6.67	8.33	Percentage
Public interest should be greater than private interest	78	39	3			Number
	65	32.5	2.5			Percentage
The lack of awareness pushes people to urban plan violation	54	66				Number
	45	55				Percentage
The lack of management	42	78				Number

supervision caused to urban plan violation	35	65				Percentage
The practice of corruption	54	54	6	6		Number
	45	45	5	5		Percentile
Non applicability of rules and regulation has a direct or indirect effect on urban plan disturbance	78	42				Number
	65	35				Percentage
Lack in skill, knowledge, and attitude in the sector stakeholders	57	57	3	3		Number
	47.5	47.5	2.5	2.5		Percentage
Lack of responsibility and accountability	63	57				Number
	52.5	47.5				Percentage

As shown in Table 7 below, the questionnaires were rated at higher rate between 4.65 to 4.05 mean score; the response was deviated from 0.483 to 1.197 standard deviations. The first challenge that has higher causes for urban plan violations for land use were non applicability of rules and regulations have a direct or indirect effect on urban plan disturbance, which has the mean score of 4.65, which means the absence of implementation of urban plan regulations has an effect on urban plan disturbance was the highest challenge for land use violation in the community. The response rate was deviated by (0.483) standard deviation. Thus, the providers of land use planners lack organized rules and regulations which becomes the cause for urban plans at the study area. The other challenges were Public interest should greater than private interest with 4.63 mean value and (0.54) standard deviation; Lack of responsibility and accountability that has 4.52 average score and 0.505 Thus, the urban planning was due Lack of responsibility and accountability; has a direct or indirect effect on urban plan disturbance. Public interest should greater than private interest also becomes the main cause for violations at the study area.

*Table 7: Factors of violations in relation of land use in descriptive tools
(Minimum,Maximum,Mean and Standard deviation)*

Existence of violation on land use	Minimum	Maximum	Mean	Std. Deviation
The urban plan violation has direct effect on urban development	4.00	5.00	4.50	.506
Private interest is major cause of urban planning	1.00	5.00	4.05	1.197
Public interest should greater than private interest	3.00	5.00	4.63	.540
The lack of awareness pushes people to urban plan violation	4.00	5.00	4.45	.504
The lack of management supervision caused to urban plan violation	4.00	5.00	4.35	.483
The practice of corruption	1.00	5.00	4.15	.921
The in applicable of rules and regulations has a direct or indirect effect on urban plan disturbance	4.00	5.00	4.6500	.48305
Lack in skill, knowledge, and attitude in the sector of stakeholders	2.00	5.00	4.4000	.67178
Lack of responsibility and accountability	4.00	5.00	4.5250	.50574

In addition, an interviewee Sub City lawyer responded that, lack of responsibility and accountability as well as lack of institutional coordination was exacerbated challenges in the study area.

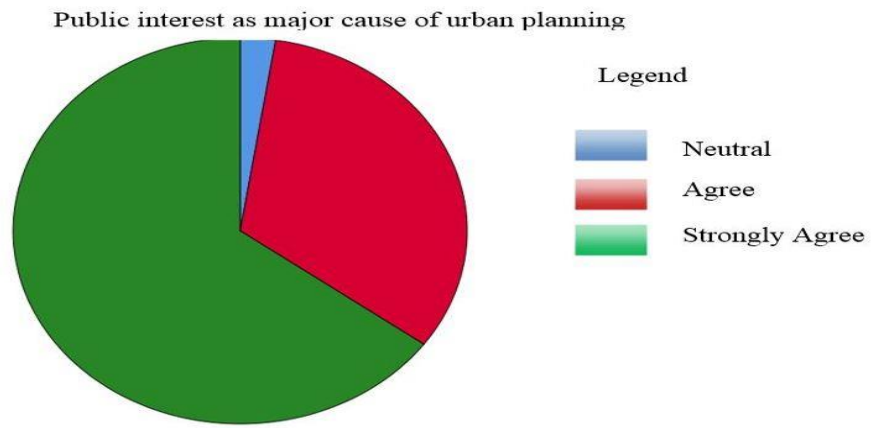
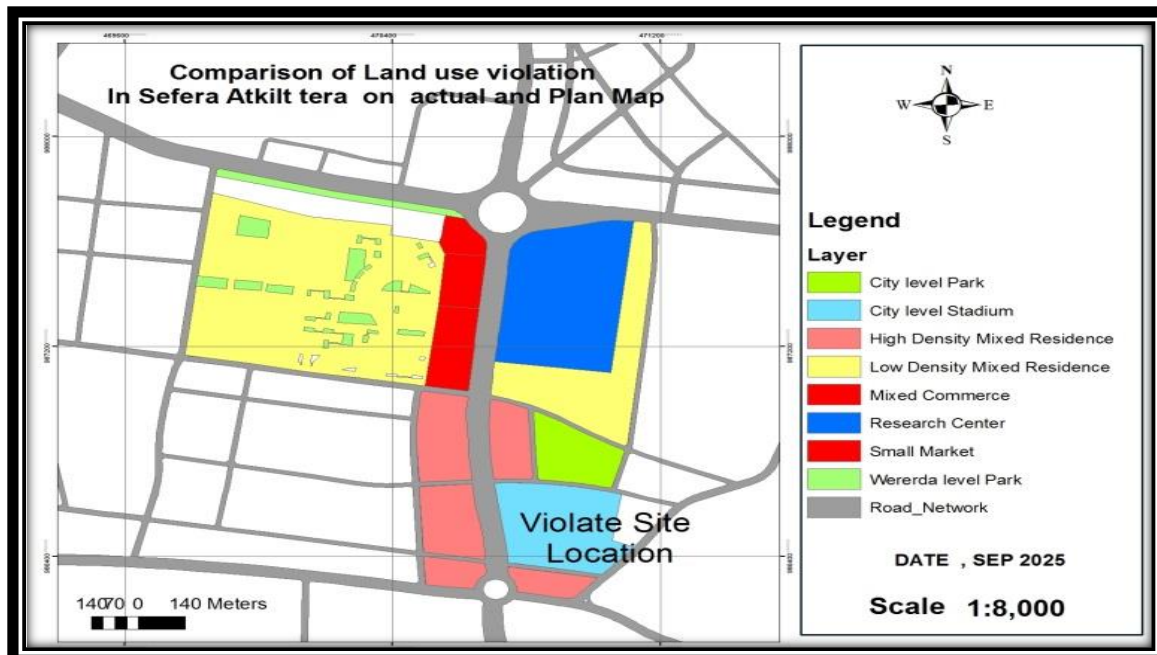


Figure 6: Public interest as major cause of urban planning

Source: From SPSS analyzed data

As it was visualized in the above figure, public interest as a major cause of urban planning, majority of the respondents strongly agree on the issue. This reveals that , the interest of the people plays an important role, in planned urban atmosphere.



Violated site



Figure 7: Existence of violation on land use planning Nifas Silk Lafto Sub City – Ateklit Tera Sefera

Source: Addis Ababa plan and development commission

As it was illustrated in the above figure , in the Structure plan, it was planned for Stadium but it was violated by City officials, contradicting with the structure plan. In addition according to interview response with selected officials from Nifas Silk Lafto Sub City land development and management, indicated that lack of integration of different sectors and skilled man power was the critical issue faced by their office. This challenge was also the most factor in the fulfillment of its desired project implementation.

The other challenge was absence of technological advancements in the service providers. Thus, the response rate implies, lack of capacity for using advanced technology was the major challenges in Nifas- Silk Lafto Sub City.

