

Challenges and Opportunities in Upgrading Informal Settlements for Sustainable Urban Development: The Case of Cheleleka Sub- City, Bishoftu, Ethiopia



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A Thesis Submitted to the Department of Architecture
College of Civil Engineering and Architecture

Office of Graduate Studies
Adama Science and Technology University

June, 2025
Adama, Ethiopia

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DECLARATION

I declare here by this research thesis entitled “Challenges and Opportunities in Upgrading Informal Settlements for Sustainable Urban Development: The Case of Cheleleka Sub-City, Bishoftu is my invention and has never been presented to any university for comparison. The source that I used in this thesis is very easily identified through correct referencing

Name of student

Signature

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RECOMMENDATION OF ADVISORS/SUPERVISOR

I, the major advisor of this thesis, hereby certify that I have read the revised version of the thesis entitled “Challenges and Opportunities in Upgrading Informal Settlements for Sustainable Urban Development: The Case of Cheleleka Sub-City, Bishoftu, Ethiopia,” done under my supervision by **Fekadu Ababu**. Therefore, the student is advised to submit the thesis to the department for thorough review and evaluation.

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APPROVAL SHEET

I/we officially declare that the recommendations and suggestions made to the thesis by the thesis appraisal group are properly incorporated in this thesis entitled "Challenges and Opportunities in Upgrading Informal Settlement for Sustainable Urban Development: The Case of Cheleleka Sub-City, Bishoftu, Ethiopia," by Fekadu Ababu.

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We, the cosignatory group of the Board of Inspectors for the research thesis by Fekadu Ababu Anbassa, have reviewed and evaluated the thesis entitled “Challenges and Opportunities in Upgrading Informal Settlements for Sustainable Urban Development: The Case of Cheleleka Sub-City, Bishoftu, Ethiopia,” and have observed the applicant throughout the open defense. Therefore, this is to confirm that the thesis has been accepted for partial fulfillment of requirements for the Master of Science Degree in Urban Planning and Design.

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ACRONYM

GIS:	Geographical Information System
SPSS	Statistical Package for the Social Sciences
GPS	Geographic Poisoning System
NGO	Non-Governmental Organization
SDGs	Sustainable Development Goals
OPGS	Office of Postgraduate Studies
DGC	Department Graduate Council posi
CGC	College Graduate Committee
PPP	Public-Private Partnership

Abstract

This research provides the potentialities and challenges in upgrading informal settlements to enable sustainable urban development in the study area. It aims to assess the current condition of the informal settlements, determining the main challenges encountered during the upgrading process, investigating possibilities for enhancing living conditions, and evaluating sustainable urban development practice in this context. The significance of this research is that it can provide key information about the settlement pattern in Ethiopia, a subject that has generally been deficient. The research would shed light on local policy makers and urban planners on the unique socio-economic and environmental determinants that shape the lives of people and inform decisions regarding quality urban development. The scope of study covers the informal settlements of Cheleleka Sub City and takes into account a number of factors such as standards in housing, availability of basic services, and community harmony. The research employs a mixed-methods approach using a combination of qualitative and quantitative methods to present a comprehensive picture of the research issues. Primary data are collected through structured questionnaires, in-depth interviews, and focus group discussions, while secondary data are collected from published reports and literature. The study employs purposive sampling to select key informants such as local leaders and representatives of the community, and viewpoints. Data collection techniques involve main informant interviews to obtain in-depth information, observation during field visits to assess physical status, and focus group discussions enabling community participation. Data analysis employs thematic analysis of qualitative data to identify the most salient themes and patterns, while quantitative data analysis is conducted with the help of statistical analysis using tools such as SPSS and MS Excel to facilitate a comprehensive probing of findings.. Later, this thesis aims to clarify the specific challenges faced by Cheleleka's Sub city informal, existing opportunities for mobilizing resources and community engagement, and evaluate environmentally friendly urban development strategies that can simplify living. By providing practical recommendations, the research seeks to guide urban planning practice in Bishoftu and similar environments towards a sustainable and equitable urban way of life that meets the needs of its inhabitants and builds resilience to the persistent city problems,

KeyWords: Informal Settlement, Upgrading, Sustainable Urban Development, Challenges and Opportunities

CHAPTER ONE

1. INTRODUCTION

1.1. Background of the study

Improving informal settlements is one of the major challenges of urban development that needs to be addressed, especially since urban populations continue to grow. The globe often suffers from extreme issues like substandard housing inadequate infrastructure and poor access to basic services combined with high poverty and unemployment rates marked by various forms of tenement housing, insecure tenure arrangements, and restricted accessibility to basic services and infrastructure such settlements are referred to be known by numerous different names(UN-Habitat 2003) a global scale of informal settlements underscore the need for holistic urban Planning and policy frameworks that address. The particular challenges posed by informal housing, the socio-economic implications, and the success of different upgrading strategies (Davis 2017) are of utmost significance to the comprehension of such dynamics. Nonetheless, despite these challenges, much scope for improvement exists in targeted upgrading initiatives

The research on informality, informal settlements, and their upgrading has acquired the interest of activists, practitioners, politicians, scholars, and bureaucrats. areas typified by informal settlements are recognized as being amongst the most significant urban problems all around the globe. In 2018, approximately 29% of the world's urban dwellers lived in such non-formal areas(The World Bank, population living in slums, 2022)

From an economic standpoint, individuals residing in informal settlements often face poverty and unemployment, which significantly limits their ability to invest in their homes or participate in local economies. The lack of access to financial services further worsens these challenges, compelling many to rely on informal economies that offer minimal stability and growth, particularly in rapidly urbanizing areas; these economic barriers hinder community development and resilience. Socially, upgrading projects can lead to community displacement if not managed carefully, disrupting existing social networks and causing tensions among residents. Moreover, the absence of community member involvement in the planning and execution of upgrading initiatives can intensify these tensions, as residents may feel their needs and preferences have

been overlooked. While strong community ties can be an asset, they can also present a challenge, as effective engagement is crucial for the success of upgrades.

From an environmental perspective, informal settlements often lack adequate infrastructure, leading to issues such as flooding, insufficient sanitation, poor waste management, and pollution. Many informal settlements are situated in vulnerable areas susceptible to environmental threats, making them particularly vulnerable to the effects of climate change. Cronin (2012) also notes that for many low-income migrants moving to cities, informal settlements frequently represent the only affordable housing option. Informal settlements are often located in ecologically vulnerable areas that have high biodiversity value, which significantly impacts natural systems and green spaces. Adugna (2017) presents South Africa as a challenging and insightful case study on upgrading informal settlements.

The history of informal settlements and the trajectory of efforts to address them comprise threads of place-specificity and commonality on a global level. Therefore, the experiences in South Africa are as beneficial to international dialogues and conceptual debates as they are to local policy and practice. More than 12 million households in South Africa live in informal settlements without access to adequate shelter, services, or secure tenure. Since 2016, there has been a gradual shift from eradicating informal settlements to upgrading them, supported by numerous policy directives and many innovations. This shift is part of a more extended lineage of international thinking and practice that advocates for the incremental improvement of informal or extra-legal modalities of urban settlement. Despite this shift, only modest progress has been made toward progressively addressing informal settlements in South Africa.

Developing nations have experienced significant migration from rural areas to major urban centers, leading to the expansion of informal settlements that pose socio-economic challenges for cities (Nouri A. Elfarnouk, 2015). Consequently, one of the complex issues facing many developing countries today is the unlawful occupation of urban land, commonly referred to as "squatting." The primary drivers of this phenomenon include a rapid rise in the national population, an influx of individuals into cities, and the inability of the affected countries to provide sufficient land and housing to accommodate the growing urban population.

The Global Report on Human Settlements (2021) reveals that 50% to 70% of urbanization in some regions is occurring informally because of fast-paced urbanization, economic insecurity, and housing unaffordability. Informal growth is a reality that can be especially noticed in countries like Sub-Saharan Africa and South Asia, where individuals migrate to urban areas in search of better opportunities. The research identifies the environmental and social threats of informal settlements as the minimal supply of essential services, increased vulnerability to climate change, and increased poverty levels. It calls for inclusive urban planning interventions that integrate these settlements into mainstream planning frameworks, acknowledging their contribution to housing supply and community resilience, in addition to an honest need for sustainable development solutions.

African city urbanization revolves around the development of informal settlements. (Kihato, M. 2018) focused on the socio-political forces behind informal housing and provided policy recommendations for sustainable urbanization in the region. The involvement of the community in the upgrading of informal settlements indicates the importance of involving the community in doing it in East Africa (Mukhongo, L. 2019). It provides case studies that demonstrate how upgrading outcomes can be more effective and sustainable through participatory approaches

In sub-Saharan Africa, an informal urbanization trend indicates that Tanzania ranks among the countries with the highest populations living in informal settlements, closely followed by Mozambique and Ethiopia (Shubira Kalugila, 2013).

In the Ethiopian context, these types of settlements are referred to as "Chereka Bet." Translated, Chereka Bet means "house of the moon," suggesting that the illegal construction of homes occurs at night. These settlements are established without the approval of city authorities and without obtaining the necessary construction permits from the city. Different cities in Ethiopia have reacted in various ways to these informal settlements. In Addis Ababa (specifically in the Bole, Yeka, and Kolfe sub-cities), there were demolitions in 1994 that resulted in the destruction of 13,440 informally built homes (Gondo, 2011; Daniel, 2011). In Adama, over 3,751 structures erected without municipal permits were demolished over five years, although new buildings quickly replaced those that were destroyed. In Bahir Dar, evictions through demolition occurred

in 1995 in Kebeles 11 and 13. In Ambo, the municipality pursued litigation, filing 412 land-related cases in courts between August 1, 1997, and May 10, 2000.

The expansion of squatter settlements in Addis Ababa has been attributed to numerous factors, including delays in implementing legal housing programs, delays in transferring allocated land, and rises in housing rental costs within urban areas,(Abagissa, J. 2019), In addition to economic causes, political and legal shortcomings have led to the failure of the government to control and organize open areas, the absence of code enforcement to regulate and manage illegal building construction, the lack of holistic legal approaches to address the ongoing increase of the squatting phenomenon, and the failure to regulate and legalize land speculating activities..

The urbanization process in the towns of the Oromia special zone, now known as Sheger City, surrounding Addis Ababa, has created numerous opportunities and challenges for agricultural land (Efa & Gutema, 2017). It has also led to the constant relocation of informal settlements in environmentally vulnerable areas, making them increasingly susceptible to the impacts of climate change. Hassan & Zewdie (2020), focusing on informal settlements and urban issues in Ethiopia, particularly regarding urban upgrading and resilience, the socio-economic dynamics, policy implications, and community engagement strategies necessary for successful urban development. Rapid urban growth is especially noticeable in regions like Oromia. Bishoftu City, specifically in the Cheleleka Sub-City, exemplifies this trend and faces significant challenges related to informal settlements. These areas typically lack essential infrastructure, services, and secure land tenure, creating substantial obstacles for urban planners and policymakers that hinder sustainable urban development. The proliferation of informal settlements presents major challenges in achieving sustainable urban growth, requiring immediate upgrading initiatives. Enhancing these settlements is crucial for sustainable urban development and improving residents' living conditions. This introduction highlights the need for comprehensive strategies to elevate living standards, secure land rights, and promote community involvement, ultimately aiming for sustainable urban growth in Bishoftu, Cheleleka Sub-City.

1.2. Statement of the problem

Upgrading informal settlements was an urgent matter requiring a detailed examination of the specific challenges and opportunities the situation presents. The problem emphasizes the need to identify the current status of the informal settlements, recognize the major challenges hindering upgrading efforts, explore potential improvements, and assess models for sustainable urban development. Existing literature on informal settlements was general in nature, lacking specific references to the socio-economic and cultural contexts. For example, UN-Habitat (2016) and Davis (2006) have well-documented the characteristics and issues of informal settlements, highlighting concerns like inadequate infrastructure and a lack of basic services. However, these studies neglect to consider localized dynamics, which can lead to ineffective policy suggestions that do not align with the realities faced by communities living in informal areas like those in Ethiopia.

Globally, different literature presents a range of challenges in improving informal settlements, including regulatory hurdles, financial issues, and community resistance (Satterthwaite, 2010). However, most studies primarily employ quantitative methods, which do not capture the complex experiences of residents, as noted by Kvarnström (2011). Limiting the research to qualitative findings restricts their applicability to local contexts, highlighting the need for more inclusive studies that amplify the voices of residents. Additionally, while Davis (2006) addresses participatory urban planning practices, he does not offer specific strategies for the developing countries like Ethiopian context, creating a gap in practical guidance for local practitioners.

Locally, Tadesse (2018) and Teshome (2020) have done studies that begin addressing informal settlements in Ethiopia. Tadesse analyzes trends in urbanization but addresses general urban issues of Addis Ababa, overlooking the individual conditions and challenges of areas within the environs. Likewise, Teshome writes about urban policies without empirical evidence representing the facts of informal settlements resembling in Bishoftu. These studies emphasize the need for localized research but are often inadequate to account for the particular socio-cultural dynamics involved in informal settlements, and this identifies a fundamental gap in both theoretical and empirical understanding.

Theoretical paradigms drawn upon across global and local scholarship are themselves inadequate for interpreting the complexity of informal settlements, as they rely on models developed within other cultural contexts that lack resonance within the Ethiopian context. This discrepancy can lead to unsuitable or ineffective urban planning policies. Empirically, there is a very noticeable absence of qualitative studies that document the everyday lives of residents of Cheleleka Sub-city, putting limits on knowledge of their aspirations and needs. Methodologically, quantitative research dominance reduces the depth of analysis, confirming the necessity for mixed-method answers, including qualitative studies to tap the depth of community experience and stories.

To respond effectively to the issues and potentialities of upgrading informal settlements in Cheleleka Sub City, future research must focus on localized realities, engaging meaningfully with community members to learn from their perspective and from their needs. This approach would not only render the outcomes more contextually relevant but also enable the development of sustainable urban planning strategies that are inclusive and effective. By assigning qualitative insights the same level of relevance as quantitative data, researchers can better serve policymakers and stakeholders, ultimately leading to a more sustainable and equitable urban setting for Cheleleka Sub-City residents. Consequently, the current research aims to fill gaps in the literature by conducting a comprehensive examination of informal settlements in the study area, providing pragmatic recommendations that align with urban sustainable development principles. Understanding the complexity of upgrading informal settlements within the context of Ethiopia, ultimately seeking to improve living conditions and promote urban sustainability.

1.3. Objective of the Research Study

1.3.1. General objective of the research

This research aims to examine the challenges and opportunities associated with upgrading informal settlements in Cheleleka Sub-City, Bishoftu, Ethiopia, to promote sustainable urban development through a comprehensive analysis and actionable recommendations.

1.3.2. Specific objective

- Assess the current conditions of informal settlements' old properties without ownership documents in Cheleleka Sub-City, Bishoftu

- Identify the major challenges in upgrading informal settlements' old properties without ownership documents within the study area
- Explore opportunities for enhancing conditions in informal settlements' old properties without ownership documents
- Evaluate the sustainable urban development in an upgrading context

1.4. Research Question

1. What are the current conditions of informal settlements' old properties without ownership documents in Cheleleka Sub-City, Bishoftu?
2. What are the major challenges in upgrading informal settlements' old properties without ownership documents within the study area?
3. What are the opportunities for enhancing conditions in informal settlements' old properties without ownership documents?
4. How can sustainable urban development be evaluated in an upgrading context?

1.5. Significance of the Study

The significance of this study on upgrading informal settlements is extensive, impacting various stakeholders, including policymakers, urban planners, residents, and researchers. By clarifying the current state of informal settlements, the study offers an important benchmark that informs local authorities about the actual conditions in which residents live amid rapid urbanization. This awareness is vital for designing effective urban planning and infrastructure interventions. The findings would be enlightening policymakers regarding key challenges to upgrading, such as regularization of old Property lack official ownership, pre-regulatory barriers, financial constraints, and community participation obstacles, thereby enabling them to create evidence-based, tailored, and context-specific interventions.

Moreover, the research identifies the potential for enhancing the living situation through resource mobilization and popular participation. The concern is particularly significant to urban planners and development practitioners who aim to create sustainable urban practices inclusive and responsive to poor communities. Resident participation in the upgrading process is emphasized as a key strategy to achieve more effective outcomes.

The evaluation of practices of sustainable urban development in this sense also plays a defining role in establishing standards that would guide subsequent interventions, assisting local governments in assessing the performance of policy. The contribution to the broader debate on sustainable urban development in Ethiopia and elsewhere around the world is also valuable.

Ultimately, the significance of the research goes far beyond the Cheleleka Sub city situation, with the potential to influence Ethiopia's urban development policy and other countries facing similar problems. By integrating the voices of ordinary people with empirical evidence, the research aims to enhance a participatory and informed approach to urban planning, resulting in the creation of sustainable and resilient cities. By this research and recommendations, the study hopes to motivate far-reaching changes that respond to the needs of the residents of informal settlements while encouraging sustainable development principles at local, national, and international levels

1.6. Scope of the study

This thesis encompasses the overall examination of economic, social, and environmental factors that affect informal settlements within this specific urban environment.

The Spatial scope aims at the informal settlement provinces of Cheleleka Sub-City to carry out a particular analysis of the special characteristics, issues, and needs of such communities. This entails looking at the economic challenges, such as poverty and unemployment, social aspects, such as solidarity of communities and resistance to external influence, and environmental issues due to inadequate infrastructure and vulnerability to climate change.

The temporal scope of the study encompasses trends in urban informal settlements from 2012 to 2024, utilizing orthophoto and the city's structure plan to enable an examination of recent trends and developments, while considering historical contexts that have shaped the current state of informal settlements. This integrated temporal perspective allows for a better understanding of recent issues and the evolving opportunities for comprehensive upgrading. Ultimately, this perspective aims to provide detailed insights into effective approaches for achieving resilient informal settlements, as well as discovering strategies that could lead to sustainable urban environments.

1.7. Limitations of the study

There were some shortcomings of the present study during its conduct. The first among them was a lack of secondary data sources, i.e., inefficient information provision by the urban municipality. Secondly, the other challenges were related to respondents' behavior while responding to the questions and completing the questionnaire. These challenges were when the respondents failed to answer the questions adequately and properly.

1.8. Operational Definitions

1. **Informal Settlements:** Informal settlements refer to neighborhoods that are residential and in which the housing is constructed without permission or rights. They typically lack good infrastructure and connections to basic utilities such as water, sanitation, and power supply. They are characterized by insecure tenure and unsatisfactory living conditions that result in the vulnerability of their population. According to UN-Habitat (2016), roughly 80% of Ethiopia's urban population lives in informal settlements, highlighting the ubiquity of the issue.

