



Addis Ababa University
College of Technology and Built Environment
School of Built Environment
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MICRO-HOUSING AS ALTERNATIVE FOR URBAN HOUSING SHORTAGES:
THE CASE OF LIDETA SUBCITY, ADDIS ABABA ETHIOPIA

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Addis Ababa, Ethiopia.
June, 2026



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A Thesis Submitted to the School of Graduate Studies of Addis Ababa University, College of Technology and Built Environment (CTBE), in Partial Fulfillment for Master Degree in Urban planning.

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June, 2026

Declaration

I, Yetimwerk Abebe, do here by declare that this research work entitled “**Micro-housing as alternative for urban housing shortages case of Lideta Sub city, Addis Ababa**” is my original work, and it has not been submitted to any other university, organization or institutions for any degree, diploma and for other purposes. Material and information used in this study other than me owe appropriately acknowledged and cited.

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Approval

As a member of the examiners board of the final Master's thesis open defense Yetimwerk Abebe, we have read and evaluated the thesis prepared by Yetimwerk Abebe entitled “**Micro-housing as alternative for urban housing shortages case of Lideta Sub city, Addis Ababa**” and recommended to College of Technology and Built Environment (CTBE), Addis Ababa University to accept the Thesis for the Fulfilment of Requirements for the award of Degree of Masters of Science in Urban Planning.

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Abstract

In developing countries, micro-housing has emerged as a critical strategy to optimize scarce urban land and provide dignified shelter for rapidly growing low-income populations. Urban housing shortages in Addis Ababa have intensified due to rapid population growth, limited land availability, and inadequate affordable housing supply. Despite its global promise, empirical evidence on its socio-spatial viability and regulatory feasibility in African urban contexts remains critically underexplored. This study investigates the potential of micro-housing compact, efficiently designed residential units as a viable alternative for low-income residents in Lideta Sub-City. Using mixed methods data from 138 micro-housing residents and supplementary insights from institutional stakeholders, the research examines current housing conditions, user satisfaction, socioeconomic impacts, and implementation barriers. Findings indicate that prior housing conditions were widely characterized by severe spatial constraints, inadequate amenities and financial strain whereas transitioning to micro-housing yielded marked improvements in perceived housing quality, access to essential services and overall socioeconomic stability. Residents consistently recognized micro-housing as a contextually appropriate and economically viable solution for low-income households. However, broader adoption remains constrained by limited access to housing finance, out dated regulatory frameworks a persistent cultural misconception regarding compact living. To overcome these constraints, municipal authorities should revise building codes to formally recognize compact unit typologies and streamline approval process for high density developments near transit corridors. Concurrently, financial institutions and government agencies must collaborate to develop alternative credit assessment mechanisms and inclusive financing models that accommodate informal earners. Finally targeted public awareness campaigns and participatory design initiatives should be implemented to reframe micro-housing as a sustainable urban living model and foster broader community acceptance. This study concludes that micro-housing represents a highly promising, demand driven strategy for addressing Addis Ababa's housing defect, provided it is supported by adaptive policy frameworks and cross sector collaboration. Ultimately, this research contributes a localized, evidence-based framework for integrating compact housing into mainstream urban development policies across rapidly urbanizing African cities.

Key Words: Addis Ababa, Affordability, Housing policy, Low-Income housing, Micro-housing, urban housing.

Abbreviations and Acronyms

AASOID	Addis Ababa School of Architecture and Urban Development
BRT	Bus Rapid Transit
CBD	Central Business District
CL	Confidence Level
CSA	Central Statistical Agency of Ethiopia
Df	Degrees of Freedom (statistical test)
EiABC	Ethiopian Institute of Architecture, Building Construction and City Development
ETB	Ethiopian Birr (national currency)
GIS	Geographic Information Systems
HAI	Housing Affordability Index
km ²	Square Kilometres
LRT	Light Rail Transit
m ²	Square Meters
MCCLDP	Main City Centre Local Development Plan
MHD	Micro Housing Development
MMTH	Multi-Modal Transport Hub
Moe	Margin of Error
N	Sample Size
PIE	Planning Implementation Evaluation
SD	Standard Deviation
TOD	Transit-Oriented Development
UN-Habitat	United Nations Human Settlements Programme
χ^2	Chi-square statistic

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CHAPTER ONE: INTRODUCTION

1. Background of the Study

Housing refers to the provision shelter where people and families live. it includes dwellings like single family homes, apartments, and communal living spaces each designed to meet different social economic and cultural needs. Housing constitutes a fundamental determinant of human well-being, encompassing dwellings designed to meet diverse social, economic, and cultural needs while ensuring security, privacy, and stability (Rondinelli, 1990). Rapid urbanization with escalating land scarcity and economic constraints, has intensified housing deficits across metropolitan areas, frequently resulting in overcrowding, unaffordable rental markets, and substandard living conditions (UN-Habitat, 2020; Buckley & Kalarickal, 2005).

In response to these systemic challenges, prior research has increasingly positioned micro-housing as a strategic alternative capable of optimizing limited urban land while maintaining affordability and habitability. Empirical studies demonstrate that micro-housing typically defined as residential units ranging from 15 to 40 m² can reduce construction costs by 30–50% compared to conventional typologies, thereby enhancing accessibility for economically constrained populations (Harris & Nowicki, 2020; Talen & Knaap, 2021). Furthermore, comparative analyses indicate that compact living environments successfully accommodate higher population densities without compromising essential amenities, particularly when integrated with shared communal facilities that foster neighbourhood cohesion and reduce per-capital utility expenses (Chakravarty, 2023; Zhao et al., 2020).

Research also highlights that when strategically located near transit corridors and employment hubs, micro-housing significantly improves residents' socioeconomic mobility by minimizing transportation burdens and expanding access to labour markets (Newman & Kenworthy, 1999; Watson, 2013). Collectively, these findings establish micro-housing not merely as a spatial compromise, but as a demand-driven intervention that bridges the gap between affordability, adequate living standards, and sustainable urban form. Despite its documented potential, the implementation of micro-housing in developing regions remains uneven due to regulatory, financial, and sociocultural barriers that limit its scalability.

Prior research in sub-Saharan African cities indicates that while conventional public housing and slum upgrading programs frequently struggle with underfunding, bureaucratic inefficiencies, and misalignment with local livelihood patterns (Owusu & Afutu-Kotey, 2010; UN-Habitat, 2020), compact housing models have shown promise when adapted to informal economies and participatory planning frameworks (Parnell & Pieterse, 2014; Gough, 2015).

Studies from comparable high-density urban contexts reveal that micro-housing effectively serves young professionals, single-person households, and informal workers, particularly when zoning regulations are adapted to permit smaller footprints and financing mechanisms accommodate non-traditional income documentation (Eisenberg, 2022; Kumar & Patel, 2021).

However, empirical evidence also underscores critical success factors: micro-housing projects achieve higher occupancy and resident satisfaction only when they incorporate flexible unit typologies, ensure reliable basic service provision, and actively counteract cultural stigma through community co-design processes (Harris, 2020; World Bank, 2020). Conversely, research warns that without context-sensitive policy reforms and targeted pro-poor financing, compact housing risks replicating the exclusionary patterns of previous large-scale interventions, ultimately failing to reach the shelter-poor households it aims to serve (Weldegebriel & Ayenew, 2020; Yigremew & Hassen, 2016). These scholarly insights highlight a critical research gap: while micro-housing has gained traction in Global North contexts, localized, empirically grounded assessments of its spatial feasibility, socioeconomic impact, and regulatory alignment remain scarce in rapidly urbanizing Ethiopian cities like Addis Ababa.

Urban housing in Ethiopia is predominantly characterized by a widening gap between rapid population growth and the availability of adequate, affordable shelter. A sustained wave of rural to-urban migration toward Addis Ababa has not been matched by proportional investments in housing infrastructure, exacerbating spatial inequality and informal settlement proliferation (World Bank, 2015). This disparity is compounded by bureaucratic inefficiencies, weak institutional coordination, and fragmented land management systems that hinder effective policy implementation (Weldegebriel & Ayenew, 2020).

The Ethiopian government has introduced large-scale public housing initiatives, most notably the Integrated Housing Development Program, which has delivered hundreds of thousands of condominium units. However, empirical evaluations consistently demonstrate that these programs remain financially inaccessible to the lowest-income segments due to prohibitive down payments, lengthy waiting periods, and inadequate integration with public transportation networks (Yigremew & Hassen, 2016; Fenta, 2014). Consequently, scholars and urban practitioners have increasingly advocated for alternative housing typologies including vertical expansion, cooperative housing models, informal settlement upgrading, and micro-housing—that prioritize affordability, efficient land utilization, and meaningful community participation (UN-Habitat, 2017).

Addis Ababa's housing deficit is estimated in the hundreds of thousands, with a substantial proportion of the urban population residing in overcrowded, poorly maintained, and often informal dwellings lacking basic sanitation and reliable utilities (UN-Habitat, 2017). A critical

constraint remains the limited access to affordable housing finance, which systematically excludes low and middle-income households from formal ownership pathways (World Bank, 2015). This challenge is intensified by high construction costs, inadequate municipal infrastructure, and inefficient urban land management practices that restrict serviced plot availability (Weldegebriel & Ayenew, 2020).

While conventional mass housing projects have expanded the formal housing stock, they have frequently been criticized for prioritizing middle income beneficiaries while neglecting the shelter needs of informal workers and vulnerable populations (Yigremew & Hassen, 2016). In response, urban planning discourses in Ethiopia have gradually shifted toward context-responsive strategies that emphasize spatial efficiency, transit-oriented development, and participatory design.

While a study micro housing as an alternative for urban housing shortage is limited. Therefore, this study examines Micro-housing as alternative for urban housing shortages case of Lideta Sub city, Addis Ababa Ethiopia and specifically this study Examine the current state of urban housing and its shortcoming in Lideta sub-city, Evaluate the extent to which micro-housing alternatives meets the housing demands of low-income households, Analyse the comparative benefits of micro-housing as an alternative in relation to residents' socioeconomic conditions, Explore the challenges related to implementation of micro-housing projects in Lideta. The Goal of this study will be exploring the role of micro housing in resolving the housing shortage in Lideta, Addis Ababa. By assessing the actual micro housing projects and collecting information from the residents. This study provides information for policy makers, urban planners and developers to successfully integrate micro housing into urban housing.

1.1 Statement of The Problem

Rapid urbanization and escalating demographic pressures across developing nations have precipitated a severe urban housing crisis, characterized by a persistent mismatch between housing supply and demand. This population growth with constrained land resources, fragmented urban planning frameworks, and inadequate housing finance systems, has intensified housing shortages, forcing low- and middle-income populations into overcrowded, substandard living conditions or informal settlements lacking basic infrastructure. Rather than being solely a function of population growth, the core of the housing shortage lies in the structural inability of conventional housing models to deliver affordable, secure, and adequately serviced dwellings at scale, leaving urban poor populations systematically excluded from formal housing markets.

In Ethiopia, this urban housing deficit is further intensified by rapid rural-to-urban migration, limited access to cost-effective construction technologies, and policy frameworks that prioritize large-scale formal developments over context-responsive, incremental housing solutions. National urban development strategies have struggled to align with the economic realities of informal workers and low-income households, resulting in a growing shelter poverty gap where housing costs consume a disproportionate share of household income, perpetuating cycles of informality and spatial inequality.

In Addis Ababa, particularly in Lideta Sub-City, rapid urbanization and population growth have created an acute housing crisis marked by a severe lack of affordable housing. According to the Central Statistical Agency (CSA, 2021), Lideta has a population density exceeding 30,000 people per square kilometre, with the majority of residents belonging to low-income brackets. This demographic pressure intensifies the need for housing, but since supply consistently falls short of demand, residents are forced to either pay unaffordable market rents or endure overcrowded spaces with dilapidated infrastructure, with some facing homelessness (UN-Habitat, 2020). Low-income households earning less than 14,000 ETB per month spend 60–80% of their income on rent, pushing them into severe financial strain (Tadesse et al., 2024; KTH Royal Institute of Technology, 2025).

Addis Ababa's population is projected to reach 6 million by 2030 (UN-Habitat, 2019,1), yet current formal housing solutions, such as condominium and kebele houses, remain insufficient. Between 2005 and 2013, only 25% of registered housing demand was met. Condominiums remain financially inaccessible to low-income communities, as they are often affordable only to those who can already secure rental apartments (Fenta, 2014). Consequently, residents are compelled to live in poor living conditions.

In Addis Ababa, an estimated 50–80% of the housing stock comprises informal settlements or structures built without official permits (UN-Habitat, 2020, 12). In inner-city sub-cities like Lideta, this figure is even more pronounced, with informal or substandard dwellings accounting for a dominant share of the local housing stock, affecting up to 80% of residents in certain neighbourhoods (Adegun, 2023,5). Furthermore, city-wide spatial data indicates that as of 2020, approximately 53.8% of Addis Ababa's total population resided in informal settlements, highlighting the persistent and massive scale of the urban housing deficit despite ongoing upgrading efforts (Gelet et al., 2024, 2). Approximately 66% of these informal settlements lack proper sanitation, and 85% experience recurrent flooding due to poor drainage systems. Indoor air pollution in these areas increases the risk of respiratory diseases by threefold, while inadequate road access and high fire risks further endanger residents. Neighbourhoods such as Teklehaimanot and Agusta have witnessed rapid informal settlement expansion driven by the absence of affordable formal housing (UN-Habitat, 2020).

The housing crisis Unfairly affects vulnerable groups. Women led households, which constitute 31% of Lideta's low-income families, face heightened eviction risks due to irregular rent payments. Approximately 42% of the population is forced to reside in substandard rental units (UN-Habitat, 2010, p. 42; Woundimagegnehu, 2009, 15). Daily labourers and street vendors, who lack formal income documentation, are systematically excluded from conventional mortgage programs. This condition reflects a systemic failure to deliver adaptive, inclusive housing solutions that align with the economic realities of the urban poor.

Existing studies on housing in Ethiopia predominantly focus on the limitations of government housing programs, the Expansion of informal settlements, and challenges in urban land management (UN-Habitat, 2020; Tameru, 2018). However, few studies have explored alternative housing typologies like micro-housing, particularly within the context of specific high-density sub-cities like Lideta. Previous research has largely concentrated on large-scale condominium projects that neglect affordability for low-income buyers, or has merely documented slum conditions without proposing viable, scalable solutions. Unconventional approaches like micro-housing remain largely unexamined in terms of socio-cultural acceptance, regulatory feasibility, and economic viability. Studies lack adequately to assess compact or modular designs for high-density inner-city deployment in the Ethiopian context.

Micro-housing defined as compact, efficiently designed living units that integrate essential domestic functions within a limited spatial footprint has gained international recognition as a strategic intervention for dense urban centres (Talen & Knaap, 2021). As a housing strategy, micro-housing directly addresses the structural dimensions of the shortage by optimizing land use through vertical and compact layouts, incorporating shared communal amenities to offset reduced private space, and taking advantage of modular or prefabricated construction techniques to lower costs and accelerate delivery. When integrated with transit-oriented development principles, flexible zoning frameworks, and participatory co-design processes, micro-housing offers a viable pathway to increase housing supply without expanding urban sprawl.

However, its implementation faces significant contextual challenges, including regulatory barriers that delay construction, cultural resistance stemming from traditional preferences for larger dwellings with courtyards, and the need for adaptable, sustainable construction techniques suited to local conditions (World Bank, 2020). Despite its global promise, there is limited empirical research on how micro-housing strategies can be localized, culturally adapted, and institutionally supported as a viable urban housing alternative in Addis Ababa.

This research seeks to understand the role of micro-housing in mitigating the urban housing shortage in Lideta, Addis Ababa. By analysing existing micro-housing initiatives and gathering insights from diverse stakeholders, this study aims to provide actionable recommendations for urban planners and policymakers. Through participatory co-design workshops with residents and planners, the research will explore culturally adapted micro-housing models that balance spatial efficiency with social acceptability. The overarching goal is to improve living conditions, expand affordable housing access, and integrate micro-housing into the broader urban development strategy of Lideta. Therefore, this study aims to fill the identified research gap by examining how micro-housing can effectively address the urban housing shortage in Lideta Sub-City, with a specific focus on low-income households currently residing in informal and inadequate living conditions.

1.2 Objectives of The Research

1.2.1 General Objective

The general objective of the study is to Assess the potential of micro-housing in resolving the urban housing shortage in Lideta sub city, Addis Ababa. Focusing on their social and special acceptance and feasibility.

1.2.2 Specific Objectives

The specific objectives of the study are to:

1. Examine the current state of urban housing and its shortcoming in Lideta sub-city.
2. Evaluate the extent to which micro-housing alternatives meets the housing demands of low-income households.
3. Analyse the comparative benefits of micro-housing as an alternative to residents' socioeconomic conditions.
4. Explore the challenges related to implementation of micro-housing projects in Lideta.

1.3 Research Questions

1. What is the current state of urban housing in Lideta sub-city and what are its major shortcoming?
2. To what extent do micro-housing alternatives meet the housing demands of low-income households in Lideta Sub-City?
3. What are the comparative benefits of micro-housing to residents' socioeconomic conditions and what challenges are related to implementing micro-housing projects in Lideta sub-city?
4. What are the challenges related to the implementation of micro-housing projects in Lideta?

1.4 Scope of the Study

This study assessed the role of micro-housing in mitigating urban housing shortages, with a specific focus on Lideta Sub-City, Addis Ababa. This research was conducted exclusively in Lideta district. Using data 's from the last ten years (2015-2025). It examined the various urban housing challenges and opportunities in this area. The study analysed variables such as accessibility, quality of life affordability, involvement of government and financial institutes in supporting micro-housing. The main focus was low-income residents who are directly affected by housing shortage. Limiting the scope ensured the study to remained focused and manageable. It also provided valuable insight for addressing urban housing shortage tailored for Lideta.

1.5 Significance of the Study

This study focused on micro-housing addressed overcrowded living condition, informal settlement and increased homelessness by evaluating the potential of micro-housing as a practical solution. Through a critical examination the benefits, challenges and strategies for implementing of micro housing in Addis Ababa. This study offered recommendations. The finding of this research serves as input for policy makers and students. While highlighting better construction techniques that can be recommended to resolve housing crise.

For better adoption of micro-housing solutions there is need for policy and regulation changes, this study has recognized that. It assessed the cultural and social acceptance of micro-housing among residents. The main significance of this study lies in its potential to inspire innovative housing solution that can reduce urban housing shortage dramatically in Addis Ababa. This will lead to improved life quality for residence. The insight extracted from this study offer transferable knowledge and practical guidance for a city struggling with similar challenges.

1.6. Limitations of the study

The study faced several limitations. Access to some micro-housing sites was restricted, which made it difficult to obtain complete and up-to-date data. In addition, the research had limited representation of vulnerable groups such as informal settlers and homeless households, as they were difficult to reach through formal survey channels. The study also encountered challenges in obtaining detailed and consistent information from financial institutions and private developers regarding financing schemes and project feasibility. Finally, the study was cross-sectional in nature, which limited the ability to track residents over time and assess long-term socioeconomic and housing outcomes.

1.7. Organizational of the document

This thesis is organized into five chapters. Chapter One presents the introduction, which outlines the background of the study, statement of the problem, general and specific objectives, research questions, scope and limitations, significance of the study, and a brief description of Lideta Sub-City. Chapter Two provides a comprehensive literature review, covering theoretical and conceptual frameworks on micro-housing, empirical studies on urban housing shortages, relevant housing policies in Ethiopia, and identified research gaps. Chapter Three details the research methodology, including the study area, research design, target population, sampling technique and sample size, data collection instruments, data analysis procedures, and ethical considerations. Chapter Four presents the results and discussion, analysing demographic characteristics, resident perceptions, satisfaction levels, socioeconomic impacts, and implementation challenges of micro-housing in Lideta. Finally, Chapter Five concludes the study by summarizing key findings and offering actionable recommendations for policymakers, financial institutions, and urban planners, along with suggestions for future research

CHAPTER TWO: LITERATURE REVIEW

2.Introduction

Addis Ababa, Ethiopia's capital is experiencing a rapid population growth that has resulted in an acute housing crisis. This crisis is particularly pronounced in Lideta, a sub-city of Addis Ababa, where urban slum upgrading projects aim to alleviate housing shortages and improve living conditions for vulnerable populations (Habitat for Humanity Ethiopia, 2004).

“The term housing was first used in the 1800s in Europe (Harloe, 1995, p. 35). At the time, it referred to a cloth covering that was put on a horse for protection or ornament. Over the years, there has been increasing use of the term, resulting in its current multiple meanings and definitions. Housing is the basic unit of human settlements. In the most general sense, and to most people, housing is defined as a dwelling.” (Matamanda et al., 2022).

One of the most challenges developing countries face is providing adequate shelter for all people. For most low-income and middle-income families, the chance of ever owning a house is a dream. This why constructing, environmentally friendly, affordable housing technologies are necessary to enable ordinary people construct homes at an affordable cost. (tam,2011). Housing is generally considered affordable if it costs no more than 30% of a household's income. However, in Addis Ababa, most people struggle to afford even basic rent, let alone purchase a home. Housing is a basic human need, but low-income households, who are the majority of the population in the developing world, cannot afford housing.

2.1 Theoretical and Conceptual Literature review

The micro-housing phenomenon, unveils a reformulation of the domestic territory, creating affordable housing within the private sector but also applicable to social housing programs. (MacDougall, 2019)



Figure-2 1 Typical floor plan of Carmel place, New York city,2016

Source: MacDougall,2019

Micro-housing refers to residential units with significantly smaller floor areas than conventional housing. Scholars often define micro housing as dwellings with a floor area 37 square meters or less, excluding lots (Shahab, 2025). These spaces are design with Greate space utilization optimizing space with limited space.



Figure-2 2: Daily use of the apartment (above) and night use of the apartment (below)



Source: (Arcilla, 2015)

Micro-housing refers to residential units significantly smaller than traditional housing, often designed to fit into limited availability of urban space. (J. Farah,2022). Urban areas worldwide especially in rapid growing cities of the global south, face housing shortages projected to worsen in the future. For example, shortage of adequate housing in cities like Addis Ababa, Bahir Dar, Hawassa Dire Dawa, Adama and Mekelle, is mainly driven by rapid urbanization. Micro-housing encourages individual living style but it can be integrated into “community-driven or government-supported affordable housing schemes “with providing more than just a shelter (Harris & Watson, 2020).

Micro-housing encompasses several distinct typologies that cater to diverse urban living needs and preferences. Micro-apartments are defined as self-contained residential units within multi-unit developments that intentionally fall below conventional minimum space standards, typically ranging between 15 and 40 m², while optimizing functionality through innovative spatial design (Arcilla, 2015; Shahab, 2025). Tiny houses, in contrast, are characterized as small, often freestanding and frequently mobile structures that prioritize minimalism, portability, and reduced environmental footprints (J. Farah, 2022).

Co-living developments represent another variant, characterized by limited private areas typically a bedroom and bathroom complemented by extensive shared communal spaces such as kitchens, living rooms, workspaces, and recreational areas that foster social interaction, resource efficiency, and community cohesion among residents (Harris & Nowicki, 2020).

Together, these typologies demonstrate the adaptability of micro-housing as a strategic response to urban land scarcity, affordability challenges, and evolving household demographics in rapidly growing cities.



Figure-2 4 micro-apartment



Figure-2 5 : Tiny-house



Figure-2 3: co-living developments

Source: Dezeen (2018), Shoe-box micro-apartment in Beirut, Lebanon (Elie Metni, 2018).

2.1.1 Social and Economic Aspects of Housing

The social dimension of housing includes considerations of community cohesion, household stability, and access to social amenities. Poor housing conditions can lead to social exclusion, marginalization, and health risks (World Bank, 2015, p. 18; UN-Habitat, 2022, p. 45).

The social dimension of housing extends beyond physical shelter to encompass community cohesion, household stability, and equitable access to essential social amenities (Matamanda et al., 2022). Well-designed housing environments foster social interaction, trust, and mutual support among residents, thereby strengthening neighbourhood social capital (Gehl, 2010; Harris & Nowicki, 2020). Secure tenure and adequate living space contribute to psychological well-being, improve family dynamics, and support positive developmental outcomes for children, including better educational attainment and health indicators (UN-Habitat, 2020; World Bank, 2015).

Conversely, poor housing conditions—characterized by overcrowding, inadequate sanitation, and tenure insecurity—often lead to social exclusion, spatial marginalization, and heightened vulnerability to physical and mental health risks (Fox, 2014; Tigabu et al., 2008). In high-density informal settlements, such as those prevalent in Lideta, these deficiencies can reinforce cycles of poverty, limit civic participation, and stigmatize residents, further entrenching spatial and socioeconomic inequalities (Turok & Borel-Saladin, 2016; Watson, 2013).

Economically, housing functions as both a fundamental consumption need and a critical determinant of household financial resilience and economic mobility (Buckley & Kalarickal, 2005). When housing costs exceed 30% of household income—a threshold commonly associated with shelter poverty (Whitehead, 2011)—families face constrained budgets for nutrition, education, healthcare, and savings, undermining long-term economic stability (World Bank, 2015). Location efficiency further amplifies housing's economic impact: residences situated near employment hubs, transit corridors, and commercial centres reduce commuting expenses, expand labour market access, and enhance workforce productivity (Newman & Kenworthy, 1999; Talen & Knaap, 2021).

In contexts like Addis Ababa, where a significant portion of the urban economy relies on informal livelihoods, housing must also accommodate home-based enterprises, storage needs, and proximity to vending zones (Fenta, 2014). Displacement or poorly integrated housing developments often disrupt these survival strategies, exacerbating economic vulnerability (Watson, 2013). Conversely, well-planned affordable housing can serve as a catalyst for localized economic development, enabling asset accumulation, intergenerational wealth transfer, and greater financial inclusion (Clarke et al., 2008; Larsen et al., 2019). For low-income households, the intersection of social and economic housing dimensions underscores the necessity of interventions that balance affordability, spatial efficiency, and livelihood integration—principles that are particularly relevant to the design and implementation of micro-housing models in dense urban environments (Harris & Nowicki, 2020; Parnell & Pieterse, 2014).

2.1.2 Key Features of Micro-Housing

Micro-housing is characterized by several defining features that collectively position it as a viable response to contemporary urban housing challenges. Primarily, it emphasizes space efficiency, utilizing innovative architectural layouts and multi-functional furniture to maximize utility within compact footprints typically ranging from 15 to 40 m² (Arcilla, 2015; Shahab, 2025). This spatial optimization directly enhances affordability, as reduced construction costs, lower material consumption, and decreased utility expenses make compact units financially

accessible to low- and middle-income households (Harris & Nowicki, 2020; Chakravarty, 2023). Beyond economic benefits, micro-housing offers flexibility and adaptability, allowing unit configurations to be modified or expanded to accommodate evolving household demographics, life-stage transitions, and changing lifestyle needs (Kumar & Patel, 2021).