In addition, the steady growth of population due to natural increase and migration coupled with the expansion of the sub city imposed high burden of sub city. It becomes difficult to accommodate the ever growing population. Similarly, interviewed Architect, from planning office stated that, “management problems caused by inefficient organizational structure, low salaries and lack of staff motivation as well as absence of trained and experienced staff is the main constraint to urban land use plan and management”.

As revealed in the above Figure 7 , as the results of lack of integration among institutions, green infrastructures were damaged everywhere and fallen into other services which adversely affects the service provision.

Land use violations in Addis Ababa are emblematic of broader urban governance challenges across Sub-Saharan Africa. Feyisa et al. (2016) demonstrate how rapid urbanization in Addis Ababa has led to ecological degradation and spatial fragmentation, particularly through the encroachment of informal settlements into green zones and infrastructure corridors. Berhanu et al. (2022) further emphasize the socio-economic pressures driving these violations, noting that limited access to formal housing and weak enforcement mechanisms have pushed many residents into unauthorized land occupation. Institutional dysfunction is a persistent theme in the literature. Nega (2020) highlights overlapping mandates and corruption within urban land administration agencies in Addis Ababa. His study suggests that fragmented governance not only enables violations but also impedes enforcement. Jinollo et al. (2024) add that the disconnect between theoretical land use plans and actual implementation creates fertile ground for unauthorized

developments. When urban plans fail to account for population dynamics and economic pressures, land misuse becomes more difficult to control.

The factors of plan violations with respect to land use were; lack of awareness pushes people to land use violation, lack of management supervision caused to urban plan violation, The practice of corruption, The in applicability of rules and regulation has a direct or indirect effect on urban plan disturbance, Lack in skill, knowledge, and attitude in the sector of stakeholders as well as lack of responsibility and accountability were the factors of land use violation.

Factors of plan violations in relation to road

As shown in Table 8 below, illustrates that 70 respondents (58.3%) strongly agree on the variable, the road plans on the Structure plan were not applied on the proposed area of the sub city. 60 respondents (50%) disagree on the idea of the width of the road are not easily violated by the local officials.

Table 8: Factors of Plan Violations in Relation to Road

Variables	Strongly agree	agree	neutral	disagree	Strongly disagree	Rating
The road sizes in the sub city are not based on their proposed plan.	57	54	3	3	3	Number
	47.5	45	2.5	2.5	2.5	Percentage
The width of the road are not easily violated by the local officials		26		60	34	Number
		21.67		50	28.33	Percentage
The width of the road are not easily violated by the residents	48	60		9	3	Number
	40	50		7.5	2.5	Percentage
The road plans on the master plan are not applied on the proposed area of the sub city.	24	70	6	14	6	Number
	20	58.3	5	11.7	5	Percentage

The road plans on the local development plan (LDP) are not practically applied compared to structure plan.	12	33	6	33	36	Number
	10	27.5	5	27.5	30	Percentage
The road plans are not designed based on their Standards	6	15	3	42	54	Number
	5	12.5	2.5	35	45	Percentage

As revealed at Table 9 below, on which five questions are prepared and distributed for 120 respondents, and all respondents were rated the factor at higher rate with cumulative mean score of (4.325) and (0.8589) standard deviation. The response rate indicates majority informants were rated the the road sizes in the sub-city are not based on their proposed plan at higher rate. The other factor for road infrastructure planning provision, the road plans on the Structure plan, were not applied on the proposed plan of the sub-city, on which majority of respondents were agreed with 4.17 mean values and the agreement level was deviated by 0.9577 standard deviation; as the Result, the presence of weakly maintained site amenities was the main reason for road plan violation at the study area.

Table 9: Factors of plan violations in relation to road with descriptive tools of (Minimum, Maximum, Mean and Standard deviation)

The Extent of Plan Violations in Relation to Road	Minimum	Maximum	Mean	Std. Deviation
The road sizes in the sub-city are not based on their proposed plan	1.00	5.00	4.3250	.85896
The width of the road are not easily violated by the local officials	1.00	5.00	1.9750	1.20868

The width of the road are not easily violated by the residents	1.00	4.00	1.6250	.74032
The road plans on the master plan are not applied on the proposed plan of the sub-city	1.00	5.00	4.1750	.95776
The road plans on the local development plan (LDP) are not practically applied compared to structure plan	1.00	5.00	3.5500	1.31948
The road plans are not designed based on their standards.	1.00	5.00	3.4000	1.42864

Addis Ababa city has formulated long term development plan, “Addis Ababa city structure plan,” and it is promoting the construction and maintenance of city roads. However, the city could not get on with the maintenance works due to deterioration and shortage of equipment (Hajime ADACHI, 2019).

According to interview data fom city planner responds, lack of stalkholders cooperation,illegal expansion by land possessors and un able to respect the rules and standards, results road plan violations, road rights of way.

4.1.4 Factors of plan violations in relation to building height regulation

As shown in Table 10 below, illustrates that 99 respondents (80.5%) disagree on the variable, when the building heights are not built based on the standards, can be easily voided by the concerned body. About (55%) respondents were disagree on the issue, there is no clear violation on building height regulations on the sub city.

The factors of plan violations in relation to Building height were; there was no accountability for violators of the rules and regulation as well as standard of building height.

Table 10: Factors of plan violations in relation to building height regulation

Variables	Strongly agree	agree	neutral	disagree	Strongly disagree	Rating
The buildings are built based on the time given by the rules and regulations	1	14		47	58	Number
	0.83	11.67		39.17	48.34	Percentage
There is no clear violation on building height regulations on the sub city		6		66	48	Number
		5		55	40	Percentage
Building height permissions are designed based on the standards of the city	5	25	10	61	19	Number
	4.17	20.83	8.33	50.83	15.83	Percentage
There was an accountability for violators of the rules and regulations as well as standards of building height	3	12		57	48	Number
	2.5	10		47.5	40	Percentage
When the building heights are not built based on the standards, can be easily voided by The concerned body	3	6		99	12	Number
	2.5	6		80.5	82.5	Percentage

The figure 8 below, shows a clear violation of building height permissions in Nifas Silk Sub City jemo site. On the structure plan it is categorized under zone 2 . The minimum height tha can be allowed is (G+2) but as sub city planner responded, construction was builded for small and micro enterprises contrary to the standards of structure plan.