2. **Upgrading:** Is an upgrading process aimed at improving informal settlements' physical, social, and economic conditions. This may involve various interventions, including infrastructure development, service provision, and community engagement. Tadesse (2018) adds that upgrading strategies must account for the unique needs of informal communities in a bid to advance their living standards and integrate them into the broader urban setting.

3. **Sustainable Urban Development:** Sustainable urban development is a plan for balancing economic, social, and environmental objectives. It emphasizes inclusive planning, effective utilization of resources, and people's participation in order to realize the long-term sustainability and resilience of cities. This was in accordance with ecological integrity, social equity, and economic viability principles, with the objective to enhance living conditions considering the impacts on social, economic, and environmental well-being of the people (Satterthwaite, 2010).

4. **Challenges:** Challenges recognize the challenges or hindrances that are faced in upgrading informal settlements. Such challenges may include the regularization of properties, financial constraints, regulatory impediments, community resistance, and inadequate infrastructure.

Challenges from Kvarnström (2011) are likely to obstruct successful upgrading and require comprehensive strategies to address them.

5. Opportunities: Opportunities are potential advantages or favorable conditions that could be capitalized upon in a way that would facilitate the upgrading of informal settlements. These could include community engagement, available sources of funds, and existing best practices that could enhance the upgrading process. According to Teshome (2020), the identification and leveraging of opportunities are critical for the success of interventions in informal settlements

1.9. Organization of the Research Thesis

The objective of this study is to assess Challenges and Opportunities in Upgrading Informal Settlements for Sustainable Urban Development: The Case of Cheleleka Sub-City, Bishoftu, Ethiopia. It has five chapters. Chapter one presents the introductory section of the research that consists of the background of the study, statement of the problem, research objectives that consist of the general and specific objectives followed by research questions, Scope and limitation of the study, and the significance of the study, Chapter two provides an overview of the related literature concerning Challenges and Opportunities in Upgrading Informal Settlements for Sustainable Urban Development in Ethiopia and international experience (theoretical and empirical). The third chapter starts with the study description. The next part introduces research methodology, research approach, research design, population & Sampling technique, data source and types, data collection tools, procedures, sample size, and data analysis. Finally, the research Chapter four results and discussion, and Chapter five conclusion and recommendation under this research paper.

CHAPTER TWO

2. LITERATURE REVIEW

2.1. Theoretical Review of Related Literature

Over the years, several policies have been put forward to address the social, economic and physical situations of informal settlements and their residents in developing countries. Studies have also been conducted on the definition, nature, and characteristics of the informal settlements in urban centers of developing countries.

2.1.1 Informal Settlements

A clear definition of informal settlement is hardly available. Various words have been used in literature to refer to squatter settlements. These include spontaneous, irregular, unplanned, marginal, and informal settlements. There are many definitions of —informal settlements. The terms have been used to refer to unregulated, illegal, and unauthorized construction, arising from the conditions and regulations in different countries, including —spontaneous, —unplanned, unauthorized, illegal or —squatter settlements. The United Nations has used the term —informal settlements to refer to: i) residential areas where a group of housing units has been built on land to which the occupants have no legal claim, or which they occupy illegally; ii) unplanned settlements where housing is not in compliance with current planning and building regulations (unauthorized housing (United Nations,2015). Daniel (2013) defined informal settlements as dense settlements comprising communities housed in self-constructed shelters under conditions of informal or traditional land tenure. While there is significant regional diversity in terms of their manifestation, these settlements are mainly characterized by informal or insecure land tenure, inadequate access to basic services, both social and physical infrastructure and housing finance.

The term squatter settlement, if not defined precisely, can lead to a misunderstanding of the term slum. In fact, many writers often use the terms interchangeably. Slums however, are often considered a legally allowed settlement of an urban area but are also overcrowded, with poor living conditions and older houses compared to other parts of the city, and inadequate services (UNCHS, Habitat: 1982).

According to Mohanty (2019, cited in Mohanty 2020: 2), 'informal settlements' is a terminology used to refer to squatter settlements and slums that are self-developed city and town units as a result of informal urbanization. The principal features of informal settlements are absence of tenure, housing that does not conform to by-laws, residents not owning land, illegal building units, social exclusion, crime, poverty, and the comparative absence of municipal involvement in the delivery of services (Wekesa, Steyn and Otieno 2011: 240; Mohanty, 2020; El Menshawy, Aly and Salman 2011: 170). From precedent literature on the numerous types of informal settlements, one notes that they are characterized by absence of tenure, non-compliant city by-law housing, residents not owning land, inadequate access to basic needs and services, illegal building units, subdivisions and street patterns, social exclusion, high crime rate and overall poverty, poor quality living conditions and risky locations, relative absence of municipal support and service delivery, no safety for the youth and children, no schools or health centres, no space for holding community meetings and discussions (Tsenkova, Badyina and Potsiou 2008), and the absence of sustainable road networks (Wekesa, Steyn and Otieno 2011: 240).

Informal settlements arise as a result of deprivation, alternative housing strategies, entrepreneurial squatting, conservational squatting and political squatting (Mohanty 2020: 4). It is also important to emphasize that informal settlements are caused by marginalization coupled with social exclusion, because a large percentage of the people in cities do not have access to resources and opportunities and as such refuge in informal settlements offers them a chance of survival and access to a range of precarious livelihoods (Dovey 2016: 61). The proliferation of informal settlements is also evidence that the locus of global poverty is moving to cities (El Menshawy et al 2011: 169). Informal settlements are also a manifestation of urban poverty in the sense that they are characterized by inadequate access to water, sanitation, infrastructure and services, poor housing quality and overcrowding (UNHabitat 2003, cited in Mohanty 2020: 1). The challenge of the urbanization of poverty and in particular informal settlements is more apparent in the developing world. According to Weiman and Oni (2019: 1), the majority (55%) of the population in sub-Saharan Africa now lives in informal settlements, a proportion that is notably larger than the global average of 30% and other developing regions, including South Asia (31%).

The conceptual framework of this research would be to review selected common characteristics that run through informal urban settlement regularization initiatives. These characteristics would guide the case study assessment of informal settlement upgrading in Zambia. This article reviews a participatory settlement upgrading project in Lusaka, Zambia, as a model and identifies elements of special interest that can be replicated for future upgrading initiatives. The term “upgrading” emphasizes the intent to improve the living standards of the urban poor and reveals the challenges that need attention in such projects (Werlin, 1999). Ng’ombe participatory slum upgrading illustrates experiences and lessons that are vital for future upgrading initiatives with similar settings.

In the Ethiopian context, the Addis Ababa Development and Improvement Project office (AADIPO, 2003) adopts the following working definition for informal settlement. Informality/illegality includes any form of construction (such as houses, fences, notice boards, sewerage lines, containers, temporary/movable kiosks, etc) that has been erected or built on public lands without having legal basis. Furthermore, it also includes any unauthorized expansion/ encroachment made on public rental houses.

However, the degree of informality/illegality varies: some can be informal whereas others can only be partially informal. Based on this working definition, therefore, the whole forms of informality are divided into two major groups: Group 1: includes those informal settlements which have been occupied and built without having any legal basis or evidence accepted by the law (such as title deed/ book and building permit). These settlements are commonly called "squatter settlements" and mainly found at the expansion areas of a city. Group 2: includes settlements that are partially illegal/ informal. The illegality comes from so many sources. For example, they can have the legal right (title deed/ book) but not a building permit or have both the title deed/book and a building permit but build, expand, upgrade, change the shape and size, etc. without the proper legal procedures/permit. Such settlements are mainly found in the inner part of a city (As AADIPO 2003 cited in Daniel, 2011:6-7).

2.1.2. Challenges of Informal Settlement

Globally, about 1.1 billion people, or 20 percent of the world’s population, do not have access to adequate housing, of which one billion reside in slums and informal settlements (UN, 2023).

Such settlements often grapple with inadequate access to safe water, inadequate access to sanitation, poor structural quality of housing, overcrowding, safety and security challenges, and insecure residential status (Okyere et al., 2022; Abunyewah et al., 2023a).

Approximately 28 percent of the population in informal settlements in sub-Saharan Africa lack access to dwellings with toilets, while 23 percent have no access to improved sanitation facilities (UNICEF/WHO, 2008; Aliu et al., 2021). Projections suggest that the population in informal settlements is expected to increase to about three of its current population by 2050 (UN-Habitat, 2022, pp. 41–44). The prevalence of informal settlements poses a formidable challenge to sustainable urban development. Improving the living conditions in these settlements has emerged as an important global development objective, as exemplified in Sustainable Development Goal 11 (SDGs) and Target 11.1 (Rigon, 2022; UN-Habitat, 2014). Over the past two decades, informal settlement upgrading has been recognized as the most effective approach to addressing the infrastructural challenges in informal settlements (Iweka & Adebayo, 2015; UN-Habitat, 2010). However, despite its proven effectiveness in certain cases, the implementation of upgrading approaches has faced some challenges, leading to mixed development outcomes (Rigon, 2022). According to Fuentes (2019), most slum upgrading programs have failed to address critical issues such as social exclusion, vulnerability, and the underlying causes

2.1.3. Regularization of Urban Land

The federal land framework legislation under the constitution formulates holding right as the right of any peasant farmer, urban resident, to use the land for agriculture and natural resource exploitation. It entitles them to lease and to donate the land to members of their family or other legal heirs. It embraces the right to acquire property produced on his farm by his sweat or capital and dispose of, exchange, and transfer the same (FDRE, 2005) (Article 5/1

2.1.4. Informal settlement growth actors

The actors in the informal land market are numerous and multifaceted; they are frequently composed of government officials, individual developers/ private/, urban landholders, urban inhabitants, landless youth and new migrants in urban areas [Emerg. L. Mark. Africa, Routledge, 2010: pp. 106– 124. They can make their own decisions. They may or may not be disorganized, well organized, and well-coordinated Eburon Uitgeverij BV, 2005. The actors can act in a

network with common goals [S. Wasserman, K. Faust (1994). These goals enable them to establish strong bonds with each other. Perceptions, objectives, and resources influence how actors interact. Perception is the ideological view of the performance and its outcomes regarding networks, policy, and features, Eburon Uitgeverij BV, 2005. The objective provides a roadmap for actors to follow to solve a specific problem and achieve desired outcomes, Eburon Uitgeverij BV, 2005. John Wiley& Sons, 2018.

2.1.5. Informal Settlement Upgrading

According to Cities Alliance (2006), informal settlement upgrading is a process that involves improving, formalizing, and incorporating informal settlements by providing residents with the land rights, public infrastructure, and services legally and constitutionally entitled to them (Du Plessis, 2017). Over the past 6 decades, various interventions have been undertaken globally. (Mukhija, 2002) notes that some previous urban upgrading projects have failed because of centralized state planning and top-down execution. State interventions tended to be counter-productive and not in the best interest of the poor beneficiaries. The state made it difficult to replicate successful pilot projects. Werlin (1999) observes that early John F.C. Turner was the first to acknowledge the government's shortcomings in slum upgrading. He argued for governments to cease building and managing housing. He advocated for the users (local communities) to be the principal actors in the upgrading process. Critics argue that his policies assumed that the absence of State intervention would lead to more autonomy for low-income groups and that his ideas offered no clarity on how to implement and institutionally support upgrading. Many in the formal settlement upgrading proponents encourage states to institute programmes that address the root cause and not just the outcome of the slum problem. This advocates for in situ upgrading of slum conditions as opposed to slum relocation.

2.2. Empirical setting

The empirical context of the study is Old Fadama, one of the oldest informal settlements in Accra, the capital city of Ghana and the most extensive and significant economic city in the country (Grant & Yankson 2003). Ghana has 16 regions in all, and the Greater Accra region, where Accra is located, is one of the regions. Like many cities in Sub-Saharan Africa, Accra is undergoing a rapid growth rate, and the rate of urbanization makes Accra one of the fastest-

growing cities (Grant 2009; Codjoe et al. 2014) in West Africa. It is estimated that the population living in informal settlements within Accra comprises 38.4% of the population, and the informal settlement dwellers occupy about 15.7% of the land area and are densely populated with a population density of 608 people per hectare (UN-Habitat n.d.). Our study area, Old Fadama, is located in Accra, along the Odaw River and the Korle Lagoon. Most of the land in Old Fadama has been reclaimed from the river and lagoon by filling up the wet area with sawdust (Afenah 2010). Dating back to the early 1990s, Old Fadama witnessed an increase in population caused by an ethnic conflict in the northern part of Ghana.

According to a report by Amnesty International, the population of Old Fadama was between 55,000 and 79,000 in 2011 (Amnesty International 2011). The settlement is home to one of Accra's biggest markets and is a center for bulk breaking activities that attract many people who earn their living in the informal sector. The community is nicknamed 'Sodom and Gomorrah' due to rampant crime and harsh living conditions.

The studies related to informal settlement upgrading and the associated challenges within the context of Bishoftu City's Cheleleka Sub-city highlight some key findings and implications for sustainable urban development. In many African countries, such as Ethiopia, informal settlements persist to grow and contribute to the residential housing supply for the growing population, UN-Habitat, World Urbanization Prospects, in 2014. In recent decades, the figure of informal settlements in the peripheral areas has been numerous across Ethiopia's urban areas and has increased occasionally Adam, A. and *Environ Urban*. 2020; 32:55-68. To tackle informal settlement proliferation, the government has taken a demolition strategy in various parts of the country. For example, in Adama in 2018, 3,751 were demolished. Moreover, in Southern, Nations, Nationalities and Peoples' Region towns and cities between 2018-2022, 5,823 were demolished. The demolition caused considerable agitation and disappointment, particularly in Addis Ababa and its surroundings, like Bishoftu and Cheleleka City. Several studies in informal settlement have documented the characteristics and dynamics of informal settlements in Bishoftu are often marked by High Population Density, Rapid urbanization has resulted in overcrowded living conditions, Limited Access to Basic Services, Residents frequently lack access to clean water, sanitation, and electricity, leading to health and safety issues, insecure Land Tenure.

Many residents live without formal land rights, making them vulnerable to eviction and limiting their ability to improve their housing conditions.

The successful upgrading models conducted by Hassan & Zewdie (2020) examine various upgrading models implemented in Ethiopian cities, and highlight successful community-driven initiatives that have improved housing conditions and infrastructure through participatory approaches. Impact of Upgrading on Living Conditions Tadesse (2019) assesses the impact of upgrading projects, showing improvements in sanitation and access to services. The research indicates that upgraded areas report better health outcomes and increased community cohesion.

Land Tenure Issues Meles (2021) explores the challenges posed by insecure land tenure in emphasizes that without formal recognition of land rights, upgrading efforts are often met with community resistance and a lack of investment from residents. Financial Constraints by Getachew (2022) identifies financial limitations as a critical barrier to successful upgrading. The study highlights the need for innovative financing mechanisms, such as microfinance and public-private partnerships, to support infrastructure development.

Governance and Institutional Challenges: Kebede (2020) investigates the role of local governance in upgrading initiatives. The findings show that fragmented governance and a lack of coordination among stakeholders hinder the effective implementation of upgrading projects.

2.3. Elements That Characterize Informal Settlement Upgrading

2.3.1 Land Tenure Relations

Makasa (2010) defines land tenure as the right of a tenant to hold on to land and enjoy all privileges that come with it. It relates to the terms and conditions on which land is held, used and transacted. Secure tenure thus is at the root of informal settlement upgrading. In most Third World countries, the single major obstacle to the development of housing for the urban poor is land ownership.

The UN-Habitat (2012) explains that the strategic value of the state authorities providing occupancy rights to slum residents lies in the fact that it offers them more awareness on their “rights to the city” and effective protection against forced evictions. Occupancy rights are a tool

for social mobility, enabling residents to establish organizations that transcend ethnic, religious, gender, and geographical boundaries. Secure tenure can stimulate investment of own resources to improve shelter and services and can be used as a tool for making claims or negotiating for community resources and basic services from state authorities. Furthermore, it serves as an avenue for legitimizing land or structures on that land as a form of guarantee for credit and investment (Krajisnik, 2011). Legalization of informal settlements has, however, been widely implemented in the global south. There have been varied responses to legalization based on the local context, the types of informal settlement, prevailing government policy, and civil society advocacy on behalf of the slum communities. Tenure legalization encourages the integration of informal land and housing markets within the formal economy. A recent feature of upgrading in Zambia is that tenure security of informal settlement dwellers is given recognition. Informal settlements have to be legalized and officially declared an improvement area to be considered for state upgrading, and dwellers can secure a 30-year occupancy right

2.3.2. Partnership and Social Inclusion

Partnerships established for the betterment or improvement of slums tend to be more organic. Partnerships involve interdependent, adaptable relationships between various actors based on trust and generally include entities other than the State. This third entity, such as a Non-Governmental Organization (NGO), is tasked with more socially oriented goals, such as creating procedures to integrate the slum settlement into its larger community (Chang, 2009). It is highly recommended to create partnerships involving the State, Non-Governmental Organizations, private organizations, community agencies, and slum dwellers in slum upgrading. Partnerships are essential in the successful and sustainable implementation of slum upgrading (Gulyani & DeBomy, 2002). Early slum upgrading projects mainly involved infrastructure provision without involvement, coordination or interaction with the target community.

2.3.3 Reliability of Strategies

Cohen (1983) was one of the first to advocate the need to create a framework that enables the multiplication of housing delivery systems and assists in the mobilization of resources for housing the urban poor without dominating or controlling the process. Generally, informal settlements are not homogeneous, as they vary even when located in close proximity. Slum

upgrading strategies should therefore be uniquely suited to respond to the local specificities. Locally focused slum upgrading strategies have taken root and gained popularity in recent years. Non-Governmental Organizations (NGOs) are one of the main stakeholders championing upgrading initiatives in the global south. They have been involved in developing place-specific slum upgrading interventions, which have triggered major urban transformation since each slum locality has its challenges. Development of specific interventions for a problem within each community appears to be the answer to the slum menace as opposed to generic solutions (Danso-Wiredu & Midheme, 2017). Recent upgrading projects have developed specific principles, approaches, and upgrading typologies.