Environmentally, these compact dwellings promote sustainability by minimizing per-capita energy demand, reducing construction waste, and lowering the overall urban ecological footprint (Meyer, 2005; Harris, 2020). To further optimize liveability, micro-housing is strategically integrated into high-density, transit-oriented locations, ensuring residents maintain proximate access to public transportation networks, employment centres, and essential urban services while minimizing reliance on private vehicles (Newman & Kenworthy, 1999; Talen & Knaap, 2021).

Finally, the typology frequently incorporates shared amenities and communal spaces such as co-working lounges, communal kitchens, laundry facilities, and green courtyards—which not only compensate for limited private square footage but also foster social cohesion, reduce isolation, and strengthen neighbourhood interaction (Gehl, 2010; Harris & Nowicki, 2020). Together, these interconnected features establish micro-housing as a dynamic, context-responsive, and sustainable housing model aligned with principles of compact urban development.

2.1.3 key concepts related to micro-housing

Micro-housing as a solution to urban housing shortage includes several key interrelated concepts. Micro housing is maintaining livable space in area between 15-40 m², which optimize limited urban space while maintains affordability .in cities like Addis Ababa this solution is relevant. This approach directly engages with the concept of urban livability, which evaluates how housing solutions affect residents 'quality of life through factors such as affordability, accessibility to service and environmental conditions. The relevance of micro housing can be enhanced by integrating principles of walkability and transit-oriented development, where strategic placement near transportation hubs and mixed-use zoning creates sustainable, pedestrian-friendly neighborhoods.

Inclusive urban planning principles are equally important ensuring these compact living solutions accommodate diverse populations including low-income groups, young professionals and single person households through participatory design processes. (UN-Habitat, 2020, p. 87; Parnell & Pieterse, 2014, p. 156; Harris & Nowicki, 2020)."

2.1.4 Relevant Theoretical Framework

A. Urban livability theory: this theory emphasizes the need for housing solutions that enhance residents' quality of life through affordability, accessibility and environmental sustainability. Micro-housing contributes to livability by providing compact, cost-effective units in well-connected urban areas, reducing housing cost burden while maintaining access to essential services (Gehl,2010). This aligns with new urbanism principles which advocates for high-density, mixed-use neighborhoods that foster community interaction and reduce reliance on private vehicles.

B. Walkability: highlights the importance of pedestrian -friendly urban design in creating vibrant, sustainable communities (Jacobs,1961: gehl,2010). Transit-oriented development (tod) frameworks where proximity to public transport, employment center and amenities minimize the need for car ownership and promotes healthier more connected lifestyles. Walkable neighborhoods with micro housing can enhance social cohesion by encouraging street-level activities and chance encounters.

C. Urban streetscape theory: the role of street design in shaping design in shaping functionality and aesthetic appeal of micro-housing environments (Cullen,1961; Carmona et al.,2010). Well-designed streetscapes having active ground floor uses, human -scale architecture, green infrastructure and safe pedestrian pathways can compensate for the limited private space in micro-units by extending living areas into public realm. This approach transforms streets into social spaces.

Successful implementation of micro-housing requires more than just small unit sizes.it demands careful attention to proximity to transit and services, shared and public space quality and policy support for inclusive and sustainable design.

Urban livability shows how small-scale housing can meet basic needs without sacrificing quality of life. When it comes to walkability the role of location efficiency in making micro-housing practical and desirable. Streetscape design shoes how public space design can mitigate the challenge of high-density living.

D. Urbanization and Housing Demand: Theories of urbanization is fundamental driver of housing shortage in cities worldwide, especially in rapidly growing cities like Addis Ababa. Few models that explore housing demand are:

Urbanization serves as a fundamental driver of housing shortages in cities worldwide, particularly in rapidly growing metropolises like Addis Ababa, where population influx outpaces the development of adequate shelter infrastructure (UN-Habitat, 2020). Classical urban theories have sought to explain spatial patterns of housing demand and land use: Burgess's

(1925) Concentric Zone Model posits that cities expand outward in rings from a central business district, influencing housing accessibility and affordability gradients; Harris and Ullman's (1945) Multiple Nuclei Model suggests that urban growth occurs around several specialized centres, shaping heterogeneous housing markets; and Zipf's (1949) Rank-Size Rule describes hierarchical city-size distributions that inform regional housing demand projections.

While these foundational models provide valuable insights into urban form and residential location choices, recent scholarly advances have shifted focus toward addressing contemporary challenges such as urban sprawl, land scarcity, and environmental degradation (Newman & Kenworthy, 1999). Compact city models, in particular, emphasize high-density, mixed-use development, reduced land consumption, and enhanced environmental sustainability principles that align closely with micro-housing concepts by promoting efficient spatial utilization, transit-oriented design, and resource-conscious living (Meyer, 2005; Talen & Knaap, 2021). Consequently, integrating classical urban theory with contemporary compact city frameworks offers a robust theoretical foundation for evaluating micro-housing as a strategic response to housing deficits in rapidly urbanizing African contexts.

E. Housing Affordability and Accessibility Frameworks: According to this framework understanding the affordability of micro-housing is key in urban housing shortage discussions, especially in informal settlements. Key frameworks include: Housing Affordability Index (HAI) and Shelter Poverty Framework (Whitehead, 2011). Over the last five years, inclusive urban housing strategies have evolved, addressing not only affordability but also quality, social inclusion, and the provision of essential services (e.g., water, sanitation) (UN-Habitat, 2024, p. 10; UN-Habitat, 2020, p. 15).

F. Incremental Housing and Self built Housing: Micro-housing often fits within the incremental housing model, where households progressively build or improve their dwellings over time, reflecting the financial capabilities and social circumstances of families. This is especially pertinent in informal settlements like Lideta.

Incremental Housing Theory (Davis, 2006): This emphasizes self-help or community-driven processes in housing development. Micro-housing often involves participatory and low-cost approaches, where local communities play a significant role in construction.

Squatting and Informal Settlements (Satterthwaite, 2017): Scholars like Satterthwaite have linked informal settlements with inadequate housing solutions. Micro-housing models that integrate affordable, flexible units can serve as a temporary or permanent solution in these settings.

City Model and Sustainable Urbanism

A. Compact City Model

The Compact City Model advocates for higher-density, mixed-use urban development as a strategic response to urban sprawl, promoting efficient land use, reduced transportation dependency, and enhanced environmental sustainability (Jenks, Burton, & Williams, 1996). This model emphasizes the concentration of residential, commercial, and recreational functions within walkable neighbourhoods, thereby minimizing per-capita infrastructure costs and carbon emissions while fostering vibrant, socially interactive communities (Breheny, 1992).

For rapidly urbanizing contexts like Addis Ababa, micro-housing aligns closely with Compact City principles by optimizing limited urban land through vertically integrated, compact units that accommodate growing populations without expanding the urban footprint. When strategically located near transit corridors and employment hubs, micro-housing developments can reinforce the Compact City's core objectives of accessibility, density, and functional diversity, contributing to a more resilient and resource-efficient urban form (Dempsey, 2010).

B. Sustainable Urban Development

Sustainable Urban Development, as articulated by Newman and Kenworthy (1999), emphasizes the integration of environmental, economic, and social dimensions to achieve long-term urban viability. This framework prioritizes the reduction of automobile dependency through transit-oriented design, the conservation of natural resources via energy-efficient construction, and the promotion of equitable access to housing, services, and employment.

In the context of Addis Ababa, micro-housing operationalizes these principles by offering compact, cost-effective dwellings that lower per-household energy consumption and facilitate proximity to public transportation, thereby reducing household transportation expenditures and greenhouse gas emissions (Newman & Kenworthy, 1999). Furthermore, sustainable urban development encourages participatory planning and inclusive design elements critical to ensuring that micro-housing initiatives respond to the diverse needs of low-income residents while advancing broader sustainability goals (Rydin, 2010).

C. Smart Growth

Smart Growth represents an urban planning approach that seeks to make urban expansion sustainable by promoting compact, transit-accessible, and environmentally sensitive development patterns (Meyer, 2005).

Key principles include mixed land uses, a range of housing options, walkable neighbourhoods, and the preservation of open space and ecological systems (American Planning Association, 2002).

Micro-housing embodies Smart Growth ideals by providing affordable, space-efficient housing options within established urban corridors, thereby supporting infill development and reducing pressure on peri-urban agricultural lands. In Addis Ababa, integrating micro-housing into Smart Growth strategies can help accommodate population growth while enhancing neighbourhood vitality, improving access to services, and mitigating the environmental impacts of unplanned urban expansion (Meyer, 2005). Recent literature further underscores the relevance of Smart Growth to micro-housing by highlighting the importance of incorporating energy-efficient technologies, renewable energy systems, and socially equitable design features to ensure that compact living contributes meaningfully to sustainable urban futures (Chakravarty, 2023; Harris, 2020).

Source: IGANT (2015). Micro-housing by SSD Architects (SSD Architects, 2015).



Figure-2 7: Micro-housing floor plan and public space



Source: Dezeen (2013). Casa Transportable by ABATON, Spain (ABATON, 2013).



Figure-2 6: Micro-housing 3D

Source: Decoded Magazine (n.d.).

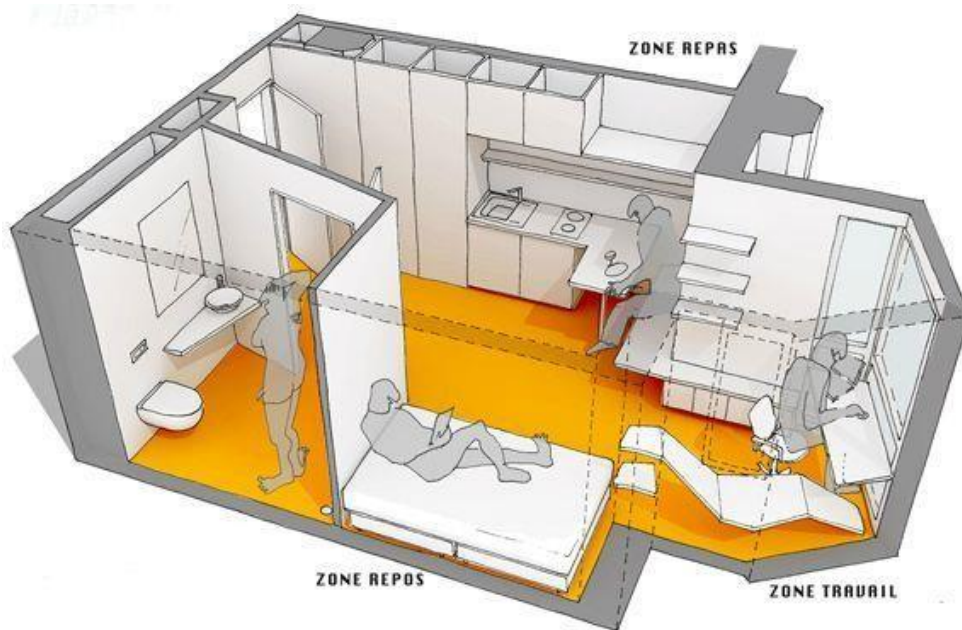


Figure-2 9: Living Space Zones

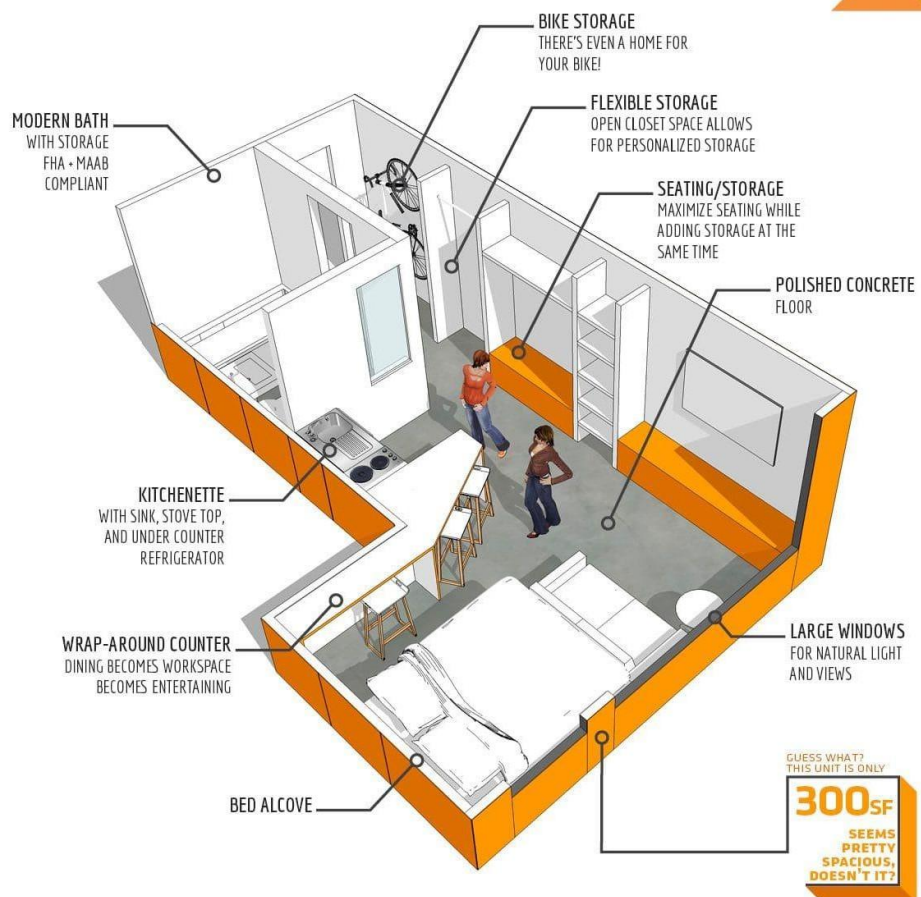


Figure-2 8: Isometric view of the schematic layout

Source: KM Access (n.d.). Accessible micro-housing design demonstrating universal design principles.

2.1.5 Recent Advances and Emerging Trends in Micro-Housing

In the past five years micro housing has been involving and including new innovations emerging in the field. Lately integrating micro housing smart technology has become a trend. Using energy efficient, smart home device will optimize space and reduce living cost and make micro housing more sustainable and leviabile(wyatt,2014). For example, solar panels, automated lighting system used to reduce energy consumption.



Figure-2 10: Implementation of Madison Park, a proposed micro-village in Walla

Source: Cusato (n.d.). Katrina Cottage - compact, dignified emergency housing

Co-living is also becoming famous as a way to reduce housing shortage while keeping the sense of community alive. These models provide half private space types like having a common area like living room and other common areas while having their own bedroom. (Harris & Nowicki, 2020).

Since sustainability is another trend in design industry micro housing integrating into environmental conscious urban planning is becoming a good trend. Micro housing has been building the structure using recycled wood, recycled materials and additional use solar energy system. (Harris, 2020).

Micro-housing supposes to be vernacular so that it can be accepted by the community.to address the housing crisis in cities coming up with policies and government models as part of strategies to solve the issue.



Figure-2 11: Maximizing use of vertical space in a micro-apartment in San Francisco

. Source: Archaizer (n.d.). prototype. Domino Loft - compact loft-style micro-housing with efficient spatial design

2.1.6 Emerging Concept to Consider

Recent advancements in urban housing have introduced several emerging concepts that are increasingly shaping the design, implementation, and adoption of micro-housing. Smart housing integrates automated systems and energy-efficient technologies to optimize space utilization, reduce utility consumption, and enhance resident comfort (Wyatt, 2014). At the same time, resilience and climate adaptation have become critical considerations, with compact designs increasingly incorporating passive cooling, sustainable materials, and climate-responsive features to withstand environmental stresses (Harris, 2020; Chakravarty, 2023).

The proliferation of digital platforms for housing solutions has further streamlined tenant matching, property management, and shared amenity coordination, making micro-living more accessible and efficiently managed (Harris & Nowicki, 2020). Alongside technological and operational innovations, inclusive housing design has gained prominence, emphasizing universal accessibility, flexible spatial configurations, and culturally responsive layouts to accommodate diverse demographics, including elderly residents, persons with disabilities, and multi-generational households (Parnell & Pieterse, 2014; World Bank, 2020).

Underpinning these developments are the core motivations driving micro-living adoption. Research consistently identifies affordability as the primary catalyst, as compact units significantly lower construction costs, reduce utility bills, and decrease rental burdens (Zhao et al., 2020; Talen & Knaap, 2021). Additionally, environmentally conscious individuals are increasingly drawn to micro-housing for its minimized ecological footprint and alignment with sustainable urban living practices (Harris, 2020). This shift is further reinforced by the growing philosophy of minimalism, wherein residents intentionally reject material excess in favor of simplified, purpose-driven lifestyles that prioritize daily essentials over spatial accumulation (Boller, 2019; Jebbink, 2019).

2.1.7 Policy Implications and Recommendations

Effective implementation of micro-housing as a strategic response to urban housing shortages requires a comprehensive policy framework that addresses regulatory, financial, social, and procedural dimensions. First, adapting zoning laws and building codes is essential to formally recognize compact unit typologies; current regulations mandating minimum unit sizes of 40 m² or more directly conflict with the spatial logic of micro-housing, necessitating revisions that permit units as small as 20-30 m² while maintaining strict standards for ventilation, natural light, structural safety, and fire egress (Talen & Knaap, 2021; World Bank, 2020).

Second, providing financial incentives and support is critical to overcoming the exclusion of informal workers from formal housing finance; policies should promote collateral free micro-loans, alternative credit assessment mechanisms using mobile money or utility payment records, and partial credit guarantees to de-risk lending for low-income households (World Bank, 2015; Fenta, 2014). Third, addressing public perceptions and promoting awareness through targeted social marketing campaigns can help reframe micro-housing not as "poor housing" but as "smart, sustainable urban living," thereby reducing cultural stigma and enhancing community acceptance (Harris & Nowicki, 2020; UN-Habitat, 2020).

Fourth, establishing clear quality standards and independent monitoring mechanisms ensures that micro-housing developments deliver on promises of affordability, safety, and liveability; standardized design templates, third-party inspections, and post-occupancy evaluations can safeguard resident welfare and build public trust (Chakravarty, 2023; UN-Habitat, 2017).

Finally, involving residents, stakeholders, and community organizations in participatory planning processes fosters ownership, aligns designs with local needs, and strengthens the social sustainability of micro-housing initiatives (Parnell & Pieterse, 2014; Harris, 2020). Collectively, these policy interventions regulatory adaptation, financial inclusion, public engagement, quality assurance, and participatory governance create an enabling environment for micro-housing to transition from pilot projects to scalable, equitable components of Addis Ababa's urban housing strategy.

2.1.8 Applying the Framework to the case study of Lideta, Addis Ababa

For better effectiveness and community acceptance, the proposed research on micro-housing in Lideta, Addis Ababa, must customize the ideology of compact living to the specific socio spatial and economic realities of the sub-city. This contextual adaptation requires a comprehensive analysis of Lideta's distinct housing needs, including the predominance of small households (81.2% comprising 1–3 persons) and the high concentration of informal sector workers who face systematic exclusion from formal mortgage programs (CSA, 2021; World Bank, 2015).

Furthermore, the research must account for rapid population growth and severe land scarcity, which necessitate high-density, transit-oriented development strategies to optimize limited urban footprints (UN-Habitat, 2020; Talen & Knaap, 2021). Affordability remains a critical determinant, as low-income households earning less than 14,000 ETB monthly allocate 60–80% of their income to rent, requiring micro-housing models that balance cost-efficiency with habitability standards (Fenta, 2014; Whitehead, 2011). Cultural preferences for larger living

spaces and multi-generational living arrangements must also be integrated into design frameworks to mitigate social resistance and enhance liveability (Harris & Nowicki, 2020; Parnell & Pieterse, 2014).

Additionally, existing housing policies, zoning regulations, and building codes which often mandate minimum unit sizes incompatible with compact typologies must be critically evaluated and adapted to enable regulatory compliance and streamlined approval processes (Zhao et al., 2020; Weldegebriel & Ayenew, 2020). Finally, financial mechanisms and local economic realities, including the prevalence of informal income documentation and limited access to collateral-based lending, necessitate innovative financing models such as rent-to-own schemes, community savings groups, and alternative credit assessment tools to ensure inclusive access (World Bank, 2020; Yigremew & Hassen, 2016). By systematically considering these interconnected factors, this research aims to tailor micro-housing solutions that are not only spatially efficient and economically viable but also culturally resonant and institutionally feasible within Lideta's unique urban context.

2.1.9 The Housing Crisis in Addis Ababa

As Ethiopia's political and economic hub, the city attracts individuals seeking better livelihoods resulting in a significant influx of people (Ethiopian Business review ,2023). This crisis is influenced by rapid urbanization and uncontrolled population growth. In Addis Ababa, approximately 80% of housing is considered substandard because it lacks basic utilities and infrastructure (Taylor & Francis Online, 2023). As a result, nearly 79% of the city's population is forced to live in slums or informal settlements (Architecture & Development, 2023).

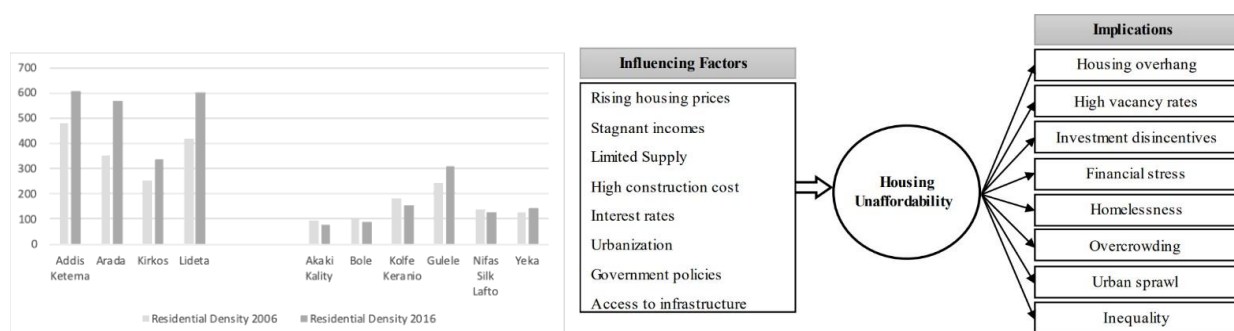


Figure-2 12: diagram showing influencing Factors

2.1.10 Micro-housing as a solution

Micro-housing units are more affordable than normal housing this makes them accepted by middle income class who is struggling with finding affordability. This housing types offer space efficient living options in addition to the affordability. The character of this space is based on

maximizing space utilization by making the use of the space to maximum but they minimize cost this make them accessible for low-income families. Shared facilities in micro housing tend to increase the bond between the residents this will enhance the liability of the environment (chakravatry,2023). As a strategy the Lideta's local development plan (LDP)support the micro-housing project because it can provide housing for the poor (acioly,2023).so micro-housing can be presented as innovative solution for the urban housing crisis.

2.1.11 Benefits of Micro-housing

Micro-housing offers a multitude of benefits that address critical urban challenges, ranging from economic constraints to environmental sustainability and social equity. Primarily, micro-housing significantly reduces construction costs by 30–50% compared to conventional housing typologies, directly translating into enhanced affordability for low- and middle-income households (Harris & Nowicki, 2020; Zhao et al., 2020). This cost efficiency enables the accommodation of more residents within limited urban land, effectively mitigating land scarcity and optimizing high-density urban forms without expanding the city's spatial footprint (Talen & Knaap, 2021). Furthermore, the compact nature of these units lowers energy demand for heating, cooling, and lighting, thereby reducing the overall environmental footprint and promoting environmental sustainability through resource-efficient living (Chakravarty, 2023; Meyer, 2005).

Beyond economic and environmental advantages, micro-housing encourages a minimalist lifestyle, where residents prioritize functionality and comfort over excessive material accumulation, often supported by innovative, multi-functional furniture designs that maximize spatial utility (Boller, 2019; Jebbink, 2019). The integration of sustainable materials, including recycled components and biomimetic design principles, further enhances the ecological resilience of these developments (Harris, 2020). Socially, micro-housing fosters stronger community bonds through shared amenities and communal spaces, which compensate for limited private areas and increase social interaction among residents (Gehl, 2010; Parnell & Pieterse, 2014). By providing dignified, affordable alternatives to informal settlements, micro-housing addresses housing inequality and creates job opportunities in the construction and design sectors, offering a viable, scalable solution to traditional housing models that often exclude the urban poor (UN-Habitat, 2020; World Bank, 2015).

2.1.12 Challenges and barriers to Micro-housing Implementation

The implementation of micro-housing in Addis Ababa faces significant regulatory and sociocultural barriers that constrain its scalability and community acceptance. Existing zoning bylaws and building codes often mandate minimum unit sizes of 40 m² or more, parking requirements, and rigid definitions of "dwelling units" that are incompatible with compact, efficient micro-housing typologies (Talen & Knaap, 2021; Zhao et al., 2020). These regulatory frameworks, designed for conventional housing models, inadvertently exclude innovative solutions that optimize limited urban land.

Compounding these institutional constraints are deep-rooted social and cultural preferences for larger living spaces with private courtyards a norm prevalent in Ethiopian urban culture which can generate resistance toward compact living arrangements perceived as temporary, inadequate for families, or stigmatized as "housing for the poor" (Harris & Nowicki, 2020; Parnell & Pieterse, 2014). Furthermore, a lack of accessible information about micro-housing benefits, design standards, and successful case studies limits public understanding and stakeholder buy-in, while fragmented coordination among planning, housing, and utility agencies exacerbates implementation delays (Weldegebriel & Ayenew, 2020; UN-Habitat, 2020).

Beyond regulatory and social dimensions, the provision of essential infrastructure represents a critical yet often underestimated barrier to micro-housing success in the Ethiopian context. Reliable access to potable water, electricity, telecommunications, and all-weather road connectivity is fundamental to ensuring habitability and resident satisfaction, yet these services remain inconsistently available in high-density inner-city areas like Lideta (Fenta, 2014; World Bank, 2020). Micro-housing developments, by concentrating population density within compact footprints, place heightened demand on existing utility networks that are frequently aging, under-capacitated, or poorly maintained.