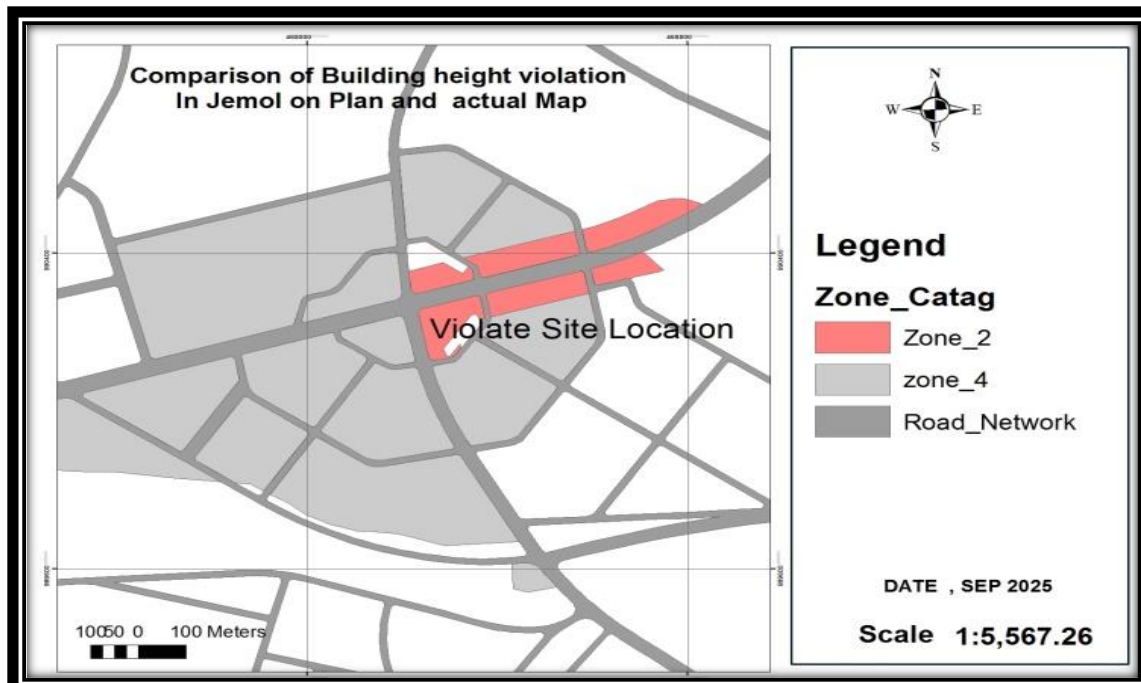


Figure 8: Comparison of building height regulation violation, existing versus structure plan at Jemo 1

Source: Addis Ababa City and plan development



Figure 9: Comparisons of violations in building height regulation between existing and land use map, Infront of Lebu Gebriel

Source: Addis Ababa plan and development commission

The above figure 9, shows a clear violation of building height permissions in Nifas Silk Sub City jemo site. On the structure plan it is categorized under zone 2 . The maximum height allowed in zone 2 on this site G+4.

As the interviewee architect responded, such illegal buildings were builded contrary to the standards of structure plan height regulaion. Since, the place has been given for possessors in the name of farmers, a circular letter has been provided that , permit farmers (possessors) can built G +0 and villas on their parcel of land. This shows how the city officials violate the structure plan.

4.1.5 Mitigation strategies for structure plan violation

Participatory planning is frequently proposed as a mechanism for improving compliance and community buy-in (Omole, 2009).

integrated and participatory planning frameworks. Abdo (2023) highlihts the need for legal reform and institutional capacity-building to strengthen land governance. Moisa and Gameda (2021) recommend the use of GIS-based monitoring tools to detect and prevent violations and Omole (2009) highlights the importance of civic education and stakeholder collaboration in promoting compliance and accountability.

A sub city planner responded that, providing a clear and concise laws and seeking accountability and responsibility is a better way to mitigate plan violations.

a lawyer, interviewed from Nifas- Silk Lafto Sub City land development and management responded that, the rapid population growth and urbanization were the other challenges to reshape the city plan, even if it was started, it needs so many financial aid, technological advancements. A well trained skilled man power must be issued, in urban planning sector. As the population size increase their needs also increase, the demand of service rise, fulfilling it needs financial capacity. The government should have to perform law enforcement mechanisms, ensuring accountability and responsibility. Awarness creation for the community towards plan violations also essential,and participation of stalkholders are also important. Urban planning laws must be consistent,clear and precise. In addition to this, strengthening governance and

enforcement, community engagement, technological innovations, and legal and institutional reforms can also mitigate Structure plan violations.

4.2 Discussions

This study set out to assess the extent, nature, and drivers of urban structure plan violations in Nifas Silk Lafto Sub-City, with a focus on four critical dimensions: green area encroachment, land use violation, building height noncompliance, and right-of-way (ROW) violations. The results obtained through a combination of qualitative interviews, structured questionnaires, and spatial analysis confirm the widespread prevalence of these violations, reinforcing the concerns raised in the research questions articulated in Chapter One.

Green area encroachment: The findings revealed that green spaces in the study area have been increasingly repurposed for residential and commercial uses, despite being designated for ecological and recreational functions in the structural plan. This aligns with the literature reviewed in Chapter Two, particularly the work of Mensah (2014) and Legesse (2014), who stress that urban green spaces in sub-Saharan Africa are frequently sacrificed to accommodate informal housing and speculative development. The study also confirms the findings of Feyisa et al. (2016), who documented the degradation of green areas in Addis Ababa due to weak enforcement and institutional fragmentation.

About 57.5% strongly disagree on the variable of the The necessary care and protection given to the green areas in the sub city. This shows there was less attention for green areas development in the study area.

interviews indicated that lack of cross-sector coordination—among environmental, planning, and land administration agencies—are central to these violations. Non possessors become gained a land holding right, through corruption results green area violation.

Building height violations: Data from field observations and stakeholder surveys indicate that a significant proportion of buildings in the study area was not fit height limits stipulated in the current structure plan. This supports the arguments made by Heyaw Teref (2019), who noted regulatory inconsistencies and weak implementation capacity as key issues in Addis Ababa's

building height management. These violations not only disrupt the urban skyline but also contribute to overcrowding, stress on urban infrastructure, and decreased urban aesthetics.

About 55% respondents were disagree on the issue, there is no clear violation on building height regulations on the sub city. This reveals that there was violations due to different reasons in the study area.

Interview data reveals that, Transparent, participatory rule-making to reduce rent-seeking and increase legitimacy; and Technological monitoring (GIS/remote sensing) to detect violations and inform adaptive enforcement. Unstable regulations by city officials cause building height violatons.

Right-of-Way (ROW) encroachment: ROW violations emerged as another critical issue, particularly around key transportation corridors. Respondents noted that public roads are frequently narrowed due to illegal extensions of private buildings, fences, and commercial kiosks. These findings resonate with those of the World Health Organization (2019) and Hajime Adachi (2019), who underscore that ROW encroachment impedes traffic flow, reduces road safety, and disrupts emergency services.

About 58.3% strongly agree on the variable, the road plans on the structure plan are not applied on the proposed area of the sub city. This indicates that due to budget problrm and other coordination problems the plan would not be appllied on the site as it has been expected.

The problem is exacerbated by insufficient technical inspections and political interference in enforcement activities. According to interview data fom city planner responds, lack of stalkholders cooperation, illegal expansion by land possessors and unable to respect the rules and standards, results road plan violations.

Land use violatons: Land use violations in Addis Ababa are emblematic of broader urban governance challenges across Sub-Saharan Africa. Feyisa et al. (2016) demonstrate how rapid urbanization in Addis Ababa has led to ecological degradation and spatial fragmentation, particularly through the encroachment of informal settlements into green zones and infrastructure corridors.

About 65% respondents strongly agree on the variable, non applicability of rules and regulation has a direct on land use disturbance, describes that, the applicability of rules and regulations were minimal for land use violations.

According to interview response with selected officials from Nifas Silk Lafto Sub City land development and management, and urban planning and development office indicated that lack of integration of different sectors and frequent circulars by city officials cause land use violations.

Mitigation strategies for violations: To prevent, detect and address for the issue violations; A number of mitigation strategies are discussed in the literature. Participatory planning is frequently proposed as a mechanism for improving compliance and community buy-in (Omole, 2009). Technological solutions such as GIS mapping can help identify violation hotspots and improve monitoring (Moisa & Gemed, 2021). Legal reform is also central: Abdo (2015) advocates for revisions to Ethiopia's expropriation law to provide transparency, equitable compensation, and clearer procedural safeguards.