2.3.4. State and the Non-Governmental Organization

Involvements, Governments have been key agents in settlement regularization. This is despite years of previously adopting a laissez-faire attitude to the growth of informal settlements. Gulyani & Connors (2002) note that African governments have, in the last 6 decades, made important contributions to slum upgrading. A diverse team of stakeholders is often involved in the intricate exercise of comprehensive slum upgrading. The stakeholders in slum upgrading include state actors, tenants, landlords, and supporting agencies such as Non-Governmental Organizations(NGOs), Civil Society Organizations (CSOs), the private sector, and multi/bilateral development partners in varying combinations (Syagga, 2011)

2.3.5. The sustainable livelihoods framework and informal settlement upgrading initiatives

The notion of 'livelihood' can be understood as having capabilities, assets, along with material and social resources; it involves the ability to undertake the activities that are required to possess a livelihood. A livelihood is considered to be sustainable when it is able to practice resiliency, in the face of shocks and stresses, which allows it to maintain or enhance both its capabilities and assets for the future as well as for the present. All this without degrading or harming the environment. Sustainable livelihoods for families can be established through the utilization of the assets that are accessible to them or are within their reach in their physical and socioeconomic environments (Lloyd-Jones and Rakodi 2014: 6). To examine the key factors influencing livelihoods, reference is made to the livelihood framework which also illustrates relationships

among the key factors influencing livelihoods. The framework offers a better conceptualization of issues that are being faced by poor people, and also determines the most suitable approaches that can be used as interventions in an attempt to maintain livelihoods. There are assets that can be used by individuals and households in a quest to create sustainable livelihoods, and these include human, social, financial, natural and physical capital (Lloyd-Jones and Rakodi 2014: 11).

The sustainable livelihoods framework has largely been used in informing poverty reduction interventions in rural areas (Cherunya et al., 2020). Cherunya et al (2020) argue that concerns have therefore been raised about the applicability of the approach in urban areas where the household profile might be very different concerning their asset profile, ownership, and activities that they engage in for livelihood. In order to overcome this shortcoming of applying and utilizing the sustainable livelihoods approach to the urban situation, the theory based on practice has been utilized as a conceptualizing and framing structure of sustainable livelihoods in an urban setting. Practice theory, according to McElhinney and Muehlmann (2006), looks at how human action is constrained by structure and also how human agency directs itself towards the structure so that it can reproduce or transform the status quo. So, at the core of practice theory is the idea of duality or co-constitution of entities at a single level of social action (Breiger, 2000: 92). One sees that, as it is applied in understanding the role played by informal settlement upgrading programs in poverty alleviation in overall urban planning, practice theory calls attention to the role played by both social structures and human ingenuity in the formation of sustainable livelihoods. In order to enable the daily application of the Sustainable Livelihoods Framework to the urban setting, Cherunya et al (2021) employed the Oscillating Domestic Spaces (ODS) approach. According to this plan, home space includes the physical and social space of the house, and oscillations mean external environment and individual circumstances changes that enable or hinder individuals in terms of engaging in certain practices and activities.

2.3.6. Research and Knowledge Gaps in Related Literature

While the above research presented key information to study Challenges and Opportunities in Upgrading Informal Settlements for Sustainable Urban Development, more and more literature on urban upgrading and informal settlements exists for Ethiopia, yet main gaps remain, particularly regarding the specific dynamics and conditions of upgrading a city like Bishoftu.

Such comparative work then mostly concentrates on general metropolitan-wide patterns in cities or occasional case study relevance in other nations, indifferent to unique socio-economic and environmental issues and prospects confronting these groups.

Other than that, fewer studies cover the opportunities of community-based solutions using local knowledge and skills in upgrading. Issues of Informal Settlements in Urban Ethiopia. Meles (2021) explains the specific issue of concern to informal settlements in Ethiopia, for example, housing and infrastructural shortages. The study gives greater priority to human-centered policies targeting the unique needs of these communities and the necessity of undertaking a comprehensive urban upgrading strategy.

Governance and Informal Settlements Getachew (2022) addresses governance of informal settlements, including policy efficacy and stakeholder coordination. The study demands efficacious institutional structures to promote sustainable urban development in informal settlements

Informal Settlements in Urban Ethiopia: Challenges and Opportunities for Upgrading Kebede (2020) assesses the socio-economic dynamics of informal settlements, suggesting participatory solutions involving the residents in the upgrading process. The study identifies key opportunities for enhancing living conditions through community-driven initiatives. Literature emphasizes the importance of community involvement, effective governance, and well-coordinated policy frameworks in addressing issues of informal settlements. It states that upgrading programs must be able to consider the socio-economic statuses of inhabitants and build sustainable urban development through collective efforts. Therefore, analysis of Challenges and Opportunities in Upgrading Informal Settlements for Sustainable Urban Development needs to consider several interrelationships and viewpoints and not just link variables or use only a specific type of methodology (i.e., qualitative or quantitative). Yet the investigation of upgrading through multi-dimensional data has not been fully explored. Therefore, this research aims to respond to this priority knowledge gap through careful assessment of the Challenges and Opportunities in upgrading conditions and for sustainable urban development for the selected District in Cheleleka Sub-city using strategies for attaining long-term, inclusive urban development in the research area.

CHAPTER THREE

3. RESEARCH METHODOLOGY

3.1. Description of study area

Bishoftu town is located between 8° 45' and 8° 47' north latitude and 38° 56' and 39° 00' east longitude, covering approximately 194,010,000 m² in the Oromia Region, specifically in the East Shewa Zone and Adea Woreda. It is located 25 kilometers southeast of the capital city, Addis Ababa, and 52 kilometers from Adama. In 2024, Bishoftu became one of the newly established Regiopolises through the consolidation of Dukam, Hidi, Ude-Denkaka, Dire, and Abusera towns, along with 5 rural kebeles from Adea district and 10 rural kebeles from Akaki district. The Regiopolis is organized into 3 sub-cities and 11 districts.

Cheleleka sub-city is one of the recently developed sub-cities of Bishoftu town. It is located to the northeast, bordering the Adea kebele peasant association; to the west, bordering Dukem sub-city; and to the southwest, bordering Dhibayu sub-city. Cheleleka sub-city has a total population of 135,239, comprising 70,091 males and 65,148 females. The city's topography includes both natural and man-made features, such as Mount Erer and eight lakes: Lake Kuriftu, Babogaya, Bishoftu, Hora Arsedi, Green, Kilole, Cheleleka, and Balab.

The south is marked by undulating terrain interspersed with hills. In general, the topography of the city is undulating, being interspersed with hills and a part of the Rift Valley range of height that lies between 1799 and 2481m. The ground is typically higher in the northwestern part, gently sloping to the east for a brief moment, before climbing once more in the same direction. The highest percentage of the elevation falls within the range of 1799-2481 meters, which encompasses the western, northern, and southwestern regions of the town. The middle section, where the lakes are located, is enclosed by higher altitudes in the range of 1893 to 1930 meters, with some lower elevations to provide access to the lakes.

The climate of the city falls under the woina dega (Agro-climatic zone). The maximum annual temperature reaches 29.8°C, while the minimum is 4.9°C. The mean annual rainfall totals 797.2 mm. April is the hottest month of the year at 29.3°C, December is the coldest month at 4.9°C,

and July is the wettest month with 225.3 mm of rainfall. May experiences the highest wind speed at 2.91 m/s, and the prevailing winds are easterlies.

3.2. Case Study Area Selection Criteria

Cheleleka Sub City was specifically selected for this study from the three sub-cities established in Bishoftu Town for several compelling reasons. First, Cheleleka Sub City is a major hub for marketable conditioning and is situated in the center of the megacity. Second, it is an area of significant interest as it serves as a thorough example of the maturity of marketable conditioning. The concentration of this profitable conditioning makes the sub-city a focal point for observing the impact of civic informal agreement difficulties. In Cheleleka Sub City, Bishoftu City, the primary concerns regarding the opportunities and challenges of upgrading informal settlements for sustainable urban development include environmental hazards, social and economic disparities, land tenure insecurity, and poor infrastructure. There are socioeconomic factors known to contribute to urban informal settlements, further justifying the selection of Cheleleka Sub City.

These problems, like poverty, unemployment, and lack of access to fundamental services, characterize this sub-city. Socio-economic conditions are extremely relevant concerns to remember while enjoying the excitement of urban sustainable development and its broader ramifications to the health of inhabitants. Focusing on Cheleleka Sub City, the research would attempt to determine the Challenges and Opportunities in Upgrading Informal Settlements for Sustainable Urban Development in a strategic and economically significant section of Cheleleka Sub City. Findings of this sub-city are likely to reflect city-wide trends and offer valuable information for responding to Challenges and Opportunities in Upgrading Informal Settlements for Sustainable Urban Development: The Case of Cheleleka Sub-City, Bishoftu, Ethiopia, and formulating effective strategies for sustainable urban development.

Access to the suspected road network hub, i.e., a 250-meter expressway and road corridor connection with the capital city, is a limited opportunity for the study area. Better connectivity would also ensure better access to basic services and opportunities, increasing social inclusion and community well-being. Second, the expressway would have the capacity to integrate the informal settlements into the overall urban design, which supports sustainable development and

allows for interventions that are tailored to the communities' specific needs. The road network is thus one of the necessary choice criteria for the study area since it aligns with the desire to enhance livelihood and sustainable urbanization.

Lastly, the choice of informal settlement upgrading in the study area is crucial in improving the living standard, social integration, and economic development of the area while adopting environmental sustainability. The study area has a catchment area with an abundance of natural (e.g., indigenous forest around lakeside, mountain), cultural (Irrecha Ceremony), and historical tourist attractions. Nonetheless, by far, these attractions are underdeveloped. Hence, the general public flocks to this area for weekend trips to the lake shores during weekends. The hot springs are a renowned tourist attraction asset of the region

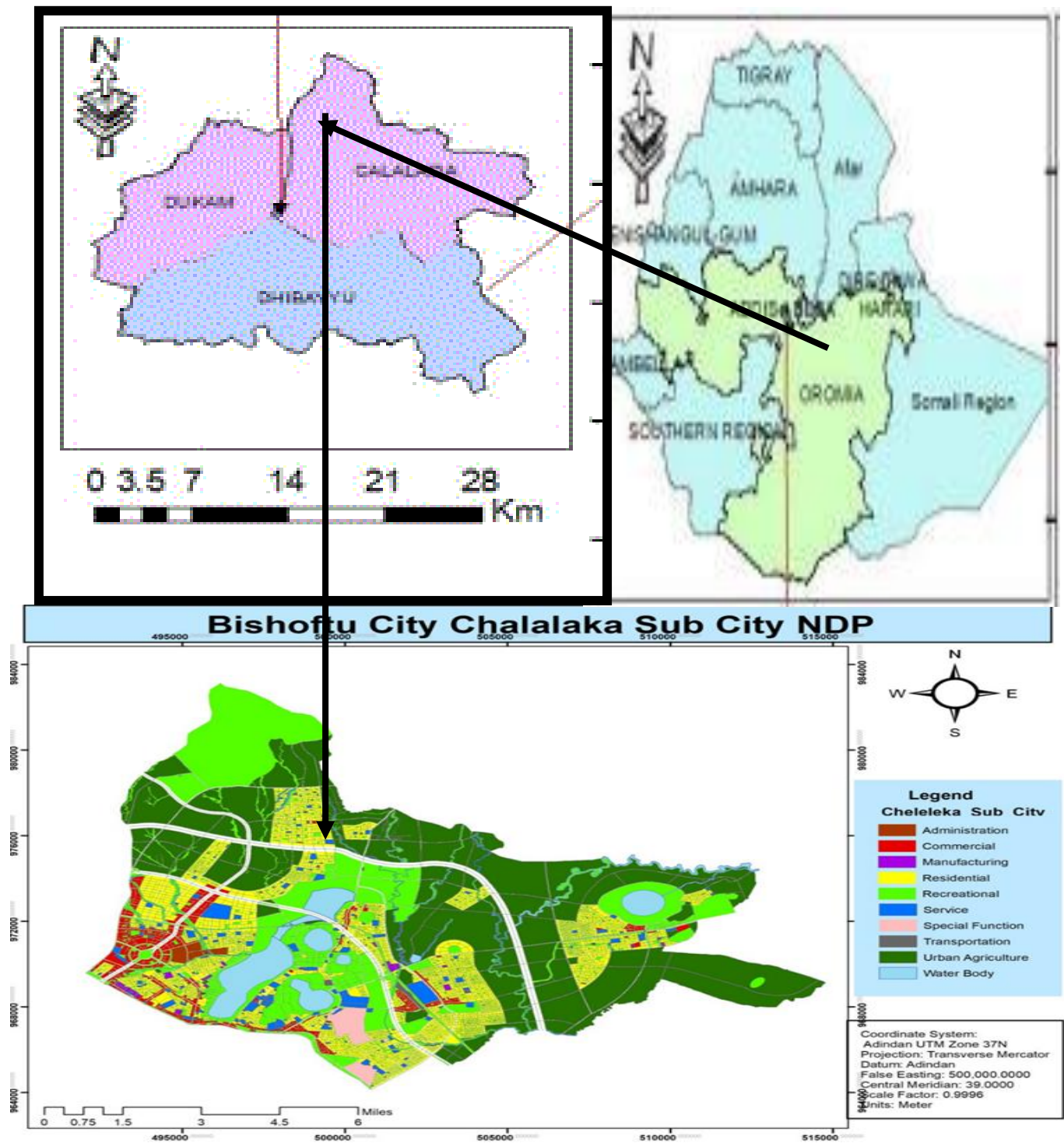


Figure 3.1. Study area

source : (Bishoftu Urban Land Office)

3.3. Research Design

The research would utilize a mixed-method study design to critically assess the issues of informal settlements and their interconnections with the three pillars of sustainable urban development, economic, social, and environmental. A scientific assessment would be conducted on the opportunities and challenges of upgrading informal settlements for sustainable development in Cheleleka Sub-City, Bishoftu, Ethiopia. The study would involve a well-defined exploration plan and employ both quantitative and qualitative methods to evaluate the nature of informal agreements and their impact on the social, economic, and environmental well-being of residents. The overall aim of the exploration plan is to achieve methodological efficiency in gathering and analyzing information related to the research subjects.

The research would utilize both qualitative and quantitative methods to reveal the complexity of informal settlements and their impact on people's social, economic, and environmental lives; a robust methodology is in place. The overall goal of this design is to collect and analyze relevant data in a way that effectively addresses the research questions while maintaining methodological rigor.

3.4. Study approach

This research employed a mixed-methods approach to explore the issues in upgrading informal settlements. To capture the prevailing conditions, the research applied surveys and structured interviews with residents, collecting quantitative information on residential conditions, infrastructure quality, and access to service provision. Focus group discussions provided qualitative information, enriching the depth of knowledge about these conditions and community perceptions.

To identify major challenges in upgrading informal settlements, the research engaged local stakeholders like government officials and community leaders using interviews and participatory discussions. The technique revealed challenges like socio-economic constraints and policy constraints. Opportunities for upgrading were outlined using community discussion focusing on leveraging local resources. Along with this, a system to evaluate sustainable urban development.

3.5. Data Type and Sources

Both primary and secondary data were used in this research to respond properly to the research questions on upgrading Cheleleka Sub-City informal settlements, Bishoftu, Ethiopia.

Primary data were collected through surveys and official interviews with the residents, providing quantitative information regarding living conditions, infrastructure quality, and access to basic services. Focus group interviews offer qualitative information regarding community experience and perception. Local stakeholders were also engaged through participatory discussion and included in their opinions regarding challenges and opportunities for enhancing settlement conditions.

Secondary data were accessed from literature, government reports, books, journals, websites, legal reports, aerial photographs, and structural plans of the sub-city. This information was relevant to urban development and informal settlements. It contextualizes the study by presenting background information regarding urban policies, historical trends, and prior research findings. These types of data jointly form an integrated model for investigating the challenges and opportunities of upgrading informal settlements.

3.6. Software and Materials Used

- ✚ The following materials and software are used for the accomplishment of this study:

Materials used:

- ✚ **SPSS: SPSS (Statistical Package for the Social Sciences) is a powerful statistical software used for data analysis, management, and documentation.**

- ✚ Photo camera: A photo camera is used to take pictures during the field observation.

The software used for this study included:

- ✚ MS Excel: These are used to create tables, graphics the attribute databases
- ✚ GIS: For existing land use analysis
- ✚ MS Word: Microsoft Word is an essential tool for anyone who needs to create, edit, and format text-based documents. Its versatility and range of features make it suitable for personal, academic, and professional use.

3.7. Sampling Techniques and Sample Size Determination

Purposive sampling is employed to achieve the intended research goal. The purposeful sampling technique, sometimes referred to as judgmental or non-probability sampling, involves selecting participants based on predetermined traits or criteria relevant to the study or established for gathering data from specialists. Purposive sampling relies on the researcher's judgment to identify which individuals can provide the necessary data for the study (Rahi, 2017). This technique is also utilized in this study to select the sub-city with the highest population and the greatest number of informal settlements; as a result, Cheleleka Sub-city is chosen from the three sub-cities in Bishoftu town. Located in the heart of Bishoftu, a business hub and home to five lakes Arsade, Kuriftu, Bishoftu Gudo, Cheleleka, and Kilole lakes—Cheleleka Sub-city was selected. With a focus on economic activity, this sub-city provides a typical case study for examining land tenure security, infrastructure development, as demonstrated by the dilapidated condition of buildings and homes, urban informal settlement, access to basic services, economic opportunity, and environmental sustainability. For instance, Arsade, Kilole, and Erer Districts were chosen for sampling. This choice is further supported by the socioeconomic issues currently prevalent, such as poverty and unemployment, making it a significant area of study. The sampling frame used to select respondents was the list of informal settlement households in Cheleleka Sub-city, totaling 3850 households. Thus, 3850 would be used as the population to calculate the sample size for the research. Accordingly, the sample size of the respondents is calculated by applying a formula (Eq.1) designed by Yamane, T. (1967).

$$n = \frac{N}{1 + N(\alpha^2)} \quad \text{N is the population size} \quad \text{-----(Eq.1)}$$

Where: n sample size of the study population

N=Number of households=3850

α =the margin of error, and=5%

1=constant

Thus, the actual sample size is calculated as follows:

Substitute these values into Yamane's formula to determine the sample size required:

$$n = (3850) / (1 + 3850 (0.05)^2)$$

$$n = (3850) / (1 + 3850 (0.0025))$$

$$n = (3850) / (1 + 9.625)$$

$$n = (3850) / (10.625)$$

$$n \approx 362$$

Therefore, for a 3,850 household sample in Yamane's formula, the sample size to estimate with 5-margin is a total of 362. Therefore, 362 sample informants are chosen from 3850 households for household-level surveys. To increase the precision of the research results, the research is conducted at a 95% confidence level and with a 5% margin of error. This also involves interviews of a sample of 105, including 83 actual key informants employed in Urban Development offices in the cities and sub-cities. Focus group discussions with 5 members are conducted. Key informants are interviewed to obtain their perspectives on opportunities and challenges for upgrading informal settlements towards sustainable urban development, considering the socio-economic and environmental drivers and impacts of urbanization. Similarly, the focus group discussions would involve the local communities to explore the problem of informal settlement upgrading and determine common themes and issues.