Securing adequate investment for infrastructure upgrades alongside the housing units themselves is therefore essential but challenging given competing municipal priorities and limited public financing (UN-Habitat, 2020). Successful implementation thus requires integrated planning that aligns micro-housing delivery with infrastructure expansion, proactive community engagement to build trust and co-design solutions, and technical standards that ensure sanitary, electrical, and spatial quality without compromising affordability (Parnell & Pieterse, 2014; Harris, 2020). Only through such holistic, context-sensitive approaches can micro-housing overcome these interconnected barriers and fulfil its potential as a scalable, dignified housing alternative for low-income urban residents.

2.1.13 Potential Solution

Addressing the implementation challenges of micro-housing requires a multi-faceted approach that integrates strategic partnerships, regulatory reform, and community-cantered planning. Public-private partnerships can mobilize resources and expertise to accelerate project delivery while sharing financial risks between government and private developers (World Bank, 2020). Meaningful community involvement through participatory design workshops ensures that micro-housing models reflect local cultural preferences and livelihood needs, thereby enhancing social acceptance and long-term viability (Parnell & Pieterse, 2014).

Policy incentives, such as tax breaks, density bonuses, and streamlined permitting, can encourage private investment in compact housing typologies (UN-Habitat, 2020). Updating zoning laws and building codes to formally recognize units as small as 20–30 m² is essential to align regulatory frameworks with the spatial logic of micro-housing (Talen & Knaap, 2021). Involving financial institutions in developing innovative, collateral-free lending products can improve access to housing finance for informal workers and low-income households (Fenta, 2014).

Finally, embracing incremental development approaches allows households to progressively upgrade their dwellings in line with their financial capacity, supporting flexibility and affordability over time (Architecture in Development, 2023; Davis, 2006). Collectively, these strategies create an enabling environment for micro-housing to transition from pilot initiatives to scalable, equitable urban housing solutions.

2.2 Empirical Literature Review

The integration of micro-housing as a solution to urban housing shortage in high density areas like sub city, Addis Ababa, necessary pedestrian mobility systems. Residents around compact living areas they depend on walking for their daily needs, so making walkability critical determines the viability of the housings.

2.2.1 Pedestrian Safety Crisis and Infrastructure Deficits

Pedestrians accounting for 76% of road fatalities citywide. A world bank study attributes this to infrastructure prioritizing car flow, with 88% of urban roads built without pedestrian safety considerations. Critical gaps include crossing deficiencies, sidewalk inadequacies and safety hazards. There is absence of formal crossing in 79% of road networks. 50% of sidewalks rated “poor to very poor” due to narrow width (<1.2m). Inadequate lighting (absent in 55% of streets) and lack of tactile paving for visually impaired pedestrians (missing in 54% of assessed areas).

Key corridors like Megenagna and Mexico square scored very poor due to high traffic speeds and obstructed pathways, while areas like national theater achieved better rating owing to wider sidewalks and organized crossings.

Location	PLOS Rating	Critical Deficiencies
Megenagna-Torihayloch	Very Poor	Obstructed sidewalks, no crossings, high traffic speeds
Mexico Square	Very Poor	Vendor encroachment, narrow pathways
National Theatre	Better	Wide pathways, organized crossings
LRT Station Vicinity	Fairly Walkable	Disconnected sidewalks, poor lighting

Table 2 1: Pedestrian Safety Crisis and Infrastructure Deficits

Source: Adapted from Tesfaye et al. (2024), *Evaluating pedestrian facilities for enhancing pedestrian safety in Addis Ababa city*, *Frontiers in Sustainable Cities*.

2.2.2 Walkability and transit integration challenges

The viability of micro-housing as a solution to urban housing shortage is linked to effective transit-printed development (TOD), which compensates for limited unit sizes by providing access to amenities and services via pedestrian -friendly transit access. However empirical studies in Addis Ababa reveal significant deficiencies in pedestrian infrastructure integration with transit systems.

A GIS based Analytic Hierarchy process analysis demonstrated that only 8.15% of areas within 500m of light Rail transit (LRT)stations (e.g. Stadium, Megenagna) were classified as ‘walkable while 72.35% were fairly walkable and 19.47% were not walkable due to disconnected sidewalks, inadequate crossing and insufficient amenities(tekolla,2024).80% of users reported dissatisfaction with space width, safety and freedom of movement. Additionally urban green space in Ethiopian cities like Addis Ababa offer mono functional services with poor connectivity as green corridors essential for pedestrian comfort and walkability remain absent from planning frameworks further diminishing the pedestrian experience(tekolla,2024). These systematic gaps highlight the urgent need for integrated planning that addresses sidewalk connectivity user safety and ecological design to support micro-housing success.

2.2.3 Impact of Informal Economies on Pedestrian Flow

The integration of street vending a critical livelihood strategy for urban informal workers into high density urban zones creates complex trade-offs between economic survival and

pedestrian mobility in areas like Gulele sub city Addis Ababa vendor encroachment on sidewalks increase pedestrian density by 30-50% forcing pedestrian into roadways and elevating collision risks with vehicular traffic. Unregulated vendor stalls disrupt pedestrian flow patterns near transit hubs, reducing walking speeds and creating bottlenecks that compromises safety (Hagos,2020). The narrow sidewalks and inadequate crossings which increases vulnerability when pedestrians to walk around vendor clusters.

Conventional policy responses such as eviction campaigns frequently fail due to the vendors absence of alternative income source leading the vendors to resume activities in high -demand locations shortly after enforcement actions.

2.2.4 Inclusivity Deficits for Vulnerable Groups

Pedestrian infrastructure neglects people with disabilities critical for inclusive micro-housing. In Mekelle only 19.2% of sidewalks met the 2.4m width required for two wheelchairs to pass 46.2% were 1.2m hindering basic mobility (Transport Research Laboratory (TRL) & UK Aid. (n.d.)). Ramps exhibit inappropriate slopes, inadequate landings or poor placement restricting access to services. Transport guidelines lack enforceable disability-inclusive design standards and implementation is limited by funding.

2.2.5 Gaps and Limitations in current Theories and models

One challenge in micro-housing is maintaining a balance between affordability and housing quality. Some micro-housing models offer low costs at the expense of poor living conditions. The gaps in studies are needed to explore how micro-housing can balance affordability with decent living conditions (harris,2020).

Cultural and contextual relevance: The existing models, Ethiopia's Integrated Housing Development Program (IHDP) / Condominium Model, Conventional Western Micro-Housing Design Models, Traditional Urban Planning Models, Standard Housing Affordability Models and Transit-Oriented Development (TOD) Models fail to consider social participations, community integration and including behavioral factors, which are main factors to understand micro-housing and its impacts beyond space. Lack of studies showing the long term-effects of micro housing: most studies show the short effect to micro housing not what it can do in the long run to reduce the housing shortage. There is struggle between making it affordable and completing it with good housing quality. Some micro-housing like condominium offers low cost with low quality. The gaps in these studies are it needs more studies that shows how to build these micro housing with better quality and low price.

2.2.6 Gaps and limitations

While micro housing has gained attention in urban planning and housing studies several gaps remain, most research focuses on the short-term benefits of micro housing. There is a lack of longitudinal studies that assess the long-term impacts on residents' wellbeing, economic mobility and community integration.

Micro housing research often focuses on western or global north contexts, with limited attention to the cultural, social and economic realities of cities in the Global south such as Addis Ababa (Watson, 2009, p. 226; Parnell & Pieterse, 2014, pp. 1-15; UN-Habitat, 2020, p. 10). There is a need for more region-specific research that addresses the unique challenges faced by urban populations in Africa. While many studies address the affordability of micro-housing there is a gap in understanding how these models interact with broader economic factors, such as wage disparities informal labor markets and economic mobility particularly in developing countries.

While many micro-housing models focus on spatial and economic efficiency, there is a growing call for more research on how micro-housing can foster a sense of community and social cohesion. Future research should explore how shared spaces and communal living can enhance social interactions and quality of life in dense urban areas.

Critical gaps persist in understanding micro-housing as a solution for Lideta sub-city's housing shortages. First existing studies lack localized analysis of Lideta's unique context its high-density informal settlements (80% of Addis Ababa's housing stock) and proximity to commercial hubs like marcato which may amplify micro housing viability but remain unexplored. Second while pedestrian infrastructure deficiencies are documented (e.g. Only % walkability near stations), no research integrates these with micro housing location efficiency or adapts unit designs to support street vending livelihoods despite vendor encroachment increasing pedestrian collision risky by 30-50%.

Third socioeconomic equity gaps affordability models ignore shelter poor households (22.8% citywide) and studies overlook whether kebele residents would accept micro-units as formalization pathways despite tenure security benefits. Fourth policy misalignment is unaddressed such as zoning laws restricting density without Tokyo -style regulatory innovations for smaller units and Ethiopia's strategy (2019-2028) omits co -investment in housing transit integration. Finally longitudinal and behavior evidence is absent particularly on gendered mobility patterns cultural acceptance of compact living or environmental performance in Addis Ababa climate limiting scalability predictions. These gaps underscore the need for context driven policy conscious and equity centered micro housing frameworks tailored to Lideta's realities.

Conclusion

Addis Ababa faces an annual deficit of 140,000 units. In Lideta 80% of housing is informal or slum with severe overcrowding and inadequate infrastructure. (World Bank, 2015, p. 45; UN-Habitat, 2011, p. 18). Micro housing offers potential through 30-50% lower costs and optimized space between 15-40 m² per units. But outdated the offer is outdated in regulations (e.g. Minimum unit sizes) implementation.

Only 8.15% of areas near stations are walkable due to disconnected sidewalks, unsafe crossings and poor lighting. Street vending increases pedestrian collision risks by 30-50%, demanding integrated furniture zones in micro-housing designs. 22.8% of households face shelter poverty, existing programs exclude the poor e.g. 20% down payments. Micro-housing requires pro-poor financing (rent-to own schemes) and universal design (only 19.2% of sidewalks accommodate wheelchairs). Zoning restricts density, while transport plans ignore housing integration. Fragmented governance perpetuates informality.

In climate context rising flood risks 29% rainfall increase by 2080 and heat islands necessitate flood -resistant materials and passive cooling in micro-units (Teshager et al., 2018). Cultural preferences for multigenerational living and tenure security must inform design to ensure acceptance. Micro housing in Lideta must integrate TOD (transit-oriented development), co-design with communities e.g. Vendor inclusive streetscapes and reform policies (zoning, financing. Success hinges synchronizing affordability climate resilience and equitable access.

Micro -housing is a potential solution for the urban housing crisis Addis Ababa and every other city in Ethiopia facing. Micro housing provides affordable housing for lower income families. Not only the affordability micro*housing also provides a better living condition. Using innovative methods like this in cities like Addis Ababa as a strategy can help resolve the urban housing crisis. Even Tho it's a good solution there are barriers and challenges when it comes to implementation. There is a problem relating to the affordability and investment needed to provide for the construction to resolve this issue financial in states like banks provide funding and mortgage system. (gumbo,2011)

In this implementation process the community and stakeholders' participation is crucial. The project also should focus on social networks and livelihood and security of the neighbourhood. to make sure the implementation is successful micro-housing initiative require better integration with financial systems and should truly address the urban housing crisis in urban cities.

CHAPTER THREE: RESEARCH METHODOLOGY

3.Introduction

Research methodology is a framework to guide the researcher to solve the research problem. It includes the strategies, methods and techniques to be used in conducting the research. A valid research methodology increases the reliability and validity of the finding. The selection of appropriate research method Clarify the logic behind the steps taken in research.

3.1 Description of the study Area

The study is conducted in Lideta. Lideta is one of the sub cities of Addis Ababa city administration, located in the central western part of the town. Lideta is characterized by informal settlement, mixed commercial and residential spaces. This makes the location ideal to examine the potential impact of micro-housing solutions.

In this area there is a significant urban housing challenges and the presence of various micro-housing initiatives' also the presence of high population density, and the mixture of residential and commercial housings and also the rapid expansion of informal settlements, this makes Lideta ideal location for examining the potential impact of micro-housing solutions.

3.1.1 Location Map of the Study Area

Lideta sub-city approximately centered at 9.0185°N latitude, 38.727°E longitude is a densely populated administrative district within Ethiopian's capital, Addis Ababa (Plan and Development Bureau, 2024). Situated in the city's Central-western sector, it spans elevations ranging from 2,258 meters this Bing minimum to 2,465-meter maximum above sea level, with an average elevation of 2,258 meters (CSA, 2021). This topographical variation contributes to microclimatic conditions and urban development constraints including steep slope in eastern zones and flood prone valleys (Weldegebriel & Ayenew, 2020). Lideta's strategic location near commercial hubs (e.g. Merkato and transit corridors e.g. Lideta light rail station renders it a critical site for examining micro-housing solutions for Addis Ababa's acute housing shortage. (UN-Habitat, 2017; World Bank, 2015).

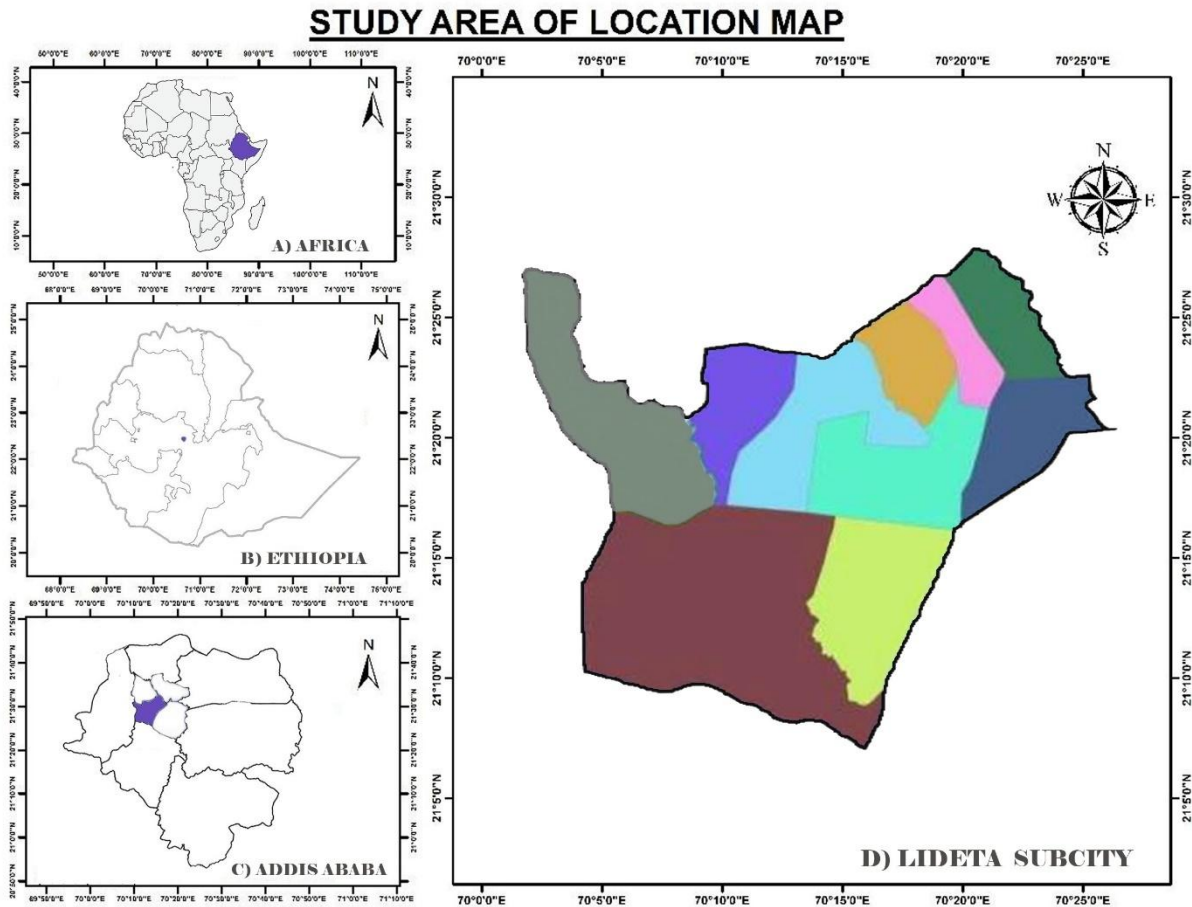


Figure 3 1:Study Area of Location Map

Site selection Criteria

There are reasons to select Lideta as research area because of its land scarcity, high density population .as social factor Lideta's community have been living together for a lot of years the since of community will not be a new thing to practices. Since Lideta locate in the center of Addis Abba its proximity to amenities is very good and this is a very crucial thing to consider. Lideta is also suitable for the need of affordable and comfortable housing demand in the area. There are ongoing developmental projects this is an advantage to implement the new project.

3.1.2 Biophysical Conditions of the study Area

Lideta sub-city exhibits pronounced physiographic diversity critical to urban development. Spanning elevations from 2,258 m to 2,465 m (Plan and Development Bureau, 2024). Its terrain descends steeply east to west from volcanic foothills of the Entoto Range toward the kabana River Flood plains.

This creates three district zones. Peer slope $>15^\circ$ gradient with erosion prone basalt bedrock elevation plateaus 2,300-2,400m accommodating dense settlements and low-lying floodplains ($<2,300\text{m}$) experiencing seasonal inundation during peak rainfall (July-August) (Weldegebriel & Ayenew, 2020; CSA, 2021).

The sub-city's bimodal climate receiving 900-1,200 mm annual rainfall interacts with topography to generate localized hazards upper slopes face landslide risks while floodplains contend with drainage congestion exacerbated by paved roads and sidewalks (UN-Habitat, 2017; Tigabu et al., 2008). These constraints combined with urban heat island effect elevating valley temperatures by 3- 4°C directly challenge micro-housing siting and resilience (World Bank, 2015; Fenta, 2014).

3.1.3 Socioeconomic conditions of the study area

Lideta is a sub-city of Addis Ababa, Ethiopia. The district is located in central-western area of the city. This district has dense population and contained with diverse communities. Lideta is one of the oldest sub cities of Addis Ababa this makes it a focal point for various urban development projects (CSA, 2021).

Lideta sub-city exemplifies Addis Ababa's urban paradox rapid growth alongside persistent systemic poverty that has become deeply rooted in a community due to historical neglect. With 80% of inner-city housing classified as informal slums (UN-Habitat, 2011, p. 24; UN-Habitat, 2020, p. 14). They contend with severe overcrowding inadequate ventilation and limited access to basic like piped water available to only 34% of households and improved sanitation that is lacking 41% (Gebremariam & Asfaw, 2017; World Bank, 2015).

Economic life is dominated by informal sector which sustains 68% of livelihoods notably street vending that occupies 30-50% of sidewalk space, displacing pedestrians and elevating collision risks (Hagos, 2020; Tekolla, 2024). This informality coexisting with acute shelter poverty 22.8% of households spend $>30\%$ of income on housing and food security affecting 66.5% of the households (World Bank, 2022, p. 45; UN-Habitat, 2020, p. 34; Ethiopian Statistics Service [ESS], 2021, p. 18). Where female headed experience 1.8 times higher deprivation due to wage discrimination. High density zones have 52% less green space and 79% fewer health facilities per capita than affluent sector like Bole with poverty concentrated in kebele compound where dependency ratio strain resources.

3.1.4 Historical Background

Lideta's socioeconomic landscape stems from historical planning failures. Established in 1886 as a military encampment (Katama) under emperor Menelik II, its early layout allocated western lands to nobility and eastern zones to lower ranking retainers' 20th century haphazard urbanization intensified after Italian occupation from 1936-1941, with stone houses replacing traditional tukul huts but lacking infrastructure (UN-Habitat, 2017).

A pivotal 2005 redevelopment initiative aimed to create mixed use spaces but collapsed due to weak property records, displacement of low-income residents without compensation and ineffective revenue reinvestment culminating in today's reality where 44% of rebuilt environment remains informal settlements (Weldegebriel & Ayenew, 2020; World Bank, 2015). This legacy exclusionary planning persists 65.7% of pro-poor budgets fail to address spatial inequality and outdated land registries hinder revenue capture for services (Fenta, 2014; Yigremew & Hassen, 2016).

3.1.5 Research philosophical Position

This study uses a pragmatist approach, focusing on practical problem-solving and combining methods as needed, instead of choosing between positivist or interpretivist traditions. (Creswell & Plano Clark, 2018; Saunders et al., 2019). Ontologically, the research adopts a pluralist stance, acknowledging that the urban housing shortage in Lideta comprises both objective, measurable phenomena (e.g., unit dimensions, income-expenditure ratios, infrastructure deficits) and subjective, socially constructed experiences (e.g., resident satisfaction, cultural perceptions of compact living, social stigma) (Matamanda et al., 2022; Harris & Nowicki, 2020).

Epistemologically, pragmatism posits that knowledge is generated through practical inquiry and validated by its usefulness in addressing identified problems, with truth viewed as contextually relevant and actionable rather than absolute (Saunders et al., 2019; World Bank, 2020). Methodologically, this paradigm directly justifies the mixed-methods approach employed, enabling the integration of quantitative techniques (descriptive statistics, satisfaction indices, inferential tests) with qualitative documentation (field observations, stakeholder insights) to achieve methodological pluralism and data triangulation (Creswell, 2014; Groat & Wang, 2013).

Ultimately, this philosophical position ensures the research remains problem-centred rather than methodology-driven, allowing research questions to dictate methodological choices and ensuring that technical, socioeconomic, and cultural dimensions of micro-housing are examined holistically an approach particularly appropriate for urban housing research in rapidly urbanizing African contexts where structural constraints, informal economies, and cultural preferences intersect (Parnell & Pieterse, 2014; UN-Habitat, 2020).

3.2 Research Methods

3.2.1 Research Design

This study combined qualitative and quantitative approaches to examine community needs, lived experiences, and customized design principles for sustainable micro-housing, including optimized material selection. The research methodology integrated structured surveys, interviews, and comparative case studies to systematically gather diverse perspectives and empirical data from residents and stakeholders, ensuring context-responsive and evidence-based housing interventions.

3.2.2 Data types and Sources

The study utilized a combination of primary and secondary data. Primary data were collected through structured surveys and semi-structured interviews administered to Lideta residents, municipal planning officials, and representatives from financial institutions.

To ensure methodological rigor and analytical depth, this study utilized a combination of primary and secondary data sources. Primary data were collected directly through structured surveys and in-depth interviews with key stakeholders, including micro-housing residents, government officials, and representatives from financial institutions. Complementing these empirical findings, secondary data were systematically gathered from a comprehensive review of relevant academic literature, peer-reviewed journals, official government reports, and specific housing project documentation. Together, these diverse sources provided a robust foundation for triangulating the research findings and contextualizing the study within the broader urban housing landscape.

3.3 Sample Design

3.3.1 Target population

The target population includes three key stakeholders' groups that is directly affected by the impact of micro-housing implementation in Lideta sub-city.

1. **Low and middle-income residents** facing housing shortages
2. **Government officials** in housing and urban planning department
3. **Financial institutions** offering mortgage services in the sub-city

3.3.2 Sampling Methods

A mixed sampling approach was employed to ensure both statistical representativeness and strategic relevance. **Stratified random sampling** was applied to select resident participants, guaranteeing proportional representation across varying income brackets and housing typologies within the study area.

At the same time, **purposive sampling** was utilized to recruit government officials and financial institution representatives, specifically targeting key decision-makers with direct authority over housing policy, urban planning, and financing mechanisms. Together, these strategies effectively captured stakeholder heterogeneity while maintaining methodological rigor and alignment with the study's analytical objectives.

3.3.3 sample size

Based on kebele level administrative records and project documentation from the Lideta sub city housing development office the estimated number of households residing in eligible housing types within the four study neighbourhoods is **N=254 households** (representing low-income residents in selected neighbourhoods).

Krejci and Morgan (1970) Formula Application: $s = \frac{X^2 \times N \times P(1-P)}{d^2(N-1) + X^2 \times P(1-P)}$

Where:

- s = required sample size
- X^2 = chi-square value for 1 degree of freedom at 95% confidence level = 3.841
- N = target population size = 254 households
- P = population proportion (assumed 0.50 for maximum variability)
- d = margin of error = 0.05 (5%)

The total sample contains 153 participants.

Stakeholder group	Sample size	Determination Method
Residents	138	Krejcie & Morgan table (95% CL, 5% Moe)
Government officials	10	Near-census sampling (Planning, Housing, Finance bureaus)
Financial institutions	5	Comprehensive coverage (all major lenders in Lideta)

Table 3 1:Sample Size

Note: Resident sample calculated from Lideta's population of **248,208**(Krejci and morgan,1970)

3.3.4 Respondent inclusion and exclusion Criteria

Inclusion criteria

- Residents: currently renting or owning substandard housing with monthly income $\leq$ 7,000
- Officials: minimum 2 years' service in Lideta housing/planning departments
- Financial institutions: registered mortgage providers in Lideta

Exclusion criteria

- Residents in government-subsidized housing schemes
- Officials in administrative(non-policy) roles
- Informal lending organizations

3.3.5 Rationale for Sampling Approach

The stratified-purposive hybrid sampling design ensured statistical representativeness of resident housing experiences through probability-based stratified random sampling, while simultaneously capturing specialized institutional expertise via the targeted selection of government officials and financial sector representatives. This dual approach maintained methodological coherence by strategically aligning distinct sampling techniques with the unique characteristics of each stakeholder subgroup: probabilistic methods accounted for residential heterogeneity across income levels and housing typologies, whereas purposive techniques prioritized individuals with direct decision-making authority and sector-specific knowledge. Furthermore, the design effectively addressed urban fieldwork constraints by establishing an operational yet methodologically rigorous framework that balanced statistical validity with practical feasibility. Collectively, this approach successfully targeted stakeholders capable of generating critical, context-specific insights into micro-housing feasibility,

implementation barriers, and financial viability within Lideta's distinct socio-spatial environment.

3.4 Methods of data collection

This study employs a triangulated approach to data collection combining three complementary methods to ensure comprehensive insights into micro-housing dynamics in Lideta sub-city.

3.4.1 Interviews

In depth interviews with government officials and financial institute representative using semi-structured interviews.

3.4.2 Surveys

A detailed sampling frame was developed to guide the systematic distribution of structured questionnaires to the selected resident participants. Through this survey instrument, comprehensive data were collected on current housing conditions, affordability thresholds, satisfaction levels with existing living arrangements, and perceptions regarding the suitability and potential of micro-housing interventions in Lideta Sub-City.

3.4.3 Observation

Structured observation was employed to document physical condition, spatial utilization patterns and resident behavioral adaptations within micro-housing environments using standardized checklist adapted from groat and wang (2013). This instrument systematically recorded metrics across three critical dimensions.