An interviewee lawyer, responds, the government should have to perform law enforcement mechanisms, ensuring accountability and responsibility. Awareness creation for the community towards plan violations also essential, and participation of stakeholders are also important. Urban planning laws must be consistent, clear and precise. A planner respondent in the sub city describes, lack of awareness to the stakeholders and absence of enough knowledge and skill for different officials as well as professionals.

Non possessors become gained a land holding right opportunity, through corruption, institutional weakness, and lack of responsibility and accountability. Once the system was interrupted all structure plan categories violated. This also reveals how plans become easily violated and if one category of structure plan violated others can be easily violated through mal administration.

Applying strictly binding rules of Addis Ababa city Structure plan, land use and height regulation implementation regulation no 182/2017.

4.1.6 Institutional and socio-economic drivers

Consistent with research by Nega (2020) and Omole (2009), this study found that urban plan violations are deeply rooted in institutional dysfunction, poor governance, and socio-economic pressure. Interviews and survey data highlighted the influence of corruption, informal political networks, and bureaucratic inefficiencies that allow violations to persist unchecked. Additionally, the high demand for affordable housing, unemployment, and inflation were cited as key socio-economic factors that push residents to settle illegally or violate height and land use restrictions. This aligns with the urban governance challenges discussed by Moisa and Gemedu.

4.1.7 Synthesis and implications

Overall, the findings point to a persistent disconnect between Addis Ababa's urban planning policies and actual development practices. The study underscores that structure plan violations are not merely technical breaches but symptoms of deeper structural and governance problems. Without coordinated institutional reforms, enhanced monitoring mechanisms, and greater public accountability, the gap between planning and implementation is likely to widen.

This research contributes to the growing body of literature that emphasizes the importance of adaptive, inclusive, and technologically informed urban planning. The findings are particularly relevant for policymakers, urban planners, and development partners seeking to design interventions that promote sustainable urban development in the face of rapid urbanization.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATION

5.1 Conclusion

This study investigated the pervasive issue of structure plan violations in Addis Ababa, with a specific focus on the Nifas Silk Lafto Sub-City. Drawing from empirical data and stakeholder insights, the research analyzed land use irregularities, green area encroachments, building height violations, and right of way infringements. The study revealed that these violations are not isolated incidents but rather systemic problems embedded in weak institutional capacity, poor enforcement of planning laws, overlapping mandates, socio-economic pressures, and rapid urban expansion.

The findings of Chapter Four affirm that green spaces in the study area are consistently under threat due to informal corruption, institutional weakness, less care and protection were given to green areas in the sub city and lack of coordinated governance. Building height regulations are frequently bypassed, their standards with out enough accountability and responsibility as well as by circulars. Land use violations also caused by non applicability of rules and regulations, lack of accountability and responsibility. Road right of way violations, on the other hand, obstruct traffic flow and compromise pedestrian safety further reflecting institutional fragmentation and absence of urban discipline. The plan of road on the structure plan were not applied on the site as it was expected, due to budget problems. Lack of accountability and responsibility for violators of private developers in public utility were also the challenge.

The cumulative effect of these violations includes the erosion of the urban ecological system, reduced livability, increasing traffic congestion, and a growing disconnect between Addis Ababa's structural plan and its physical reality. While policies and legal frameworks exist, their inconsistent implementations, lack of transparency, and inadequate stakeholder participation have undermined the city's ability to manage urban growth responsibly.

This research has also illuminated the contradiction between official planning narratives and lived urban practices. The structure plan, rather than serving as a dynamic and adaptive tool, has often been disregarded in favor of short term economic interests and informal negotiation processes. Without a shift toward inclusive, accountable, and technologically integrated planning, Addis Ababa risks further spatial fragmentation and environmental degradation.

5.2 Recommendations

As it has been stated in Addis Ababa structure plan proclamation no 52/2017, article 37 sub article 1-5 an official, employee or whosoever commits violations shall be punishable according to these provisions and other relevant law. The researcher recommends that , city government have to implement law enforcement mechanisms.

To address the multidimensional causes of master plan violations, the study proposes a set of short-term, medium-term, and long-term mitigation strategies aimed at enhancing regulatory enforcement, institutional coordination, public participation, and technological integration.

5.2.1 Short-term recommendations

In the short term, addressing structure plan violations in Nifas Silk Lafto Sub-City requires immediate strengthening of enforcement mechanisms by equipping local planning offices with the legal authority, trained personnel, and logistical support necessary for consistent regulatory action. Implementing data-driven monitoring through GIS and remote sensing tools will help identify and track violation hotspots, particularly in ecologically sensitive and high-growth areas. Public awareness campaigns should be launched to educate residents, developers, and officials about the long-term consequences of non-compliance and the benefits of sustainable urban planning. Additionally, a temporary moratorium on construction in vulnerable areas such as green buffers, riverbanks, and encroached road reserves should be enacted until thorough environmental impact assessments and compliance reviews are completed.

5.2.2 Medium-term recommendations

For medium-term recommendations, it is essential to realign and coordinate institutions by restructuring overlapping mandates among entities such as the road authority, environmental protection agencies, and planning commissions to foster integrated urban governance and

minimize conflicts. Additionally, establishing neighborhood level planning committees will enhance community participation by providing platforms for citizen input in enforcement and green space stewardship. The implementation of a transparent, digitized construction permitting system with real time compliance monitoring and public access to planning data will improve efficiency and accountability. Furthermore, continuous professional development programs should be offered to urban planners, inspectors, and municipal staff to strengthen their skills in spatial analytics, legal frameworks, and ethical governance.

5.2.3 Long-term recommendations

Long-term recommendations include revising and harmonizing urban planning laws to clearly define land use categories, building codes, and protections for public spaces, supported by enforceable penalties and community oversight. It is also crucial to institutionalize the Addis Ababa Urban Green Infrastructure Standard and invest in a comprehensive structure plan focused on ecological restoration, incorporating community forests and peri-urban buffers. Moreover, the urban planning framework should transition from a top down regulatory approach to a participatory, equity driven system that integrates informal settlements, safeguards public spaces, and addresses future demographic changes. Finally, ethical and transparent governance must be strengthened through anti-corruption measures, transparent budgeting for urban development, and performance-based evaluations of local officials responsible for planning enforcement.

5.3 Recommendations for future research

Future research should build on this study by conducting comparative analyses across other sub-cities in Addis Ababa to identify broader patterns of structure plan violations and variations in enforcement. Longitudinal spatial studies using GIS and remote sensing can offer deeper insights into the temporal evolution of violations. Investigating the political economy of urban planning, including informal networks and governance dynamics, could further illuminate systemic challenges. Additionally, exploring community-based enforcement models, assessing the socio-economic impacts of violations on urban livability, and evaluating the implementation gaps of planning policies such as the 2017–2027 Structural Plan would enrich current understanding. Finally, future studies should examine the potential of smart technologies for improving urban land governance and compliance monitoring.

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ANNEX I - PUBLISHABLE MANUSCRIPT



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Assessment of Green Area Violations and Mitigation Strategies in the Case of Nifas Silk Lafto Sub-City, Addis Ababa

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Addis Ababa, Ethiopia

Abstract

The study specifically aims to identify the factor determine the green area development, the extent of plan violation with respect to planning laws, ,right of way, building height, the process and factor enhanced plan violation lastly the mitigation strategies to urban development with the city's structure plan. The study used descriptive research design to express the issue with the help of survey research strategy. The study applied mixed research approach to get detail and significance information.120 workers of Nifas-Silk Lafto Sub City were selected and total of 172 peoples were becomes the target population of the study from these 120 samples were taken from them. The research used purposive probability to select the study area and a simple random sampling technique was used to address the respondents. The study mainly relies on primary data with the help of questionnaire, interviews and secondary data sources. The collected data was analyzed using frequency, percentage, tables and charts. The results indicate, the major causes of urban plan violation were rapid urbanization, population pressure, inadequate laws, regulation and standards enforcement mechanisms, and socio-economic factors, land use, building height violations, encroachments on green spaces, and obstruction of road rights-of-way, environmental degradation, loss of green areas, and disruptions to the urban fabric weak governance, coupled with corrupt practices at Nifas-Silk Lafto Sub City. The study recommended mitigation measures and policy directions to address urban plan violations.