.3.8. Methods of Data Collection

3.8.1. Questionnaires

These comprised a questionnaire list of ordered questions, some being closed and the rest open-ended and other questions to gather information from the respondents of the household and Cheleleka sub-city government office. The questionnaires are responded to in Afan Oromo and Amharic languages and eventually get written down by the respondents before they were translated into English. The survey sought to establish the understanding of how residents perceived and defined urban informal settlement upgrading, and Challenges for Sustainable Urban Development.

3.8.2. Main Informant Interview

An interview is a conversation where there is a face-to-face oral interaction between two or more people, in which the interviewer attempts to elicit information or statements of opinions and beliefs from the interviewee(s). This is a significant method of obtaining additional information with more elasticity potential. The researcher, therefore, conducts face-to-face structured personal interviews with 83 purposively sampled officials.

3.8.3. Field Observation

This consisted of the systematic observation, selection, and recording of the features mirrored in the field. The checklist serves as a guide to assist observation, complementing other features by enabling easy exploration of significant aspects, such as the social, physical, land, and economic structures, as well as the institutional structure, of the study area.

3.8.4. Focus Group Discussion

Focus group discussion is a group interview in which the researcher conducts the discussion to produce rich data. Focus group discussion was commonly conducted by a single researcher and a single group of 5 respondents. Focus groups are one of the best ways of gathering participants' views, attitudes, values, and expectations regarding a specific issue. They included community leaders, leaders of social institutions, government administrators at various levels, owners with the mandate to operate the land, and experts with practical field experience in the study area

3.9. Data Analysis Methods

This research utilizes a wide range of data analysis methods to deal appropriately with the upgrading challenges and opportunities in informal settlements.

For quantitative data obtained from surveys, descriptive statistics are utilized to report key indicators of living conditions, quality of infrastructure, and access to basic services. This statistical method makes it possible to identify trends and disparities in the informal settlements.

Geographical analysis is a key component of evaluating the geographical context of the study site. GIS is used when analyzing and mapping spatial data, like the existing infrastructure and land use patterns. Specifically, the analysis employs the Structure Plan of Bishoftu (2024) and 2012 orthophotos, which provide a historical and current view of the city's development. This

geographical study allows one to identify the most essential areas that need to be upgraded and also measure the effectiveness of current policies.

Qualitative data from focus group discussions and interviews are then subjected to thematic analysis in order to construct insights for community perception and experience concerning challenges and opportunities for upgrading. The emergent themes that are developed through analysis capture the complexity of realities among residents and provide additional insight into the socio-economic and cultural drivers for urban development.

With the use of these statistical, spatial, and qualitative analysis tools, the research provides a systemic understanding of the situation in the informal settlements, the problems involved, and the prospects of sustainable urban growth in Cheleleka Sub-City. This is a multidisciplinary approach that ensures conclusions are grounded with empirical information as well as everyday experience, encouraging an understanding of the urban environment that is holistic in nature.

3.9.1. Mapping, Photography, and Sketching

Maps are used in defining the study area of informal settlement upgrading. Photographs and sketches of the place are taken to assist in analyzing the physical structure of the houses and other physical aspects in the study area.

3.9.2. Validity and Reliability

Here, validity and reliability principles come into play to ensure that the outcomes are actually what the truths of the communities are and result in sustainable urban development.

Validity is the extent to which the instruments of study are measuring what they are intended to measure. This study employs a mixed-method design and gathers surveys, interviews, and focus group discussions. Such triangulation increases construct validity by allowing conclusions from dissimilar sources to cross-check and augment one another, providing statistical summaries and more contextual information about the experience of the community. Systematic pre-testing of the survey instruments also ensures clarity, relevance, and cultural sensitivity, fitting well with specific research questions to maximize the validity of the research results.

Reliability refers to the stability and consistency of measurement procedures. Standard methods are followed to minimize variability so that uniformity can be achieved in surveys and

interviews. Statistical tests assess internal consistency and demonstrate that survey items measure reliably the same underlying constructs. This implies that attention to reliability guarantees stable and replicable results from research.

Together, validity and reliability give a solid foundation on which to draw major conclusions about the conditions, challenges, and opportunities of Cheleleka Sub-City. This research strength gives the study validity and useful insights, resulting in improved conditions of living conditions for informal settlements.

Lastly, generating reflective knowledge in sustainable urbanization depends heavily on the validity and reliability of evidence on upgrading informal settlements in Cheleleka Sub City. The research aims to construct knowledge that can shape policy and practice at local and broader levels by critically exploring some issues with upgrading informal settlements through an integrated approach. The study intends to enhance the lives of people with disabilities in informal settlements, as well as illuminate an understanding of urban upgrading processes

3.10. Ethical Approval

Obtaining ethical approval is a key process in researching Challenges and Opportunities in Upgrading Informal Settlements for Sustainable Urban Development. Ethical considerations are put first, ensuring participants' welfare and the integrity of the research process are guaranteed, leading to more efficient and responsible urban development planning. Ethical approval caters to the professional ethics laws, rules, norms, and obligations. All the requirements that the institution requested were adhered to. ASTU approval letter, urban informal settlement upgrading, and challenges to sustainable development would be obtained by the researchers and presented to the Cheleleka sub-city government before fieldwork. For the purposes of protecting the privacy and anonymity of all the participants, the study's purpose and intent are verbally clarified to the respondents before the questionnaire survey and interview. The researchers promise respondents that their information would be used only for the research. Confidentiality is also ensured in the sharing of information and informed consent is given from each participant in the research.

3.11. Methodological Framework conceptual diagram

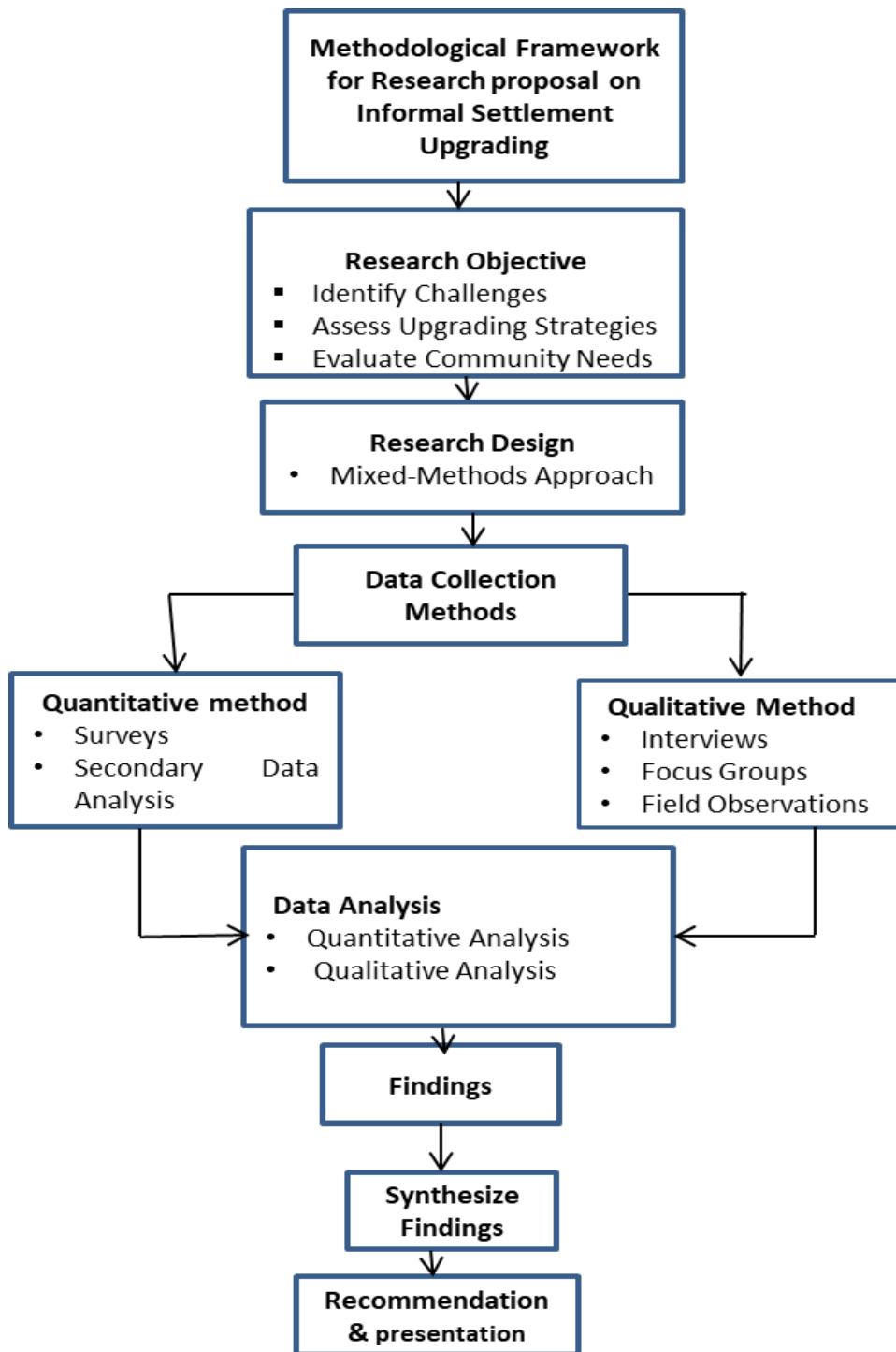


Figure 3.1. Conceptual Framework diagram (source Researcher)

CHAPTER FOUR

4. RESULTS AND DISCUSSION

4.1. Background of the Respondent

Demographic characteristics include the age, gender, marital status, educational level, income, and family size of the respondent. Descriptive statistics using frequency analysis were employed to examine the respondents' demographic characteristics for this study. Of a population of 362 respondents, only 271 valid questionnaires were returned for analysis, corresponding to 74.9% of the population. Various sources of literature provide different acceptable response rates for face-to-face surveys. For instance, Babbie (1990) is content with a 50% response rate, whereas Bailey (1987) and Singleton and Straits (2005) demand response rates of 75% and 70%, respectively. Schutt (1999) cautions that a reply rate below 60% is undesirable, as a refusal rate of over one-third makes it difficult to defend the representativeness of the sample. At these cutoffs, a 74.9% response rate is considered acceptable for further analysis.

4.1.1. Age and Gender of the Respondent

The age range of the respondents to the upgrading informal settlements study in Cheleleka Sub-City is that the 35-54 years' age group is the highest at 56.09%, 18-34 years at 29.52%, and 55-65 years and above is 6.27%. This age composition is such that middle-aged adults are most engaged in discussion on upgrading, most likely because they have something at stake with regard to family and community stability. The underrepresentation of elderly populations could be an indication of a potential discrepancy in seeking their perspectives, which play a significant role in assessing historical context and communal values.

To ascertain whether a substantial relationship exists between age groups and attitudes towards upgrading challenges and opportunities, a chi-square test of independence could be performed. This survey would help determine if age influences how respondents answer questions about the upgrading process, so that informed interventions targeting the specific needs of each age group can be developed. Generally, implications are towards having inclusive strategy approaches engaging not just middle-aged individuals but also involving younger and older members of society in the upgrading discourse.

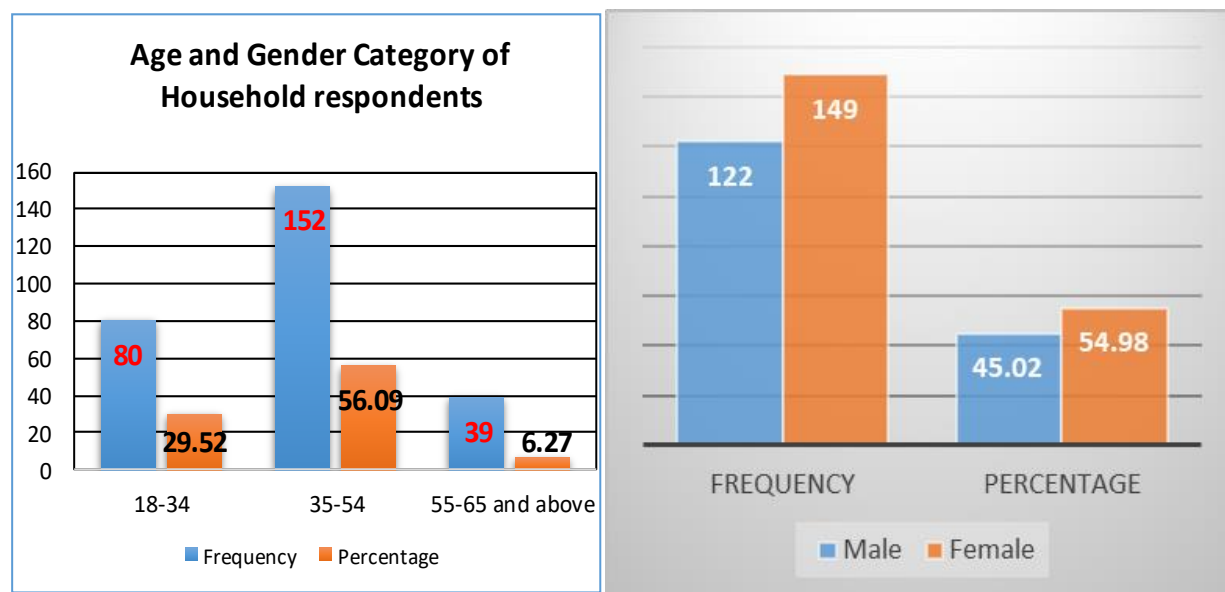


Figure 4.1 Demographic variables of the Household respondent.

As illustrated in Figure 4.1, the gender distribution of the respondents in improving informal settlements in Cheleleka Sub-City shows 54.98% are women and 45.02% are men, and it's a slight majority of women. The ratio shows that males and females are both equally engaged in debate about informal settlements, though women's opinions tend to be under a shade more visible.

The gender composition of such implications highlights the importance of bringing in a varied stakeholder group in urban development policy. The female respondents have the potential to provide unique information regarding household needs, community life, and societal challenges that impact upgrading interventions.

To assess whether there is a significant relationship between gender and upgrading challenges and opportunities perceptions, a chi-square test of independence can be used. The test would provide whether or not gender influences the respondents' perceptions of the upgrading process to guide more adequate and focused interventions.

Overall, the gender analysis requires more participatory engagement strategies that draw on the intelligence of both male and female respondents, which ensures that efforts to upgrade benefit from serving the diverse needs of the community.

4.1.2. Education Background of Respondents

From Table 4.1. These figures show that the highest proportion of the sample has attained only primary education (35.4%), and a smaller proportion has attained higher levels of education. The cumulative total of secondary and vocational education (48.7%) also indicates a significant portion of the population with some form of secondary education.

The education distribution shows that communicating and operationalizing upgrading initiatives may be challenging due to the large percentage of respondents who may be low on higher education. This may influence their understanding of urban development principles that are complex, as well as their involvement in decision-making. The lower proportion of the respondents who are highly educated (15.9%) may also be limiting the supply of skilled labor for utilization in upgrading activities.

In order to establish whether there exists a significant relationship between education levels and attitudes towards upgrading challenges and opportunities, a chi-square test of independence can be run. It would ascertain whether education influences respondents' views of the upgrading process, with the results helping tailor education interventions and community engagement campaigns.

In summary, the analysis of educational levels reveals the need for targeted outreach and educational initiatives that are responsive to various levels of understanding, in order to enable all stakeholders in a community to make an effective contribution to informal settlement upgrading talks and decisions.

Table 4.1. Education Background of the sample Household respondents

Variable	Category	Frequency	Percentage
Respondents' levels of education	Primary School	96	35.4
	Secondary School	71	26.2
	12+&Technical/	61	22.5
	Vocational school	43	15.9
	First Degree and above		
	Total	271	100

Source: (Own survey and computation, 2025)

4.1.3. Family Size of the Respondents

From Table 4.2. This data reveals that the majority of households fall into the three to five family size category (35.8%), and a significant number are smaller families (below three at 26.6%). Large families (six and above) account for a small number, and there is an indication that there is a trend towards smaller family sizes in the area.

The family size distribution has important implications for urban policy. Small family households may have differing needs for accommodation, facilities, and infrastructure as compared to large families. Three- and five-person families, for instance, may require access to basic amenities and communal assets. Large families, although uncommon, serve to highlight the need for adequate space and facilities to accommodate them. To establish whether family size is significantly related to the perceptions of upgrading challenges and opportunities, one can use a chi-square test of independence. This would examine whether family size influences responses towards upgrading informal settlements, informing more specific intervention strategies.

Briefly, family size analysis indicates the presence of predominantly small-sized family groups, which would need special planning consideration in urban planning. The chi-square test can

provide information regarding how family size influences considerations regarding the issues and challenges of upgrading informal settlements so that initiatives are suitably adjusted to meet the population of the community.

Table 4.2 Family size of the Respondents

Variable	Category	Frequency	Percentage
Family Size	Less than three	72	26.6
	Three - Five	97	35.8
	Six - Eight	54	19.9
	Nine - Eleven	32	11.8
	Twelve and above	16	5.9
	Total	271	100.0

Source: (Own survey and computation, 2025)

4.1.4. Occupation of the household Respondents

Table 4.3. This distribution indicates that the largest percentage of respondents is working daily (25.5%), followed closely by privately employed respondents (23.6%). Government working and unemployment cover significant portions of the population, with self-employment being considerably lower.

The results imply dependence on low-wage and informal employment, especially in the form of daily labor, which can affect household stability and economic mobility. The 18.1% unemployment rate also implies difficulties in job availability and can contribute to worsening the problems encountered in the upgrading of informal settlements. It is important to know the landscape of employment to devise proper interventions that cater to both economic and infrastructural requirements.

In order to quantify whether there is a statistically significant correlation between employment status and the perception of upgrading opportunities and challenges, a chi-square test of independence can be used. This would determine whether employment status influences respondents' opinions concerning upgrading exercises to inform area-specific economic development strategies.

Lastly, the categorization of employment status highlights the prevalence of informal labor, which could have implications for the perceptions of the community towards upgrading informal settlements. The chi-square test could further elucidate the relationship between employment and perceptions of development difficulties to help ensure that interventions are well-designed based on the economic status of the respondents..

Table 4.3. Employment occupations of the household respondents

Variable	Category	Frequency	Percentage
Employments status	Government Employed	57	21
	Private Employed	64	23.6
	Daily Labor	69	25.5
	Self-Employment	32	11.8
	unemployed	49	18.1
Total		271	100.

Source: (Own survey and computation, 2025)

4.1.5. Monthly income of household status respondents

From table 4.4. The breakdown reveals that the highest number of respondents has an income level of 5001-8000 ETB (30.3%), followed by 2001-5000 ETB (26.9%). Fewer have an income of less than 2000 ETB, with 15.9% in the 8001-10000 ETB level. This spread proves to be a dependence on middle-level incomes, with most households likely to be without the necessary financial support for housing upgrades.