Observation Dimension	Metrics recorded
Housing unit conditions	Space efficiency, natural lighting, ventilation
Shared facilities	Cleanliness, functionality, crowding
User adaptations	Modifications to units, informal extensions

Table 3 2: Observation Dimension

Observations were conducted at 15 purposefully selected micro-housing units distributed across three representative neighbourhoods in Lideta sub city, with each unit were visited three times during district daily periods morning, afternoon and evening for 10 minutes sessions to capture variations.

3.5 Method of Data Analysis and presentation

To summarize the demographic, economic, and social characteristics of the sample population, descriptive statistical methods were employed. Measures such as mean, median, mode, standard deviation, and frequency distributions were calculated to provide a comprehensive overview of the collected data. Hypothesis testing was subsequently applied to draw evidence-based conclusions regarding the socioeconomic impact of micro-housing interventions. Data analysis was conducted using SPSS and Microsoft Excel to ensure analytical rigor and reproducibility.

For qualitative data derived from interviews, thematic analysis was utilized to identify recurring patterns and contextual insights. Additionally, content analysis was applied to field notes and institutional documents to interpret the textual information within its socio-spatial context. Together, these analytical approaches facilitated a holistic understanding of the implementation dynamics and lived experiences associated with micro-housing projects in Lideta Sub-City.

No	Specific Objectives	Data type	Source	Method of data analysis	Comparative indicators
1	Examine the current state of urban housing and its shortcomings in Lideta Sub-City	- Quantitative - Qualitative - Observation	- Residents' surveys - Site observation - Municipal reports	- Descriptive statistics (frequencies, means) - Spatial analysis (GIS mapping of deficiencies)	- Un-habitat minimum space standards (9m²/person) - Addis Ababa housing quality benchmarks
2	Evaluate the extent to which micro-housing alternatives meets the housing demands of low-income households	- Quantitative - Qualitative	- Residents' surveys - Stakeholder interviews	- Gap analysis (demand vs. supply) - Satisfaction indices	- Affordability thresholds (30%income/housing) - Density norms(persons/units)
3	Analyse the comparative benefits of micro-housing as an alternative in relation to residents' socioeconomic conditions	Mixed methods	- Survey and interview triangulation - Financial records	- Correlation analysis (income vs. Acceptance) - Cost-benefits matrices - Thematic analysis	- Conventional vs micro-housing cost differentials - Rental yield comparisons

4	Explore the challenges related to implementation of micro-housing projects in Lideta.	• Qualitative • Observation	• Stakeholder interviews • Field observation	• Thematic analysis (grounded theory approach) • SWOT framework • Process mapping	• Policy implementation gaps • Regulatory barriers in peer cities (Nairobi)
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Table 3 3: Method of Data Analysis and Presentation

3.6 Validation and reliability

To ensure methodological rigor, validation and reliability assessments were systematically applied throughout the research process. Prior to full deployment, pilot testing verified instrument clarity, while expert review by urban planning scholars established content and face validity. Reliability was confirmed through internal consistency testing (Cronbach's $\alpha > 0.85$) and methodological triangulation across surveys, structured observations, and stakeholder interviews. Consistency checks were maintained during data entry and analysis to minimize bias and enhance the overall credibility of the findings.

3.7 Ethical Considerations

Participants were clearly informed of the study's objectives and potential benefits, and written consent was obtained prior to administering surveys or conducting interviews. Anonymity and confidentiality were strictly maintained unless participants voluntarily wanted for public attribution. Demonstrated respect for participants and cultural diversity, ensured objective and unbiased interpretation of findings, and actively fostered community participation in the research design and validation phases. These protocols safeguarded participant rights, minimized potential harm, and upheld established academic ethical standards.

Chapter Four: Results and Discussions

A total of 138 structured questionnaires were distributed to resident participants of which 126 were fully completed and returned, yielding a response rate of 91.3%.all targeted government officials (n=10) and financial institution representatives (n=5) participated, resulting in a 100% response rate for institutional stakeholders. The overall response rate of 93.5% across all stakeholder group supports the statistical reliability, contextual representativeness, and analytical validity of the findings presented in this chapter.

4.1 Demographic characteristics of the respondents

The demographic characteristics, like the age-sex composition of respondents, can be one of the crucial determinants for the analysis of housing access and demand issues in the city under study. Age-sex composition of the respondents interviewed in this study is depicted in Table 4.1 below.

With respect to the age composition of the respondents, it can be seen from Table 4.1 below that the largest age group is represented by people between 25 and 35 years (41.3% of respondents or 57 respondents). The next largest group is between 35 and 45 years (29%, or 40 respondents); while the group aged 45 – 60 constitutes 19.6% (or 27 respondents). This indicates the age structure reflects more characteristics of younger to middle-aged adults.

On the other hand, in terms of sex distribution among the respondents during this research study, there is an even representation of both sexes, with 50.0% (69) being females and 50.0% (69) being males. Gender equality in this case reduces any possible gender bias during data interpretation.

Another demographic factor is marital status. In this case, majority of the respondents are accounting for 50.7% (70). Married individuals follow with 37.7% (52). Widowed respondents comprising 10.1% (14), and divorced respondents only 1.4% (2). The cumulative percentage indicated more than 88% are either single or married. The high proportion of singles reflects a relatively young respondents' age distribution and a context of urban demographic conditions where marriage occurs later.

Regarding the level of respondents' education from the table, it is evident that the highest number of respondents belong to the secondary level of education, constituting 31.2% (43). Those with certificates/diplomas account for 29.0% (40). Respondents with primary education constitute 18.8% (26), while those with basic literacy levels are 10.1% (14), and those with degrees and above constitute 10.9% (15). The cumulative percentage indicates that more than 60% of them have attained the secondary level of education or above.

Table 4 1: Demographic characteristics of the respondents

Age of the respondents			
Age Group	Frequency	Percent	Cumulative Percent
25-35	57	41.3	41.3
35-45	40	29.0	70.3
45-60	27	19.6	89.9
>60	14	10.1	100.0
Total	138	100.0	
Sex of the respondent			
Female	69	50.0	50.0
Male	69	50.0	100.0
Total	138	100.0	
Marital Status of the respondents			
Single	70	50.7	50.7
Married	52	37.7	88.4
Divorced	2	1.4	89.9
Widowed	14	10.1	100.0
Total	138	100.0	
Level of Respondents Education			
Read and write	14	10.1	10.1
Primary level	26	18.8	29.0
Secondary level	43	31.2	60.1
Certificate/ Diploma	40	29.0	89.1
Degree and above	15	10.9	100.0
Total	138	100.0	

With regard to the demographic composition, which is mainly young to middle-aged respondents, an equal representation of both males and females, predominantly unmarried, with secondary education or certificate education, it can be argued that there will be a high demand for small houses that will accommodate single people at a reasonable cost. There is a greater number of single females, which indicates the necessity of having safe and conveniently located housing, whereas the fewer numbers of widows indicate that there is a need for low-cost housing. The implication of the demographic characteristics of the population on the housing demand in the city of Addis Ababa is also evidenced by the work of Clarke et al. (2008) and Larsen et al. (2019).

As for the household size, the distribution is clearly shown by Figure 4.1, which shows a strong concentration of small households. About 40% of the respondents are living alone, 22.5% the households have 2 persons, 18.8% have 3 persons, while only 10.1% and 8.7% have 4 or 5 persons in a house, respectively. The cumulative percentage result shows that more than 62% of respondents reside in 1- or 2-person households, and 81.2% live in households of up to 3 persons. As supported by Clarke et al. (2008), demand from small-sized households is strongly associated with the need for affordable, low-cost small housing units, even when other socioeconomic factors remain constant.

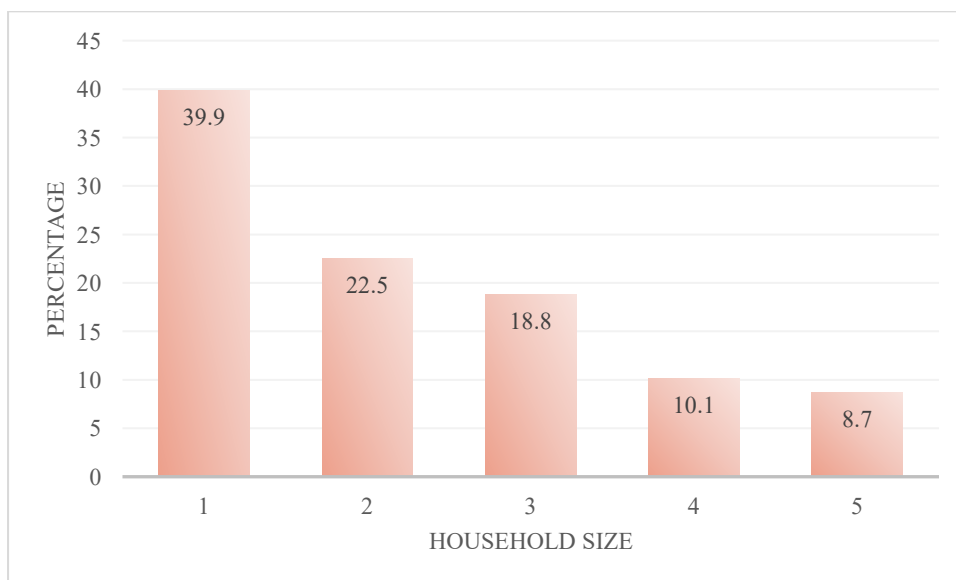


Figure 4 1 Distribution of the respondents' household size

The employment status is an important aspect of the study presented in Table 4.2. According to this table, about 61% (84) of respondents are formally employed, 29% (40) are self-employed, and a small proportion of respondents, about 10%, are unemployed. The cumulative result shows that nearly 90% of respondents are economically active, whether in formal or informal employment, and across different income levels. Housing access is influenced by the type of employment, as it affects the ability to earn a stable formal income. While employment alone does not assure housing affordability.

Employment status	Frequency	Percent	Cumulative Percent
Unemployed	14	10.1	10.1
Self-employed	40	29.0	39.1
Employed	84	60.9	100.0
Total	138	100.0	

Table 4 2: The distribution of employment status of the respondents

4.2 Current State of Urban Housing and Its Shortcomings in Lideta Sub-City

4.2.1 Awareness and understanding of the Micro-Housing Development project

One important aspect to consider is residents' awareness of this type of housing project. In this regard, Table 4.1 reveals that a considerable number of respondents, approximately 90.6%, (125 respondents) were familiar with the concept of MHD projects to varying extents before joining the project, while the other respondents at 9.4% (13 respondents) had never heard of MHD projects before. High awareness on the part of the project beneficiaries may be attributed to the high visibility of the project due to different means of communication.

Table 4 3: Awareness of Respondents Regarding the MHD Approach Before Participation

Awareness	Frequency	Percent	Cumulative Percent
No	13	9.4	9.4
Yes	125	90.6	100.0
Total	138	100.0	

On the other hand, it's important to understand how they initially perceived the living quarters and what they thought the housing units would look like. Out of the beneficiaries surveyed about their prior understanding of MHD building units, the largest group, which is about 44.2% (61 respondents), associated MHD with location-oriented housing, followed by government-provided housing, representing about 13% (18 respondents). The last set of responses indicated their comprehension of the MHD project as follows: modern design-focused micro-housing (11.6%), lack of previous experience (10.9%), special group housing (9.4%), small and compact housing (8.7%), and affordable/low-income housing (2.2%). The overwhelming prevalence of comprehension focused on the location implies that the majority of the beneficiaries perceive MHD as a means of enhancing transportation accessibility and urban amenities, which is congruent with the compact city planning model of Addis Ababa. The low level of awareness of affordability as an important characteristic is surprising, but this may be due to the previous history of affordable housing projects experienced by the participants that have informed their perception of costs (condominium housing).

Table 4 4: Prior understanding of the unit of MHD approaches buildings

Understanding	Frequency	Percent	Cumulative Percent
No prior knowledge	15	10.9	10.9
Affordable and Low-Income Housing	3	2.2	13.0
Location-Oriented Housing	61	44.2	57.2
Government-Provided Housing	18	13.0	70.3
Special-Group Housing	13	9.4	79.7
Modern Design-Oriented Micro Housing	16	11.6	91.3
General Small and Compact Housing	12	8.7	100.0
Total	138	100.0	

As of the residents' expectation towards the building type in the MHD project, Table 4.3 shows some indication reflecting their perception and need. Among 138 beneficiaries, the majority, comprising 60.9% (84 respondents), expected MHD building units to be integrated type, while 28.3% (39 respondents) expected standalone units, and 10.9% (15 respondents) had no prior knowledge. The clear preferences for units that are integrative point towards the belief of most respondents that the MHD project is cost-effective and integral to their means of subsistence. This is probably due to the general perception that the MHD project is an urban housing project which is oriented in terms of location, compact, and integral.

Table 4 5: Respondents' expected perception of the type of building unit

Building unit type	Frequency	Percent	Cumulative Percent
No prior knowledge	15	10.9	10.9
Standalone	39	28.3	39.1
Integrated	84	60.9	100.0
Total	138	100.0	

4.2.2 The current housing condition in the MHD project site



Source: Author's own illustration (2026).

Figure 4 2 Study Area

A combined living/sleeping area (no internal partitions in units <22 m²). A semi-enclosed kitchenette with basic counter space and sink provision. A private bathroom (toilet and shower) with tiled walls and floor. A single external door and one or two windows for ventilation. The Floor is Cement screed (basic, unpolished) in lower-cost units. Ceramic tiles in units marketed to higher income tenants. Wall construction and plastering most walls are constructed using mad and hallow concrete blocks (10-15 cm thickness) with cement plaster. Roofing system like typical feature reinforced concrete flat roof. Most standalone units commonly use corrugated iron sheets over timber or light steel trusses.



Figure 4 3 Housing Conditions

Source: Author's own field photograph (2025).

The physical inspection shows houses in Lideta sub-city provide adequate shelter that represents the living conditions. Another important aspect is examining the current housing conditions of respondents in the MHD beneficiary group. The descriptive statistics presented in Table 4.4 provide a clear overview of housing-related economic indicators. In this regard, the survey data from 138 MHD beneficiaries indicate that households are generally small, with an average size of 2 persons and a maximum of 5. The average unit size is approximately 24 m², ranging from 18 to 35 m². In terms of housing costs, the average monthly rent for MHD units is about 2,698.4 Birr, with values ranging between 1,800 and 4,200 Birr. As to the income and the expenditure of the household, an average monthly income is about 8,043.5 Birr with SD 4,015.7, while average monthly expenditure is 4,601.5 Birr with SD 2,739.4. In general, although the average size of the housing units is relatively small, particularly for households larger than the average household size, it is quite adequate for smaller families.

However, for households with more members than the average, maintaining decent living conditions is likely challenging. In terms of rent, the average value can be considered reasonable, especially when compared to current market conditions.

Table 4 6: Descriptive Statistics of the current conditions of the beneficiaries of the MHD project

Variables	N	Minimum	Maximum	Mean	Std. Deviation
Household Size	138	1.0	5.0	2.3	1.3
Current Monthly income	138	0.0	20,000.0	8,043.5	4,015.7
Current Monthly expenditure	138	0.0	20000.0	4,601.5	2,739.4
building Size in m2	138	18.0	35.0	24.4	4.7
Monthly rent for MHD	138	1800.0	4200.0	2698.4	658.9
Valid N (listwise)	138				

4.3 Extent to Which Micro-housing Meets Low-Income Housing Demands

4.3.1 Perception of the Project's Ability to Address the Housing Problems of the Urban Poor

Based on the survey results conducted with Micro Housing Development (MHD) project beneficiaries, the findings reflect clear imperatives of the project as shown in Table 4.1. The results show that an overwhelming majority, 89.1% (123 respondents), agree that MHD is a suitable solution to urban housing shortages, while only 10.9% (15 respondents) disagree. This high level of approval suggests that those directly experiencing MHD view it as an effective and viable approach to addressing the lack of affordable urban housing.

Table 4 7: The suitability of MHD as a solution to urban housing shortages

Response	Frequency	Percent	Cumulative Percent
No	15	10.9	10.9
Yes	123	89.1	100.0
Total	138	100.0	

With respect to the perceived suitability of MHD towards addressing the issue of housing for the poor population, the response was that it suits their needs well. In this regard, a large number representing 79%, or 109 respondents, perceived that MHD suits their needs very well, while the other 21%, or 29 respondents, have a negative view regarding its suitability.

From the above information, it can be inferred that MHD is perceived to be a suitable means of meeting their needs. Nevertheless, a large proportion of people are of the view that it does not suit their needs sufficiently well.

Table 4 8: Perceived adequacy of MHD meeting the needs of low-income residents

Meeting the needs	Frequency	Percent	Cumulative Percent
No	29	21.0	21.0
Yes	109	79.0	100.0
Total	138	100.0	

Herein, it is also necessary to consider the reasons why the housing requirements of the poor remain unfulfilled. In this context, it can be observed that out of the total number of respondent residents, 79% of the resident population felt that the MHD development fulfilled their requirements before and did not face any issues. Out of the remaining 21% of respondents who faced unmet requirements, there were mainly two issues raised by them, viz., stand-alone, which constitutes 10.9% of the total respondents, and unsuitable for the elderly, which constitute 9.4% of the total respondents. There was only one respondent who stated that the house is too small for a big family. It can be seen that the level of satisfaction of the residents is extremely high; however, certain improvements need to be made.

Table 4 9: Reasons for unmet needs respondents perceived

Reason	Frequency	Percent	Cumulative Percent
No problem	109	79.0	79.0
Stand alone	15	10.9	89.9
Small for a large family	1	0.7	90.6
Unsuitable for the elderly	13	9.4	100.0
Total	138	100.0	

4.3.2 The Project's Actual Ability to Improve Housing and Related Services

One of the key indicators of decent urban housing is the availability and adequacy of basic services and amenities. In this regard, Table 4.8 presents residents' perceptions of improvements in essential amenities within the MHD project residential site. Specifically, 10.9% of respondents stated that there was no improvement. The largest proportion, 39.9%, reported improvements mainly in the kitchen and bathroom, indicating that these were the most commonly upgraded facilities under the housing project. Moreover, 10.9% mentioned improvements in the kitchen, bathroom, and bedroom, and 8.7% said that improvement occurred in the living room too. It can be considered as a gradual process of enhancing facilities in the house. Moreover, 18.1% mentioned that improvements took place in the

kitchen, bathroom, bedroom, living room, and community area. This shows that there has been improvement not only in private but also in common areas of the house. Also, 11.6% mentioned that all facilities were improved, which shows the maximum level of satisfaction with services provided by the project. Top of Form

Table 4 10: The improvement of the Essential Amenities in the MHD project resident site

Amenities	Frequency	Percent	Cumulative Percent
No improvement	15	10.9	10.9
Kitchen, Bathroom	55	39.9	50.7
Kitchen, Bathroom, Bedroom	15	10.9	61.6
Kitchen, Bathroom, Bedroom, Living	12	8.7	70.3
Kitchen, Bathroom, Bedroom, Living, Communal spaces	25	18.1	88.4
All necessary amenities	16	11.6	100.0
Total	138	100.0	

Regarding the main reasons that attracted respondents to this housing project, Table 4.9 presents the key factors influencing the appeal of housing provided under the MHD project. The survey findings indicate that affordability was the most important factor shaping residents' preference for the project housing. Specifically, 67.4% of respondents identified affordability and related benefits as the main source of attraction. The third most cited reason for the success of the project was location and related strengths, with 21.7% of participants citing this issue. While 10.9% of the participants noted the limitations and appropriateness associated with the housing project. In summary, the project was successful due to the provision of reasonably priced houses, which is an important aspect especially for low- and middle-income urban dwellers. Moreover, the location was another strength associated with the project because it gave residents easy access to workplaces, transportation, markets, and education, among other benefits available in the city. Not all residents had good remarks about the housing project, with 10.9% noting its limitations.

Table 4 11: Factors influencing the appeal of the MHD project housing

Appeal	Frequency	Percent	Cumulative Percent
Affordability & other	93	67.4	67.4
Location & other	30	21.7	89.1
Limitations and Suitability Issues	15	10.9	100.0
Total	138	100.0	

4.3.3 Respondents' satisfaction with the housing and related services

Physical conditions and numerical indicators alone are not sufficient to assess household housing situations. It is also important to consider the normative aspects, including residents' perceptions and behavior, which can be captured through satisfaction levels measured using a Likert scale. Accordingly, Figure 4.4 shows significant improvements from previous housing to current conditions across the given measured variables. For unit size, the proportion reporting very low satisfaction dropped from 47.1% to 8.7%, while high satisfaction rose from 10.1% to 59.4%. Similarly, the design of the building unit has also shown the strongest gains: very low satisfaction fell from 36.2% to 0%, while the high and very high satisfaction jointly increased from 21.7% to 78.2%. Moreover, building materials' quality became better with lower levels of satisfaction dropping from 47.1% to 18.1%, while higher levels went up from 38.4% to 52.9%. Overall, the project made a significant improvement in the quality of buildings; however, the design component proved to be especially successful. Still, participants are not satisfied with the size of the units.

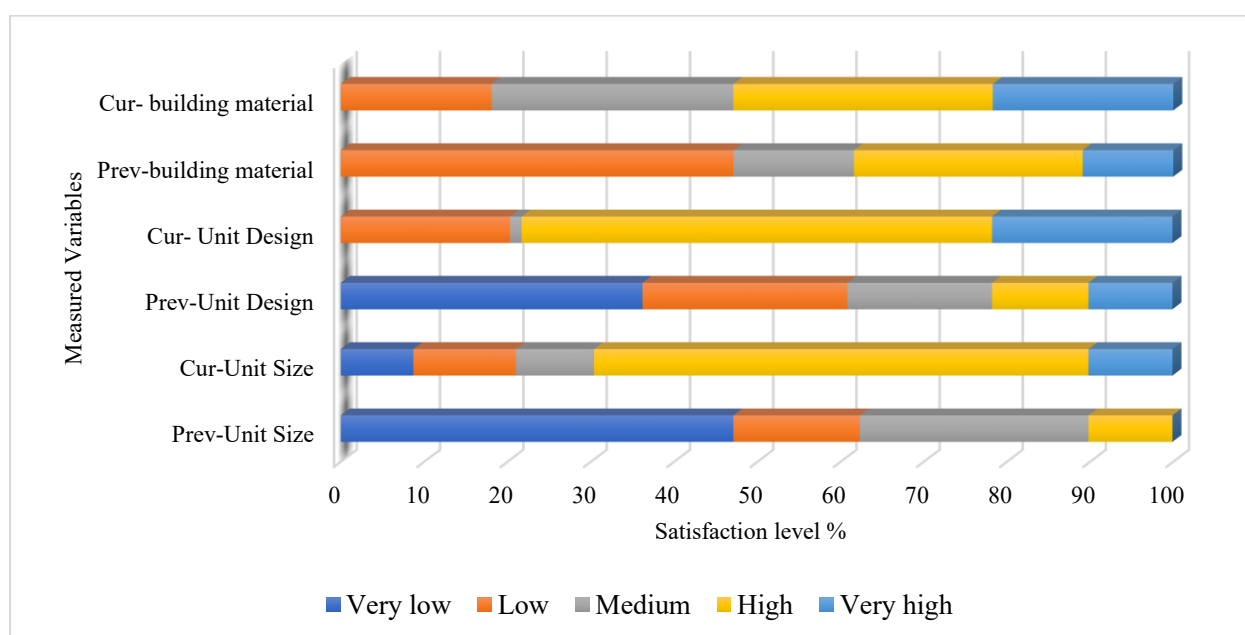


Figure 4 4 Respondents' satisfaction with the previous and current built unit conditions

The assessment of respondents' satisfaction also extends to the availability of some basic services. Figure 4.5 thus shows significant improvements from the previous to the current across the basic services. Regarding the housing unit's ventilation and natural lighting condition, the figure reported that high and very high satisfaction increased from 22.4% previously to 71.0% currently, while low satisfaction fell from 47.1% to 11.6%. However, the most prominent gains are in the level of satisfaction with the availability of kitchen and bathroom: very high satisfaction alone jumped from 10.1% to 71.0% for kitchens and from 21.7% to 71.0% for bathrooms, with only 0.7% (kitchen) and 1.4% (bathroom) now reporting low satisfaction. Previously, nearly half of the respondents rated the kitchen (47.1%) and bathroom (45.7%) as very low. These results indicate that the units now offer functional, well-designed kitchen and sanitary facilities—a significant improvement over previous housing where such amenities were often inadequate or completely lacking. Ventilation and lighting have also improved considerably, though they remain important concerns for many respondents.

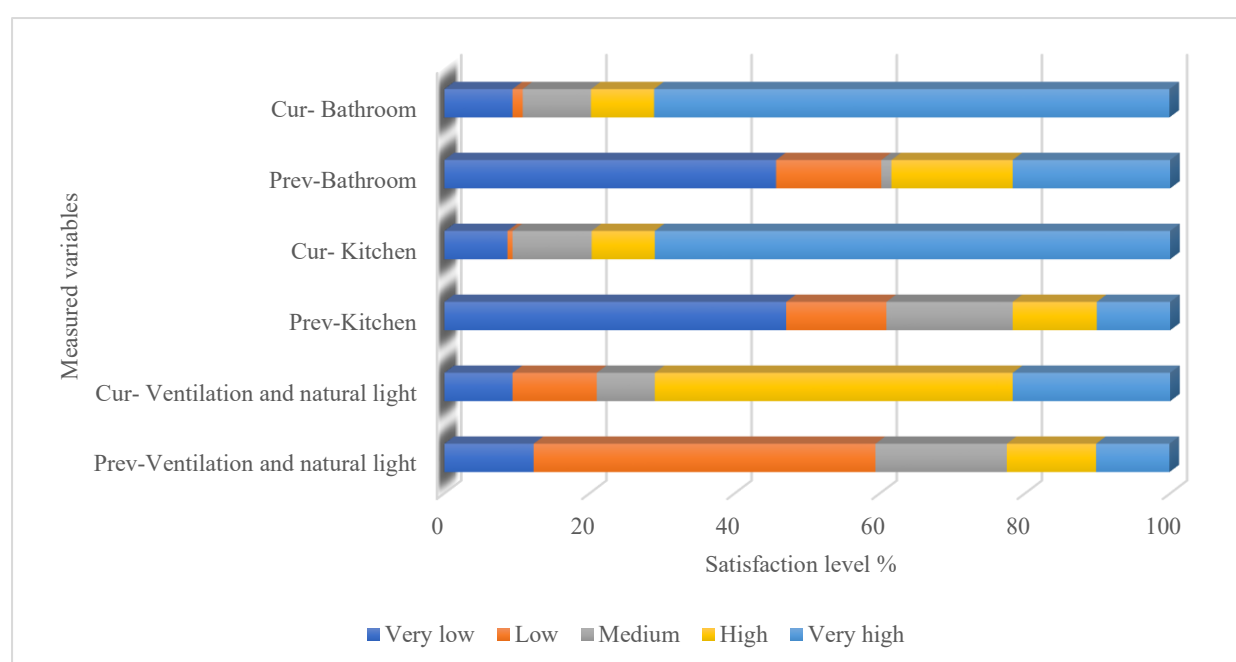


Figure 4 5: Respondents' satisfaction with the previous and current basic services

As another key measure of residents' insights into housing conditions, Figure 4.5 presents their satisfaction levels with selected amenities and security services, comparing previous and current living conditions. Though the level of improvement differs across services, electricity and security show the most significant gains. Very high satisfaction with electricity increased from 21.7% to 71.0%, while low satisfaction dropped sharply from 36.2% to 1.4%. A similar pattern is observed for security and safety service, where very high satisfaction rose from 10.1% to 71.0%, and low satisfaction declined from 13.8% to 1.4%. Waste disposal and

emergency services also improved considerably. Very low satisfaction decreased from about 47% to 8.7% for both services. In comparison, the share of those with high satisfaction increased from 1.4% to 49.3%. On the other hand, very high satisfaction was still rather moderate at 22.5%. Likewise, the Water supply services have made great strides as well, with high satisfaction increasing from 17.4% to 49.3%, while very low satisfaction stays around 9%.