KeyWords: Green area encroachment.

Introduction

Urban planning refers to the systematic process of guiding the development and organization of land, urban environments, infrastructure, and public services within a city. Its primary aim is to promote economic growth, enhance quality of life, ensure responsible natural resource management, and facilitate the efficient operation of urban systems. When these foundational principles are ignored or violated—whether through unauthorized land use, neglected infrastructure standards, or disregard for spatial guidelines—the result is known as *urban plan violation* (Krogstie et al., 2017, and Watson, 2009).

Background of The study

Addis Ababa, as the capital city of Ethiopia, has been experiencing rapid urban growth and expansion, driven by economic development and population increases. The city's growth, driven by both formal developments and informal settlements, often leads to conflict between the ideal scenarios laid out in the master plan and the practical realities of housing shortages, economic pressure, and insufficient regulatory enforcement.

Urban planning is believed to have been evolved and considered to be as old as the history of human civilization. However, the standard, development, and quality of planning show a discrepancy from time to time and from place to place.

There is a continuous change in urban planning process such as developing a theoretical underpinning to the study of urban physical structure, changing in the involvement of professionals involved in urban planning, planning method, the way urban plan has respond to the rapid change.

Since urban green areas are centers of public recreation and get together, they should be incorporated in the city master plan in order to get proper management and development. Their management and development should base the planned and active participation of stakeholders and sound local strategic practices.

This research evaluate the significance of the policies at the federal and Addis Ababa city levels to manage the existing green spaces in Nifas-silk sub city. Moreover, it evaluates how changes are made on green areas in the manner that contradict or adheres to laws governing green spaces in the city.

Government takes action in order to minimize the plan violation in the city. But the issue is not determined only the government, unless other social classes take part in controlling the urban plan violation. Well functioned urban plan is vital for the sustainable developments of the country as well to the city.

Statement of the Problem

In Addis Ababa, violations of urban planning regulations have become a widespread problem, undermining the city's development goals. Violations disrupt the efficient functioning of urban systems, increase congestion, reduce green spaces, and compromise the city's aesthetic and environmental integrity. Despite the city's efforts to revise its master plan and enforce zoning regulations, many areas of the city continue to experience uncontrolled development. A critical challenge lies in understanding why these violations occur, their impact on the city's planned development, and what strategies can mitigate these issues. (Joshua et al, 2012)

Addis Ababa is the capital city of Ethiopia and the African Union, often called the "African Capital" due to its historical, diplomatic and political significance for the continent. However, the city have seized by the different types of urban plan violation.

This study plan to raise the new addition information about the plan violation of the Nifes Silk Lafto Sub City of Addis Ababa city. The gap aimed to full fill in study by identifying the most determinant variables that recently affects the plan violation with regard to green area in Addis Ababa, especially Nifas Silk Lafto.

Objective of the study

The primary objective of this study is to assess structure plan violations with regard to green area in Nifas Silk Lafto Sub – City, and come up with mitigation strategies.

Specific objective

The specific objective is to assess green areas development, urban planning violations, identify contributing institutional challenges, and recommend strategies to align development with the master plan. Specifically it aims to

- 1.To identify constraining factors determining green areas development
- 2.To determine the factors of green area violations and map the spatial distribution of urban planning violation.
- 3.Potential mitigation strategies to align urban development with the city's master plan.

Research Questions

Based on the problem statement and specific objectives, this study aims to answer the following research questions.

- 1.What constraining factors determine the green areas development ?
- 2.What are the factors of plan violations in relation to green areas violation?
- 3.What are the strategies to mitigate urban plan violations?

Research Methodology

A mixed-method approach will be employed, combining quantitative and qualitative data collection methods. Primary Data: Data collected through field surveys, interviews with key stakeholders (urban planners, city officials, developers, residents), and direct observation of areas experiencing violations.

The study adopts a pragmatic philosophical stance, as articulated by Creswell (2014) and Morgan (2007), which considers the research question as the basis for selecting methods. The approach recognizes that urban planning violations involve both objectively observable patterns (e.g., spatial encroachments) and subjective interpretations (e.g., institutional responses and community narratives). Therefore, pragmatism is particularly well-suited for urban studies where physical interventions, governance, and social behaviours intersect.

The research adopts an embedded case study design (Yin, 2018), focusing on Nifas Silk Lafto Sub-City as a bounded spatial unit of analysis. Within this case, the study examines multiple embedded units (green area encroachments, building height violations, and right-of-way obstructions) through a mixed-method approach (Creswell & Plano Clark, 2017), allowing for triangulation and synthesis of findings. The mixed method approaches were employed, combining quantitative and qualitative data collection methods. This approach allows for a comprehensive understanding of the extent of violations and their impacts on Addis Ababa’s city development.

Secondary Data: Data derived from government reports, master plans, previous research on Addis Ababa’s urban development, and academic literature on urban planning violations. The target of study is purposively determined by the researcher, because of the problem burning affair at current and suit to data gathering from the respondents. Nifas Silk Lafto sub city was one which selected for the aim of the study. In order to measure quantitative variables from random (probable) simple random sampling techniques has used. Also for qualitative variables nonrandom (non probable) purposive sampling techniques has used.

Sample size is the number of items to be selected from the universe to constitute a sample. To minimize errors and sample biasness each member was selected using standard formula. In order to determine the of sample size, Solvin’s 1960 used.

$$n = \frac{N}{1 + Ne^2} = \frac{170}{1 + 170 * 0.05^2} = 120$$

Where, n = sample size N = Population e = error term which

Following the general ethical guidelines in research, voluntary participation, informed consent, confidentiality, and anonymity of the participating individuals were maintained to the highest level possible. All participants were strictly informed that they can terminate their participation in the study at any point without feeling an obligation to continue without being forced to explain the reason for leaving.

One common way to compute the internal consistency of a scale is Cronbach's alpha (α), which computes the correlation between responses to all of the items in a scale.

To explain that validity determines whether the research truly measures that which it was intended to measure. It estimates how accurately data obtained in the study represents a given variable or constructs in the study.

The study applied common standards to ensure the credibility of its findings. The standards are adapted from Lincoln & Guba (1985) for qualitative inquiry and Creswell (2014) for mixed-methods research.

REVIEW OF RELATED LITERATURE

Introduction

This chapter reviews relevant scholarly literature, policy documents, and empirical studies that provide the conceptual and contextual foundation for examining master plan violations in relations to green area, in Addis Ababa, with a focus on Nifas Silk Lafto Sub-City.

Encroachments on Green Areas

Urban green infrastructure comprises a network of natural and semi-natural elements—parks, woodlands, wetlands, floodways, and vegetated corridors—that deliver ecosystem services essential to urban wellbeing (Joshua et al., 2012; European Commission, 2013; Mell, 2010). These features regulate air temperature, purify water and air, offer recreational spaces, and act as cultural and economic assets. However, in rapidly growing cities like Addis Ababa, green spaces are increasingly compromised due to land pressure, ambiguous land governance, and shifting urban priorities.