The income distribution shows that more households would probably face challenges in investing in upgrading initiatives, especially those earning less than 2000 ETB. Understanding such income levels would be critical in developing interventions that are sustainable and accessible. The chi-square test of independence can also establish if income influences perceptions about upgrading challenges, and that would be a contribution to targeted support plans.

Overall, the existence of more middle-income respondents can affect their involvement in upgrading informal settlements, and, therefore, consideration should be given to targeted interventions appropriate to the economic realities of the community

Table 4.4. Monthly income status of the household respondents

Variable	Category	Frequency	Percentage
Monthly income status in ETB)	less than 2000	33	12.2
	2001-5000	73	26.9
	5001-8000	82	30.3
	8001-10000	43	15.9
	10001 and above	40	14.8
	Total	271	100

Source: (Own survey and computation, 2025)

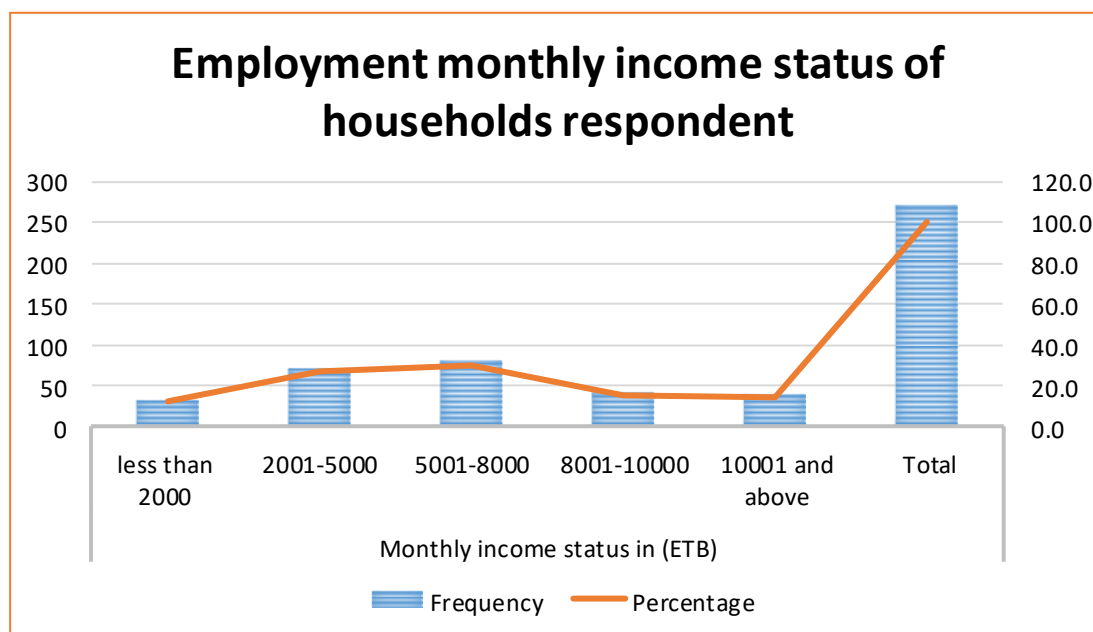


Figure 4.2. Occopancy of Monthly income status of the household respondent

4.1.6. Availability of Infrastructural Facilities in the Study Area

Table 4.5 The facilities analysis for the housing respondents in Cheleleka Sub-City shows a critical lack of required services. Only 15.4% of the respondents have access to a water supply, 11.5% have access to sanitation facilities, and 14.1% have access to road infrastructure. Housing quality availability is at 10.3%, while educational facilities are critically lacking at 3.8%. Community service facilities control 16.7%, but only 9.0% of the respondents have access to

health facilities. Transport facilities and communication infrastructure are also in short supply, at 5.1% and 6.4%, respectively. Access to electricity is also low, at 7.7%.

These findings indicate extreme degrees of difficulty in upgrading the informal settlements, as the majority of households lack the basic infrastructure needed for improved living standards. The low degrees of availability of educational and health facilities pose real challenges in the areas of community development and well-being. An attempt to explore such a correlation between the availability of infrastructure and the perception of upgrading difficulty could involve the use of a chi-square test of independence. This examination would determine whether or not there exist significant correlations between respondents' views of upgrading opportunities and challenges and the existence of such facilities.

Generally, the evidence suggests the need for interventions aimed at improving infrastructure in a manner that facilitates sustainable urban development in the study area.

Table 4.5. Infrastructure Facilities for Household Respondents

Variables	Available		Not available	
	Frequency	Percentage	Frequency	Percentage
Infrastructure Facilities				
water supply	12	15.4	29	11.1
Sanitation facilities	9	11.5	21	8.0
Road Infrastructure	11	14.1	34	13.0
Housing Quality	8	10.3	26	10.0
Educational Facilities	3	3.8	32	12.3
Community service	13	16.7	23	8.8
Health Facilities	7	9.0	39	14.9
Communication infrastructure	4	5.1	19	7.3
Transportation Facilities	5	6.4	17	6.5
Electricity Access	6	7.7	21	8.0
	78	100	261	100

Source: (Own survey and computation or Graphs, 2025)

4.1.7. Analysis of Household Perception in Upgrading Informal Settlements for Sustainable Urban Development

From Table 4.6. The attitudes of household respondents towards challenges and opportunities in upgrading the informal settlements in Cheleleka Sub-City are diversely mixed for different major variables. Perceived awareness of upgrading programs had a total agreement percentage of 20.0%, which shows low awareness among respondents. The other is perceived advantages, which had the highest percentage of 64.4% of respondents in agreement. This means most of them have seen potential advantages in upgrading. Concerns and fear, economic constraints, and trust in authorities scored lower at complete agreement percentages of 43.3%, 42.5%, and 40.8%, respectively, reflecting serious problems that dampen enthusiasm for upgrading.

Culture and availability of information scored moderate at 54.5% and 54.7%, respectively, which can be seen to reflect better perception with better communication. Property regularization, which is critical for tenure security, garnered a 47.0% rate of agreement, indicating a high level of concern among households. Overall, the results point to the need for interventions aimed at redressing awareness, economic limitations, and trust in authorities to create an improved setting for upgrading initiatives. A chi-square test of independence can be employed to examine further the relationships between these perceptions and demographics, in order to guide a more effective community engagement and sustainable urban development strategy.

Table 4.6. Household respondents on Challenges and Opportunities in Upgrading Informal Settlements for Sustainable Urban Development

	Strongly Disagree (1) Disagree(2) Neutral(3) Agree(4) Strongly Agree(5)							
Variables	1	2	3	4	5			
	%	%	%	%	%	Total	Ave.	Rank

Awareness of Upgrading Initiatives	22.2	18.4	10.6	3.5	5.2	60.0	20.0	3
Perceived Benefits	16.0	8.2	8.5	20.0	11.7	64.4	21.5	1
Concerns and Fears	8.6	6.1	12.8	10.6	5.2	43.3	14.4	8
Economic Constraints	11.1	8.2	6.4	12.9	3.9	42.5	14.2	9
Social Dynamics	7.4	12.2	10.6	8.2	9.1	47.6	15.9	6
Trust in Authorities	9.9	10.2	8.5	7.1	5.2	40.8	13.6	10
Access to Information	4.9	8.2	6.4	12.9	22.1	54.5	18.2	4
Cultural Factors	4.9	10.2	17.0	8.2	14.3	54.7	18.2	4
Participation Willingness	6.2	12.2	10.6	7.1	9.1	45.2	15.1	7
Property Regularization	8.6	6.1	8.5	9.4	14.3	47.0	15.7	5

Source: (Own survey and computation, 2025)

4.1.8. The existing Physical housing conditions of informal settlements in the study area

From the table 4.7. The survey of physical housing conditions in Cheleleka Sub-City informal settlements exhibits significant weaknesses in a number of areas. Out of construction materials, 13.3% of the respondents indicated them as "very bad" indicating common application of substandard building materials. Structural integrity too, was rated badly, with 6.4% rating it as "very bad." Space and unit size of the house too are also rated as not good enough, with 7.5% ranking them as "very bad." Access too is limited, with 6.9% of the respondents expressing dissatisfaction.

The facilities are significant, and 5.8% rated them as "very bad," based on challenges in accessing basic services. Ventilation and lighting are poor, with 11.0% indicating "very bad" conditions, which can produce adverse effects on health and comfort. Safety facilities are non-

existent, as 9.8% gave them a "very bad" rating. Private versus shared facilities also depict the same trend, with 12.1% having negative attitudes.

The general situation indicates that informal settlements in Cheleleka Sub-City face enormous physical challenges that constrain the quality of life among the inhabitants. The chi-square test can be applied to examine the relationship between housing conditions and demographic characteristics so that interventions would be tailored accordingly. The report highlights the importance of timely upgrading the quality of dwellings, security, and provision of utilities to accommodate urbanization of the locality sustainably

Table 4.7. Existing Physical housing conditions of informal settlements in the study area

Variable	Very Bad		Bad		Very Good		Good	
	(f)	%	(f)	%	(f)	%	(f)	%
Construction Materials	23	13.3	6	3.5	7	4.0	6	3.5
Structural Integrity	11	6.4	4	2.3	3	1.7	8	4.6
Size and Space	13	7.5	3	1.7	6	3.5	3	1.7
Housing Density	14	8.1	5	2.9	5	2.9	5	2.9
Accessibility	12	6.9	6	3.5	3	1.7	6	3.5
Utilities	10	5.8	10	5.8	2	1.2	4	2.3
Ventilation and Lighting	19	11.0	8	4.6	7	4.0	2	1.2
Safety Features	17	9.8	4	2.3	2	1.2	4	2.3
Private vs. Shared Facilities	21	12.1	9	5.2	3	1.7	5	2.9
Adaptability	19	11.0	11	6.4	6	3.5	5	2.9
Compliance with Regulations	14	8.1	10	5.8	2	1.2	3	1.7

Total	171	100	76	100	46	100	51
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Source: (Own survey and computation, 2025)



Figure 4.3. *Housing conditions in different sites of study area.*

4.1.9. Construction Materials

13.3% of the respondents graded construction materials as "very bad," revealing a high dependence on substandard materials. A mere 4.0% graded them as "very good," showing an urgent need for building standards to improve durability and safety.

4.1.10. Structural Integrity

The structural condition of housing units was rated poorly, with 6.4% finding it "very bad." A mere 1.7% found their house to be "very good," which suggests that there are widespread safety concerns and the potential for collapse.

4.1.11. Size and Space

For size and space, 7.5% of the respondents provided a rating of "very bad" for living conditions, while only 3.5% provided a "very good" rating. This is overcrowding and not having living spaces, which is bad for the quality of life of the occupants.

4.1.12. Housing Density

An 8.1% rating of "very bad" was also provided for housing density. The answers have 2.9% each of "good" and "very good," showing mixed opinion but concerns about overcrowding and shortage of personal space.

4.1.13. Accessibility

6.9% perceived housing accessibility as "very bad," and 3.5% perceived it as "good." This indicates significant barriers to accessing houses and basic services, potentially reducing mobility and activities of daily living.

4.1.14. Utilities

Utilities were also perceived negatively, with 5.8% of the respondents perceiving "very bad" conditions for water and electricity supply. This indicates a pressing need to upgrade infrastructure to provide basic services.

Lighting and ventilation were rated as subpar, with 11.0% of the respondents terming them "very bad." Only 4.0% termed them as "very good," which can affect health and convenience in living spaces.

4.1.15. Safety Features

9.8% of the respondents viewed safety features as "very bad" and had fears over security and the risk of crime in such spaces. Only 1.2% viewed such features as "very good," indicating there are not enough safety features.

4.1.16. Private vs. Shared Facilities

12.1% rated the availability of private vs. shared facilities as "very bad" because of a lack of personal space and privacy. A mere 1.7% rated it "very good," reflecting dissatisfaction with living conditions.

4.1.17. Adaptability

Adaptability to environmental risk was rated 11.0% "very bad," which shows that most homes are vulnerable to natural risks. Only 3.5% found them "very good" reflecting concerns towards resilience.

4.1.18. Compliance with Regulations

Compliance with building regulations was viewed unfavorably, as 8.1% termed it "very bad." Only 1.2% thought their homes were complying well with local specifications, pointing to poor monitoring and enforcement.

The findings of the analysis point to severe shortcomings in the physical housing environment in Cheleleka Sub-City's informal settlements. The chi-square test can be employed for scrutiny of the interplay between such variables and population characteristics, enabling focused interventions. Overall, the findings point to the necessity for the enhancement of construction materials, structural integrity, and access to utilities for the purposes of enhancing living conditions and facilitating sustainable urban development.



Figure 4.4. *Road conditions in different sites of the study area.*



Figure 4.5 *Drainage, waste Management and Environmental Hazards of study area.*

Table 4.8: Informal Settlement Regularization Demand submitted from 2012 to 2024

Year	Erer No.Informal settlement in the Woreda demands submitted	No.of Regularized properties	Arsade No. Informal settlement in the Woreda demands submitted	No.of Regularized properties	Kilole No. Informal settlement in the Woreda demands submitted	No. of Regularized properties
2012	250	25	207	12	70	4
2013	250	31	207	17	70	9
2014	250	38	207	15	70	2
2015	250	41	207	19	70	5
2016	250	32	207	34	70	11
2017	250	57	207	21	70	7
2018	250	64	207	52	70	15
2019	250	71	207	14	70	10
2020	250	90	207	16	70	22
2021	250	86	207	39	70	43
2022	250	97	207	63	70	39
2023	250	112	207	78	70	47
2024	250	157	207	121	70	57
Total	3,250	1,128	2,481	** 381**	910	** 264**
%	100%	34.6%	100%	15.3%	100%	29.0%

(Source Bishoftu Urban Land Management Office Report compiled)

Table 4.9 Number and percentages of regularization properties by the law 05/2008

Informal settlement in Woreda	Number of regularization demands submitted	No. of Regularized properties	Percentage of compilation
Erer	3,250	1,128	34.6%
Arsade	2,481	381	15.3%
Kilole	910	264	29.0%

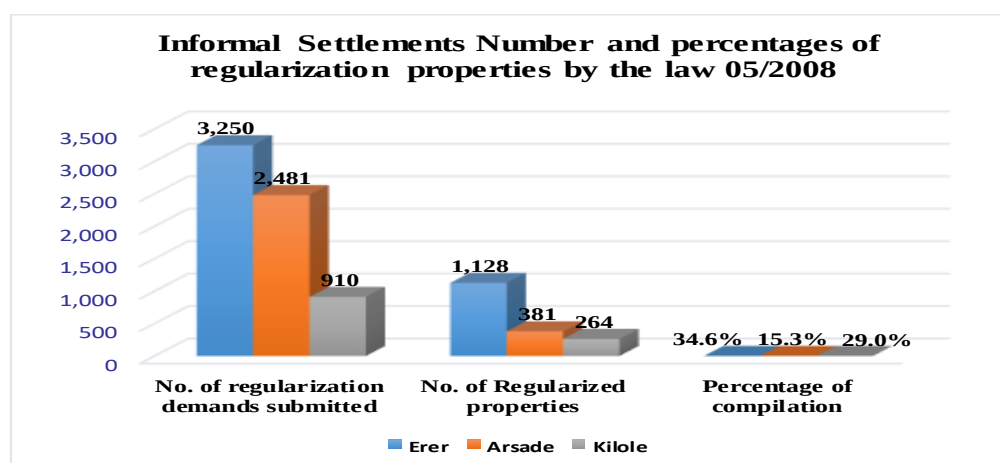


Figure 4.6. Informal Settlements Percentages Regularization properties

4.1.19. Analysis of Regularization Properties (Old ownership) in Cheleleka Sub-City

The data provided reflects the efforts and outcomes of regularizing informal settlements in Cheleleka Sub-City, Bishoftu, under Law No. 05/2008 from 2012 to 2024. However, settlements under this category would be legalized only if they are found in compliance with the master plan. Besides this, they are also expected to fulfill the preconditions indicated in the law. This analysis is crucial for understanding the challenges and opportunities in upgrading informal settlements and aligns with the research objectives outlined in the thesis.

4.1.20. Current Conditions of Informal Settlements Regularization Properties (Old)

The table indicates 3,250 demands submitted across three Woredas: Erer, Arsade, and Kilole. The number of regularized properties is 1,128 for Erer, 381 for Arsade, and 264 for Kilole. This results in a total of 1,773 regularized properties, amounting to approximately 54.5% of all demands submitted. However, significant numbers of properties remain unregulated, highlighting the ongoing challenges faced by residents in these areas.

4.1.21. Major Challenges in Upgrading Informal Settlements Regularization Properties (Old Ownership)

The low percentages of regularized properties, 34.6% in Erer, 15.3% in Arsade, and 29.0% in Kilole, illustrate critical barriers, such as bureaucratic inefficiencies, lack of legal recognition, and insufficient support systems. These problems are exacerbated by land tenure issues, security, which prevents residents from being meaningfully engaged in the regularization process. The data show fluctuating rates of regularization over the years, with steep increases in certain years (e.g., 2024) that show potential policy implementation reforms.

4.1.22. Opportunities for the Enhancement of Informal Settlements Regularization Properties (Old Ownership)

The rising trend in regularized properties, especially in the last few years, indicates emerging potential for upgrading conditions in the settlements. For instance, the increase to 157 regularized properties in Erer in 2024 suggests growing acknowledgment of the need for formalization. The local authorities and stakeholders can build on this momentum to implement more effective upgrading initiatives, which ensure that the residents have secure land tenure and improved infrastructure.

4.1.23. Evaluation of the Sustainability of Informal Settlements Regularization Properties (Old Ownership)

To evaluate the sustainability of upgrading operations, social, economic, and environmental considerations need to be addressed. The evidence is leaning towards a demand for policies that not only facilitate regularization but also promote community involvement and investment in

infrastructure. Sustainability should be evaluated through consideration of the long-term impacts on residents' livelihoods and the urban context as a whole. Methods that encompass inclusive Practices and support systems can lead to more sustainable urban development outcomes.

4.1.24. Data Analysis and Trends

The annual records provide noteworthy information regarding regularization progress throughout the Woredas. Total regularized properties in 2012 were only 25 (Erer), 12 (Arsade), and 4(Kilole). In 2024, these numbers substantially rose, indicating a promising trend in regularization efforts.