In general, the MHD project has greatly enhanced the residents' access to basic amenities and services, which is reflected in their increased satisfaction with these components. Nevertheless, the improvements in waste disposal and water supply, although impressive, were quite constrained, as very high satisfaction for waste disposal was still rather moderate, while very low satisfaction for water supply hardly shifted. This is because there are city-wide problems identified by the Lideta Sub-City Administration that indicate water and sanitation facilities are still not meeting international and sub-Saharan urban standards. Issues in waste disposal are also related to the requirement for an integrated system, from production to disposal, which needs national policies like the current ban on plastic bags, along with municipal by-laws for waste management.

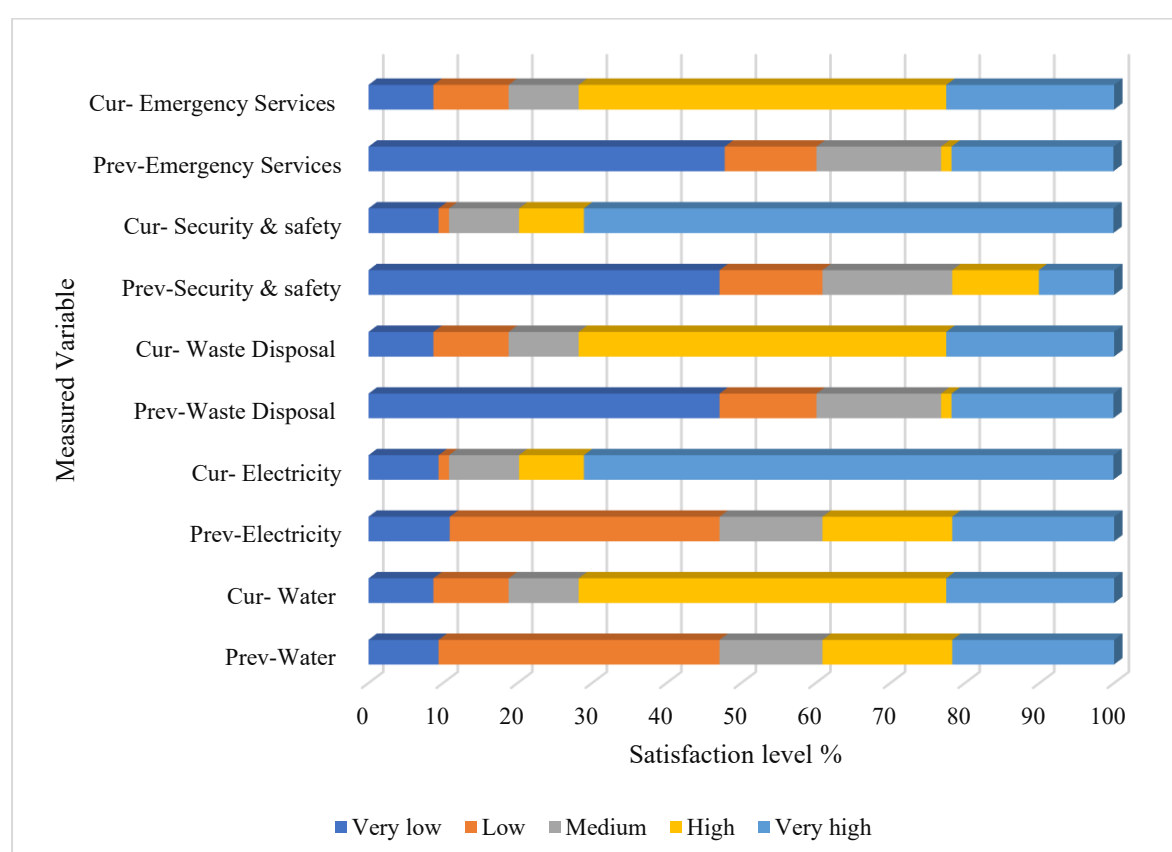


Figure 4 6: Respondents' satisfaction with the previous and current supply of amenities and security services

Regarding the satisfaction showed a similar pattern. In this respect, the survey results from project beneficiaries reveal substantial improvements across all when compared to previous conditions. Satisfaction with proximity to public transport increased significantly, with “very high” ratings rising from 21.7% to 71.0%, and no respondents reporting “very low” satisfaction. Proximity to the workplace showed a similar improvement, as “very high” satisfaction rose from 21.7% to 71.0%, while low satisfaction declined sharply from 36.2% to 1.4%. Social and community networking also improved, with high satisfaction increasing from 15.9% to 52.2%; however, 11.6% still reported very low satisfaction (close to the previous 13.0%), and the share of “very high” satisfaction remained nearly unchanged. Household savings and an increase in their income reflected the same trend: very low satisfaction dropped from 44.9% to 8.7%, while high satisfaction surged from 1.4% to 46.4%, and “very high” satisfaction stayed relatively stable at around 22%. The MHD projects are typically implemented in central urban areas; therefore, higher satisfaction with proximity to public transport and workplaces is expected. In this context, the improved satisfaction with an increase of their income may be attributed to reduced housing costs, better access to employment opportunities, and decreased economic vulnerability.

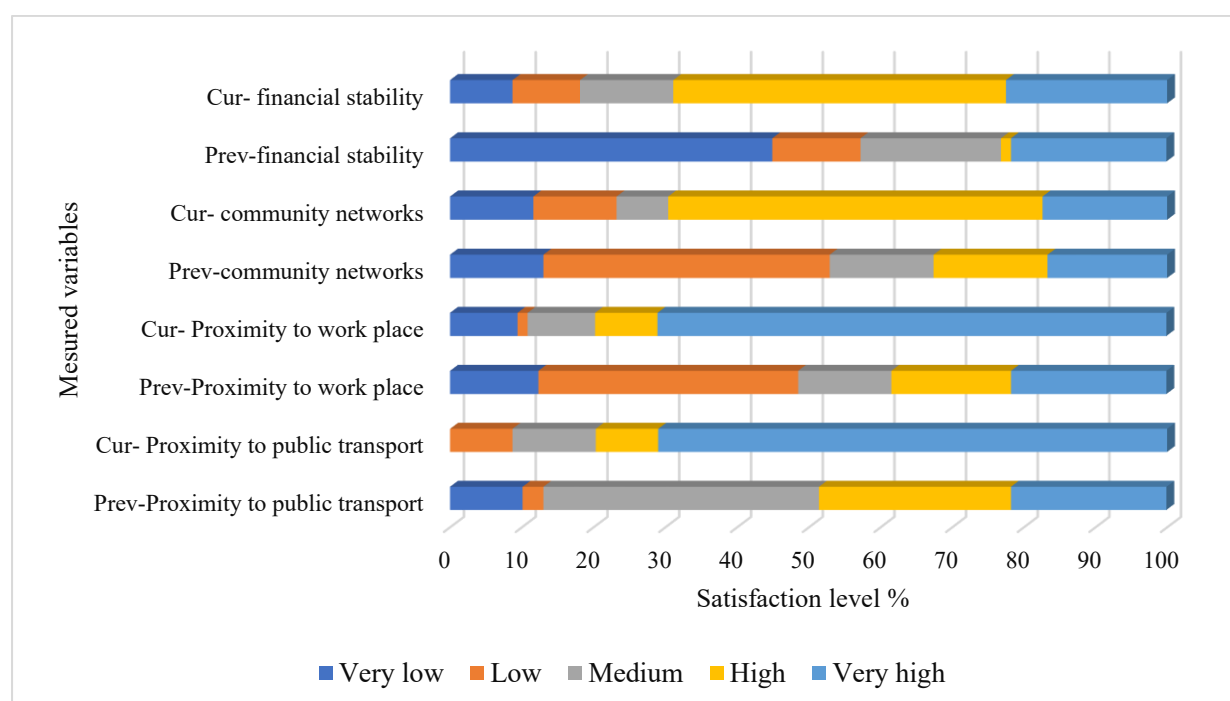


Figure 4 7: Respondents' satisfaction with the previous and current Access to public services, workplace, income and community networking

The environmental context of the housing unit in this case examines the availability of green and communal spaces and noise pollution. With this regard, the satisfaction of beneficiaries in Figure 4.6 reveals substantial improvements in both noise pollution levels and access to green/communal areas when comparing the previous and the current residential quarters. For noise pollution, the proportion of respondents reporting very low-level satisfaction dropped significantly from 47.1% to 9.4%, while high-level satisfaction increased from 11.6% to 29.7%, and very high-level satisfaction also increased from 10.1% to 21.7%. Access to green and communal areas showed even more pronounced improvements in resident satisfaction: very low dropped from 47.8% to 8.7%, high rose from 11.6% to 57.2%, and very high increased from 10.1% to 21.7%. These improvements in environmental conditions show that the MHD projects provide significantly better living conditions.

The high level of satisfaction regarding noise pollution might be due to the fact that the houses are situated in more peaceful environments than their previous homes or that there is a higher level of soundproofing. The same is applicable for the increased satisfaction concerning the availability of recreational facilities and green areas, which were not available in previous houses.

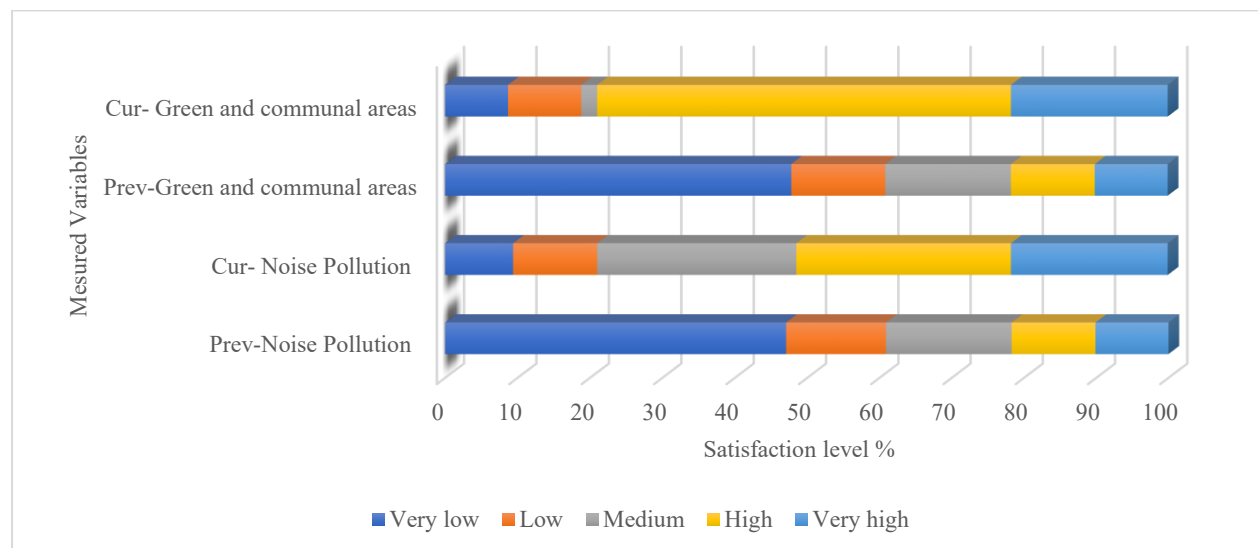


Figure 4 8: Respondents' satisfaction with the previous and current access to Green and communal space

4.4 Comparative economic Benefits of Micro-Housing for Residents

4.4.1 Previous and current residents' income and expenditure comparison

The comparison of the residents' income status in the previous and current conditions after the MHD project is assessed through the crosstabulation. Table 4.3 shows the monthly income status before and after moving to the current residence, that reflect clear upward shift. Accordingly, among the 54 respondents who previously earned below 5,000 Birr, half (27) remained in the previous income level, while half (27) moved up to 5,000–10,000 Birr. At the same time, out of the 71 previously earning 5,000–10,000 Birr, 56 of them stayed in the previous level as it is, while 15 of them rose to 10,000–20,000 Birr. Respondents who were earning higher level income (10,000–20,000 Birr) all (13) of them are stayed in the same level. This indicates that while the housing program has clear implications for improving households' incomes, and consequently their livelihood conditions and family well-being.

Table 4 12: Crosstabulation of Monthly income in the previous vs the Current residence

Previous monthly income in Birr	Current monthly income in Birr			Total
	< 5,000 Birr	5,000-10,000	10,000-20,000	
< 5,000	27	27	0	54
5,000-10,000	0	56	15	71
10,000-20,000	0	0	13	13
Total	27	83	28	138

Table 4.13 shows the expenditure crosstabulation comparing the change before and after MHD program application. Accordingly, the respondents' expenditure has shown a clear pattern. In the current residence, most respondents reduced their monthly spending. In this regard, of the 54 respondents who previously spent below 5,000 Birr, stayed at the same level of expenditure. While 29 out of 71 respondents spending 5,000–10,000 Birr moved down to below 5,000. However, 11 out of 13 respondents who spent 10,000–20,000 Birr dropped to 5,000–10,000 Birr. No one increased their expenditure level. The fall in household spending after the intervention can be associated with the rise in their income. The fact that people had the ability to live in cheaper housing is supported by the by the World Bank (2015. That state housing rent usually comprises a high percentage of the household's budget in urban Ethiopia.

Table 4 13: Crosstabulation of monthly expenditure in the previous Vs current residence

Previous monthly expenditure in Birr	Current monthly expenditure in Birr			Total
	< 5,000	5,000-10,000	10,000-20,000	
< 5,000	54	0	0	54
5,000-10,000	29	42	0	71
10,000-20,000	0	11	2	13
Tota	83	53	2	138

As for the main source of income of the respondents, it is presented in figure 4.2. It is clear that the largest group of respondents consists of private business owners with 13.77%, whereas the second-largest group of respondents comprises of drivers with 11.57%. The third-largest group includes IT specialists with 10.61%, followed by pensioners with 10.44% and teachers with 9.45%. Some other groups of respondents consist of workers of beauty salons, health workers, and others with 7.84%. Daily workers, office experts, and unemployed people constitute smaller groups, where two respondents claimed to have no occupation. Overall, one can state that representatives of the service sector have a strong presence in many fields. Collectively, these top five occupational categories account for 55.8% of the total sample, indicating a strong concentration of respondents in the service and informal business sectors.

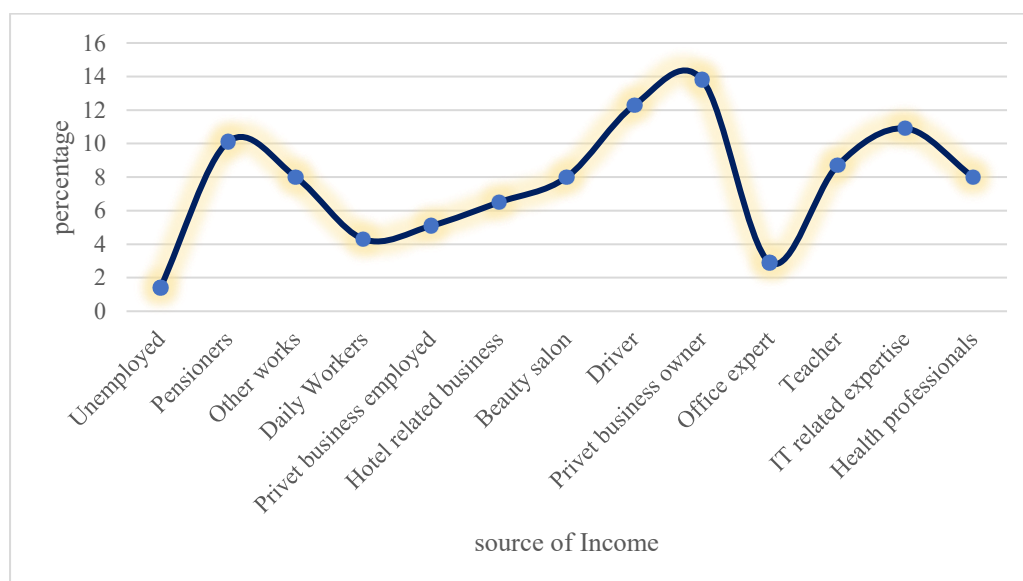


Figure 4 9:Primary income source of the respondents

The relationship between the monthly expenditures of the respondents' households and the primary reasons for expenditures can be seen from Figure 4.10 below. Among the 138 households, 83 households spend less than 5,000 Birr per month. For that group, the primary purpose of expenditure is rent (66 out of the 83). Some of them cite the cost of healthcare (14) or food (3) but none of them cited education fees. Moving to the second group, which includes 53 households and who spend 5,000 to 10,000 Birr a month, there is a significant change in the purpose of expenditure; where the cost of food was the expense of 27 households, the cost of education fee was reported by 18 and that of rent dropped drastically to only 8 households. There are only two households belonging to the higher expenditure group (10,000-20,000 Birr) for whom the cost of education is a major expense.

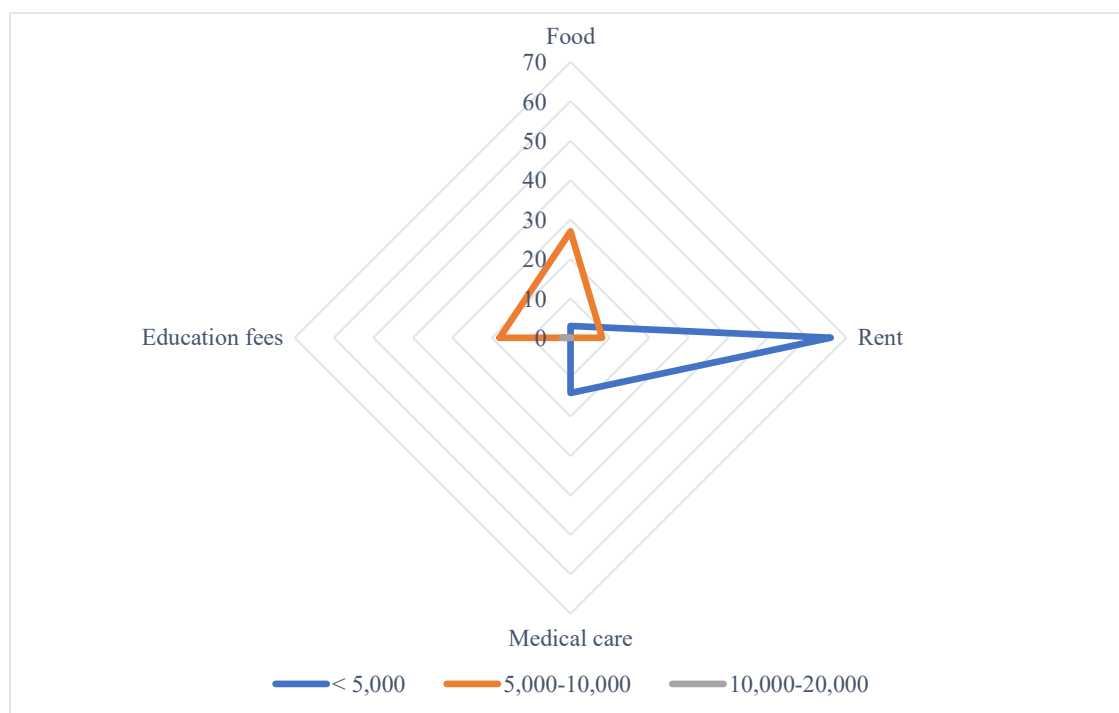


Figure 4 10: The distribution of respondents' expenditure levels by purpose.

4.4.2 The implication of sex compassion on income and expenditure patterns

Table 4.14 shows the crosstabulation of the monthly income level among three categories by gender during two different periods: the previous residence period and the new residence period. During the previous residence period, males are over-represented in the middle category of income, with 41 subjects compared to the expected 35.5. Males are absent in the higher category of income, while 6.5 subjects

are expected. On the other hand, females are over-represented in the higher category of income, with 13 subjects compared to the expected 6.5. Furthermore, females are under-represented in the middle category of income, with 30 subjects compared to the expected 35.5. In addition, females and males are equally represented in the lower category of income. During the new residence period, there is a relatively even representation of income level among females and males across all income levels. The higher income level category has an equal number of females and males, with 14 subjects each that match the expected number. Also, the lower and middle categories have almost equal observed and expected numbers of females (50%) and males (50%).

Table 4 14: Crosstabulations of the previous and current Income level with sex

Monthly Income	Sex	Previous Residence			Current Residence		
		Count	Row %	Expected %	Count	Row %	Expected %
< 5,000 Birr	Female	26	48.10%	50.00%	14	51.90%	50.00%
	Male	28	51.90%	50.00%	13	48.10%	50.00%
	Total	54	100%		27	100%	
5,000–10,000 Birr	Female	30	42.30%	50.00%	41	49.40%	50.00%
	Male	41	57.70%	50.00%	42	50.60%	50.00%
	Total	71	100%		83	100%	
10,000–20,000 Birr	Female	13	100.00%	50.00%	14	50.00%	50.00%
	Male	0	0.00%	50.00%	14	50.00%	50.00%
	Total	13	100%		28	100%	
Grand Total	Female	69	50.00%		69	50.00%	
	Male	69	50.00%		69	50.00%	
	Total	138	100%		138	100%	

The results from the Chi-Square Test concerning the relationship between sex and the monthly income level based on past and present as shown in Table 4.14. The very low chi-square value for the current residence shows that there is no longer a significant link between gender and income. However, our previous analysis showed that gender still strongly affects how much residents spend.

Table 4 15: The Chi-Square Tests of the previous and current Income

Test	Previous Residence	Current Residence
Pearson Chi-Square	$\chi^2 = 14.778$, df = 2, p = 0.001	$\chi^2 = 0.049$, df = 2, p = 0.976
Likelihood Ratio	$\chi^2 = 19.807$, df = 2, p < 0.001	$\chi^2 = 0.049$, df = 2, p = 0.976
Linear-by-Linear Association	$\chi^2 = 4.075$, df = 1, p = 0.044	$\chi^2 = 0.018$, df = 1, p = 0.893
Valid Cases	138	138
Cell count warning	0 cells with expected count <5 (min = 6.50)	0 cells with expected count <5 (min = 13.50)

There is a statistically significant relationship between sex and income level of the former domicile ($\chi^2 = 14.78$) since women had a higher presence among those who had higher incomes, whereas the presence of men was mainly found among those who belonged to the medium category. The relationship between these variables in the present domiciles does not exist ($\chi^2 = 0.05$) since both male and female respondents had almost identical income levels. This drastic reduction in the value of chi-square implies that MHD migration erased the existing differences between men and women, possibly helping create equality between the two genders. Nonetheless, it is reminiscent of the income findings above, casting doubts about the labelling of variables.

As far as the expenditure is concerned, Table 4.16 provides the crosstabulation of expenditure level per month by gender for two periods, namely previous residency and current/new residency, with the comparison of observed values with expected values under the assumption that there exists no relationship between these variables. While in the previous residency, the males had high representation in the middle level of expenditures, having 42.3% cases compared to the expected value of 50%; moreover, these males did not exist in the highest category, having an expected number of cases as 6.5.

On the other hand, females had higher representation in the highest level of expenditures, having 13 cases compared to expected cases of 6.5, whereas their underrepresentation could be seen in the middle category, with an expected value of 35.5.

However, females and males had equal representation in the lowest category. While in current/new residency, males had very high representation in the lowest level of expenditures, having 55 cases compared to expected values of 41.5, and had underrepresentation in the middle category with 14 cases compared to 26.5 expected cases. However, there was overrepresentation of women in terms of the moderate category, with 39 females compared to an expected figure of 26.5, while both categories had two cases. In general, however, the movement from the old location to the new one is significant since men move from the moderate category to lower expenditure, while women move upwards.

Table 4 16: Crosstabulations of the previous and current expenditure level with sex

Monthly expenditure	Measures	Previous			Current		
		Sex		Total	Sex		Total
		Female	Male		Female	Male	
Less than 5,000 Birr	Count	26	28	54	28	55	83
	Expected Count	27.0	27.0	54.0	41.5	41.5	83.0
5,000-10,000 Birr	Count	30	41	71	39	14	53
	Expected Count	35.5	35.5	71.0	26.5	26.5	53.0
10,000-20,000 Birr	Count	13	0	13	2	0	2
	Expected Count	6.5	6.5	13.0	1.0	1.0	2.0
Total	Count	69	69	138	69	69	138
	Expected Count	69.0	69.0	138.0	69.0	69.0	138.0

Table 4.17 below shows the outcomes of Chi-Square analyses done to test the relationship between the gender of the respondents and expenditure levels per month (in three categories: less than 5,000; between 5,000 and 10,000; between 10,000 and 20. Table 4.15: The Chi-Square Tests of the previous and current expenditure.