Conceptual Frameworks and Terminological Complexity

Green infrastructure (GI), green space, and open space are terms often used interchangeably in planning discourse, but they encapsulate nuanced differences. GI is strategic and multifunctional, designed to support biodiversity and ecological resilience. Green spaces, as defined by Schipperijn (2010) and Mensah (2014), include both public and private vegetated areas—parks, cemeteries, wetlands, gardens—that may or may not be accessible to the public. Open spaces are broader, encompassing both vegetative (green) and constructed (grey) land uses, such as plazas and roads. Mell (2010) emphasizes the spatial planning role of GI in enhancing urban sustainability. Understanding these definitions is crucial for clarifying what constitutes encroachment and recognizing the diversity and scale of urban ecological assets.

Urban Dynamics and Ecological Vulnerability

The encroachment of green spaces in Addis Ababa stems from uncontrolled spatial expansion, speculative development, and inadequate institutional response. Urban land cover changes are uneven and dynamic, resulting in the loss of vegetated zones amid rising demand for housing and infrastructure. Legesse's (2014) thermal remote sensing study across 21 parks in Addis Ababa underscores the climate-regulating function of green areas—compact parks were found to be more effective in cooling than elongated ones. However, Asemelash (2012) cautions that certain forest species can emit volatile organic compounds (VOCs) that contribute to O₃ formation, indicating that not all greenery has uniformly positive outcomes. These findings highlight the complex environmental roles green areas play, which are often ignored when land is reallocated for urban expansion.

Socio-Ecological Benefits and Stakeholder Perspectives

Green spaces deliver a range of health, social, and cultural benefits. They serve as natural filters, trapping particulate matter (PM₁₀ and PM_{2.5}), and help reduce urban heat island effects through canopy shading and evapotranspiration (FAM et al., 2008). Coombes (2010) links access to green spaces to reduced government health expenditure and improved cardiovascular health. Socially, playgrounds and parks promote children's cognitive development and strengthen community ties (Lee, 2011). Culturally, they serve as heritage sites and gathering places for diverse populations. Economically, green infrastructure supports tourism, local commerce, and public service revenues. These multiple stakeholder values are often marginalized in urban planning processes that prioritize immediate economic returns over long-term sustainability.

Conceptual Conflict and Planning Deficits

Ambiguity in land use categorization, conflicting definitions of green space, and institutional silos complicate preservation efforts. Some definitions restrict green space to publicly accessible land, ignoring privately held but ecologically vital areas. Moreover, the lack of a harmonized land classification system undermines monitoring efforts and creates loopholes for developers and informal settlers. Mensah's synthesis shows that the urban external environment encompasses both green and grey spaces, yet planning frameworks often lack clarity on

managing their intersections. The challenge is thus both conceptual and operational: without consistent spatial definitions and coordinated institutional mechanisms, green areas remain vulnerable to incremental encroachments.

Although the ecological, social, and planning significance of urban green spaces is widely acknowledged, current literature offers limited empirical insights into several key dimensions relevant to Addis Ababa. There remains a lack of spatial characterization detailing the extent and typology of green space encroachments in the city. Institutional effectiveness in safeguarding green infrastructure against both informal settlements and formal land reallocation has yet to be rigorously assessed, while the ethical governance dimension—focusing on equitable land use, stewardship responsibilities, and intergenerational justice—is largely underexplored. These gaps constrain evidence-based policymaking and underscore the need for a more integrated, ethically grounded planning framework.

Results and Discussion

Open and close ended questionnaires are the main data collection instruments for this study; the questionnaires were distributed to households at from nifas-silk sub city. Through using simple random sampling methods, 120 questionnaire were distributed and from these 160 questionnaires are returned and the response rate was 100% (120/120*100). Therefore, a total of 1questionnaires were not returned due to the respondents were leave their residential places; cannot find at their home during data collection.

Factors determining Green area development

Table 3: Factors that determine the green area development in the study area

Variables	Strongly agree	agree	neutral	disagree	Strongly disagree	Rating
The existence of the green area important to the city beautifulness.	72	45	3335767 88443	3		Number
	60	37.5		2.5		Percentage
The necessary care and		27	4	20	69	Number

protection given to the green areas of in the sub city.		22.5	3.33	16.67	57.5	Percentage
Enough green areas are designed in the sub city		6		69	45	Number
		5		57.5	37.5	Percentage
The plan to the green areas are on their right position and dependent on the order of professionals		27	3	19	71	Number
		22.5	2.5	15.83	59.17	Percentage
There are controversial green areas, by corruption practices of local administration		77		37	6	Number
		64.17		30.83	5	Percentage

The above table 3 discloses that 72 respondents (60%) strongly agree on the variable of the existence of green area important to the city beautifulness, and also 77 (64.17%) of respondents agree on the idea of, there are controversial green areas, by corruption practices of local administration. 71 respondents (59.17%) are strongly disagree on the idea of The plan to the green areas are on their right position and dependent on the order of professionals.

Factors determine the green areas development in study area

Factors affecting green areas development	Minimum	Maximum	Mean	Std. Deviation
The existence of green area important to the city beautifulness	1.00	4.00	1.7750	1.31046
The necessary care and protection given to the green areas of in our sub-city	1.00	4.00	2.0500	1.17561

Enough green areas are designed in the sub-city	1.00	4.00	1.6250	.74032
The plan to the green areas are on their right position and dependent on the order of professional	1.00	4.00	1.6500	.73554
There are controversial green areas by corruption practiced of local administration	2.00	5.00	4.3250	.65584

Weak institutional capacity was the third challenge that was the cause for urban land use planning and greater informants were rated this challenge level at highest range with 4.325 mean score and the response was differentiated by (0.655) standard deviation. Therefore, greater parts from the informants were assured that, the presence of controversial green areas by corruption practiced of local administration the main curbing factor for the provision of urban planning service for end users at the study area.

In addition, interview reply indicated that, lack of institutional capacity as well as lack of institutional coordination was exacerbated challenges of the office the study area. The response rate thus, assured that, lack of capacity for provide urban land use planning services, absence of technological using capacity and weak institutional capacity were the major challenges for plan at the study Woreda.

The other challenges for urban land use planning services were relating to care and protection given to the green areas of in the sub-city with 2.05 mean score and 1.71 standard deviation; the existence of green area important to the city beautifulness was the third challenge with 1.775 mean score and 1.725 standard deviation.



Figure 1: Green Area Violation in Woreda 12

The above figure shows that Green area on the structure plan was built on the site. According to Addis Ababa city Structure plan information and, plan and development commission the above violated sites must be protected as a green area wrote a letter on 18/08/2011 with letter number አ/አ/ፕ/ኮ/03/114/11. Nifas Silk Lafto Sub City Urban plan and development office also identified them as violated sites on the field. As the coming of Takele Umma as a Mayor of Addis Ababa, he appreciates land holders/farmers who has possession right on their land. The City provides land certificates, in order to assure their right. This creates an opportunity for violations and corruptions for planned lands arbitrarily; results non possessors become gained a land holding right opportunity. Once the system interrupted all urban plan categories violated through mal administration, corruption and their benefit networks. This reveals how the plan becomes easily violated.

On literatures, Joshua et al., 2012; European Commission, 2013; Mell, 2010 indicates rapidly growing cities like Addis Ababa, green spaces are increasingly compromised due to land pressure, ambiguous land governance, and shifting urban priorities.