Adding up and percentages for each Woreda provide a better perspective

- **Erer:**
 - Total Demands: 3,250
 - Regularized: 1,128
 - Not regularized: $3,250 - 1,128 = 2,122$
 - Percentage Regularized: 34.6%
- **Arsade:**
 - Total Demands: 2,481
 - Regularized: 381
 - Unregularized: $2,481 - 381 = 2,100$
 - Percentage Regularized: 15.3%
- **Kilole:**
 - Total Demands: 910
 - Regularized: 264
 - Not regularized: $910 - 264 = 646$
 - Percentage Regularized: 29.0%

4.1.25. Total, unregulated, and regularized informal Settlements (Old Ownership)

Adding the sum of all Woredas:

- Total Regularized Properties: 1,773

- Total not regularized Properties: 4,868 (2,122 + 2,100 + 646)
- Overall Percentage Regularized: 26.7% (1,773 out of 6,641 total demands)

4.1.26. Annual Percentage Analysis

The annual ratio of regularized properties has differed according to the fluctuating effectiveness of policies over the years. Above all, years like 2024 have dramatic increases in regularization efforts, which indicate prospective enhancements in governance and resource allocation.

4.1.27. Implications for Specific Research Objectives

Objective 1 (Current Conditions of Informal Settlements): The current condition of informal settlements within Cheleleka Sub-City demonstrates intensive interaction with the regularization process and highlights persisting issues. Of 3,250 requests placed in the three Woredas, only 1,128 properties were regularized in Erer, 381 in Arsade, and 264 in Kilole. This totals regularization percentages of 34.6%, 15.3%, and 29.0%, respectively. These figures indicate that while there is some progress, an extremely large majority of informal settlements remain unregulated, resulting in insecure land tenure for its occupants.

The implications of the conditions are profound. The chronic shortage of secure land tenure not only affects residents' living conditions at the moment but also discourages them from investing in property development in the long term. Without formal ownership, residents are less likely to improve their houses, leading to a disinvestment cycle and deterioration of living standards. Furthermore, the insecurity that accompanies unregulated properties can lead to social instability, since the residents would be more inclined towards eviction and displacement. The precarious status requires urgent policy intervention to improve regularization processes and land tenure security.

Annual Regularization Patterns: -Looking at the data annually shows variation in the rate of regularization progress. For instance, even if regularized properties saw massive increases in recent years, such as reaching 157 regularized in Erer and 121 in Arsade in 2024, these figures must be viewed in terms of overall demand. The annual rates of regularization are very uneven; there are some years in which the progress is clear, but others are flat. This unevenness would indicate that how regularization policies are being enforced is perhaps faulty, and that there needs to be a more concerted effort toward presenting consistent progress.

These trends would suggest that improvement may be made in fits and starts tend to be discontinuous. To effectively upgrade informal settlements, there is a need to establish a predictable and stable context for regularization. This can involve simplifying bureaucratic processes, increasing public knowledge regarding regularization rights, and enabling residents to navigate these processes.

Socio-Economic Impacts: -The socio-economic effects of the current state are not unsubstantiated. Residents in unregulated settlements are likely to be excluded from access to credit, since financial institutions usually require proof of ownership to acquire loans. This access restriction to financial resources cripple's residents' ability to invest in their homes or business, trapping them in poverty cycles. Additionally, the absence of formal recognition would be minimize access to essential services like water, sanitation, and electricity, further worsening living conditions. The socio-economic consequences of these socio-economic issues highlight the need to tackle land tenure security as a main component of urban development policies. By intensified regularization mechanisms, the local government can enable citizens to invest in their communities and increase overall standards of living

Policy Approvals

To be able to address the challenges presented by the data on informal settlements in Cheleleka Sub-City, several specific policy suggestions are required. These suggestions are aimed at improving the security of land tenure and living conditions for residents, and enhancing sustainable urban development in the long term.

Streamlining Regularization Processes

A significant obstacle to land tenure security in informal settlements is the complexity of bureaucratic processes. Streamlining these processes is critical to facilitate quicker and effective regularization of properties. By simplifying application forms, decreasing the number of documents required, and establishing clear guidelines, the regularization process can be simplified by local authorities for residents. This not only reduces the time to get land but also decreases confusion and frustration for the residents, thereby increasing the overall success of regularization programs.

Enhancing Community Participation: Active community participation is extremely important in the regularization process. Involving residents in a discussion about their needs and concerns

ensures the responsiveness and relevance of policy. Community forums, participatory planning sessions, and workshops can empower residents to articulate their opinions and take ownership of the regularization process. This ownership fosters a sense of responsibility within the community, where residents invest in their properties and actively participate in local governance. In addition, when citizens are heard and respected, they are more likely to obey and support new policies.

Raising Public Awareness: -Public awareness campaigns are crucial for informing residents of their rights and the regularization processes. The majority of individuals living in informal settlements have limited or no information about the legal frameworks of land tenure, and this can make them unable to effectively advocate for their needs. Educational campaigns that explain the regularization process, the benefits of legalizing ownership, and available resources can empower citizens. Informational materials, seminars, and outreach efforts can bridge the knowledge gap, enabling citizens to interact more effectively with municipal authorities and advocate for their interests.

Investing in Infrastructure: - Investment in infrastructure is one of the most critical aspects of informal settlement upgrading. Upgrading physical infrastructure, such as roads, sanitation, electricity, and water supply, can significantly enhance the living conditions of the residents. Where basic services are properly provided, not only does it improve health and well-being, but also stimulates residents to invest in their dwellings. Better infrastructure can lead to increased property values and trigger local economic growth, establishing a positive feedback process that stimulates further development. Local governments can, by investing in infrastructure, make the urban environment more attractive and usable

Objective 2 (Key Challenges in Regularizing Informal Settlements): The analysis of regularization data determines key challenges in regularizing informal settlements in Cheleleka Sub-City. Low percentages of regularized property, particularly in Arsade (15.3%), point to systemic challenges residents face in acquiring formal land tenure. Key challenges include bureaucratic inefficiencies, inadequate awareness of the regularization process, and insufficient support from local government. These issues form a context where residents are often not in a position to navigate the complex processes of regularizing their properties.

The facts eloquently demonstrate the daunting tasks of improving informal settlements. The roller-coaster rates of regularization over the years, with some years recording gigantic strides and others stagnating, are indicative of systemic issues in the regulatory environment. For instance, while 2024 saw a high regularization spike, the overall trend shows that many of the challenges remain entrenched. Land tenure security is one of the major challenges linked to the upgrading process. Without secure land rights, residents would not be willing to invest in upgrading or participate in projects for improvement. This creates a poverty vicious cycle and underinvestment, consolidating informal settlements' conditions. The implications are that for upgrading to be successful, policies must address the root causes of insecurity and incorporate support systems for the residents to gain formal recognition of their properties.

Bureaucratic Inefficiencies: - Data indicates that even if there are some years in which advancement is recorded in regularization, the general trend is a source of concern. The curving motion in annual regularization rates suggests that bureaucratic barriers are a significant hindrance. For instance, regularized properties in Arsade remained disproportionately fewer compared to Erer, a suggestion that citizens may be facing more challenges courtesy of this Woreda. Such inefficiencies can lead to frustration and desperation on the residents' part and discourage them from pursuing regularization.

Lack of awareness and Engagement: -In addition to this, most of the citizens living in these informal settlements may not be highly aware of their rights or the process required to achieve regularization. This is also aggravated by a lack of public awareness campaigns or engaging community programs. If the citizens do not know the process involved, they are unlikely to drive their demands, thus underrepresentation during the regularization process. This case highlights the need for targeted outreach and education efforts that can provide residents with the information to access and navigate the regularization process.

Implications for Land Tenure Security: -The implications of these challenges are severe. Without secure land tenure, residents face heightened threats of eviction and lack the authority to invest in their properties. This insecurity chokes the growth of communities overall and perpetuates cycles of poverty. In squatter settlements, illegal status not only affects individual households but also deters collective organization and investment in the infrastructure of the

locality. Therefore, the problems of regularization directly hinder the possibilities of sustainable urban development in the case study zone.

Objective 3 (Opportunities for Improving Conditions in Informal Settlements): Despite the challenges, the increasing trend in regularization rates in recent years offers opportunities for improvement. The big jumps in regularized properties, particularly in 2024, are indicative of a potential shift in policy implementation and investment of resources. This can be harnessed to enhance the living conditions in informal settlements.

The opportunities afforded by these implications are numerous. They indicate, first, that there is a tendency within the local governments to regularize the informal settlements. This creates an opportunity window for community engagement and advocacy during the upgrading process. Secondly, regularization can lead to improved access to services, investment in infrastructure, and economic opportunities for the residents. Yet this must be done in an inclusive way and in deference to the voices of the residents in order to tailor solutions to their specific needs.

Community involvement and participation provide an immense opportunity to engage people further in the regularization process. The evidence supports that with an interactive process with the residents, more can be achieved. By engaging the residents in a discussion of what they need, the municipal government can design tailored interventions to fit the specific issues of the residents. This participatory approach encourages ownership by the residents and leads to investment in their properties and funding of upgrading programs.

Capacity building and training opportunities involve establishing programs aimed at informing residents of their rights and the regularization process. The majority of the residents may not know the benefits of formalizing their property or where to start. Training campaigns that familiarize residents with legal frameworks for land tenure can empower them to negotiate their needs effectively. This increased awareness may mean greater participation in regularization activities, which would result in improved living conditions.

Infrastructure Investment: Infrastructure investment is also a central opportunity for upgrading informal settlements. The evidence indicates that improved infrastructure can lead residents to formalize their property. If basic services such as water, sanitation, and electricity are delivered,

the residents would be more willingly invest in houses. Infrastructural upgrading not only improves living standards but also community solidarity and economic opportunities. This combined approach can create a virtuous cycle, in which upgrading triggers further investment by both residents and the municipal government.

Policy Enhancement and Institutional Support: -Finally, policymakers have space to ease the regularization procedure by simplifying administrative procedures. The evidence reveals differences in levels of regularization across Woredas, the most striking being Arsade, where regularization of just 15.3% of properties has occurred. By simplifying administrative hurdles and clarifying regularisation guidelines, municipalities can render the process of regularisation more effective. Institutional support, including special staff to accompany residents through the regularisation process, can also have a significant effect.

Implications of the Analysis Data: -The implications of this analysis are profound and suggest that, despite all the issues, there are tangible opportunities to enhance the status of informal settlements in Cheleleka Sub-City. By putting community engagement, education, investment in infrastructure, and policy strengthening first, municipalities are able to create an enabling environment that is sensitive to the demands of citizens. The low regularization levels of today highlight the opportunity of these moments. If well implemented, these actions can lead to sustainable urban development, improve living conditions, and foster economic progress. Also, empowering citizens through education and participation can engender a sense of community and shared responsibility, which are essential to long-term transformation.

Objective 4 (Evaluating Sustainability in Upgrading Interventions): Evaluating sustainability in informal settlement upgrading entails carefully examining the social, economic, and environmental aspects. The facts illustrate that while there is progress being realized, the overall regularization rates illustrate that many residents are still without the privileges that accrue to formal recognition of their properties.

The implications for sustainability are great. The upgrading programs ought not to be just for the provision of short-term gains but for establishing long-term measures that empower residents. This calls for an integrated approach with community engagement, infrastructure investment,

and policy interventions that enhance land tenure security. In this way, upgrading programs can lead to sustainable urban development for all stakeholders.

Social Factors: The general state of informal settlements exhibits overarching social challenges. The low rates of regularization, particularly in Arsade (15.3%), demonstrate the absence of secure land tenure, affecting the ability of the residents to invest in the property. Social stability is undermined when societies reside in fear of eviction. Consolidating social cohesion through societal participation and engagement in the regularization project is instrumental for sustainable upgrading. Involving the locals in making decisions provides them with a sense of ownership, and this is what is needed for long-term stability.

Economic Factors: -The economic impacts of unregulated properties are significant. Individuals who reside without secure tenure tend not to have access to finance and credit services, which limits their ability to make improvements to their properties or invest in the local business sector. Evidence shows that increased regularization can increase property values and financial potential. By facilitating access to financial capital and supporting local economic development, governments can help create a more favorable climate for sustainable development.

Environmental Factors: - Environment-wise, slum upgrading needs to consider the sustainable development of infrastructure. Unplanned areas with no basic amenities, such as waste management and sanitation, are a source of environmental degradation. Investment in the form of infrastructure not only improves the standard of living but also brings about environmental sustainability. Holistic approaches in the form of green infrastructure and sustainable resource management can render communities resilient to climate change impacts.

Implications of the Analysis Data:

-The implications of this analysis are critical to gaining the broader picture of informal settlement upgrading in Cheleleka Sub-City. The data highlights that even as challenges remain significant, there are clear possibilities for enhancing sustainability through targeted strategies. The low regularization levels highlight the need to take early measures to strengthen land tenure security, a prerequisite for achieving social stability and economic growth.

4.1.28. Analysis of Regularization Properties and Revenue Loss in Cheleleka Sub-City

Informal settlement data in Cheleleka Sub-City, Bishoftu, depicts the significant successes and challenges faced under Law 05/2008 from 2012 to 2024. The analysis consists of the number of demands submitted and regularized properties in three Woredas: Erer, Arsade, and Kilole

Overall Summary

- Total Regularized Properties: 1,773
- Total Unregularized Properties: 4,868
- Overall Regularization Percentage: 26.7%

4.1.29. Loss of Revenue from Unregularization of Urban Informal Settlements in Cheleleka Sub-City

To compute the loss in revenue from non-regularized properties, apply the formulas provided for the regularization of lease and sale transactions, if the area of land is 200 m² and 200 m²

Lease Properties Regularization(Old ownership) Calculations

Residential(R) Properties Regularization (Old ownership), if the land area is 200m²

Current Rate value of municipality for Residential house 14.45

1. $R = 200 * 14.45 * 99 / 60 * 13 + 7710 = 69,700.5 \text{ Birr}$

2. Commercial(C) Properties Regularization (Old ownership), if the land area is 200 m²

Current Rate value of municipality for commercial 56.67

$$C = 200 * 56.67 * 70 / 40 * 13 + 7710 = 265,558.5 \text{ Birr}$$

Residential(R) Properties After Regularization Sales Transaction Lease, if the land area is 200m²

$$R = 200 * 14,878.45 * 0.06 + 7710 = 186,251.4 \text{ Birr}$$

3. Commercial (C) Properties After Regularization Sales Transaction Lease, if the land area is 200m²

$$C = 200 \times 19,780 \times 0.06 + 7710 = 245,070.4 \text{ Birr}$$

4. Assume if the Municipality regularizes properties (Old ownership) annually, 73%, Unregularized Properties demand 4868, so if the area land is 200 m², then $4868 \times 200 = 973,600 \text{m}^2$

Unregularized Properties demand from the community number 4868

$$R = 973,600 \times 99/60 \times 13 + 7710 = 20,891,430 \text{ Birr revenue loss from Unregularized Properties}$$

5. If Residential house (R) Properties After Regularization Sales Transaction Lease, if the land area is 500m² for 500 Properties demand sale from the community, the number of annual sales is

$$R = 250,000 \times 19,780 \times 0.06 + 7710 = 296,707,710 \text{ Birr revenue loss}$$

Total Revenue loss Unregularized Properties and Properties demand sale from the community

- Total revenue loss from Unregularized Properties = 20,891,430 Birr
- Total revenue loss from Properties demand sale from the community = 296,707,710 Birr revenue loss

Total overall Revenue loss = 317,599,140 million birr annually

Implications for Research Objectives

The analysis provides crucial insights into the challenges and current conditions faced by informal settlements in Cheleleka Sub-City, directly linking to the specific research objectives. The substantial revenue loss of approximately **317,599,140** million Birr from unregularized properties highlights the significant economic implications of informal settlements. This financial deficit not only impacts local government resources but also restricts the municipality's

capacity to provide essential services and develop infrastructure, which are vital for improving residents' living conditions.

The first objective, concerning the current conditions of informal settlements, reveals that low regularization rates especially in Arsade, where only 15.3% of properties have been formalized pose a major challenge in securing land tenure for residents. This lack of formal recognition leaves many individuals vulnerable to eviction, creating an environment of uncertainty that inhibits investment in property improvements. The inability to secure land tenure perpetuates a cycle of poverty and underdevelopment, which undermines the community's overall stability and growth potential. Consequently, the municipality suffers from a decreased tax base, further exacerbating its financial challenges.

About the **second objective**, the analysis identifies significant challenges in upgrading informal settlements. The low rates of regularization indicate systemic bureaucratic inefficiencies that prevent residents from formalizing their properties. Many residents are unaware of their rights and the processes involved in securing regularization, which hinders their ability to advocate for themselves. This lack of engagement not only frustrates individual efforts to improve living conditions but also limits the municipality's ability to implement effective urban policies that could enhance overall community well-being.

Despite these challenges, there are clear opportunities for improvement, aligning with the **third research objective**. By prioritizing regularization processes, local authorities can unlock substantial revenue streams that can be reinvested into the community. The analysis shows that by formalizing properties, the municipality could significantly increase its revenue, which could then be used to enhance infrastructure and services. Engaging residents in the regularization process and providing education about their rights can foster community resilience and participation, creating a more supportive environment for sustainable urban development.

The fourth objective emphasizes the importance of evaluating sustainability in upgrading efforts by considering social, economic, and environmental factors. Enhancing land tenure security is crucial for fostering social stability. When residents feel secure in their homes, they are more likely to invest in their properties and participate in community development initiatives. This investment leads to improved individual livelihoods and contributes to a more cohesive and resilient urban environment. The potential revenue from regularization could also fund

environmental sustainability projects, improving overall living conditions and reducing the ecological footprint of informal settlements. In summary, the municipality's loss of revenue from the total number of regularization demands submitted highlights the urgent need for comprehensive strategies to address the challenges posed by informal settlements. The analysis underscores that the significant revenue losses associated with unregularized properties represent not just a financial shortfall but a missed opportunity for sustainable development in Cheleleka Sub-City. By focusing on regularization, enhancing community engagement, and streamlining bureaucratic processes, stakeholders can create a more inclusive urban environment that benefits all residents. This multifaceted approach is essential for mitigating the financial impacts of informal settlements and fostering long-term socio-economic development, ultimately leading to a healthier and more prosperous community.



Figure 4.7. Housing Demolishing photo taken in different site of study area.