Table 4 17: Relationship between the gender of the respondents and expenditure levels per month

Test	Previous Residence	Current Residence
Pearson Chi-Square	$\chi^2 = 14.778$, df = 2, p = 0.001	$\chi^2 = 22.576$, df = 2, p < 0.001
Likelihood Ratio	$\chi^2 = 19.807$, df = 2, p < 0.001	$\chi^2 = 23.992$, df = 2, p < 0.001
Linear-by-Linear Association	$\chi^2 = 4.075$, df = 1, p = 0.044	$\chi^2 = 22.290$, df = 1, p < 0.001
Valid Cases	138	138
Cell count warning	0 cells with expected count <5 (minimum = 6.50)	2 cells (33.3%) with expected count <5 (minimum = 1.00)

The results indicate a significant association between the two variables of sex and monthly expenditure in the previous and current living places. This disproves the null hypothesis, which assumes expenditure as an independent variable from gender. The association became much stronger in the current residence, where all tests were highly significant (p < 0.001), compared with the previous residence. This suggests that the gender gap in expenditure widened after relocation. The linear-by-linear trend also confirms that as expenditure categories increase, females become more represented while males become less represented.

Before relocation, the association was moderate, with women more common in higher expenditure groups and men concentrated in the middle bracket. Males, after relocation, moved significantly toward the low expenditure group, whereas females were dominant in the medium and high expenditure groups. This is probably not by coincidence but could result from differential economic consequences of relocation or even differences in household responsibilities or service access. Overall, females always reported greater expenditures compared to males, and this difference widened in the new settlement.

4.4.3 The association of sex compassion with the household size, unit size, and rent payment

In the group statistics, the mean household size and house unit of the female population (n=69) are marginally greater at 2.36 persons and 25.00 m², respectively, than those of the male population (n=69) at 2.14 and 23.81, respectively. Notably, females exhibit much higher maximum affordable rent per month at 2,921 Birr compared to males at 2,476 Birr. In all three variables examined, the standard deviations for the male population exceed those of the female population.

Table 4 18: Group Descriptive Statistics

	Sex	N	Mean	Std. Deviation	Std. Error Mean
HH Size (persons/HH)	Female	69	2.3623	1.18782	.14300
	Male	69	2.1449	1.42741	.17184
Housing unit size (m ²)	Female	69	25.0014	3.39178	.40832
	Male	69	23.8116	5.60009	.67417
Housing rent payment Birr	Female	69	2921.0958	554.12210	66.70846
	Male	69	2475.6522	683.48690	82.28215

T-test analysis results indicate different trends for the investigated variables. Regarding household size (HH Size), Levene's Test was insignificant ($F = 0.160$, $p = 0.690$), implying that it is possible to assume equal variances. As for the t-test result, it was insignificant, $t(136) = 0.972$, $p = 0.333$; thus, no gender differences exist concerning household sizes. Females have only a higher mean value compared to males (by 0.22 persons). It means that the effect size is relatively very small (Cohen's $d = 0.17$). Concerning housing unit size, Levene's test is significant ($F = 15.961$, $p < 0.001$), which means that there is inequality in variances (in other words, females have smaller variances compared to males). Although females had a higher mean by 1.19 units, the difference was not statistically meaningful, and the effect size was small (Cohen's $d = 0.26$). In contrast, Max Pay Rent showed a significant gender difference. Levene's test was not significant ($F = 1.652$, $p = 0.201$), so equal variances were assumed. The t-test result is highly significant, $t(111.97) = 1.510$, $p = 0.134$.

The t-test result is highly statistically significant, $t(136) = 4.205$, $p < 0.001$, meaning that females are ready to pay 445.44 Birr more in rent than males. In other words, this number represents around 18 % increase in prices paid by females. The effect size is considered moderate to high (Cohen's $d = 0.72$), Glass's $\Delta = 0.65$ (using male standard deviations).

The results show no significant gender differences in household size or perceptions of the housing development, indicating that female-headed and male-headed households are broadly comparable in household composition and views of the housing environment. However, a significant difference exists in maximum rent affordability, with females willing to pay an average of \$ 445 Birr more than males, about 18 percent higher, representing a moderate to large practical effect. This may reflect women's stronger preference for housing quality, safety, and location, additional informal income sources, or differing financial responsibilities between men and women. The finding is also consistent with earlier evidence that women report higher expenditure despite similar current incomes, suggesting that women allocate more resources to housing and daily living needs. From a policy perspective, housing programs and rental subsidy schemes should recognize women's greater willingness to invest in improved housing while ensuring that this does not create a disproportionate financial burden. Overall, the main meaningful gender difference is women's higher rent affordability, which merits further qualitative investigation.

Table 4 19: Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
HH Size	Equal variances assumed	.16	.690	.972	136	.333	.22	.22	-.22	.66
	Equal variances not assumed			.972	131.65	.333	.21	.22	-.22	.65962
Housing Unit size	Equal variances assumed	15.96	.000	1.51	136	.133	1.18	.78	-.37	2.75
	Equal variances not assumed			1.51	111.97	.134	1.18	.78	-.37	2.75
Housing rent Pay	Equal variances assumed	1.65	.201	4.21	136	.000	445.4	105.92	235.96	654.92
	Equal variances not assumed			4.21	130.4	.000	445.4	105.92	235.89	654.99

The analysis revealed no significant gender differences in terms of household sizes, which suggests similarity in structure between female-head and male-head households. There was also no meaningful difference in perceptions of access to or size of the Mixed Housing Development, suggesting both groups view the housing environment similarly. The major statistically significant finding was maximum rent affordability, where females were willing to pay about \$ 445 Birr more than males, roughly 18 percent higher. This difference had a moderate to large practical effect, showing an important gender gap. Some factors could account for this phenomenon, such as valuing a higher-quality house among women or having extra sources of income outside the formal sector. In any case, women are more prone to investing in housing than men.

4.5 Implementation Challenges of Micro-Housing Project in Lideta Sub-City

When identifying the main challenges associated with the MHD project, Table 4.11 presents survey responses that reveal the key difficulties respondents face in accessing housing within MHD projects. In this case, affordability was found to be the most challenging factor, with 65 respondents, or 47.1%, stating that cost was the major barrier. Issues related to planning and design were reported by 29 respondents, representing 21.0 percent, with an equal proportion also identified social acceptance, including concerns such as community integration, stigma, or cultural fit, as their main challenge. In sum, from the findings obtained above, it is evident that affordability is the key issue, closely followed by planning/designing and social acceptance. This implies that in order for MHDS to be successful, they should address all these factors together with housing provision.

Table 4 20: Perceived Challenges of MHD projects housing access

Challenges	Frequency	Percent	Cumulative Percent
No challenge	15	10.9	10.9
Plan & design	29	21.0	31.9
Affordability	65	47.1	79.0
Social acceptance	29	21.0	100.0
Total	138	100.0	

Affordability has been another aspect that has been emphasized in the above discussion, hence making it necessary to consider loan facilities as well. The results obtained from the questionnaire regarding access to an easy micro-loan facility for MHD housing are reflected in Table 4.21 below. As can be seen above, only 30 respondents, accounting for 21.7 percent of the respondents, have access to micro-loan facilities. However, there are 108 respondents, or 78.3 percent, who do not have any access to micro-loan facilities. It can thus be concluded that most of the participants have no access to a micro-loan facility.

Table 4 21: Availability of microloan options for MHD project

Availability of microloans	Frequency	Percent	Cumulative Percent
Yes	30	21.7	21.7
No	108	78.3	100.0
Total	138	100.0	

In this regard, when it is looked at, the major type of constraints of accessing housing finance, presents the main challenges faced by households when attempting to access MHD projects. Thus, ownership paperwork issues were cited as the main barrier, as experienced by 36 people or 26.1%. This was followed by a lack of information with 28 responses or 20.3 percent, and lengthy loan processes with 20 responses or 14.5 percent. Credit history issues and lack of formal income were each reported by 14 respondents or 10.1 percent, while lack of information on the credit process and high interest rates each accounted for 13 responses or 9.4 percent. Together, ownership documentation problems, lack of information, and lengthy procedures represent more than 60 percent of all responses. Consequently, the research results show that housing financial inclusion is determined not only by having funds available but also by legal clarity, transparent information, effective procedures, and lenient eligibility criteria.

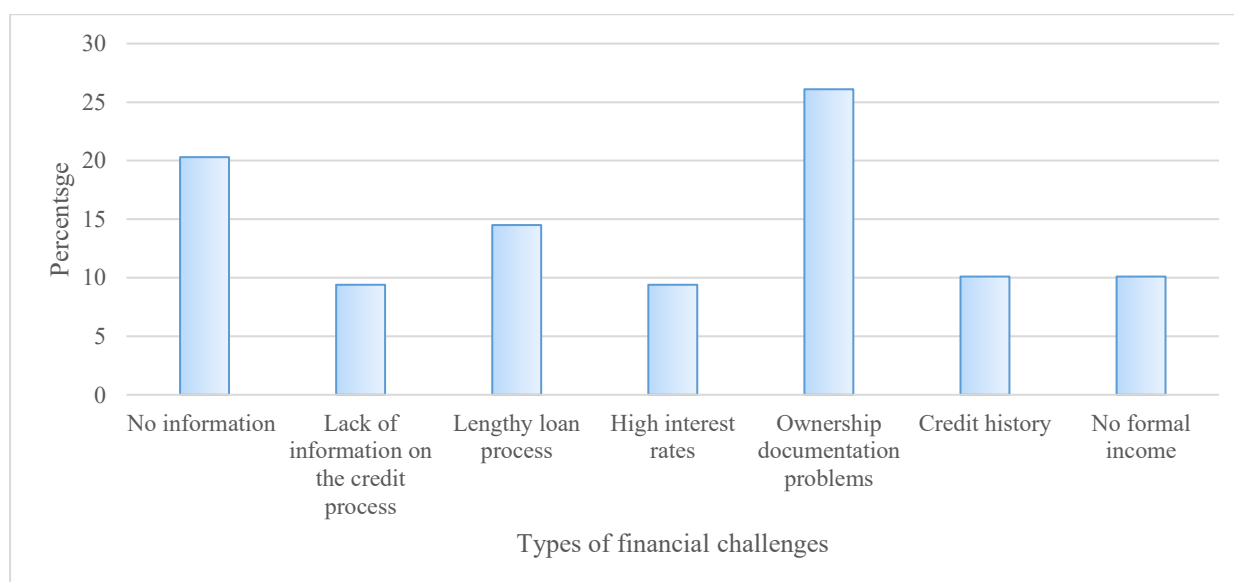


Figure 4 11: Types of Households' Financing Challenges for MHD

Housing cannot be understood only as a living space. It also represents the identities of households and household heads, reflecting their socioeconomic conditions and social status. Thus, it is necessary to analyse the social problems encountered by low-income families, especially the negative attitude towards such housing. Concerning this point, Table 4.13 highlights the rate of self-perceived social adverse effects in people who practiced MHD. Out of all respondents, 71 (51.4%) indicated the absence of social adverse effects, while 67 respondents (48.6%) experienced at least one social adverse effect. In general, nearly half of MHD adopters (48.6%) experienced social adverse effects, showing that negative social consequences are common and require serious policy attention. These effects may include exclusion, family conflict, or reduced community participation.

Table 4 22: Social adverse effects of the adoption of MHD

Presence of a social adverse effect	Frequency	Percent	Cumulative Percent
No	71	51.4	51.4
Yes	67	48.6	100.0
Total	138	100.0	

Regarding the major type of social adverse effect the beneficiaries experienced, Figure 4.5 presents the specific social adverse effects experienced by the beneficiaries of the MHD project. Slightly over half of the respondents, 50.7%, reported no social adverse effects. The top three social problems that the majority of people faced during the process included acceptance within families/households. Structural and physical problems made up 11 responses or 8.0%, whereas privacy and liveability problems constituted the least number of social challenges with just 2 responses or 1.4%. Overall, social problems like family acceptance, stigmatization, and space limitations prevailed among the top social problems of the impacted individuals.

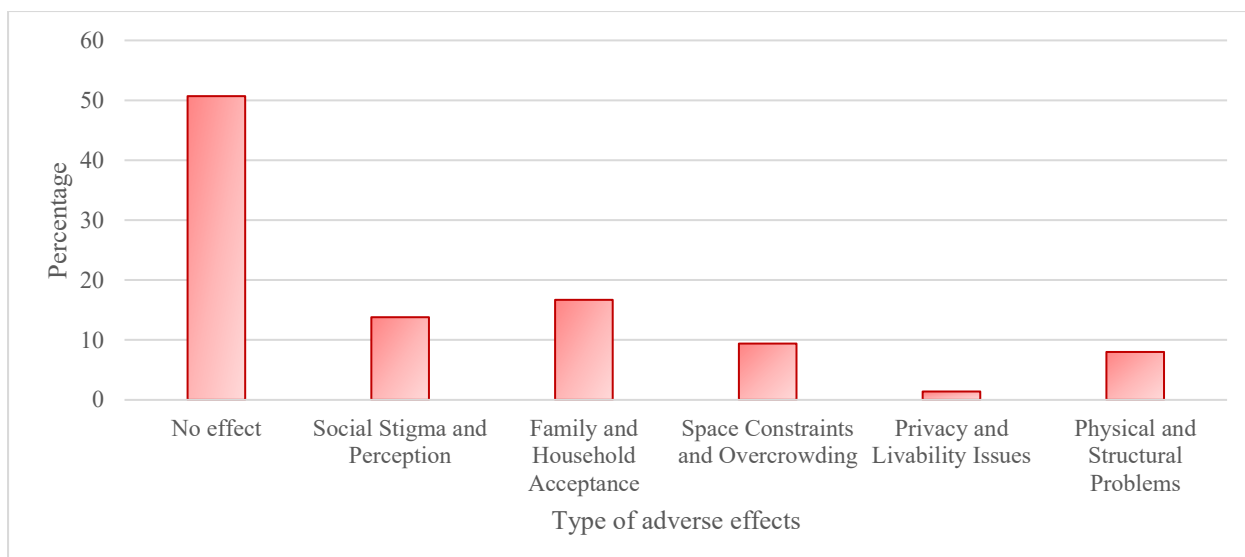


Figure 4 12 : Types of Social adverse effects of in the MHD project beneficiaries

4.5.1 Institutional and Policy Context

Micro-housing initiatives in Lideta Sub-City are not guided by a dedicated, standalone policy or strategy framework; rather, their implementation operates within a fragmented regulatory environment shaped indirectly by broader national and municipal instruments, including Ethiopia's Urban Development Policy (2015), the Addis Ababa Integrated Housing Development Program (IHDP) guidelines, Building Proclamation No. 624/2009, and the Lideta Sub-City Local Development Plan (2020–2030) (UN-Habitat, 2020; Weldegebriel & Ayenew, 2020). While these documents endorse principles such as affordable housing delivery, efficient land use, and compact urban growth, they lack explicit provisions for compact unit typologies, resulting in regulatory misalignment such as mandatory minimum unit sizes ($\geq 40 \text{ m}^2$), prescriptive parking ratios, and rigid plot-coverage limits that directly constrain the spatial logic and density optimization central to micro-housing (Talen & Knaap, 2021; Zhao et al., 2020).

Compounding these gaps, housing finance policies requiring formal income documentation and collateral systematically exclude informal sector workers, while ambiguous land tenure arrangements and fragmented institutional coordination across municipal bureaus further delay approvals and limit scalability (World Bank, 2020; Fenta, 2014).

Consequently, micro-housing projects in Lideta function within a de facto policy vacuum: technically feasible and socially accepted by residents, yet institutionally constrained by the absence of adaptive regulatory standards, inclusive financing mechanisms, and integrated implementation protocols necessary to transition from isolated pilots to a mainstream, equitable urban housing strategy.

4.5.1 Institutional Perspectives on Micro-housing -Findings from Key Informant Interview

To Complement the resident survey data, provide a holistic understanding of micro housing feasibility, semi-structured interviews were conducted with 10 government officials from Lideta Sub-city's Planning, Housing and finance bureaus and 5 representatives from major financial institutions operating in Addis Ababa interviews were transcriptive and analysed through a framework aligned with the study's four research objectives. The findings below triangulate institutional insights with resident-reported experiences to contextualize implementation barriers and policy opportunities.

4.5.2.1 Government official's perspectives: policy, regulation and social integration

Government officials consistently acknowledged the severity of Lideta' s housing crisis, describing it as "structural, not merely quantitative" (Planning Bureau Official, Interview #3). Key themes emerged across four domains:

Policy and Regulatory Frameworks

Officials confirmed that while Ethiopia's Urban Development Policy (2015) and Addis Ababa's Integrated Housing Development Program provide broad direction for affordable housing, no dedicated policy explicitly recognizes or regulates micro-housing typologies. As one Housing Bureau representative noted:

"Our building codes still mandate minimum unit sizes of 40 m². Micro-units of 20–30 m² fall into a regulatory grey zone we can approve them as 'pilot projects' but cannot scale them without legal amendments." (Interview #7). This regulatory misalignment directly constrains spatial optimization, as officials cited mandatory parking ratios, plot-coverage limits, and fire-safety standards designed for conventional housing as barriers to compact development.

Social Acceptance and Community Integration

Officials expressed concern about cultural resistance to compact living, particularly among extended families and older residents. However, they emphasized that participatory co-design processes significantly improved acceptance in pilot projects:

"When residents help design the shared spaces communal kitchens, laundry areas, children's play zones they see micro-housing not as 'small' but as 'smart'. The stigma fades when functionality is demonstrated." (Housing Bureau Official, Interview #5). This insight aligns with survey findings where 79% of residents reported high satisfaction with micro-housing amenities post-occupancy, suggesting that initial cultural reservations can be overcome through inclusive planning.

Implementation Barriers and Inter-Agency Coordination

Officials identified fragmented institutional mandates as a critical bottleneck: housing approval requires coordination across planning, construction, utility, and finance bureaus, often causing delays of 6–12 months. One Finance Bureau representative stated: "We have the political will, but without a single-window approval system for compact housing, every project becomes a bureaucratic marathon." (Interview #9). This institutional fragmentation helps explain why, despite high resident demand (89.1% approval in surveys), micro-housing remains at pilot scale in Lideta.

4.5.2.2 Financial Institution Perspectives: Viability, Risk, and Inclusive Financing

Financial representatives provided critical insights into the economic feasibility of micro-housing, with findings clustered around three themes:

Perceived Viability and Risk Assessment

All five institutions acknowledged micro-housing's technical viability but expressed caution about financial risk when serving informal earners. As one bank representative explained: "The units are affordable to build, but our lending models require formal pay slips and collateral. How do we assess creditworthiness for a daily labourer earning 8,000 Birr monthly but with no bank statement?" (Financial Institution #2, Interview #4). This directly corroborates survey data showing 78% of residents lacked access to housing finance due to documentation barriers.

Innovative Financing Models and Incentives

Representatives highlighted promising alternatives being piloted elsewhere: Mobile money-based credit scoring: Using utility payment history and mobile transaction records as proxy income verification. Rent-to-own schemes: Allowing incremental equity accumulation without large upfront down payments. Partial credit guarantees: Government-backed risk-sharing to encourage private lending to low-income borrowers.

One microfinance officer noted: "If the municipality could guarantee 30% of the loan value for verified informal earners, we could scale micro-housing finance overnight." (Interview #5)

Collaboration Opportunities with Government

Financial institutions expressed strong interest in public-private partnerships but emphasized the need for policy enablers: streamlined approval processes, standardized micro-housing design templates to reduce appraisal costs, and targeted subsidies for infrastructure connections. As one representative summarized: "We are ready to invest, but we need the regulatory groundwork laid first. Micro-housing cannot succeed on goodwill alone." (Interview #3)

4.5.2.3 Triangulation with Resident Survey Data

Table 4.23 synthesizes institutional perspectives alongside resident-reported experiences, highlighting areas of convergence and divergence:

Theme	Resident Survey Findings (n=138)	Government Officials (n=10)	Financial Institutions (n=5)	Convergence/Divergence
Affordability	67% cited cost as primary barrier; 86% found micro-housing affordable post-relocation	Acknowledge affordability gap but cite regulatory constraints on cost-reduction	Willing to lend but require formal income documentation	Convergence: All agree affordability is central; Divergence: Institutions and residents identify different solutions (regulatory reform vs. alternative credit scoring)
Social Acceptance	79% satisfied post-occupancy; 48.6% initially experienced stigma	Emphasize participatory design as key to overcoming cultural resistance	Neutral; focus on financial viability over social factors	Convergence: Participatory processes improve acceptance; Divergence: Officials prioritize social integration, institutions prioritize risk metrics
Regulatory Barriers	63% reported delays in approval processes	Confirm regulatory misalignment (minimum unit sizes, parking requirements)	Cite lengthy approval timelines as deterrent to investment	Strong Convergence: All identify regulatory rigidity as critical bottleneck
Financing Access	78% lacked access to housing finance; documentation cited as main barrier	Acknowledge exclusion of informal earners but lack alternative assessment tools	Require formal documentation but open to innovative scoring models	Convergence: Documentation requirements exclude target demographic; Divergence: Institutions propose solutions residents cannot currently access
Scalability Potential	89.1% believe micro-housing can address urban shortage	Support scaling but require policy amendments first	Willing to scale with risk-mitigation mechanisms	Strong Convergence: All agree micro-housing is scalable <i>if</i> enabling conditions are met

Table 4.23 synthesizes institutional perspectives alongside resident-reported

Chapter 5: Conclusion and Recommendations

5.Introduction

The chapter provides the conclusions and recommendations of the study based on the objectives of the study.

5.1 Conclusion

This Study was designed to examine the potential of micro housing as a strategic alternative to address the persistent urban housing shortage in Lideta Sub-city, Addis Ababa, with specific emphasis on its spatial suitability, socioeconomic impact, social acceptance, and institutional feasibility. The findings provide comprehensive, evidence-based assessment that directly responds to the four guiding research questions. The analysis confirms that the conventional housing landscape in Lideta is characterized by severe structural and economic inadequacies that fail to meet even the most basic standards of habitability for low- and moderate-income urban dwellers.

Addressing the first objective, which evaluated the spatial suitability of micro-housing in mitigating Lideta's baseline housing deficit, the study confirms that conventional housing typologies severely fail to meet the spatial and economic realities of low-income urban dwellers. Prior to relocation, respondents reported critically inadequate living conditions, with mean satisfaction scores of 1.8 for unit size, 1.7 for kitchen availability, 1.9 for bathroom functionality, and 2.0–2.1 for security and utility reliability.

Overcrowded single-room rentals, shared or non-functional sanitation, and widespread tenure insecurity were compounded by affordability constraints (cited by 67%) and severe spatial limitations (58%). The transition to micro-housing directly resolved these deficiencies: 92% of residents gained access to private kitchens, 96% secured functional private bathrooms, and 86% affirmed that compact units adequately serve low-income households.

Given that 81.2% of surveyed households comprise one to three persons and 62% earn $\leq 10,000$ ETB monthly, micro-housing proved spatially appropriate, effectively converting substandard dwellings into dignified, adequately serviced units that align with the demographic and economic profile of Lideta's working-class population.

In response to the second objective, which examined the socioeconomic impact of micro-housing on low-income households, the findings demonstrate that compact living generates substantial, multidimensional benefits that extend well beyond basic shelter provision. Comparative analysis revealed marked improvements across all evaluated domains, with mean satisfaction scores increasing by 1.9 points for housing conditions, 1.9 for basic services, and 1.8 for overall socioeconomic wellbeing. The most significant gains were recorded in perceived security (+2.1) and reduced housing cost burden (+2.2), which directly alleviated financial stress and enabled greater household savings. Enhanced proximity to public transport and employment hubs (+2.0) reduced commute times, improved job retention, and expanded access to informal and formal labour markets. Notably, the lowest-income respondents reported the highest relative improvements, confirming that micro-housing functions as a pro-poor, livelihood-enabling intervention that strengthens financial resilience, reduces vulnerability to rental market fluctuations, and promotes inclusive urban economic participation.

Regarding the third objective, which investigated the social acceptance and cultural perceptions of micro-housing among residents, the study reveals a landscape of high practical approval tempered by persistent sociocultural resistance. While the majority of respondents recognized compact units as effective, context-appropriate solutions for urban low-income households, 48.6% reported experiencing stigma or familial disapproval. Deep-rooted cultural preferences for larger dwellings with private courtyards, particularly among older generations and extended families, fostered perceptions that micro-housing is unsuitable for child-rearing or merely a transitional accommodation for the economically marginalized. Nevertheless, high post-occupancy satisfaction and sustained occupancy rates indicate that functional adequacy, secure tenure, and improved service access significantly outweigh initial cultural reservations.

These findings underscore that social acceptance is not inherently absent but requires deliberate reframing through community engagement, participatory co-design, and targeted public awareness campaigns that position micro-housing as a sustainable, dignified urban living model rather than a last-resort shelter.

Finally, addressing the fourth objective, which assessed the institutional and regulatory feasibility of scaling micro-housing, the research identifies that long-term sustainability is constrained not by technical design or resident demand, but by systemic institutional and financial barriers. Financial exclusion emerged as the most pervasive obstacle, with 78% of respondents reporting limited or no access to housing finance due to stringent collateral requirements, lack of formal income documentation, and prolonged processing times that disproportionately exclude informal sector workers. Additionally, 63% highlighted regulatory rigidity, as existing zoning bylaws and minimum unit size standards conflict with compact development logic, restricting density optimization and limiting access to well-located plots. To transition micro-housing from isolated pilot initiatives to a mainstream urban strategy, municipal authorities must revise building codes to formally recognize compact typologies, develop alternative credit assessment mechanisms tailored to informal earners, and implement participatory planning frameworks that align regulatory standards with local socioeconomic realities. Ultimately, this study confirms that micro-housing in Lideta is a practical, widely accepted, and contextually appropriate solution to Addis Ababa's housing crisis, provided it is supported by adaptive policy frameworks, inclusive financing models, and sustained institutional commitment.

5.2 Recommendation

To unlock the full potential of micro housing as a sustainable, inclusive and scalable solution to Addis Ababa's urban housing crisis, a coordinated, multi-stakeholder approach is essential. The finding of this study points to several actionable pathways if implemented could transform micro-housing from a promising pilot initiative into a mainstream strategy for addressing housing shortages among low and, middle income urban residents.

First the Addis Ababa city administration in collaboration with the ministry of urban development and housing should undertake a comprehensive revision of existing zoning bylaws and building codes to formally recognize and accommodate micro housing typologies. Rules that require housing units to be at least 40m² clash with the small, efficient designs that make micro-housing affordable and practical for low-income families. Revising these standards to permit unit as small as 20-30 m² while maintaining strict requirement for ventilation, natural light structural safety and fire extinguisher would enable develops to optimize land use in high demand corridors particularly near public transport nodes such as the Lideta-Mexico light rail line. Creating a quicker approval process for micro-housing projects that meet set standards for cost and quality would cut down on red tape and attract more private investment.