Conclusion

The conclusions were synthesizing the key findings of the study, focusing on how urban planning violations have impacted the development of Addis Ababa. The following points will be addressed:

Factors Leading to Violations:

The study was highlight that rapid urbanization, population pressure, inadequate enforcement mechanisms, and socio-economic factors such as the housing shortage and informal settlement growth are primary drivers of master plan violations in Addis Ababa.

Extent and Nature of Violations:

The study were emphasize the widespread nature of planning violations, particularly in relation to encroachments on green spaces. These violations have led to inefficiencies in urban infrastructure, loss of public spaces, increased congestion, and a deteriorating urban environment.

Institutional Weaknesses:

The findings were underscoring the need for more effective coordination between urban development agencies, as well as stronger enforcement of urban planning laws. The research will show that weak governance, coupled with corrupt practices, is enabling these violations to persist. (Beltrao G, kessler E, 2013)

Impact on Sustainable Development:

The conclusion were drawn attention to how these violations undermine Addis Ababa's long-term urban development goals, contributing to environmental degradation, loss of green areas, and disruptions to the urban fabric. These issues hinder the city's efforts to develop in a planned, sustainable manner, making it harder to achieve the goals set forth in the master plan.

Recommendation

The recommendations were provide practical solutions aimed at reducing structure plan violations and promoting more sustainable urban development in Addis Ababa. These will be divided into short-term, medium-term, and long-term strategies.

Strengthening Enforcement: Immediate steps should be taken to improve the enforcement of existing urban planning regulations. This can include increasing the number of inspectors, creating clear reporting mechanisms for violations, and imposing stricter penalties for offenders.

Public Awareness Campaigns: Raise awareness among developers, residents, and local communities about the importance of adhering to the city's master plan. Information campaigns can educate the public on the environmental, infrastructural, and social consequences of master plan violations.

Strengthening Institutional Capacity: Build the capacity of the relevant urban planning authorities in Addis Ababa. This includes providing training for staff, improving coordination between different agencies (e.g., transportation, housing, and environment), and increasing the budget allocation for planning enforcement activities.

Green Space Protection: Create policies that incentivize the protection and development of green spaces. This can include offering tax benefits to developers who include green areas in their projects or implementing strict zoning laws that protect public spaces from encroachment. (AsemelashF, 2012)

Urban Planning Reforms: Overhaul Addis Ababa's urban planning and land management system to ensure greater accountability and efficiency. This should involve comprehensive policy reforms to make urban planning processes more transparent, participatory, and adaptable to the city's changing needs.

Community Involvement: Establish stronger community involvement in urban planning decisions. Participatory planning initiatives can be used to engage local communities in the design and development of their neighborhoods. This will increase buy-in and reduce instances of informal developments and violations. (Davis, 2006)

Sustainable Development Integration: Integrate principles of sustainable development into the city's urban planning framework. This includes focusing on smart growth strategies, mixed-use developments, environmentally-friendly infrastructure, and the promotion of public transport to reduce traffic congestion and improve urban. (Alukoya, Akeem , 2012)

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ANNEX II - QUESTIONNAIRES

Part I

Dear respondents,

I'm a student from Addis Ababa University, pursuing Master Degree in Urban Planning. The aim of this questionnaire is identifying the violations of structure plan in Addis Ababa, Nifas Silk Lafto Sub city. Your kind and objective responses will significantly contribute towards reducing this challenge. I kindly request you to answer the questions below by filling the necessary information in the blanks provided. I assure you all the information will be kept with high degree of confidentiality as your opinion are so important in accomplishment of my research.

Instructions on filling the questionnaire

Please answer all the questions by ticking on the fore most appropriate answer.

Please, do not write your name.

Demographic Data

1 Gender

Male Female

2 Age

1, Less than 25 2, 26 – 35 3, 36 – 45 4, 46 - 55

3 Occupation

1 Governmental Office 2 Non-Governmental Office 3 Self Employed

4 Unemployed

4 Educational Levels

1 Less 12 Diploma A/BSC Degree MA/MSC

5 PHD

5 Marital status

1 Married unmarried 3 Divorced 4 Widowed

Part II

The following statements identified the cause of urban plan violation please indicate your level of agreement/disagreement by ticking the most appropriate answer that applies to you in a 5 point likert scale ranges from 5 (Strongly Agree) to 1(Strongly Disagree). Please choose only one option from the list given by ticking where appropriate answer at front side of the statements. SA = Strongly Agree, AG = Agree, N = Neutral DA = Disagree, SD = Strongly Disagree.

To specify the major causes of land use violations

No	Items	Scales				
		SA	AG	N	DA	SD
1	The urban plan violation has direct effect on urban development					
2	Private interests is the major causes of urban planning					
3	Public interest should greater than private interests					
4	The lack awareness push people to urban plan violations					
5	The lack the managements supervision caused to urban plan violation					
6	The practices of corruption has contribution on urban plan violation					
7	The inapplicable of rules, laws, and regulations have direct or indirect on urban plan disturbances					
8	The lack in skill, knowledge and attitudes in					

	sector of stakeholders.					
9	The existence lack responsibility and accountabilities					

To identify the attitudes respondent on Green Areas

No	Items	Scales				
		SA	AG	Neutral	DA	SD
1	The existence of the green area important to the city beautifulness.					
2	The necessary care and protection given to the green areas of in our sub city.					
3	Enough green areas are designed in the sub city					
4	The plan to the green areas are on their right position and dependent on the order of professionals					
5	There are controversial green areas by corruption practiced of local administration					

The perception of respondents on road plan violations

No	Items	Scales				
		SA	AG	Neutral	DA	SD
1	The road sizes in the sub city are not based on their proposed plan.					
2	The width of the road are not easily violated by the local officials					
3	The width of the road are not easily violated by the residents					

4	The road plans on the master plan are not applied on the proposed area of the sub city.					
5	The road plans on the local development plan (LDP) are not practically applied compared to structure plan.					
6	The road plans are not designed based on their standards					

To examine, the buildings height violation impact on the city standard

No	Items	Scales				
		SA	AG	Neutral	DA	SD
1	The buildings are built based on the time given by the rules and regulations					
2	There is no clear violation on building height regulations on the sub city					
3	Building height permissions are designed based on the standards of the city					
4	There was an accountability for violators of the rules and regulations as well as standards of building height					
5	When the building heights are not built based on the standards, can be easily voided by The concerned body					

ANNEX III – STATISTICAL RESULTS OF LAND USE

LAND USE

	The_existence_lack_of_responsibility_and_accountabilities	The_lack_in_skill,knowledge_and_attitudes_in_sector_stakeholders	The_inapplicable_of_rules_laws_and_regulations_have_direct_or_indirect_impact_on_urban_planning_disturbances	The_usefulness_of_the_product_or_service	The_lack_the_management_supervision_caused_tourban_planning_violation	The_lack_awareness_push_people_to_urban_planning_violations	Public_interest_should_be_greater_than_private_interests	The_urban_planning_violation_has_a_direct_effect_on_urban	The_urban_planning_violation_has_a_direct_effect_on_urban
Valid	120	120	120	120	120	120	120	120	120
Missing	1	1	1	1	1	1	1	1	1
Mean	4.5250	4.4000	4.6500	4.15	4.35	4.45	4.63	4.05	4.50
Median	5.0000	4.0000	5.0000	4.00	4.00	4.00	5.00	4.00	4.50
Mode	5.00	4.00 ^a	5.00	4	4	4	5	4 ^a	4 ^a
Std. Deviation	.50574	.67178	.48305	.921	.483	.504	.540	1.197	.506
Minimum	4.00	2.00	4.00	1	4	4	3	1	4
Maximum	5.00	5.00	5.00	5	5	5	5	5	5