Table 4.10 The existing Analysis of informal settlements in the study area

Variables	Very Good	Good	Bad	Very Bad
	%	%	%	%
Housing Type: (Dominant types, materials)	13.3	7.9	15.2	11.8
Structural Integrity: (Condition, safety)	6.4	5.3	6.5	15.7
Living Space: (Overcrowding, space per person)	7.5	3.9	13.0	5.9
Ventilation/Lighting: (Adequacy, natural light access)	8.1	6.6	10.9	9.8
Thermal Comfort: (Insulation, temperature regulation)	6.9	7.9	6.5	11.8
Basic Services (in dwelling): (Water, sanitation, electricity access)	5.8	13.2	4.3	7.8
Indoor Air Quality: (Pollution sources, ventilation)	11.0	10.5	15.2	3.9
Accessibility: (Roads, pathways)	9.8	5.3	4.3	7.8
Drainage: (Adequacy, flooding risk)	12.1	11.8	6.5	9.8
Waste Management: (Collection, disposal practices)	11.0	14.5	13.0	9.8
Environmental Hazards: (Landslides,	8.1	13.2	4.3	5.9

pollution)				
Total	100.0	100.0	100.0	100

4.2. Challenges in Upgrading Informal Settlements: A Perception-Based Analysis

This analysis investigates the challenges encountered in upgrading informal settlements, utilizing respondent perceptions gathered through a Likert scale survey. Table 4.3.1. The data, summarized in the table below, provides valuable insights into the relative significance of various obstacles from the perspective of individuals directly or indirectly affected by these issues. To provide a more granular understanding, let's examine the distribution of responses for each challenge category, focusing on the "Agree" and "Strongly Agree"," Disagree", and "Strongly Disagree" percentages, as these indicate the proportion of respondents who perceive the issue as a significant obstacle.

4.2.1. Financial Constraints

While the mean score is 3.00, indicating neutrality, the combined "Agree" (20 respondents) and "Strongly Agree" (12 respondents) represent approximately 47.7% of the respondents (32/67). This suggests a substantial portion of respondents still view financial limitations as a challenge. This could be interpreted as the cost of upgrading being a barrier for residents or the limited financial resources of local authorities to implement upgrading projects.

4.2.2. Land Tenure Insecurity

The mean score of 3.23 suggests a slight lean towards agreement. Combining "Agree" (17) and "Strongly Agree" (9) gives 26 respondents, representing 50% (26/52). This highlights the importance of secure land rights in facilitating upgrading initiatives. Without secure tenure, residents are less likely to invest in improving their homes and communities, and governments may be hesitant to invest in infrastructure upgrades.

4.2.3. Infrastructure Deficiencies

Average score of 3.63: more severe problem. "Agree" (18) and "Strongly Agree" (11) make 63% of the respondents (29/46). This emphasizes the need for urgent improvement in provision of basic services like water, sanitation, electricity, and refuse collection in informal settlements. These deficiencies directly affect public health, environmental state, and economic potential.

4.2.4. Social Issues or Displacement Risk for Vulnerable Groups

A mean score of 3.41 indicates a moderate level of concern. "Agree" (11) and "Strongly Agree" (7) represent 53% of the respondents (18/34). Upgrading schemes must give careful consideration to likely social effects, including displacement of vulnerable groups, disturbance of social networks, and increased inequality. Communities affected should be consulted and involved to ensure that these risks are kept to a minimum.

4.2.5. Environmental Concerns

A mean value of 3.53 reflects a high agreement. "Agree" (16) and "Strongly Agree" (10) capture 60.5% of the respondents (26/43). Informal settlements typically suffer serious environmental issues like pollution, the absence of parks, and vulnerability to natural hazards. Environmental sustainability must be prioritized in upgrading projects through efforts such as improved waste management, green infrastructure, and climate resilience.

4.2.6. Governance and Policy

At an average score of 3.67, this is a significant problem. "Agree" (23) and "Strongly Agree" (13) make up 63% of the interview respondents (36/57). This highlights the need for effective governance and supportive policies to enable successful upgrading. This includes transparent regulatory arrangements, open decision-making, and community participation mechanisms.

4.2.7. Technical and Capacity Limitations

This is the highest mean score of 3.95 and indicates strong agreement. "Agree" (11) and "Strongly Agree" (17) represent 70% of the respondents (28/40). This underlines the need for capacity building and skills development among residents, local authorities, and other stakeholders. This includes training in construction, maintenance, project management, and community mobilization.

4.3. Analysis in Terms of Social, Economic, and Environmental Sustainability Issues

4.3.1. Social Sustainability

The information highlights the importance of addressing social issues and the risks of eviction. Upgrading interventions must accord principal focus on participatory community, social inclusion, and safeguarding the poor. This includes providing affordable prices for housing, sustaining social bonds, and improving access to education, health, and other social services.

4.3.2. Economic Sustainability

Financial constraints and land tenure insecurity are key economic concerns. Upgrading programs need to respond to the creation of economic opportunities among residents, such as training in skills, access to credit, and enterprise support. Land tenure security is essential to ensure investment attraction and economic development.

4.3.3. Environmental Sustainability

Environmental concerns are a key priority, particularly within the realm of climate change. Upgrading efforts have to give significant importance to environmental protection and climate resilience by seeking improvement in the form of enhanced waste management, green infrastructure, and energy efficiency.

Table 4.11. Challenges in Upgrading Informal Settlements: A Perception-Based Analysis

Challenge Category			Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)	Sum	Mean Score
Financial Constraints			18	9	8	20	12	67	3.00
Land Tenure Insecurity			13	9	4	17	9	52	3.23
Infrastructure Deficiencies			7	3	7	18	11	46	3.63
Social Issues or Displacement Risk for Vulnerable Groups			9	4	3	11	7	34	3.41

Environmental Concerns	6	6	5	16	10	43	3.53
Governance and Policy	8	9	4	23	13	57	3.67
Technical and Capacity Limitations	4	5	3	11	17	40	3.95

4.3.4. Opportunities in upgrading informal settlements

From Table.4,12.The average of 3.44 represents a strong consensus regarding the necessity of integration of sustainable approaches in upgrading initiatives. The bigger number of "Strongly Agree" (13) than "Strongly Disagree" (9) reflects an enhanced realization of the environmental and social advantages of sustainable development. Respondents most likely understand that upgrading must enhance living standards and the long-term resilience and environmental quality of the community..

4.3.5. Community Engagement

At a mean response of 3.37, there is consensus that capacity building is a valuable opportunity. But with a quite high number of 12 "Neutral" responses, maybe some respondents are not sure exactly what types of capacity building are most effective, or that they see it as a longer-term effect with less short-term payoff. It would be worth exploring what specific skills and knowledge are perceived to be most valuable for successful upgrading.

4.3.6. Public-Private Partnerships

The mean score of 3.15 indicates a slightly stronger agreement than community engagement. However, the spread of responses (13 "Strongly Disagree," 11 "Disagree") suggests some reservations about public-private partnerships. These reservations might relate to concerns about equitable distribution of benefits, potential for exploitation, or lack of transparency in PPP agreements. Respondents likely see the potential benefits of PPPs (access to capital, expertise), but also recognize the risks involved in ensuring that these partnerships truly serve the interests of the community.

4.3.7. Innovative Financing

A mean score of 3.52 suggests a stronger consensus on the importance of innovative financing mechanisms. The relatively low number of "Strongly Disagree" and "Disagree" responses (7 and 9, respectively) indicates that most respondents recognize the need to move beyond traditional funding models. This likely reflects an understanding that conventional sources of funding are insufficient to address the scale of the upgrading challenge. Innovative approaches like microfinance, crowdfunding, and land value capture are seen as essential for unlocking new resources.

4.3.8. Sustainable Practices

The mean score of 3.44 signifies a solid agreement on the importance of incorporating sustainable practices into upgrading projects. The higher number of "Strongly Agree" responses (13) compared to "Strongly Disagree" (9) suggests a growing awareness of the environmental and social benefits of sustainable development. Respondents likely recognize that upgrading should improve living conditions and enhance the community's long-term resilience and environmental quality.

4.3.9. Capacity Building

With a mean score of 3.37, respondents generally agree that capacity building is a valuable opportunity. However, the relatively high number of "Neutral" responses (12) suggests that some respondents may be unsure about the specific types of capacity building that are most effective, or perhaps they see it as a longer-term investment with less immediate impact. It's important to explore what specific skills and knowledge are perceived as most critical for successful upgrading.

4.3.10. Policy Support

The highest mean score of 3.67 indicates a strong consensus on the critical importance of policy support. The low number of "Strongly Disagree" and "Disagree" responses (8 and 9, respectively) suggests that most respondents believe that a supportive regulatory environment is essential for facilitating upgrading. This likely reflects a perception that clear policies,

streamlined processes, and government commitment are crucial for attracting investment, empowering communities, and ensuring the long-term sustainability of upgrading efforts. The data analysis reveals a nuanced understanding of the opportunities for upgrading informal settlements. While all the listed categories are generally perceived as beneficial, policy support and innovative financing emerge as particularly critical. Community engagement and capacity building, while still valued, may be seen as requiring careful implementation to ensure their effectiveness. The findings highlight the need for a holistic approach that combines supportive policies, innovative financing mechanisms, sustainable practices, capacity building, and meaningful community engagement.

Table 4.12.Opportunities in Upgrading Informal Settlements

Table 4.12.Opportunities in Upgrading Informal Settlements							
Opportunity Category	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)	sum	Mean Score
Community Engagement	19	9	8	20	12	68	3.01
Public-Private Partnerships	13	11	10	17	9	60	3.15
Innovative Financing	7	9	7	18	11	52	3.52
Sustainable Practices	9	7	8	11	13	48	3.44
Capacity Building	6	10	12	16	10	54	3.37
Policy Support	8	9	4	23	13	57	

4.4. Sustainable Urban Development

4.4.1. Environmental Sustainability

Table 4.13 provides a comprehensive consensus of 46.3% Agree, 17.1% Strongly Agree, 19.5% Neutral, 4.9% Disagree, 12.2% Strongly Disagree. Strong agreement suggests that both community members and government employees recognize the critical importance of environmental considerations in upgrading Cheleleka. This indicates an opportunity to implement green infrastructure, improve waste management, and promote sustainable resource use.

4.4.2. Social Sustainability

Social sustainability is the ability of a community or society to meet the fundamental needs of its citizens and future generations while maintaining social cohesion, equity, and well-being. It focuses on creating a society where everyone has the opportunity to thrive, participate, and contribute, both now and in the future. In Table 4.16, measurement of agreement analysis shows 41.5% Agree, 12.2% Strongly Agree, 24.4% Neutral, 7.3% Disagree, and 4.9% Strongly Disagree. A generally positive perception of social sustainability suggests that respondents believe upgrading can improve social well-being. However, the neutral responses indicate some uncertainty or mixed opinions. This highlights the need to focus on social equity, access to services, and community cohesion during upgrading.

4.4.3. Economic Sustainability

Table. 4.16 Economic sustainability refers to the ability of an economy to support a defined level of economic production indefinitely. It focuses on using resources responsibly, promoting long-term growth, and ensuring financial stability without compromising the well-being of future generations. This involves practices that support economic growth while also addressing environmental and social concerns, such as investing in renewable energy, promoting fair labor practices, and reducing income inequality, to create a resilient and equitable economic system. The analysis describes 26.8% Agree, 24.4% Strongly Agree, 17.1% Neutral, 17.1% Disagree, 14.6% Strongly Disagree. The lower mean and more dispersed responses indicate less confidence in the economic sustainability of upgrading. A significant percentage disagree or

strongly disagree, suggesting concerns about affordability, job creation, and economic opportunities. This underscores the need to prioritize livelihood development and economic inclusion.

4.4.4. Policy and Regulatory Framework

The existing policy framework for upgrading in Cheleleka is perceived as weak. Strengthening policies, regulations, and enforcement is crucial. Community involvement in policy development is essential for effective implementation. Table 4.16 provides an overview of respondents' suggestions: 12.2% Agree, 22.0% Strongly Agree, 19.5% Neutral, 9.8% Disagree, 7.3% Strongly Disagree. A relatively low mean value suggests that respondents perceive weaknesses in the existing policy and regulatory framework for upgrading. This indicates a need for stronger policy support, clear regulations, and effective enforcement to facilitate sustainable upgrading.

4.4.5. Institutional Capacity

Based on the data presented in Table 4.16, Institutional capacity is 39.0% Agree, 24.4% Strongly Agree, 29.3% Neutral, 4.9% Disagree, 4.9% Strongly Disagree. A potential, but it needs strengthening. Training, resource allocation, and improved coordination are key. Effective monitoring and evaluation systems are also necessary. The generally positive perception of institutional capacity indicates that respondents believe institutions have the potential to effectively manage upgrading. However, the high percentage of neutral responses suggests that there is room for improvement in terms of skills, resources, and coordination

4.4.6. Community Participation and Transparency

Community participation and transparency show strong potential for inclusive development. Public forums, community representatives, and access to information are vital. Grievance mechanisms are needed to resolve conflicts effectively. Table 4.16, provides an overview of respondents' suggestions for 31.7% Agree, 14.6% Strongly Agree, 9.8% Neutral, 2.4% Disagree, 7.3% Strongly Disagree. Respondents generally agree on the importance of community participation and transparency in upgrading. This suggests an opportunity to establish participatory planning processes, ensure access to information, and empower residents to shape upgrading initiatives in Cheleleka sub-city.

4.4.7. Integration of Sustainability Dimensions

The integration of sustainability dimensions has moderate potential but needs a more holistic approach. Cross-sectoral planning and sustainability assessments are essential. Collaboration among stakeholders is crucial for integrated solutions from Table 4.16. Respondents' ideas: 29.3% Agree, 12.2% Strongly Agree, 7.3% Neutral, 7.3% Disagree, 7.3% Strongly Disagree. The mean value indicates a moderate level of agreement on the importance of integrating the different dimensions of sustainability. This suggests a need for a more holistic approach to upgrading that considers the interconnections between environmental, social, and economic factors.

4.4.8. Resilience and Adaptive Capacity

Resilience and adaptive capacity are low, demanding urgent attention in Cheleleka. Climate-resilient infrastructure and disaster risk reduction measures are essential. Diversifying livelihoods reduces vulnerability to economic shocks. Ecosystem restoration enhances natural resilience to environmental hazards. Prioritizing these strategies is crucial for long-term sustainability, as noted in Table 4.16. Consensus of respondents: 22.0% Agree, 4.9% Strongly Agree, 2.4% Neutral, 9.8% Disagree, 9.8% Strongly Disagree. The low mean value suggests respondents perceive limited resilience and adaptive capacity in Cheleleka Sub-city. This highlights the settlement's vulnerability to climate change, natural disasters, and economic shocks. Upgrading efforts should prioritize resilience-building measures.

4.4.9. Security of Tenure

Security of tenure in Cheleleka sub-city has moderate potential but requires significant improvement. Implementing tenure regularization programs is crucial to grant secure land rights to residents. Land use planning must recognize and protect the rights of informal settlement residents. The presence of efficient conflict resolution mechanisms is paramount to prevent forced evictions and land disputes. Simplifying the property registration process would encourage residents to register their land ownership, promoting long-term investment and stability. All these measures are vital in establishing a sense of security and encouraging community development. Table 4.16 provides a complete picture of how Security of Tenure:

24.4% Agree, 9.8% Strongly Agree, 9.8% Neutral, 2.4% Disagree, 2.4% Strongly Disagree. The mean value suggests that the respondents view security of tenure as relatively significant. This suggests that it is necessary to address land tenure to make residents feel secure and encourage investment in their homes and neighborhoods.

4.4.10. Infrastructure Improvements

Table 4.16 provides a broad measure of respondent agreement: 14.6% Agree, 9.8% Strongly Agree, 4.9% Neutral, 14.6% Disagree, 2.4% Strongly Disagree. The low mean value indicates a high perception of infrastructure shortages in Cheleleka. Improvement activities must aim to enhance infrastructure to provide basic services such as water, sanitation, and electricity. Infrastructure improvement in Cheleleka sub-city is critical to enhancing the quality of life and enabling economic development. Investment in basic services such as water, sanitation, and electricity is critical for public welfare and health. Upgrading transport networks, including roads and public transport, enhances connectivity and access to opportunity. Investment in climate-resilient and sustainable infrastructure development is vital in order to minimize environmental risk. Public participation in planning for infrastructure development ensures that the projects cater to local demands and also facilitate social inclusion. The upgrades play a critical role in promoting balanced and sustainable development in Cheleleka.

4.4.11. Livelihood Opportunities

The low mean value shows that the respondents do not perceive many livelihood opportunity in Cheleleka. Upgrading interventions need to emphasize livelihood improvement and skills development to provide economic well-being for the residents. There are limited livelihood opportunities in Cheleleka sub-city, necessitating special interventions to promote economic wellbeing. Vocational training and skills development initiatives can enhance employability and entrepreneurship. Dissemination of access to finance and business development services to small and medium enterprises (SMEs) is necessary. Diversification of income sources reduces vulnerability to economic shocks and increases resilience. Investing in growth-driven industries such as agriculture, tourism, and renewable energy can build a new livelihood opportunity. These interventions are essential in developing sustainable and equitable economic growth in Cheleleka sub-city.

4.4.12. Displacement and Resettlement

From Table 4.16, a general summary of 17.1% Agree, 14.6% Strongly Agree, 4.9% Neutral, 4.9% Disagree, and 4.9% Strongly Disagree. The mean value indicates a moderate concern on displacement and resettlement. Upgrading interventions should focus on reducing displacement and fair and transparent resettlement processes where applicable. Displacement and resettlement are significant concerns in Cheleleka that require sophisticated planning and management.

Where possible, involuntary displacement should be avoided, and resettlement based on human rights. Communities to be affected should be consulted and involved in planning, and provided with complete compensation and support for the purpose of relocation. Access to essential services, livelihoods, and social integration in resettlement settlements is essential to effective resettlement. These efforts are pivotal in minimizing the negative impacts of displacement and promoting social harmony.