Second, it's important to focus on financial inclusion since biggest barrier found in this study is that informal workers and low-income earners are shut out formal housing loans. commercial banks, microfinance institutions and the development bank of Ethiopia should collaborate with municipal authorities to design innovative loan products that move beyond traditional collateral requirements. Using other ways to check credit like mobile money records, utility bill payments, or community guarantors could help informal workers who make up much of Lideta's workforce gets affordable loans.

Partial credit guarantee backed by the city or development partners could further de-risk lending for financial institutions, encouraging them to expand their portfolios to include micro housing. Rent to own plans, community saving groups and employer supported housing could give residents who can't afford large upfront payments easier ways to become homeowners. To support these initiatives the national bank of Ethiopia could issue regulatory guidance that recognizes alternative documentation for income verification in housing loan applications.

Third design and planning guidelines should be developed to ensure that micro housing projects are not only compact but also dignified, adaptable and responsive to diverse household needs. Standardized design templates for units ranging from 20 to 35 m² could be made publicly available to reduce architectural cost and accelerate project delivery. These templates should prioritize layouts that maximize shortage, incorporate flexible partitions for privacy and ensure adequate cross ventilation and natural lighting.

For integrated projects communal amenities such as shared laundry facilities, co-working spaces, children's play areas and green courtyards should be mandated to foster social cohesion and compensate for limited private space. Crucially, designs should include accessibility features such as ground floor units and step-free entrances to accommodate elderly residents and persons with disabilities, addressing a gap identified in the study. Developers should also be encouraged to adopt sustainable construction practices including energy efficient materials, rainwater harvesting and solar water heating to reduce long-term operational cost and environmental impact.

Fourth community engagement and social marketing are critical to overcoming the stigma and cultural and cultural resistance that some residents associate with micro-housing. Public awareness campaigns led by the city in partnership with community-based organizations should reframe micro-housing not as “poor housing” but as “smart sustainable urban living “that offer security, affordability and proximity to opportunity. Testimonials from satisfied residents particularly women and young professionals could be featured in local media to normalize compact living and highlight its benefits. Participatory design workshops where potential residents contribute to unit layout and communal space planning, could enhance ownership and reduce post occupancy dissatisfaction. For families with children or elderly members, targeted counselling services could help address concern about space adequacy and integrational living while flexible unit typologies such as interconnected microunits or expandable layouts could provide options for evolving household needs.

Finally ongoing monitoring evaluation and research are critical to understanding the long-term impacts of micro-housing and refining interventions over time. The city should establish a longitudinal tracking system to assess outcomes such as housing stability income mobility health indicators and social integration among micro housing residents. Comparative studies across different sub cities such as Kirkos, Nifas silk and bole could identify contextual factors that influence success and inform city wide scaling strategies. Future studies should look at how gender affects micro housing adoption, since women are more willing to pay for safety and quality, they should also examine new financing options like community land trust or impact investment funds to make housing more accessible. By embedding learning and adaptation into the implementation process, Addis Ababa can ensure that micro housing evolves as a dynamic responsive solution to the city’s evolving housing needs.

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Annex 1: Questionnaires

Part One: Introduction Letter

Yetimwerk Abebe

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Dec/2025

Questionnaire for users of currently developed corridors users

Addis Ababa University

College Of Technology and Built Environment

School of Built Environment

Department of Urban and Regional Planning

Dear Respondents,

Dear Participant,

I am a student at Addis Ababa University, College of Technology and Built Environment, School of Built Environment, Department of Urban and Regional Planning. I am currently conducting research entitled **“Micro-Housing as an Alternative for Urban Housing Shortages: A Case Study of Lideta Sub-City, Addis Ababa.** “The objective of this questionnaire is to investigate the potential of micro-housing in addressing the urban housing shortage in Lideta Sub-City. As part of this research, I am approaching and interviewing individuals who are currently using or have experience with this alternative housing model.

You are kindly requested to complete the following questionnaire, which includes both open- and close-ended questions. Your responses will be kept strictly confidential and will be used solely for academic purposes.

Thank you in advance for your time and cooperation! Thank you in advance for your cooperation!

Yours Sincerely,

Yetimwerk Abebe

Cell phone: +251941937953

Part I: profile of the respondents

1.2 Location within Lideta:

1. 15-25 Years
2. 25-35 Years
3. 35-45 Years
4. 45-60 Years
5. Above 60 Years

1. Less than 5,000 Birr
2. 5,000-10,000 Birr
3. 10,000-20,000 Birr

4. 30,000-50,000 Birr
5. 50,000-above Birr

1.10 Monthly income range in the new residence:

1. Less than 5,000 Birr
2. 5,000-10,000 Birr
3. 10,000-20,000 Birr
4. 30,000-50,000 Birr
5. 50,000-above Birr

1.11 Monthly expenditure range in the previous residence:

1. Less than 5,000 Birr
2. 5,000-10,000 Birr
3. 10,000-20,000 Birr
4. 30,000-50,000 Birr
5. 50,000-above Birr

1.12 Monthly expenditure range in the new residence

1. Less than 5,000 Birr
2. 5,000-10,000 Birr
3. 10,000-20,000 Birr
4. 30,000-50,000 Birr
5. 50,000-above Birr

1.13 *What is your primary source of income?* _____

1.14. *What is your largest monthly expense?* _____

Part II: Effectiveness of micro-housing projects

12. Have you heard about micro-housing development in Addis Ababa?

- ☐ Yes
- ☐ No

If yes, what do you understand about it?

13. Would you consider micro-housing as a suitable solution for urban housing shortage?

- ☐ Yes
- ☐ No
- ☐ Maybe

14. What factors would make micro-housing more appealing to you?

- ☐ Affordability
- ☐ Location
- ☐ Shared spaces

15. Do you believe micro-housing can meet the needs of low-income residents?

- ☐ Yes
- ☐ No

Why or why not?

16. What amenities do you consider essential in micro-housing units?

- ☐ Kitchen
- ☐ Bathroom
- ☐ Communal spaces
- ☐ Living
- ☐ Bedroom
- ☐ Other _____

17. Would you prefer standalone micro-units or those integrated into larger housing projects?

- ☐ Standalone
- ☐ Integrated

18.what size of living space would you consider acceptable for micro-housing? In m2

Section III: Barriers and Advantages of Micro-Housing Implementation

19.What do you think are the biggest challenges in implementing micro-housing in Lideta's?

- ☐ Affordability
- ☐ Zoning laws
- ☐ Social acceptance
- ☐ Other_____

20.Do you think zoning regulations limit the availability of micro-housing?

- ☐ Yes
- ☐ No
- ☐ Not sure

21.Are there any cultural or social barriers that may affect micro-housing adoption?

- ☐ Yes
- ☐ No

If yes

22.What advantages do you see in micro-housing?

- ☐ Affordability
- ☐ Sustainability
- ☐ Community Living
- ☐ Other_____

23.Would you be willing to relocate to a micro-housing community in Lideta?

- ☐ Yes
- ☐ No
- ☐ It Depends _____

24.Are, you open to shared living space (e.g. communal kitchens, workspace)?

- ☐ Yes
- ☐ No
- ☐ It Depends

Section IV: Affordability and financial feasibility

25.how much would you be willing to pay monthly for micro-housing?

26.would you be interested in financing options such as micro-loans for purchasing or renting?

- ☐ Yes
- ☐ No
- ☐ Not sure

27.what challenges do you see in securing financing micro-housing

Section V: Micro housing residents satisfaction level with various parameter of living quarters conditions and related facilities

Put a ☒ mark in the box 1=Very low 2=Low 3= Medium 4= High 5=Very high

No.	Items	Previous Housing					Current Housing				
		1	2	3	4	5	1	2	3	4	5
1	The size of my micro-housing unit meets my household's needs.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2	The layout/design of the unit maximizes space efficiently	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
3	Quality of construction (durability, materials)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
4	Proximity to public transport	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5	Proximity to public your work place	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
6	Ventilation/natural light	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
7	Noise pollution control	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
8	Green spaces/communal areas enhance liveability.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
9	Availability Kitchen	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
10	Availability functional bathroom	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	Access to basic Services amenity										
1	Drinking water	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2	Electricity supply	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
3	Waste disposal	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
4	Security services	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5	Emergency Services	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	Socioeconomic conditions										
1	Reduced housing cost burden	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2	Improved savings/financial stability	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
3	Better access to employment opportunities	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
4	Enhanced social community/networks	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5	Income improvement	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Interview For Government officials

Urban Housing Policy and Micro-housing Implementation

Understanding the housing crisis in Lideta.

1. How would you describe the current urban housing situation in Lideta?
2. What are the biggest challenges in addressing housing shortage?
3. Are there existing policy frameworks targeting affordable housing solutions?

Micro-Housing as a solution

4. Has the government considered micro-housing as an alternative for low-income residents?
5. What policies exist to support such projects?
6. How does micro-housing fit into the broader urban development strategy for Addis Ababa?
7. What are the regulatory challenges in implementing micro-housing?

Social and spatial Acceptance

8. How do residents perceive micro-housing?
9. What measures are being taken to integrate micro-housing into urban planning?
10. How does the government plan to improve acceptance among communities?
11. How does the government collaborate with private developers?

Implementation challenges and opportunities

12. What are the main barriers to implementing micro-housing projects?
13. Are there successful examples of similar housing initiatives?
14. How does the government collaborate with private developers?
15. Any other thing you want to add? _____

Interview For financial institution Representatives

Financing and Feasibility of Micro-housing

Housing Finance situations in Addis Ababa

1. what type of financial assistance are available for low-income housing projects?
2. Are there specialized loan programs for micro-housing initiatives?
3. What role do financial institutions play in affordable housing development?
4. How accessible are loans for low-income individuals seeking housing?

Viability of Micro-housing projects

5. Do financial institutions see micro-housing as a viable solution to urban housing shortage?
6. What are the financial risks and benefits of investing in micro-housing?
7. How can developers ensure profitability while maintaining affordability?

Barriers and incentives in financing

8. What challenges do developers and residents face when securing funding for micro-housing?
9. Are there financial incentives (subsidies, tax breaks) for such projects?
10. What innovative funding models could support micro-housing initiatives?
11. What recommendations do you have to make micro-housing attractive for investors?

Potential policy and economic impact

12. How could government policies make financing more accessible for micro-housing?
13. What long term economic benefits could micro-housing provide?
14. How can financial institutions collaborate with the government to enhance feasibility?
15. Any other thing you want to add? _____

Annex 2: Publishable Article

Micro-housing as alternative for urban housing shortages case of Lideta Sub city, Addis Ababa

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Abstract

Micro-housing offers a critical strategy to optimize scarce urban land for low-income populations. However, empirical evidence on its viability in African contexts like Addis Ababa where rapid population growth intensifies housing shortages remains scarce. This mixed-methods study investigates micro-housing in Lideta Sub-City, utilizing data from 138 residents and institutional stakeholders to assess housing conditions, satisfaction, socioeconomic impacts, and implementation barriers.

Findings reveal that transitioning from severely constrained prior housing to micro-housing yielded marked improvements in housing quality, service access, and socioeconomic stability. Residents widely recognized the typology as an economically viable solution. Nevertheless, broader adoption is constrained by limited housing finance, outdated regulatory frameworks, and cultural misconceptions regarding compact living.

To address these barriers, municipal authorities must revise building codes for high-density developments and streamline approvals near transit corridors. Concurrently, financial institutions should develop inclusive financing models for informal earners, while participatory design initiatives and public campaigns can foster community acceptance. The study concludes that micro-housing is a promising, demand-driven strategy for addressing Addis Ababa's housing deficit, contributing a localized, evidence-based framework for integrating compact housing into mainstream urban development across rapidly urbanizing African cities.

Key Words: Addis Ababa, Affordability, Housing policy, Lideta Sub-city, Low-Income housing, Micro-housing, urban housing shortage.

1.Introduction

Urbanization in sub-Saharan Africa is occurring at an unprecedented rate, with Ethiopia's capital, Addis Ababa, experiencing particularly rapid growth. The city's population has surged from approximately 3.4 million in 200 to over 5.7 million in 2024, intensifying pressure on housing infrastructure (World population review,2024). This demographic expansion has escalated housing shortages, with an estimated 70-80% of residents living in substandard or informal housing conditions characterized by overcrowding, inadequate services and tenure insecurity (UN-Hanitat,2017; Tigabu et al.,2008). Addis Ababa faces an annual housing defect of approximately 140,000 units, with the situation particularly acute in inner city sub cities like Lideta (UN-Habitat,2017).Lidea Sub-city, characterized by high population density exceeding 25,000 persons/km ² and 80% informal housing stock ,exemplifies the urban housing crisis facing Ethiopian Cities (CSA,2021).low income households earning less than 14,000ETB monthly spend 60-80% of their income on rent, forcing many into overcrowded dwellings lacking basic amenities such as private kitchens, functional bathrooms and reliable water and electricity(fenta,2014).

This study addresses this research gap by evaluating the potential of micro-housing in mitigating urban housing shortages in Lideta sub city, Addis Ababa. Specially the research examines:(1) the current state of urban housing and its shortcomings in Lideta;(2) the extent to which micro housing meets the demands of low-income households;(3) the comparative benefits of micro-housing in relation to residents' socioeconomic conditions: and (4) the challenges related to implementing micro-housing projects. The findings contribute to urban housing discourse in rapidly urbanizing African Cities and offer evidence-based recommendations for policymakers, urban planners and developers seeking to integrate micro-housing into broader housing strategies.

2.Literature Review

Urban Housing challenges in Developing countries

Urban Housing in developing countries is characterized by a widening gap between rapid population growth and availability of adequate ,affordable housing (Rondinelli,1990).Most Cities struggle with overcrowding, informal settlements, and limited access to essential services like water ,sanitation and electricity (Buckley &Kalarickal,2005).In sub-Saharan Africa, the urban population is expected to double to double by 2040,creating enormous pressure on housing systems(Un-habitat,2020).cities like Addis Ababa ,Nairobi, and Lagos face escalating informal settlements accommodating 60-70% of urban residents, with these settlements lacking basic service(Foc,2014;Turok&Borel-saladin,2016).

In Ethiopia, rapid urbanization has not been matched by proportional development in housing infrastructure (World Bank, 2015). The major challenges include shortage of serviced land, high construction costs, limited access to housing finance for low and middle-income groups, bureaucratic inefficiencies and weak institutional coordination (UN-Habitat, 2017; Weldegebreil & Aynew, 2020). The government's condominium housing program, while delivering substantial units, has been criticized for being financially inaccessible to poorest segments and lacking integration with transportation services (Yigremew & Hassen, 2016).

Micro-housing concepts and features

Micro-housing refers to residential units with significantly smaller floor areas than conventional housing, typically defined as dwellings with floor areas of 37 m² or less excluding lots (Shahab, 2025). These spaces are designed with great space utilization, optimizing functionality within limited areas (Arcilla, 2015). Micro-housing encompasses several typologies:

Micro-apartments: self-contained units in multi-unit developments that fall below minimum space standards.

Tiny houses: small, often freestanding structures, sometimes mobile.

Co-Living developments; characterized by limited private areas (bedroom, bathroom) with shared kitchens, living rooms and communal spaces (Harris & Nowicki, 2020).

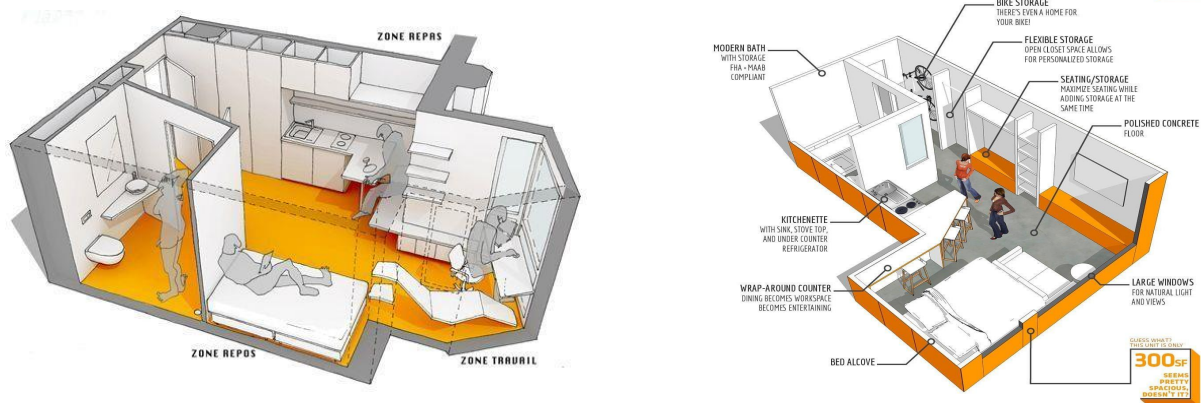


Figure 1 micro housing units

Key Features of micro-housing include: Space efficiency through innovative design and multi-functional furniture. Affordability due to lower construction cost and reduced utility bills. Flexibility and adaptability to changing household needs. Sustainability through reduced environmental footprint. High density, transit-oriented locations. Shared amenities and communal spaces that foster community interaction (Harris, 2020; Chakravarty, 2023).

Theoretical Frameworks

Several theoretical frameworks inform micro-housing research:

Urban live ability Theory emphasizes the need for housing solutions that enhance residents' quality of life through affordability, accessibility and environmental sustainability (Gehl,2010). Micro-housing contributes to live ability by providing compact, cost-effective units in well-connected urban areas, reducing housing cost burden while maintaining access to essential services.

Transit-Oriented development (TOD) frameworks highlight the importance of proximity to public transport, employment centers and amenities in minimizing car ownership and promoting healthier, more connected lifestyles (Newman & Kenworthy,1999). Walkable neighborhoods with micro-housing can enhance social cohesion by encouraging street level activities and chance encounters.

Incremental Housing Theory (Davis,2006) emphasizes self-help or community driven process in housing development, where households progressively build or improve their dwellings over time. Micro-housing often involves participatory and low-cost approaches where local communities play significant roles in construction, particularly relevant in informal settlements.

Compact City Model advocates for higher density, mixed use development to reduce urban sprawl and make cities more sustainable (Newman & Kenworthy,1999). Micro-housing aligns with principles of smart growth promoting compact, efficient and environmentally friendly urban development (Meer,2005).

Benefits and challenges of Micro-housing

Benefits of micro-housing include Lower construction cost (30-50% reduction compared to conventional units). Accommodating more residents within limited urban space. Lower energy demand and environmental footprint. Encouraging minimalist lifestyles and sustainable consumption. Improved living conditions for those transitioning from informal settlements. Creating of opportunities in construction and related sectors (Harris,2020; Chakravaty,2023). However, Implementation faces several barriers:

Regulatory and Zoning barriers: Minimum unit size requirements, Parking regulations and outdated building codes.

Social and cultural resistance: preferences for larger living spaces, concerns about family accommodation, stigma associated with "poor housing".

Financial constraints: Lack of access to housing finance, particularly for informal sector workers.

Infrastructure provision: challenges in providing water, electricity, sanitation and road access in high density developments (World bank,2020).

Research Gaps

While micro-housing has gained attention in urban planning literature, critical gaps persist: most research focuses on western or global north contexts with limited attention to cultural, social and economic realities of cities in the Global South. Lack of longitudinal studies assessing long-term impacts on residents' wellbeing, economic mobility and community integration. Limited understanding of how micro-housing models interact with broader economic factors such as wage disparities, informal labour markets, and economic mobility in developing countries. Absence of localized analysis for specific contexts like Lideta sub-city, with its high-density informal settlements and proximity to commercial hubs. This study addresses these gaps by providing empirical evidence from Addis Ababa, contributing to context-drive, policy-conscious and equity centred micro-housing frameworks.

3.Research materials and methods

Overview of study Area

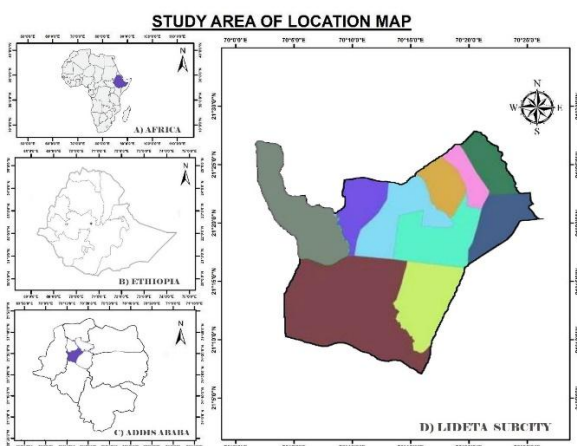


Figure 2study area location map

Lideta Sub-City, located in the central western part of Addis Ababa, Ethiopia, was selected as the study area. Situated approximately at 9.0185°N latitude and 38.727°E longitude, Lideta spans elevations ranging from 2,258 to 2,465 meters above sea level (Plan and Development Burueau,2024). The sub-city is characterized by:

High population density: Exceeding 25,000 persons/km² with approximately 248,208 residents. Mixed land use combination of formal and informal housing, commercial activities and mixed-use developments. Historical significance one of the oldest sub cities in Addis Ababa ,established in 1886.Socioeconomic conditons:80% of housing classified as informal or slum ,with severe overcrowding, inadequate ventilation and limited access to basic services (only 34% have piped water,41% lack improved sanitation).economic profile 68% of livelihoods sustained by informal sector ,notably street vending 22.8% of households experience shelter poverty(spending> 30% of income on housing).strategic location proximity to commercial hubs like marcato and transit corridors including the Lideta light rail station. These characteristics make Lideta an ideal location for examining the potential impact of micro housing solutions to Addis Ababa's acute housing shortage.

Research Design

This study employed a mixed methods research design combining quantitative and qualitative approaches to explore micro-housing effective and qualitative approaches to explore micro-housing effectiveness from multiple perspectives. The design incorporated

Quantitative methods: structured questionnaires administered to micro-housing residents to collect data on demographic characteristics, housing conditions, satisfaction levels, and socioeconomic impacts.

Qualitative methods: field observations to document physical conditions, spatial utilization patterns, resident behavioural adaptations.

Triangulation: Cross-verification of findings through multiple data source and methods and methods to enhance to enhance validity and reliability.

This mixed methods approach enables comprehensive insights into micro-housing dynamic while maintaining methodological rigor(creswell,2014).

Sampling Technique and sample size

Target population: The target population include low- and middle-income residents currently living in micro-housing units in Lideta Sub city, particularly in four representative neighbourhoods: coca Akababi, Gimira Akababi, Mazoriya Akababi and Mekoninoch Sefer.

Sampling methods: stratified random sampling was employed to ensure proportional representation across income levels, household sizes and housing types. This probability-based approach enhanced the statistical representatives of findings.

Sampling size: the sample size of 138 respondents was determined using the krejcie and Morgan (1970) table for population of 248,208 with 95% confidence level and 5 5 margins of error. This sample size is adequate for statistical analysis and generalization to the target population.

Inclusion criteria are Currently residing in micro housing units (15-40 m²) in Lideta sub-City. Monthly income ≤14,000 ETB (low to moderate income). Minimum residence period of 6 months in current unit. Willingness to participate in the study.

Exclusion criteria are residents in government-subsidized condominium housing. Temporary residents (less than 6 months). refusal to provide informed consent.

Methods of data collection

Structured Questionnaire: A comprehensive questionnaire was developed based on literature review and research objectives, containing five sections

- 1.Demographic and socioeconomic characteristics like age, sex, marital status, education, employment, income, expenditure, household size.
- 2.Previous housing conditions like satisfaction with unit size, kitchen, bathroom, security, water, electricity (5-point Likert scale)
- 3.current micro-housing conditions same satisfaction measures for current residence.
- 4.perceptions and expectations: awareness of micro-housing, perceived suitability, appealing factors, acceptable size.
- 5.Implementation challenges: affordability, zoning regulations, social acceptance financing access. The questionnaire was pre tested with 10 residents not included in the final sample, and necessary modifications were made to improve clarity and reliability.

Field Observation: Structured observation was employed to document physical conditions of micro-housing units using a standardized checklist adapted from Groat and wang (2013). Observations were conducted at purposefully selected microhouse units across three representative neighbourhoods, with each units visited three times during different period (morning, afternoon, evening) for 30minutes sessions. Metrics recorded included: Housing unit conditions like space efficiency, natural lighting, ventilation, construction quality. Shared facilities like cleanliness, functionality, crowding levels. User adaption like modifications to units, informal extension, space utilization patterns. Document Review: Secondary data were collected from municipal reports, housing project documents, government statistics and academic literature to contextualize findings.

Method of data Analysis

Quantitative analysis: data were analysed using SPSS and Microsoft Excel Analytical Methods included:

Descriptive statistics: frequencies, percentages, means, standard deviations to summarize, demographic characteristics and satisfaction levels.

Comparative analysis: Paired comparisons for previous versus current housing satisfaction scores

Cross-tabulation: examination of relationship between variables (e.g. Income level)

Chi-square tests: Assessment of statistical significance of associations

T-tests: Comparison of means between groups (E.g. Male vs. Female respondents)

Qualitative Analysis: Observation data were analysed using thematic analysis to identify patterns in physical conditions, spatial adaptations and user behaviours. Findings were triangulated with quantitative results to provide comprehensive insights.

Validity and reliability: to ensure data quality, the study employed. Pilot testing of instruments before main data collection. Triangulation of multiple data sources and methods. Consistency checks during data collection and analysis. Cronbach's Alpha test for internal consistency of Likert scale items ($\alpha = 0.94$, indicating excellent reliability)

Ethical Considerations: the study adhered to ethical research principles. Informed consent obtained from all participants. Anonymity and confidentiality maintained. Respect for cultural diversity and participant dignity. Voluntary participation with right to withdraw at any time. Data used solely for academic purpose.

4.Result and Discussion

Demographic characteristic of respondents

Age of the respondents			
Age Group	Frequency	Percent	Cumulative Percent
25-35	57	41.3	41.3
35-45	40	29.0	70.3
45-60	27	19.6	89.9
>60	14	10.1	100.0
Total	138	100.0	
Sex of the respondent			
Female	69	50.0	50.0
Male	69	50.0	100.0
Total	138	100.0	
Marital Status of the respondents			
Single	70	50.7	50.7
Married	52	37.7	88.4
Divorced	2	1.4	89.9
Widowed	14	10.1	100.0
Total	138	100.0	
Level of Respondents Education			
Read and write	14	10.1	10.1
Primary level	26	18.8	29.0
Secondary level	43	31.2	60.1
Certificate/ Diploma	40	29.0	89.1
Degree and above	15	10.9	100.0
Total	138	100.0	

Table 1 Demographic characteristic of respondents

Current Housing conditions in micro housing

Field observation in Lideta reveal that micro-housing units typically average 24.4 m² in size, ranging from 18 to 35 m², which aligns with international micro housing standards. The layout generally consists of combined living and sleeping area, with units under 22 m² lacking internal partitions, alongside a semi-closed kitchenet equipped with a basic counter and sink and bathroom.