ANNEX- IV - STATSTICAL RESULTS OF ROAD ENCHROACHMENT

		ROAD					
		The_road_sizes_in _the_sub_city_are _not_based	The_road_sizes_in _the_sub_city_are _not_based	The_width_of_the _road_are_not_eas ily_violated_resid ents	The_width_of_the _road_are_not_eas ily_violated_resid ents	The_road_plans_o n_the_local_devel opment_plan	The_road_plans_a re_not_designed_b ased_on_their_sta ndared
N	Valid	120	120	120	120	120	120
	Missing	1	1	1	1	1	1
Mean		4.3250	1.9750	1.6250	4.1750	3.5500	3.4000
Median		4.0000	2.0000	2.0000	4.0000	4.0000	4.0000
Mode		5.00	1.00	1.00 ^a	4.00	4.00	5.00
Std. Deviation		.85896	1.20868	.74032	.95776	1.31948	1.42864
Minimum		1.00	1.00	1.00	1.00	1.00	1.00
Maximum		5.00	5.00	4.00	5.00	5.00	5.00

ANNEX- V - STATSTICAL RESULTS OF GREEN AREAS VIOLATIONS

GREEN AREAS VIOLATION

		The_existence_of_the_green_area_important_to_the_city_beautifulness	The_necessary_care_and_protection_given_for_green_areas	Enough_green_areas_are_designed_in_the_sub_city	There_are_control_oversial_green_areas_by_corruption_practiced	There_are_control_oversial_green_areas_by_corruption_practiced
N	Valid	120	120	120	120	120
	Missing	1	1	1	1	1
Mean		1.7750	2.0500	1.6250	1.6500	4.3250
Median		1.0000	2.0000	2.0000	2.0000	4.0000
Mode		1.00	1.00	1.00 ^a	2.00	4.00
Std. Deviation		1.31046	1.17561	.74032	.73554	.65584
Minimum		1.00	1.00	1.00	1.00	2.00
Maximum		4.00	4.00	4.00	4.00	5.00

ANNEX- VI - VARIABLE AND DATA VIEW OF SOME PART OF SPSS ANALYSED DATA

Questionn	gender	A1_Age	B1_Educat	C1_Occup	D1_Marita	A2_The_u	A2_Private	A2_Public	A2_The_la	A2_The_la	A2_The_p	A2_
1	2	2	2	1	1	4	4	5	4	5	4	
2	2	2	1	1	1	4	5	5	5	4	3	
3	1	4	2	1	1	5	4	4	4	5	5	
4	2	3	2	1	1	5	4	4	5	5	4	
5	2	3	2	1	1	5	4	5	5	4	5	
6	2	2	2	1	1	4	5	5	4	5	4	
7	1	3	2	1	1	5	4	4	5	4	4	
8	1	1	1	1	2	5	5	4	5	4	4	
9	2	3	2	1	1	5	4	5	5	4	4	
10	1	2	2	1	2	4	5	5	4	5	5	
11	1	4	2	1	1	4	4	5	5	4	4	
12	1	3	2	1	1	4	5	4	4	4	5	
13	2	2	2	1	1	4	4	5	4	4	4	
14	1	2	2	1	2	5	5	5	5	4	5	
15	1	2	2	1	1	4	4	4	4	4	3	
16	1	3	3	1	1	4	4	5	4	4	4	
17	1	2	2	1	2	4	5	4	4	5	4	
18	1	2	2	1	1	5	5	4	4	5	4	
19	2	1	2	1	2	4	4	5	5	4	4	
20	2	2	3	1	1	5	4	5	4	5	4	
21	2	2	2	1	1	5	4	3	5	5	5	
22	1	2	2	1	1	5	1	5	4	4	2	
23	2	4	3	1	1	4	1	5	4	4	1	
24	1	3	1	1	2	5	1	5	4	4	4	
25	1	2	1	1	2	5	2	5	4	4	5	
26	2	2	1	1	1	5	2	5	4	4	4	
27	2	4	2	1	1	5	4	5	5	4	4	
28	1	2	2	1	1	5	2	5	4	4	2	
29	1	3	3	1	1	4	5	5	5	4	5	
30	2	2	1	1	1	4	5	4	4	4	4	
31	2	2	1	1	1	5	4	5	5	5	5	
32	2	2	1	1	1	4	5	5	5	4	5	
33	1	3	3	1	1	4	5	5	5	4	4	

	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure	Role
1	Questionnai...	Numeric	8	0	Questionnaire_...	None	None	8	Center	Nominal	Input
2	gender	String	40	0	Gender	{1, male}...	None	8	Left	Nominal	Input
3	A1_Age	String	40	0	A1_Age_31_to...	{1, =<25}...	None	8	Left	Ordinal	Input
4	B1_Educati...	String	40	0	Educational level	{1, less 12}...	None	8	Left	Nominal	Input
5	C1_Occupa...	String	40	0	Occupation	{1, gevorme...	None	8	Left	Nominal	Input
6	D1_Marital_...	Numeric	40	0	married	{1, married}...	None	8	Center	Nominal	Input
7	A2_The_urb...	Numeric	40	0	The_urban_plan...	{1, strongly ...	None	8	Center	Nominal	Input
8	A2_Private_...	Numeric	40	0	The_urban_plan...	{1, strongly ...	None	11	Center	Nominal	Input
9	A2_Public_i...	Numeric	20	0	Public_interest...	{1, strongly ...	None	10	Center	Nominal	Input
10	A2_The_lac...	Numeric	20	0	The_lack_aware...	{1, strongly ...	None	8	Center	Nominal	Input
11	A2_The_lac...	Numeric	20	0	The_lack_the_...	{1, strongly ...	None	6	Center	Nominal	Input
12	A2_The_pra...	Numeric	20	0	The_usefulness_...	{1, strongly ...	None	9	Center	Nominal	Input
13	A2_Theinap...	Numeric	8	2	Theinapplicable...	{1.00, stron...	None	8	Right	Nominal	Input
14	A2_The_lac...	Numeric	8	2	The_lack_in_sk...	{1.00, stron...	None	8	Right	Nominal	Input
15	A2_The_exi...	Numeric	8	2	The_existence_...	{1.00, stron...	None	8	Right	Nominal	Input
16	B2_The_exi...	Numeric	8	2	_The_existence...	{1.00, stron...	None	8	Right	Nominal	Input
17	B2_The_ne...	Numeric	8	2	The_necessary...	{1.00, stron...	None	8	Right	Nominal	Input
18	B2_Enough...	Numeric	8	2	Enough_green_...	{1.00, stron...	None	8	Right	Nominal	Input
19	B2_The_pla...	Numeric	8	2	There_are_cont...	{1.00, stron...	None	8	Right	Nominal	Input
20	B2_There_a...	Numeric	8	2	There_are_cont...	{1.00, stron...	None	8	Right	Nominal	Input
21	C2_The_road...	Numeric	8	2	The_road_sizes...	{1.00, stron...	None	8	Right	Nominal	Input
22	C2_The_wid...	Numeric	8	2	The_road_sizes...	{1.00, stron...	None	8	Right	Nominal	Input
23	C2_The_wid...	Numeric	8	2	The_width_of_t...	{1.00, stron...	None	8	Right	Nominal	Input
24	C2_The_road...	Numeric	8	2	The_width_of_t...	{1.00, stron...	None	8	Right	Nominal	Input