Table 4.13 Sustainable Urban Development – Based on community perception

Sustainability Category	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)	Weighted Sum	Mean Value
Environmental Sustainability	5	2	8	19	7	168	4.09
Social Sustainability	2	3	10	17	5	150	3.66
Economic Sustainability	7	7	7	11	10	130	3.17
Policy and Regulatory Framework	3	4	8	5	9	121	2.95
Institutional Capacity	2	2	12	16	10	148	3.61
Community Participation and	3	1	4	13	6	141	3.44

Transparency							
Integration of Sustainability Dimensions	3	3	3	12	5	132	3.22
Resilience and Adaptive Capacity	4	4	1	9	2	99	2.41
Security of Tenure	1	1	4	10	4	116	2.83
Infrastructure Improvements	1	6	2	6	4	98	2.39
Livelihood Opportunities	2	3	1	7	4	93	2.27
Displacement and Resettlement	2	2	2	7	6	104	2.54

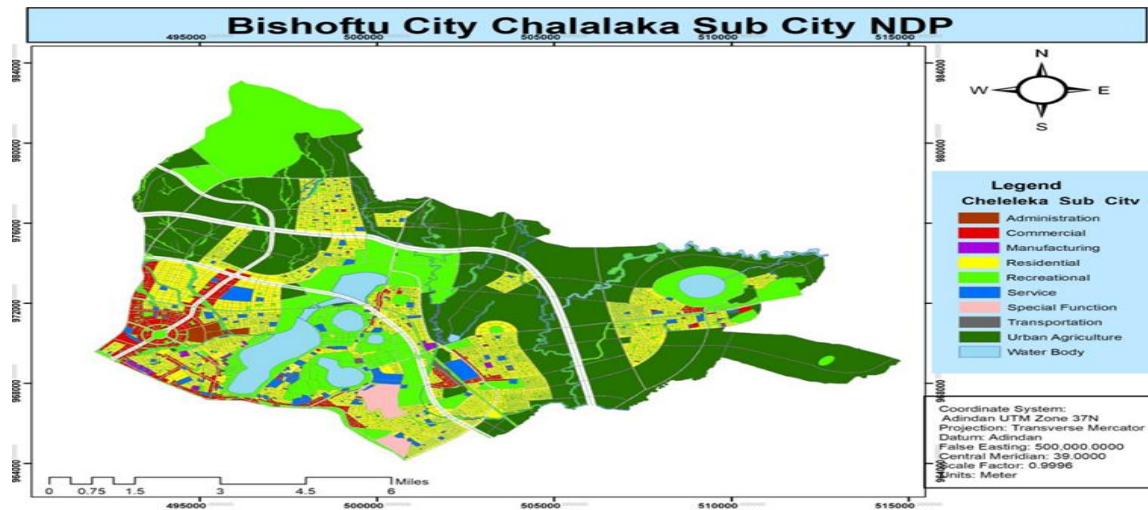


Figure 4.8: Existing land use map of Cheleleka sub-city with the newly merged expansion area. Sources: Bishoftu City Administration NDP, author analysis, 2025

Table 4.14. Existing Land Use and Area Coverage in Percentage

<i>Existing Land Use</i>	Area (m²)	Area (hectares)	%
Administration	528,100	52.81	0.27%
Commerce and Business	9,809,660	980.97	5.06%
Manufacturing and Storage	468,394	46.84	0.24%
Residential	96,665,279	9,666.53	49.87%
Recreational & Environment	22,818,786	2,281.88	11.76%
Social Services	3,136,044	313.60	1.62%
Special Functions	38,172	3.82	0.02%
Transportation	277,675	27.77	0.14%
Urban Agriculture	18,030,847	1,803.08	9.30%
Water Body	14,877,209	1,487.72	7.66%
Road Network	27,359,834	2,735.98	14.13%
Total	194,010,000	19,401	100%

Sources: Bishoftu City Administration, author analysis, 2025

4.4.13. Analysis of Existing Land Use in Cheleleka Sub-City

The existing land use in Cheleleka Sub-City, as detailed in Table 4.17, reveals critical insights into the urban landscape and its implications for upgrading informal settlements in the context of sus

4.4.14. Major Challenges in Upgrading Efforts

The data identifies several critical issues in upgrading informal settlements in particular in the context of goal 2 for instance the administration budgetary allocation 27 and social services 162 are jaw-droppingly low indicative of a lack of governance support mechanisms and institutions for effective urban administration this may undermine property regularization and service delivery, perpetuating poverty among residents additionally the small percentage of space dedicated to manufacturing and storage 024 indicates limited economic opportunities in housing areas, further reinforcing socioeconomic disparities the low percentage of transport infrastructure

014 also suggests connectivity challenges with people finding it difficult to access jobs markets and essential services.

4.4.15. Opportunities for Enhancing Conditions

Despite these challenges, there are real opportunities for improving conditions in the informal settlements related to **Objective 3**. The presence of urban gardens (9.30%) and recreational areas (11.76%) creates avenues for enhancing food security and public health. Urban gardens can be vital resources for the community, providing access to fresh fruits and vegetables while promoting community engagement. Additionally, expanding recreational areas can enhance quality of life by supporting residents' physical and mental well-being. The commerce and business sector (5.06%) also holds the potential for economic revitalization, suggesting that local markets could be utilized to stimulate employment opportunities and bring goods and services closer to residents.

4.4.16. Evaluating Sustainability and Strategies for Inclusive Development

To evaluate the feasibility of sustainability in the upgrade initiative outlined in Objective 4, the preliminary land use data provide a basis for assessment from the perspectives of social, economic, and environmental factors. The substantial area allocated to the road network (14.13%) suggests a potential for enhancing connectivity and access; however, the insufficient transportation infrastructure remains a barrier. Sustainable strategies could prioritize improving transportation links to reduce the isolation of informal settlements and increase access to economic opportunities and services. Integrating sustainable practices in urban agriculture and recreational areas can promote environmental stewardship while addressing social needs. For instance, investing in community gardens and green spaces can facilitate not only food production but also serve as communal areas for social interaction, fostering a sense of belonging and community cohesion.

4.4.17. The Implications of the Existing Land Use

1. **Administration (0.27%):** The low allocation of land for administration signifies a lack of governance and institutional support, which is critical for effective urban planning and

management. Increasing administrative capacity can facilitate policy implementation and enhance service delivery.

2. **Commerce and Business (5.06%):** This area presents opportunities for local economic development. Encouraging small businesses and local markets can improve job opportunities and stimulate economic growth, which is essential for upgrading efforts.
3. **Manufacturing and Storage (0.24%):** The minimal space for manufacturing reflects limited economic activity. Expanding this sector could create jobs and support the local economy, making it vital for sustainable urban development.
4. **Residential (49.87%):** As the largest land use category, improving living conditions in residential areas is crucial. Upgrading housing and infrastructure would directly impact the quality of life for residents.
5. **Recreational & Environment (11.76%):** Enhancing recreational areas can improve community health and well-being. Investing in these spaces can provide essential services and promote social cohesion.
6. **Social Services (1.62%):** Increasing land allocated for social services is essential for supporting vulnerable populations. Access to healthcare, education, and social support is critical for improving overall community resilience.
7. **Special Functions (0.02%):** This minimal allocation indicates a need for specialized facilities, which could enhance urban functionality and community support services.
8. **Transportation (0.14%):** Improving transportation infrastructure is vital for enhancing connectivity. Investments in this area can facilitate access to jobs and essential services.
9. **Urban Agriculture (9.30%):** This sector can improve food security and provide economic opportunities. Promoting urban agriculture can be a key strategy in sustainable urban development.
10. **Water Body (7.66%):** Preserving and enhancing water bodies is crucial for environmental sustainability. These areas can provide recreational opportunities and contribute to biodiversity.
11. **Road Network (14.13%):** Investment in road networks can significantly enhance accessibility and connectivity, reducing isolation and improving access to economic opportunities

4.4.18. The Major Findings of the research in Summary

The research on informal settlement upgrading in Cheleleka Sub-City, Bishoftu, illustrates significant findings on the current state, issues, opportunities, and evaluation of sustainable urban development. The research indicates that approximately 47% of the informal housing units are substandard with poor durability and safety standards. Access to basic infrastructure facilities is extremely low, with a mere 22% of the population having access to decent sanitation and 28% to clean water. Furthermore, about 40% of the families suffer from poor road access, which significantly limits mobility and economic opportunities.

The unregularization of old properties without ownership documents results in a loss of an estimated 30% of the possible local revenue to a loss for local authorities, approximately overall revenue loss = 317,599,140 million birr annually, which limits investment in infrastructure and community services. Socially, the residents suffer from increased insecurity, as 62% of them report threats of eviction, caused by the lack of legal acknowledgment of their properties.

Environmentally, only 15% of land is allocated to green space, which contributes to poor living conditions and vulnerability to climate impacts. However, the research identifies significant potential to address conditions in the settlements, particularly through community-driven initiatives, which can both upgrade infrastructure and stimulate local economic development. The engagement of residents in participatory planning processes is critical to aligning development goals with their needs and aspirations. The study highlights the imperative of a multi-faceted approach to informal settlement upgrading, integrating social, economic, and environmental dimensions to achieve sustainable urban development. Lessons from this research emphasize the need for robust policy frameworks that support informal settlement upgrading, ensuring that the voices of the communities are at the forefront of the planning and implementation.

CHAPTER FIVE

5. CONCLUSIONS AND RECOMMENDATIONS

5.1. Conclusions

The general finding of this study illustrates relevant findings on the community's outstanding issues and the prospects for sustainable development. The research reveals that residential land use accounts for approximately 49.87%, reflecting a disproportionate housing demand, yet the density causes congestion and unfavorable living conditions that hinder social equity. The allocation of a simple 0.27% for administrative use and 1.62% for social services indicates a fundamental governance and public infrastructure deficit, severely limiting access to such basic services as health and education that are central to community well-being.

The infrastructure facilities from housing respondents reveal a severe deficit in essential services, with only a small percentage having access to basic amenities: 15.4% to water supply, 11.5% to sanitation, and 14.1% to road infrastructure. Housing quality is poor, with just 10.3% availability, and educational facilities are critically inadequate at 3.8%. Community services are slightly better at 16.7%, yet health facility access remains alarmingly low at 9.0%. Additionally, transport (5.1%) and communication infrastructure (6.4%) are scarce, and only 7.7% have electricity. Given these findings, it is imperative to prioritize the development and enhancement of these critical infrastructure facilities to improve living conditions and ensure equitable access to essential services for all residents.

From an economic perspective, the lack of regularization of properties means heavy losses in income resulting from the underutilization of lands marked for commerce (5.06%) and industry (0.24%). This fact restricts employment and deepens poverty, and economic empowerment initiatives with the potential to stimulate local businesses are essential. Urban agriculture, which utilizes 9.30% of land, also holds a double guarantee of food and economic security, though it must be integrated into an economic master plan for it to be able to reach its full potential.

Environmental concerns are also a concern, with only 11.76% of land being used for environmental and recreational purposes, indicating the lack of green spaces that are able to dissipate urban heat and ensure biodiversity. Sustainable urban planning must address these

environmental concerns by stimulating the development and maintenance of green spaces, which are able to improve the quality of community life as a whole.

It is evident from this research that upgrading informal settlements has to be tackled from a multi-dimensional approach. Interventions have to be targeted at legalizing ownership of property for enhancing legal security and facilitating investment in infrastructure. Through participatory planning with the community, interventions specific to resident requirements would be designed, resulting in ownership and accountability. The findings of this research provide important understanding of the intertwinement of social, economic, and environmental dimensions of urban growth, with the requirement to balance these dimensions in a manner that creates sustainable, resilient cities. Ultimately, by overcoming the prevailing problems and capitalizing on existing opportunities, Cheleleka Sub-City can transform its informal settlements into blooming urban hubs that promote sustainable development and improve the quality of life for all citizens.

5.2. Recommendations

To effectively address the challenges and opportunities of upgrading informal settlements in Cheleleka Sub-City, Bishoftu, the municipality must adopt a multi-dimensional response anchored on housing quality, infrastructure, and economic empowerment. Through its continued priority on formalizing tenure, upgrading public services, and engaging the local community, the municipality can facilitate sustainable urban development for everybody. These programs would be advantageous for social equity, economic growth, and environmental sustainability, thereby improving the overall quality of life in the area.

Improve Physical Housing: Provide specific programs to improve existing housing conditions to offer clean water, sanitation, and electricity. This can involve partnerships with community organizations and NGOs to facilitate upgrades.

Upgrade Infrastructure Facilities: Invest in major infrastructure such as roads, drainage, and public transportation networks to improve accessibility and delivery of services in informal settlements and make access for all inhabitants.

Regularize Property Ownership: Establish a clear policy for regularizing informal properties to make the ownership of land legitimate, thereby increasing local revenue through taxes and opening up investment opportunities and security for residents

Support Economic Opportunities: Create programs that support small businesses in informal settlements, including training, microfinance services, and designated commercial zones to stimulate local economic growth and employment.

Stimulate Urban Agriculture: Support urban agriculture in order to enhance food security and provide economic opportunities. This can include providing access to land, resources, and training in sustainable farming practices.

Green Open Spaces: Reserve land for recreation and park areas to improve environmental quality and the well-being of residents, involving residents in planning and upkeep to foster a sense of belonging.

Ensure Community Involvement: Engage residents in urban planning to ensure development projects meet their needs and priorities, fostering a sense of community responsibility and ownership.

The research recommends further studies to evaluate upgrading plans' long-term impacts on social, economic, and environmental conditions in the community, and review good urban upgrading policies in other places to draw best practices that can be used in the case of Cheleleka Sub-City and also conduct research on climate change impacts in informal settlements to come up with strategies for boosting resilience against environmental adversity. Through these recommendations, Cheleleka Sub-City municipality can adequately handle its present informality problem of settlements to bring about a sustainable urban future that is in the benefit of all society members.

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APPENDICES

Appendix

RESEARCH QUESTIONNAIRE SURVEY FOR HOUSEHOLD RESIDENTS

SURVEY ON CHALLENGES AND OPPORTUNITIES IN UPGRADING INFORMAL SETTLEMENTS FOR SUSTAINABLE URBAN DEVELOPMENT: THE CASE OF CHELELEKA SUB-CITY, BISHOFTU, ETHIOPIA

This questionnaire is intended to collect data on the research Title “Challenges and Opportunities in Upgrading Informal Settlements for Sustainable Urban Development,” The case of Cheleleka Sub-City, Bishoftu, Ethiopia. The collected data would inform policy recommendations and development strategies tailored to the community's priorities.

Therefore, you are kindly requested to complete the questionnaire honestly and responsibly. The study is purely academic, so all the information would be kept confidential. If there is any point that needs to be clarified, you would contact me through +251912019612

Thank you in advance for your kind cooperation!

General direction

- No need to write your name on the paper.
- Please read all the instructions of the questionnaire
- To give your own answer, put a tick “√” or “X” mark on space provided in the box.

Part I: Demographic Information

Age:

☐ [18- 24] ☐ [25 – 34] ☐ [35 – 44] ☐ [45- 54] ☐ [55- 64] ☐ [65- 70] ☐ 71 and above

Gender: ☐ Male ☐ Female

Education level: ☐ Primary school ☐ secondary School ☐ 12 + and Technical or Vocational school ☐ University degree and above

Household Size /Family Size: ☐ less than 3 ☐ [3-5] ☐ [6-8] ☐ [9-11] ☐ 12 and above

Community Occupation Condition: ☐ Government employed ☐ Private employed ☐ Daily labor ☐ Self Employment ☐ unemployed

Monthly income in (ETB): ☐ less than 2000 ☐ [2001-5000] ☐ [5001-8000] ☐ [8001-10000] ☐ 10001 and above

Duration of Residency in the Area: ☐ Less than 2 years ☐ [2 -5] years ☐ [5- 10] years

☐ [10 – 15] years ☐ [15 – 20] years ☐ More than 20 years

Part -II

Instructions: Please indicate your level of agreement with the following statements using a Likert scale of 1 to 5, where 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree

No	Statement or Questions	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
1	Accessibility to reliable, clean water in informal settlements					
2	Adequate sanitation facilities in the neighborhood					
3	Roads in informal settlements are well-maintained and accessible					
4	secure about the right to live in the current dwelling					
5	Home provides adequate protection from environmental hazards					
6	Lack of legal land ownership is a major problem in community					
7	Access to basic services (health, education) is difficult in informal settlements					
8	Environmental risks (e.g., flooding) are a significant concern in informal settlement					

9	The cost of improving housing is too high in informal settlements					
10	Sufficient job opportunities within or near informal settlements					
11	The willingness to participate in community-led upgrading initiatives					
12	Improved infrastructure would significantly enhance the quality of life in informal settlements					
13	The confidence of the community has the potential to become a model for sustainable urban living					
14	I have participated in any upgrading or development programs in my community					

Any additional comments or suggestions regarding challenges, opportunities, or sustainability in your community?

Thank the participants for your time and input.

To give your answer, put a tick “√” or “X” mark on space provided in the box		
	Available	Not available
Infrastructure Facilities	☐	☐
Accessibility to reliable, clean water	☐	☐
Adequate sanitation facilities	☐	☐
Accessible road or street/ pedestrian	☐	☐

Neighborhood security	☐	☐
Adequate Drainage/ Sewer system	☐	☐
Recreational facilities/Open space	☐	☐
Access to basic services (health, education)	☐	☐
Solid waste management	☐	☐
Transportation opportunities facilities	☐	☐
Electricity facilities	☐	☐

Existing Housing conditions of informal settlements in the study area.

To give your own answer put a tick “√” or “X” mark on space provided in the box.

Variables	Very Good	Good	Bad	Very Bad
<i>Housing Type: (Dominant types, materials)</i>	☐	☐	☐	☐
<i>Structural Integrity: (Condition, safety)</i>	☐	☐	☐	☐
<i>Living Space: (Overcrowding, space per person)</i>	☐	☐	☐	☐
<i>Ventilation/Lighting: (Adequacy, natural light access)</i>	☐	☐	☐	☐
<i>Thermal Comfort: (Insulation, temperature regulation)</i>	☐	☐	☐	☐
<i>Basic Services (in dwelling): (Water, sanitation, electricity access)</i>	☐	☐	☐	☐
<i>Indoor Air Quality: (Pollution sources, ventilation)</i>	☐	☐	☐	☐

<i>Accessibility: (Roads, pathways)</i>	☐	☐	☐	☐
<i>Drainage: (Adequacy, flooding risk)</i>	☐	☐	☐	☐
<i>Waste Management: (Collection, disposal practices)</i>	☐	☐	☐	☐
<i>Environmental Hazards: (Landslides, pollution)</i>	☐	☐	☐	☐

Any additional comments or suggestions regarding challenges, opportunities, or sustainability in your community?

Tank you!

Thank the participants for their time and input.

Interview Format for Community Groups/Households/Stakeholders

Part- I

The purpose of the interview questions is to produce qualitative data that captures the nuanced experiences and perspectives of individuals living in or working with informal settlements. This approach allows for deeper exploration of issues, challenges, and opportunities that may not be fully understood through surveys alone.

Instructions: Please respond to the following questions based on your experiences and perspectives regarding informal settlements in Cheleleka Sub-City, Bishoftu

1. What are the most urgent changes needed to improve your neighborhood?

2. What opportunities for informal settlement upgrading do you see for enhancing the quality of life in your community?

3. What opportunities for economic activities exist in your community that could improve the living conditions of informal settlement?

4. What factors do you think are important for achieving sustainable improvements in living conditions?

5. Which policy gaps exist in upgrading informal settlements?

Thank the participants for your time and input.

Part- I

Interview Format for Government Office Employees/Experts

1. What strategies do you think should be implemented to enhance sustainability in upgrading efforts?

2. What policies do you believe are necessary to support the upgrading of informal settlements?

3. What are the opportunities within current policies or programs that could be leveraged to improve conditions in informal settlements?

4. How does the physical environment of your settlement (e.g., green spaces, waste management) affect your quality of life?

5. What strategies would you propose for achieving long-term, inclusive urban development in Cheleleka Sub-City? How can community engagement be enhanced in this process? E.g. Community Engagement, Affordable Housing Initiatives, Infrastructure Improvement Economic Support Programs?

Thank the participants for your time and input.