Figure 3 Study area

Construction materials vary: walls are built from mud and hollow concrete blocks (10-15cm thick) coated with cement plaster; floors are finished with either cement screed in lower cost units or ceramic tiles in higher income ones and roofing differs between reinforced concrete flat roof for integrated buildings and corrugated iron sheets supported by timber or light steel trusses for standalone units. Ventilation is achieved through a single external door and one to two windows, providing natural light and cross ventilation.



Figure 4 housing conditions

Monthly rent: Average monthly rent is 2,698.4 ETB (ranging from 1,800 to 4,200 ETB), representing approximately 33.5% of average monthly income. This rent to income ratio while still above the recommended 30% threshold, is significantly lower than the 60-80% reported for conventional housing in Lideta indicating improved affordability.

Adequacy Assessment: While the average unit size of 24.4 m² is relatively small, particularly for households larger than the average (2.3 persons), it is adequate for smaller families (1-3 persons) comprising 81.2% of respondents.

However, for thousands with more members, maintaining decent living conditions remains challenging, suggesting the need for flexible unit typologies or interconnected units for larger households.

Awareness and Understanding of Micro-housing

Awareness	Frequency	Percent	Cumulative Percent
No	13	9.4	9.4
Yes	125	90.6	100.0
Total	138	100.0	

Table 2 Awareness and Understanding of Micro-housing

This high awareness may be attributed to the visibility of micro housing development and various communication channels.

Prior Understanding

Understanding	Frequency	Percent	Cumulative Percent
No prior knowledge	15	10.9	10.9
Affordable and Low-Income Housing	3	2.2	13.0
Location-Oriented Housing	61	44.2	57.2
Government-Provided Housing	18	13.0	70.3
Special-Group Housing	13	9.4	79.7
Modern Design-Oriented Micro Housing	16	11.6	91.3
General Small and Compact Housing	12	8.7	100.0
Total	138	100.0	

Table 3 Prior Understanding

Expected building type

Building unit type	Frequency	Percent	Cumulative Percent
No prior knowledge	15	10.9	10.9
Standalone	39	28.3	39.1
Integrated	84	60.9	100.0
Total	138	100.0	

Table 4 Expected building type

The clear preference is cost-effective and integral to their means of subsistence aligning with perceptions of location-oriented, compact and integrated urban housing projects.

Perception of Micro housing as a solution

Suitability Assessment: the study reveals that 89.1%(n=123) of respondents agree that micro housing is a suitable solution to urban housing shortages, while only 10.9%(n=15) disagree. This high level of approval suggests that those directly experiencing micro housing view it as an effective and viable approach to addressing lack of affordable urban housing.

Meeting Low-income Needs: regarding perceived suitability for low-income populations 79.0%(n=109) perceived that micro housing suits their needs well, while 21.0%(n=29) have negative view. This indicates that while micro housing is generally perceived as suitable, a significant minority believe it does not meet their needs sufficiently.

Reasons for Unmet Needs: Among the 215 who faced unmet requirements, the main issues were standalone preference (10.9%, n=15), unsuitability for elderly (9.4%, n=13) and too small for large families (0.7%, n=1). The remaining 79.0% (n=109) felt that micro housing fulfilled their requirements without facing issues. These findings indicate extremely high satisfaction overall, through certain improvements are needed, particularly regarding accessibility for elderly residents and accommodation for larger families.

Improvements in essential Amenities

Amenities	Frequency	Percent	Cumulative Percent
No improvement	15	10.9	10.9
Kitchen, Bathroom	55	39.9	50.7
Kitchen, Bathroom, Bedroom	15	10.9	61.6
Kitchen, Bathroom, Bedroom, Living	12	8.7	70.3
Kitchen, Bathroom, Bedroom, Living, Communal spaces	25	18.1	88.4
All necessary amenities	16	11.6	100.0
Total	138	100.0	

Table 5 Improvements in essential Amenities

The largest proportion (39.9%) reporting improvements in kitchen and bathroom indicates these were the most commonly upgraded facilities, addressing critical defects in previous housing. The fact that 29.7% (combined) reported comprehensive improvements including communal spaces shows enhancement not only in private but also in shared areas, fostering community interaction.

Factors influencing Appeal

Appeal	Frequency	Percent	Cumulative Percent
Affordability & other	93	67.4	67.4
Location & other	30	21.7	89.1
Limitations and Suitability Issues	15	10.9	100.0
Total	138	100.0	

Table 6 Factors influencing Appeal

Satisfaction levels: previous Vs current housing

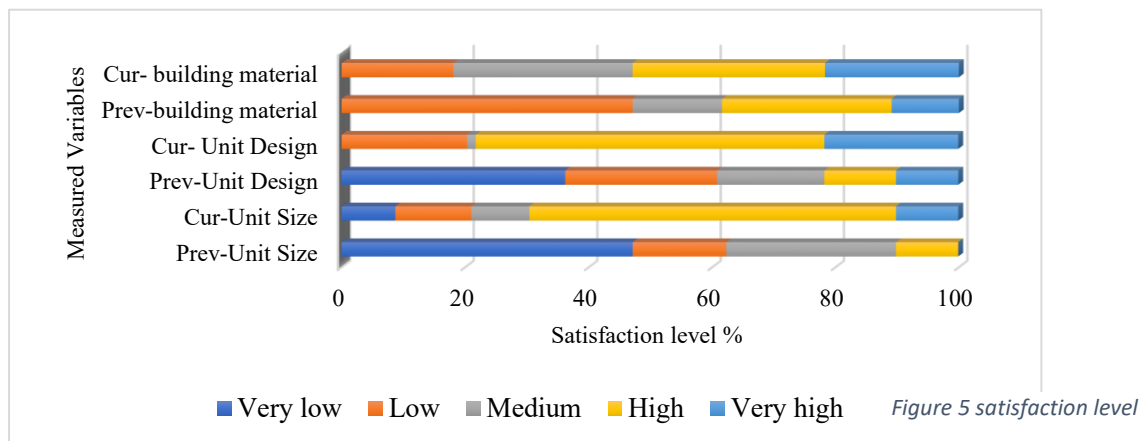


Figure 5 satisfaction level

The design component proved especially successful, with no respondents reporting very low satisfaction in current housing. However, unit size remains a concern with 8.7% still reporting very low satisfaction, suggesting that while improvements are substantial, further optimization of space efficiency is needed.

Basic Services

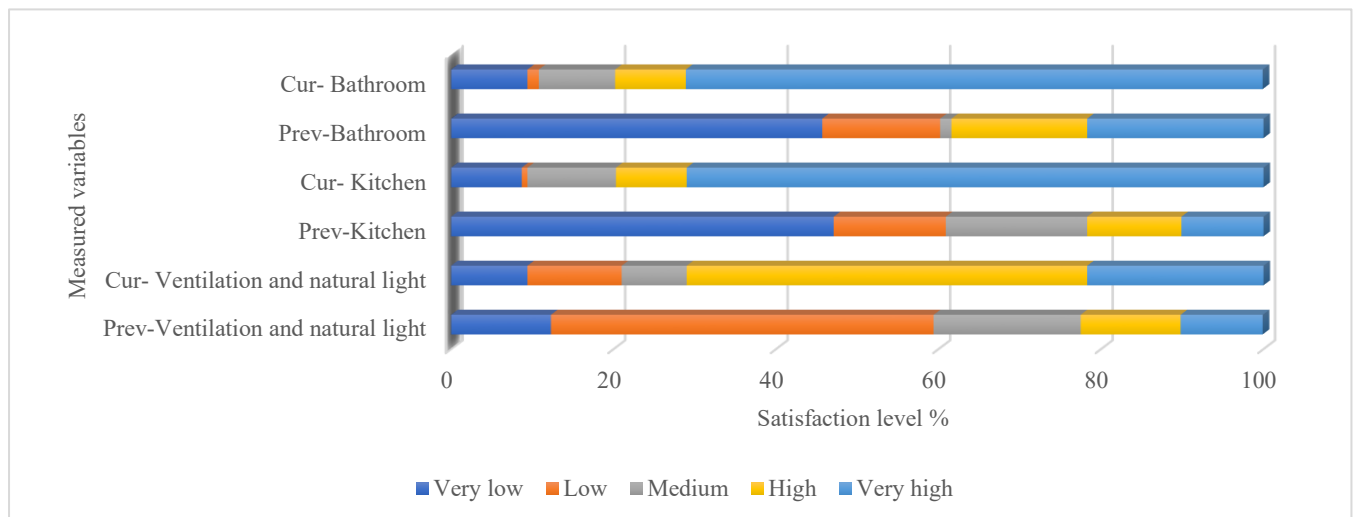


Figure 6 basic services

These results indicate that micro housing units now offer functional well-designed kitchen and sanitary facilities a significant improvement over previous housing where such amenities were often inadequate or completely lacking. The 92% private kitchen ownership and 96% functional bathroom access represent transformative improvements in basic living standards.

Amenities and security services

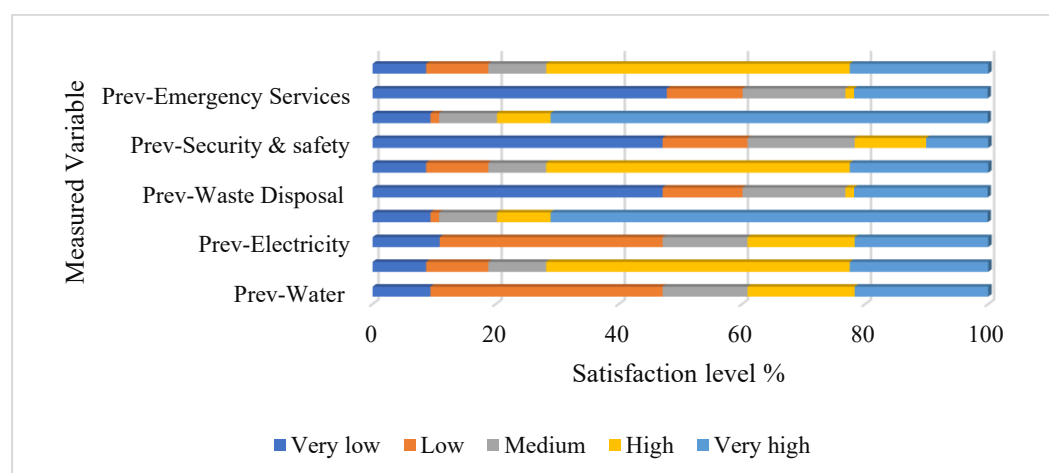


Figure 7 amenities and security service

Socioeconomic Stability: The marked improvements in transport and workplace proximity (+2.0 points each) reflect the strategic location of micro housing in central urban areas, facilitating easier commutes and enhanced employment retention's improved financial stability (+1.8 points) may be attributed to reduced housing costs, better employment access and decreased economic vulnerability.

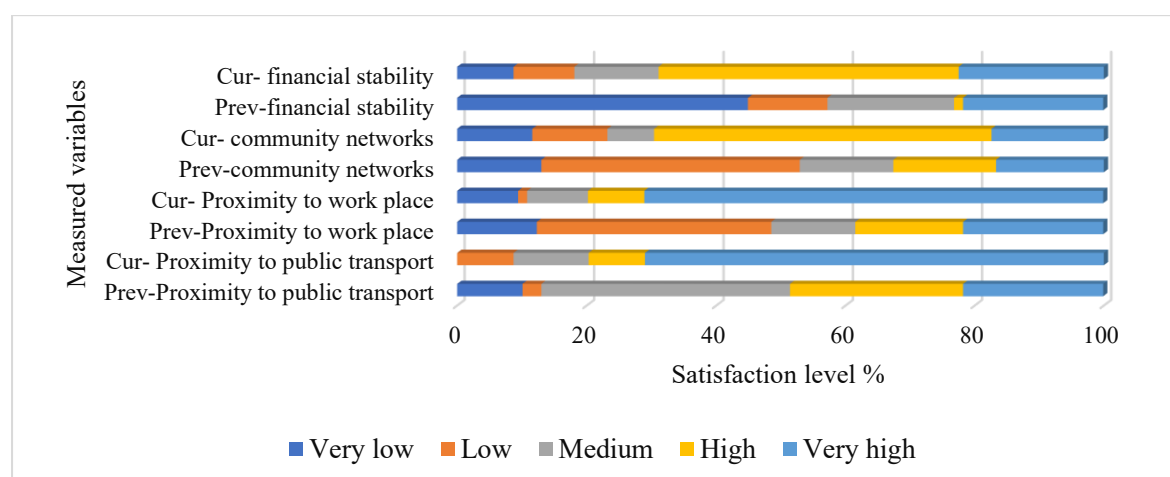


Figure 8 Socioeconomic stability

Environmental Context:

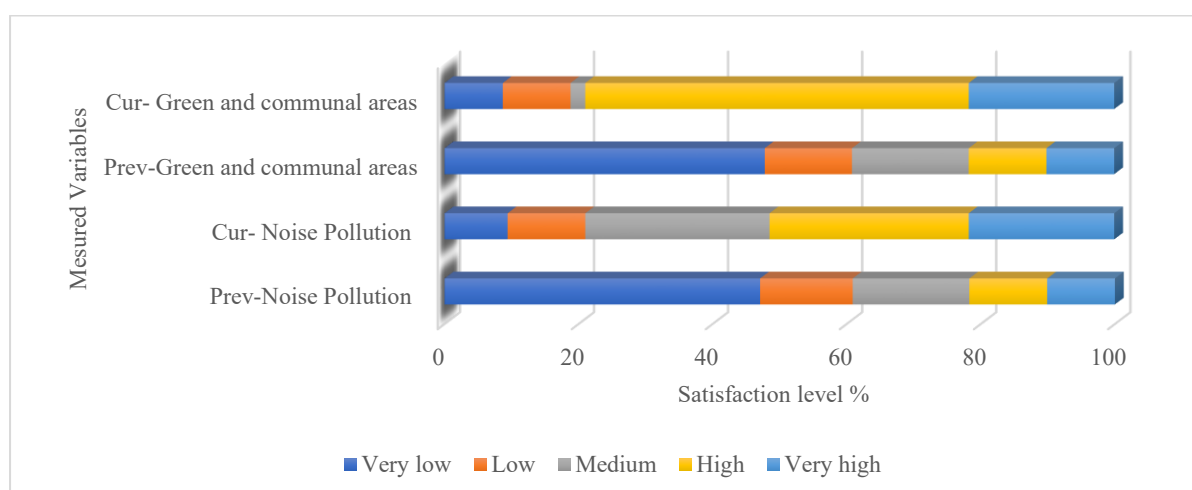


Figure 9 Environmental context

Socioeconomic Impacts: Income and Expenditure changes

Previous monthly expenditure in Birr	Current monthly expenditure in Birr			Total
	< 5,000	5,000-10,000	10,000-20,000	
< 5,000	54	0	0	54
5,000-10,000	29	42	0	71
10,000-20,000	0	11	2	13
Tota	83	53	2	138

Table 7 Socioeconomic Impacts: Income and Expenditure changes

Gender Differences in Income and Expenditure

Monthly Income	Sex	Previous Residence			Current Residence		
		Count	Row %	Expected %	Count	Row %	Expected %
< 5,000 Birr	Female	26	48.10%	50.00%	14	51.90%	50.00%
	Male	28	51.90%	50.00%	13	48.10%	50.00%
	Total	54	100%		27	100%	
5,000–10,000 Birr	Female	30	42.30%	50.00%	41	49.40%	50.00%
	Male	41	57.70%	50.00%	42	50.60%	50.00%
	Total	71	100%		83	100%	
10,000–20,000 Birr	Female	13	100.00%	50.00%	14	50.00%	50.00%
	Male	0	0.00%	50.00%	14	50.00%	50.00%
	Total	13	100%		28	100%	
Grand Total	Female	69	50.00%		69	50.00%	
	Male	69	50.00%		69	50.00%	
	Total	138	100%		138	100%	

Table 8 Gender Differences in Income and Expenditure

Challenges to micro housing implementation

Challenges	Frequency	Percent	Cumulative Percent
No challenge	15	10.9	10.9
Plan & design	29	21.0	31.9
Affordability	65	47.1	79.0
Social acceptance	29	21.0	100.0
Total	138	100.0	

Table 9 Challenges to micro housing implementation

Affordability remains the issue despite micro-housing lower costs suggesting that even reduced rent may be challenging for poorest households. Planning/design and social acceptance challenges are equally important, indicating the need for better design solutions and community engagement.

Discussion

The finding to this study provides compelling evidence that micro housing represents a viable solution to urban housing shortage in Addis Ababa, particularly for low-income households in inner city areas like Lideta sub-city. Several key insights emerge.

Alignment with Demographic Reality: The demographic profile of respondents 62% earning ≤10,000 ETB monthly ,81.2% in 1-3 person households, predominantly young to middle aged adults confirms that micro housing naturally aligns with the needs of urban youth, single professionals, informal workers and small nuclear families. This finding supports Clarke et al. (2008) and Larsen et al. (2019) on the relationship between demographic characteristics and housing demand in Addis Ababa.

Transformative improvements: The dramatic improvements in satisfaction scores across all domains particularly the 92% private kitchen ownership and 96% functional bathroom access compared to previous housing defect demonstrate that micro housing successfully addresses the most acute deficiencies of informal settlements. The mean improvements of +1.9 for housing conditions +1.9 for basic services and +1.8 for socioeconomic wellbeing represent meaningful enhancement in quality of life.

Socioeconomic Benefits beyond Shelter: the data indicate that micro-housing functions as a livelihood enabling platform rather than merely passive shelter. Improvements in proximity to transport /9+2.0) and workplaces (+2.0), combined with reduced housing cost burden (+2.2) and improved financial stability (+1.8), facilitate easier commutes enhanced employment retention and increased disposable income.

This aligns with contemporary urban development frameworks positioning housing as a catalyst for inclusive economic participation (Watson,2013).

Financial Exclusion as Primary Barrier: Despite demonstrated benefits,78% of respondents lack access to housing finance, primarily due to collateral requirements, lack of formal income documentation and lengthy procedures. This finding confirms world bank (2015) evidence that housing finance exclusion perpetuates urban poverty in Ethiopia. The fact that ownership documentation problems (26.1%), lack of information (20.3%) and lengthy processes (14.5%) represent over 60% of financing challenges suggests that solutions require not only financial innovation but also administrative streamlining and transparency.

Regulatory and Social Constraints: The finding that 63% cite zoning conflicts and 48.6% experience social stigma indicate that scalability requires policy reform and community engagement. Outdated building codes mandating minimum unit sizes (often $\geq 40 \text{ m}^2$) conflict with micro-housing as temporary or for the poor create resistance particularly among older generations and larger families.

Gender Dimensions: The finding that females are willing to pay 18% more in rent than males (445 ETB difference, $p < 0.001$) suggests women place greater value on housing quality, safety, and location. This may reflect women's stronger preference for secure, well -located housing, additional informal income sources, or differing household responsibilities. From a policy perspective, housing programs should recognize women's Greater willingness to invest while ensuring this does not create disproportionate burden.

Comparison with international evidence: The findings align with international micro housing research showing benefits of affordability, location efficiency and community integration unique challenges: higher proportions of informal sector employment requiring alternative credit assessment, stronger cultural preferences for larger family compounds and more severe infrastructure deficits requiring integrated service provision.

Policy implications: The evidence suggests that realizing micro-housing potential requires:

- 1.regulatory reform to permit 20-30 m^2 units while maintain safety standards
- 2.Financial innovation including collateral free loans, alternative credit scoring, and rent to own schemes
- 3.Design guidelines emphasizing accessibility, flexibility and communal amenities.
- 4.public awareness campaigns reframing micro-housing as smart urban living
5. Participatory planning process involving residents in design decisions.

Conclusion and recommendations

Conclusion

This study evaluated the potential of micro housing strategic alternative to address persistent urban housing shortage in Lideta Sub-city, Addis Ababa. Drawing on empirical data from 138 residents across key neighbourhoods, the finding provides comprehensive evidence-based assessment responding to four research questions.

The analysis confirms that conventional housing in Lideta is characterized by severe structural and economic inadequacies failing to meet basic habitability standards for low- and moderate-income urban dwellers. Prior to micro housing, respondents reported critically low satisfaction: unit size (1.8/5), kitchen availability (1.7), bathroom functionality (1.9), security (2.0), and water /electricity reliability (2.1). Affordability (67%) and space housing deficit reflecting systemic failures in urban planning, land allocation and affordable housing delivery.

Within this context, micro housing has proven highly and effective. The demographic profile 62% earning $\leq 10,000$ ETB monthly 81.2% in 1-3 person households confirms alignment with urban youth, single professionals, informal workers and small nuclear families. Notably 86% affirmed micro-housing meets low-income needs, with 92% now having private kitchens and 96% having functional bathrooms. The median willingness to pay of 2,000-5,000 ETB monthly confirms economic viability.

Micro-housing has generated significant socioeconomic benefits beyond physical shelter. Comparative satisfaction analysis reveals substantial gains +1.9 for housing conditions, +1.9 for basic service and +1.8 for socioeconomic wellbeing. The most pronounced advancement was in security (+2.0 each). These location -driven advantages facilitate easier commutes, enhanced employment retention and expanded economic opportunities, particularly critical in Addis Ababa where transportation costs heavily influence household stability.

However, full scalability is constrained institutional, financial and sociocultural barriers rather than technical feasibility or resident demand. Financial exclusion remains the most pervasive obstacle, with 78% lacking access to housing finance due to collateral requirements, lack of formal income documentation, high interest rates and prolonged processing times. Regulatory rigidity further impedes implementation, with 63% noting zoning by laws and minimum unit size standards conflict with compact logic. Social and cultural resistance affects 48.6%, with perceptions of micro housing as temporary unsuitable for children or stigmatized as poor housing.

The finding indicates that the bottleneck to scaling micro housing is not lack of demand or design innovation but absence of enabling policy frameworks, inclusive financial instruments and targeted community engagement strategies. Addressing these structural barriers requires coordinated action across municipal planning, financial regulation and social policy to transform micro housing from a promising pilot into a mainstream equitable housing strategy.

Recommendations

Based on the findings the following recommendations are proposed.

Regulatory and policy reform

The Addis Ababa city Administration in collaboration with the Ministry of urban development Housing, Should

Revise zoning bylaws and building codes to formally recognize micro-housing typologies, permitting units as small as 20-30 m² while maintaining strict requirements for ventilation, natural light, structural safety and fire safety. Establish fast -track approval process for micro-housing projects meeting predefined affordability and quality criteria to reduce bureaucratic delays. Create a dedicated Micro housing implementation unit within Lideta sub city to streamline permits, monitor quality and collect data for continuous improvement. Update land registries and parcel boundary data to align with evolving urban development patterns.

Financial Innovation and Inclusion

Financial institutions (Commercial Bank of Ethiopia, Microfinance institutions, development Bank of Ethiopia) should collaborate with municipal authorities to

Design innovative loan products moving beyond traditional collateral requirements. Implement alternative credit assessment mechanisms using mobile money transaction histories, utility payment records, or community-based guarantor systems. Provide partial credit guarantees backed by the city or development partners to derisk lending. Develop rent to own schemes, community saving groups and employer assisted housing programs. Issues regulatory guidance recognizing alternative documentation for income verification. Simplify loan application procedures to reduce complexity and processing times.

Design and planning Guidelines

Develop standardized design guidelines to ensure micro-housing projects are compact dignified adaptable and responsive to diverse needs. Create publicly available design templates for units ranging from 20-35 m² to reduce architectural costs and accelerate delivery. Prioritize functional layouts maximizing storage, incorporating flexible partitions for privacy and

ensuring adequate cross ventilation and natural lighting. Mandate communal amenities (shared laundry, co-working spaces, children's play areas, green courtyards) in integrated projects with >20 units to foster social cohesion. Include accessibility features (ground floor units step free entrance) to accommodate elderly residence and persons with disabilities. Encourage sustainable construction practices (energy-efficient materials, rainwater harvesting, solar water heating) to reduce long term operational cost and environmental impact. Develop flexible unit typologies (interconnected micro-units, expandable layouts) for evolving household needs.

Community Engagement and Social Marketing

Address social stigma and cultural resistance through: public awareness campaigns led by the city in partnership with community-based organizations, reframing micro-housing as smart sustainable urban living rather than poor housing. Feature testimonials from satisfied residents, particularly women and young professionals in local media to normalize compact living. Conduct participatory design workshops where potential residents contribute to unit layouts and communal space planning to enhance ownership. Provide targeted counselling services for families with children or elderly members to address concern about space adequacy and intergenerational living. Organized regular commit meetings and establish open communication channels for ongoing dialogue.

Monitoring, Evaluation and Research

Establish systems for continuous learning and improvement: create longitudinal tracking system to assess outcomes (housing stability, income mobility, health indicators, social integration) among micro-housing residents. Conduct comparative studies across different sub cities (Kirkos, Nifas silk bole) to identify contextual factors influencing success. Explore gendered dimensions of micro housing adoption given findings on women's higher willingness to pay. Investigate innovative financing models (community land trusts, impact investment funds) to expand access. Regularly update planning framework based on stakeholder feedback and changing urban realities.

Infrastructure and service integration

Ensure micro housing developments are supported by adequate infrastructure: coordinate with water and sanitation authorities to address city-wide service deficits. Integrated waste management systems from production to disposal, aligned with national policies (e.g. Plastic bag ban) and municipal by laws. Ensure reliable electricity supply and explore renewable energy options. Improve pedestrian infrastructure and connectivity to public transport. Develop green corridors and recreational facilitates to enhance walkability and quality of life.

Secondary Centre Development

Given the pressure on the main city centre: utilize secondary center proposed in the structure plan for service fulfillment. Transfer or fulfill service that should be in the main city centre to secondary centres. Promote mixed use development in secondary centres to reduce pressure on Lideta.

Area for Future Research

Future studies should: conduct longitudinal research assessing long-term impacts on residents' wellbeing economic mobility and community integration. Explore micro housing models tailored to larger families and multi-generational households. Investigate climate resilience aspects, including flood resistant materials and passive cooling strategies. Examine the role of micro housing in informal settlement upgrading and tenure regularization. Assess environmental performance in Addis Ababa's specific climate context. Evaluate scalability predictions and city-wide implementation strategies.

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